

Perplexercises

**Puzzles to
Keep Your Mind
Young and Agile**



by William Armstrong
Author of Brain Trainer

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Keep Your Mind
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Perplexercises

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Prepare to Be Perplexed

"Chance favors the trained mind."

- Louis Pasteur

Perplexercises will get you thinking. This book is loaded with new puzzles and other activities designed to give your mind a workout. Here's what's in store for you.

- Variety – The activities in this book cover a wide spectrum of right-brain and left-brain functions including visualization, logic, lateral thinking, memory, and verbal skills. They also run a full range of difficulty levels from 'easy' to 'very tough!' It's like having a complete gym filled with workout gear and sports equipment for your mind.
- Fun – I've tried to keep everything lighthearted. In addition to the puzzles, I'll introduce some "Puzzle-Like Activities" designed to exercise your brain cells and, at the same time, bring a smile to your face.
- Full Explanations – If you have any trouble with the puzzles, rest assured that the *Hints and Solutions* section at the back of the book provides hints and full explanations of the puzzle answers. I know how frustrating it can be to tackle a tough problem. At least the answer can teach us how to approach similar puzzles.

How do we prepare for this mental workout? In my book ***Brain Trainer, Puzzles to Keep Your Mind Young and Agile*** I provide tips and secrets on how to solve all sorts of puzzles. The book also offers ten General Puzzle Principles that can help us conquer what lies ahead.

The 10 General Puzzle Principles from *Brain Trainer*:

1. **Don't give up.** "Think positive." Assume you'll succeed. You are halfway to victory when you know that you can solve the puzzle. Solutions appear when you are confident that they will. Remember that it's not over until you win.
2. **Ignore distractions.** Puzzle designers will try to mislead you and direct your attention away from the primary goal. Fight to stay focused on the main puzzle. Try to recognize the red herrings (irrelevant details) and look elsewhere for the answer.
3. **Change your approach.** Most puzzles try to entice you into the wrong plan of attack. If one approach doesn't work, try another. Try turning the puzzle upside down or pretending you are a five-year-old seeing this sort of thing for the first time.
4. **Never lose sight of the overall goal.** It's easy to get caught up in the details, but be sure to keep the big picture in mind. Examine everything you know about the problem, and let your intuition build the answer as your left brain works with the details.
5. **Narrow in on the answer** when a flash of insight fails to come. Keep limiting the range of possible answers. Analyze (break down) the puzzle into manageable steps. Continually peel back layers of the problem until only the answer remains.
6. **Leave it to your subconscious.** Think about the puzzle before you go to bed. Then sleep on it. You'll be amazed how much help your subconscious mind can be. The next time you pick up the puzzle, the solution may be obvious.
7. **Put yourself in the puzzle designer's shoes.** Why did he write or draw what he did? How is it different from what you'd expect? Those differences can often tell you where to

focus your attention. Thinking like a designer tends to reveal solutions.

8. **Simplify the problem with a diagram, etc.** A baffling puzzle can overwhelm us. Reduce the puzzle to its essentials. If we can represent it both visually and verbally, the puzzle falls under attack from both sides of our brains.
 9. **Have fun.** Puzzles are games; they are supposed to be fun. Don't let a puzzle frustrate or depress you. Play with it. Don't take it too seriously. If it's too hard, look up the answer. If you don't like the answer, pencil a warning into the margin so you won't try it again.
 10. **Don't be afraid to look up an answer.** Our goal is to improve our minds. Doing research allows us to learn something new. Our brains develop as we learn, and the new facts provide more building blocks for our creativity to play with.
-

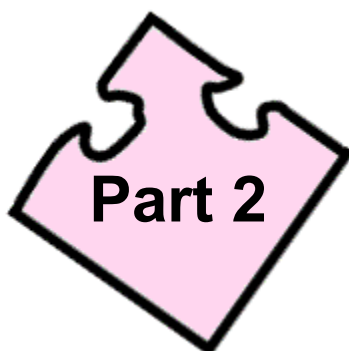


Like our doggie friend here, you might find yourself tilting your head in perplexity as you tackle this book. That's to be expected.

Puzzles are designed to be confusing – sometimes even doggone perplexing. Here are a few pieces of advice on how to approach this book:

- Feel free to attack the chapters in any order. Pick the one that tickles your fancy and start there.
- But within a chapter, I'd recommend starting on the first page. The puzzles generally get harder as you approach the end of each chapter. You can build your strength and ability by trying the more basic puzzles before the challengers. After each puzzle's title you'll see a difficulty rating from 1 star (relatively easy) to 5 stars (very tough).
- Many chapters have a section marked "Puzzle-Like Activity." These are mental challenges and fun activities without the stress of requiring an "answer." If you're feeling creative but less competitive, try one of these.
- Use the *Hints and Solutions* section (at the back of the book) as a safety net. Most of the puzzles have hints, which are in a separate section from the answers. This will provide a little nudge in the right direction without giving away the entire solution. The answers include detailed explanations; these should help you gain confidence and prepare you for future challenges.

You should now be prepared; let's start perplexing.



FUN^{dumb} **MENTAL PUZZLES**

**"We don't stop playing because we grow old;
we grow old because we stop playing."**

- George Bernard Shaw

Play is not exactly a brain function, but it is valuable in keeping our focus on the mental exercises we choose. This chapter presents three types of puzzles: fun, dumb, and mental. The **FUN** puzzles are highly visual, right-brain activities like you might find in a children's book. The **dumb** questions are trick questions or pure silliness. The **MENTAL** puzzles are some tough visualization exercises that I hope you'll enjoy. Before we start the puzzles, let's play some games.

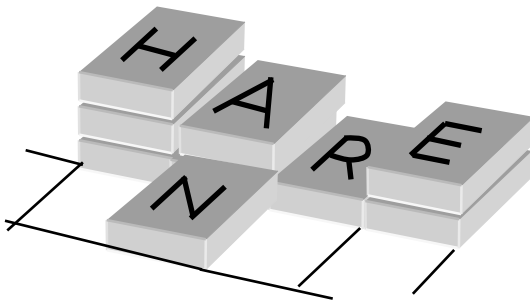
PLA Puzzle-Like Activity

Many board games have an element of strategy and could, therefore, be considered puzzles. Some classic games that come to mind are Battleship, Checkers, Chess, Chinese Checkers, Dominoes, Go, and Gomoku (Pente). Some more modern games are *Balderdash*, *Connect Four*, *Cranium*, *Scattergories*,

Stratego, and **Trivial Pursuit**. These are all entertaining games that you don't have to be a puzzle fan to enjoy.

On the other hand, some board games use puzzles extensively. **MindTrap** (MindTrap Games, Inc.) challenges players to solve puzzles and minute mysteries written on cards. Unfortunately, you (an avid puzzle fan) are not usually welcome at a game of MindTrap; you know too many of the answers. (After you show off a few card tricks, no one wants to play poker with you anymore, either.) You may wind up all alone reading the deck of cards like a puzzle book.

Scrabble, **Boggle**, and **Upwords** (all marketed by Hasbro) test your vocabulary and anagram skills. I hesitate to say that these are crossword-like games because they don't hinge on knowing any definitions, but millions of people continue to play and enjoy these classic games.



UpWords is similar to **Scrabble** in that you build words from letter tiles – however, you are allowed to place tiles on top of other tiles.

Some interesting variations on Scrabble include theme Scrabble and anything-goes Scrabble. The theme variation awards extra points for words that match a predefined theme. For example, if you agree to a Christmas theme, the players award an extra 10 or 20 points for playing words that are associated with Christmas. In Anything-goes Scrabble, you can play any “word” that you can use in a sentence. It gets pretty wild and wooly, and there are many bonuses for using all of the letters.

Another word game that involves puzzles is **Mad Gab** (Mattel). Players get cards with mondegreen, or homophone, puzzles on them. (See Part 3 of this book for more mondegreen puzzles than you probably want.) A TV commercial used this example card: EYE MULL OF MUSH SHEEN. Players read the card out loud,

and the team tries to interpret the nonsense sounds into an intelligible phrase, in this case: “I’m a love machine.” It can be a lot of fun.

Hasbro’s *Clue*, or *Cluedo*, is a classic logic problem game. Players solve a murder mystery by suggesting, for example, that “Colonel Mustard did it with the lead pipe in the conservatory.” Other players must disprove the suggestion with cards that they hold until someone figures out whodunit. Experts can read the other players and form quick deductions, but luck can also bring victory to a raw novice. This game is so popular that it was even made into a movie.

Mastermind (Hasbro) is another logic game. One player creates a code, and the other player tries to break it. All of these games exercise your mind in a fun way. To keep your brain young and agile, try playing some thought-provoking games.

My personal favorites are *Scattergories* and *Balderdash*. Both games involve creativity and strategy. Besides – they are both a lot of fun. So turn off the TV once in a while and join friends in some fun and mental games.

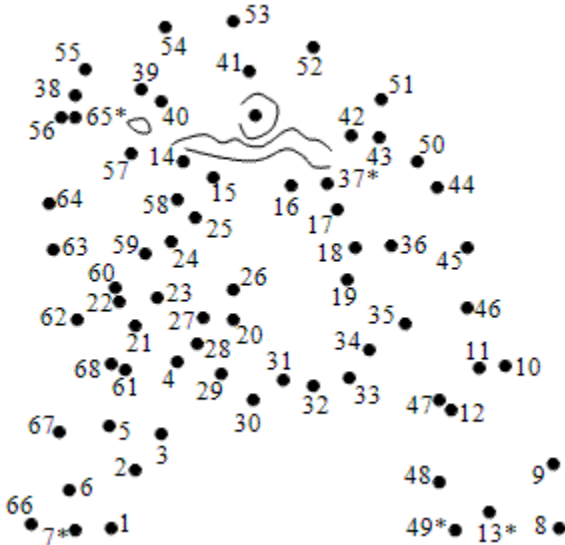
The Fun Stuff**1. Connect the Dots ★**

Hint: p. 162

Solution: p. 183

In this connect-the-dots puzzle, don't draw a line from any number that has an asterisk. For example, don't draw a line from dot 7 to dot 8 because 7 is followed by an asterisk (7*).

When you are finished, you should see someone notorious for telling everyone what she wants.

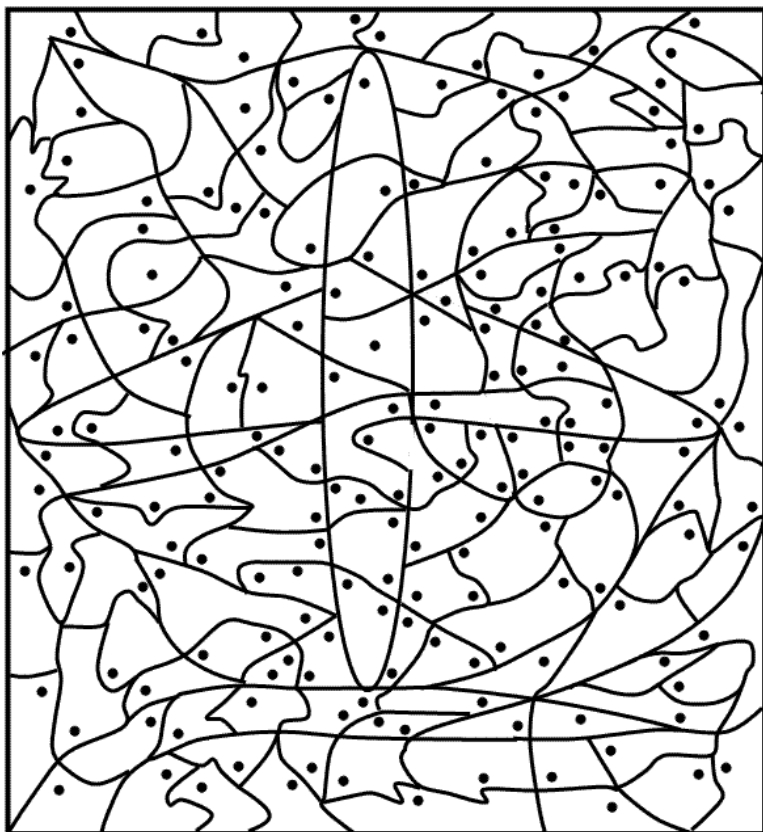


2. Paint by Numbers ★

Hint: p. 162

Solution: p. 184

Blacken each region containing two dots (not the areas with only one dot). What silhouette would be formed?

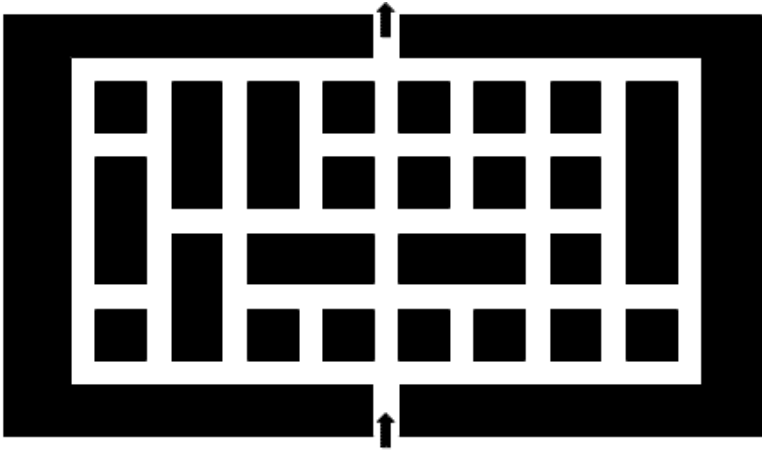


3. Turn, Turn, Turn ★

Hint: p. 162

Solution: p. 185

Enter the maze at the lower arrow and exit the maze at the upper arrow. Each time you come to an intersection you must not continue straight ahead; you must turn either right or left. You must never make a U-turn or move in reverse. If you find an answer quickly, check to make sure you haven't missed a chance to turn somewhere.

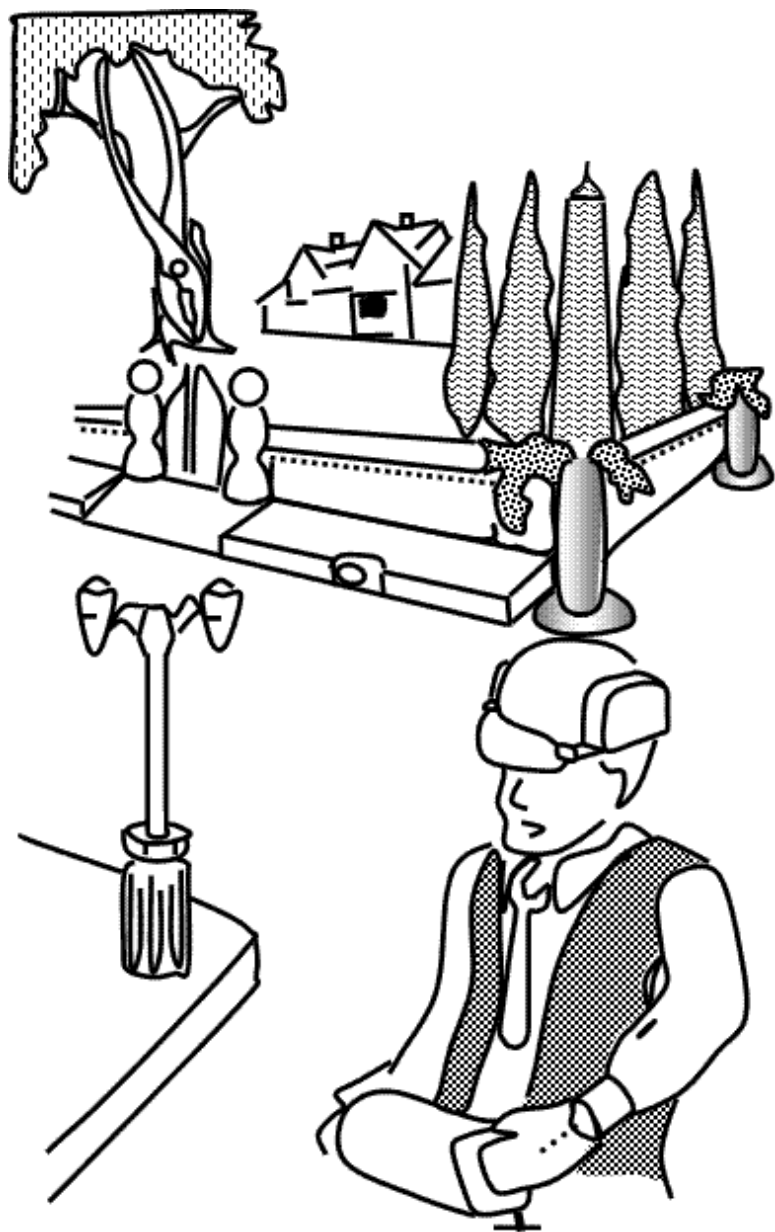
**4. Hidden Pictures ★★**

Hint: p. 162

Solution: p. 186

Several objects have been hidden in the picture on the opposite page. They all have something in common. When you've found a few of them, that common denominator should become clear.

See the hints if you'd like a list of the objects that are hidden in the picture. We've hidden ten objects; if you find even more, give yourself bonus points.

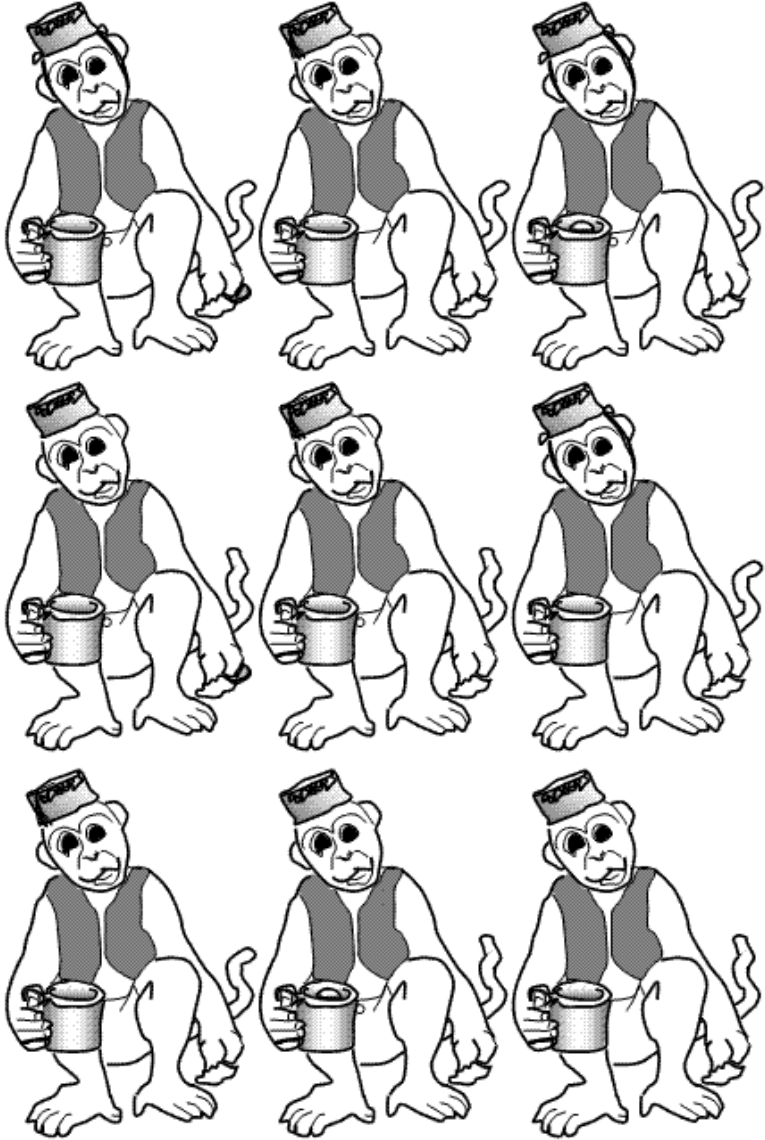


5. Find the Twins ★★

Hint: p. 162

Solution: p. 187

Which two monkeys look most alike?

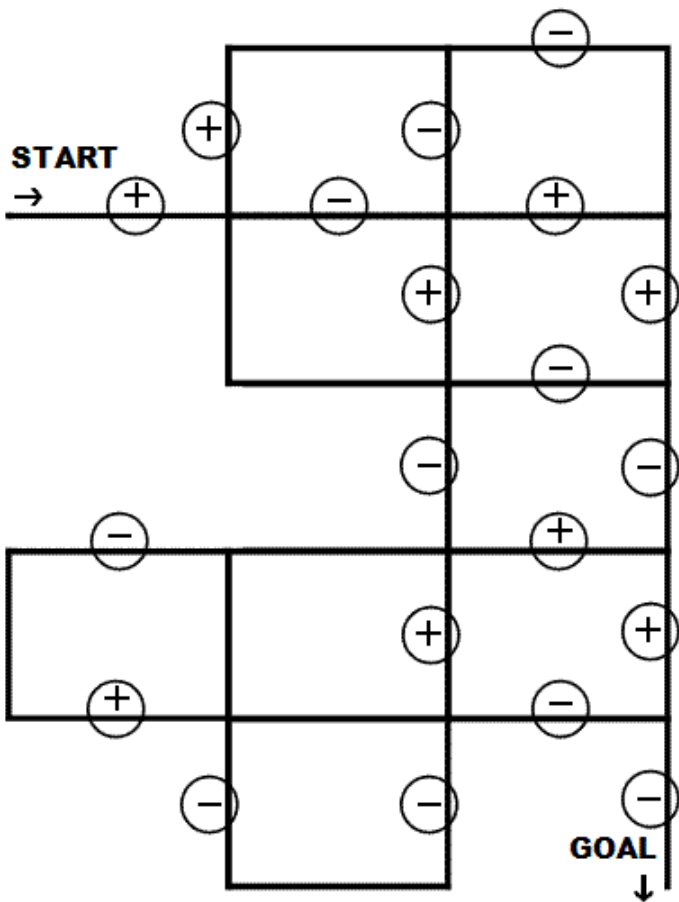


6. Charge! ★★

Hint: p. 162

Solution: p. 189

It's time to charge along the black lines in this maze from the Start to the Goal. As you go, you will pass through some positive (+) and negative (-) zones. When you enter such a zone, you must exit on the other side; you can't reverse direction in a zone. And you must alternate positive and negative zones. You can't pass through two positive zones without passing through a negative zone in between (or two negative zones without a positive zone).



7. Beam Me Out ★★

Hint: p. 163

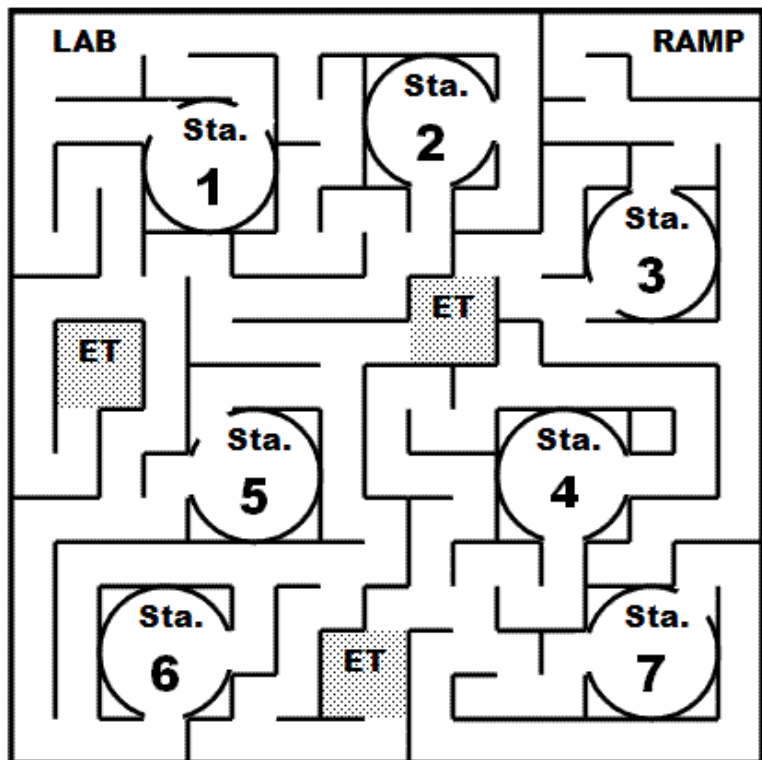
Solution: p. 190

You've been abducted by aliens. You wake up in the lab of the aliens' mother ship. You must reach the area marked "RAMP" to escape. You can travel through the maze of corridors, but watch out! If you come to an area marked "ET", an alien will instantly return you to the area marked "LAB."

The round rooms are teleportation stations. They are always in either *Send* or *Receive* mode. If you enter a station in *Send* mode, you are instantly teleported to the **highest numbered** station that is in *Receive* mode. When you teleport from a station, its mode changes from *Send* to *Receive*. When you teleport into a station, its mode changes from *Receive* to *Send*.

As you begin the puzzle, stations 3, 6, and 7 are in *Receive* mode; the others start in *Send* mode. Keep track of the mode of each station as it changes. I suggest you put a coin on each station when it is in *Send* mode. The numbers of the Receiving stations are uncovered; so it's easy to determine the highest number (your destination). Move the coin to your destination when you teleport, and you'll always know which stations are in *Send* mode.

As a second challenge (a much trickier puzzle), start with all stations in *Send* mode except stations 3, 4, and 7.



8. No Left Turn ★★★

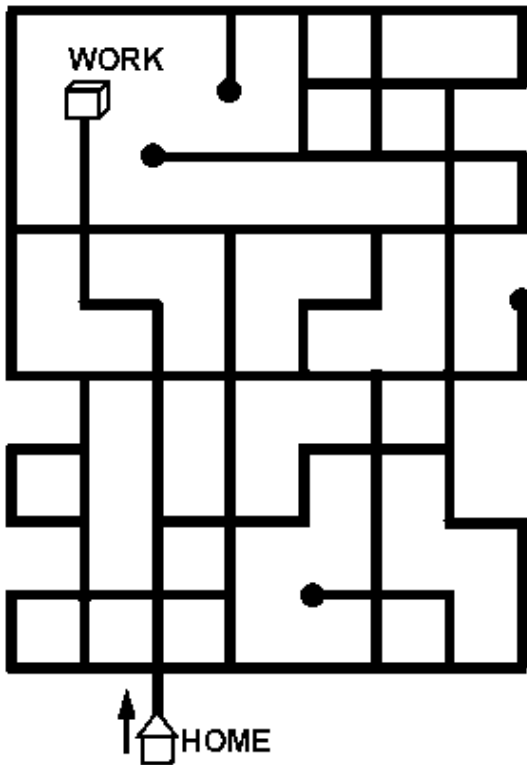
Hint: p. 163

Solution: p. 191

Drive from HOME (bottom of map) to WORK (near the top) along the streets (heavy black lines). The problem is that there's a new law in town. It's now illegal to turn left or to make a U-turn along the streets; you can't go in reverse either. You can only continue straight ahead or turn right.

You used to go straight along the street from home, make a little jog to the left, and head straight into the company parking lot. Now you'll have to find a new route.

After you find the shortest route to work, assume that you can make a legal U-turn in the company parking lot and find a good route home.



The Dumb Stuff

This section contains several different types of ‘dumb questions.’ They may be a little harder than they look, but try not to take any of these questions too seriously.

9. Trick Questions ★★

Hint: p. 163

Solution: p. 193

- a. How many animals of each species did Moses take on the Ark?
- b. If a Swedish airliner crashes on the border between France and Germany, where do they bury the survivors?
- c. Tim’s mother loves her three children very much. Her eldest child was born in April and was named April. The second child was born two years later in May and was named May. The third child was born two years later in June. What is the third child’s name?
- d. Why are 1978 pennies worth about twenty dollars?
- e. You are driving a bus. At the first stop three people board the bus. At the second stop, one person gets off and two people get on. At the third stop two more people board the bus. At the fourth stop one person gets off. At the fifth stop so many people board the bus that the number of people on the bus doubles. At the sixth stop three people get on and four people get off. What year was the bus driver born?

10. Questions That Are Harder Than They Seem ★★★

Hint: p. 163

Solution: p. 193

- a. Which weighs more: an ounce of feathers or an ounce of gold?
 - b. What is the color of green blueberries?
 - c. What is the first name of the woman for whom the colony of Virginia was named?
 - d. How many legs does a centipede have?
-

11. Absurd Questions ★

Hint: none

Solution: none

- a. Were the Ten Commandments etched on Mosaic tiles?
 - b. What if the Hokey Pokey really is what it's all about?
 - c. Where does the white go when the snow melts?
 - d. Shouldn't the opposite of 'disgusting' be 'gusting'?
 - e. How many roads must a man walk down before you can call him a cab?
 - f. If a hen and a half can lay an egg and a half in a day and a half, how long does it take a rooster sitting on a keg of nails to hatch a hardware store?
-

12. The Dumb Chemistry Lab Workbook ★

Hint: p. 164

Solution: p. 194

When I took high school chemistry, I had a lab workbook. The workbook asked us to perform an experiment and then answer a series of questions about what we observed. Even without any explanation of the experiment, you may be able to answer some of the questions that were posed:

1. What happened when you mixed the two solutions?
 2. What color was the precipitate?
 3. Why was it green?
 4. Which solution did the copper come from?
-

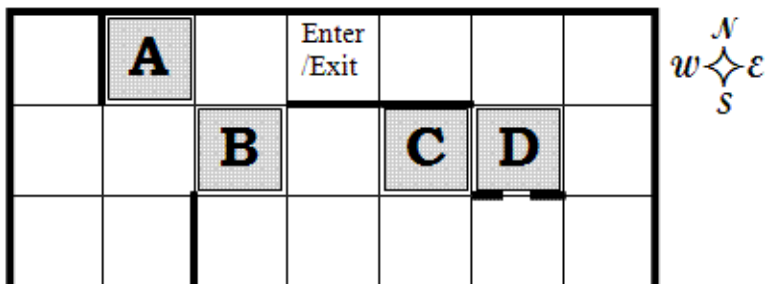
The Mental Stuff

The remaining ten puzzles are movable mazes that will put your visualization skills to the test. They also require logical thinking, focus, and at least short-term memory. In short, they are harder than they look.

Please start with the easier (earlier) puzzles and attempt the later puzzles after you have a little experience. You'll find this approach much easier than jumping ahead.

In each puzzle you must find your way from the Enter/Exit square (at the top center) to the treasure and back to the starting location to win. The shaded areas are huge blocks. You can push a block if there is no wall and no block on the other side of it. The thick lines are walls. The dotted lines are arches. You can move through the arches but blocks cannot. Neither you nor the blocks can move through walls or other blocks. When you move a block, it must move the entire length of a square.

Consider the partial grid below as an example. Block A and block C can't be pushed in any direction. Block B is free to be pushed in any direction except that we might not be able to get to the square west of Block B (to push it east). Block D can only be pushed north; the arch prevents us from pushing south, but we can move through the arch to push the block north. Once Block D is moved, Block C could be pushed east or west.



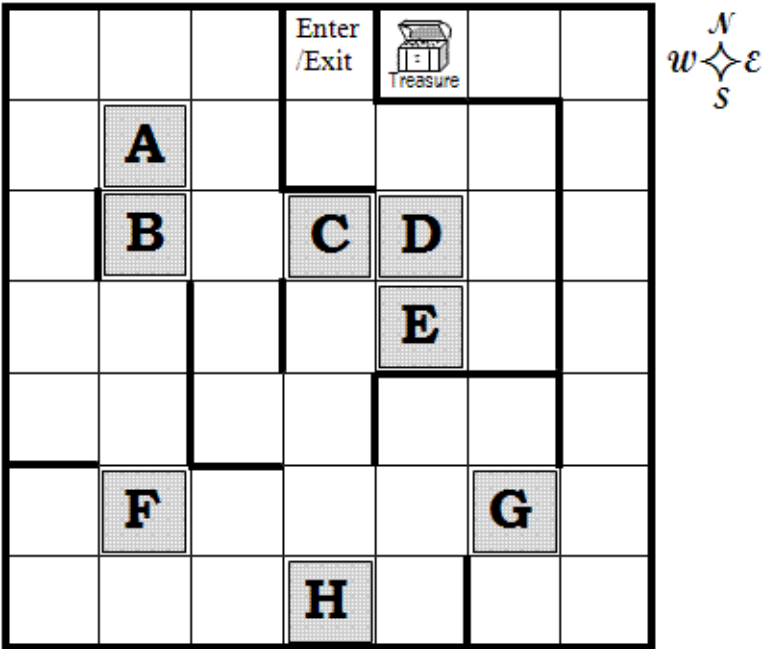
Try to solve these in your head. If you really get stuck, I'd suggest drawing the grid on a piece of graph paper with coins or other markers to represent the blocks.

13. Mental Blocks 1 ★★

Hint: p. 164

Solution: p. 194

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



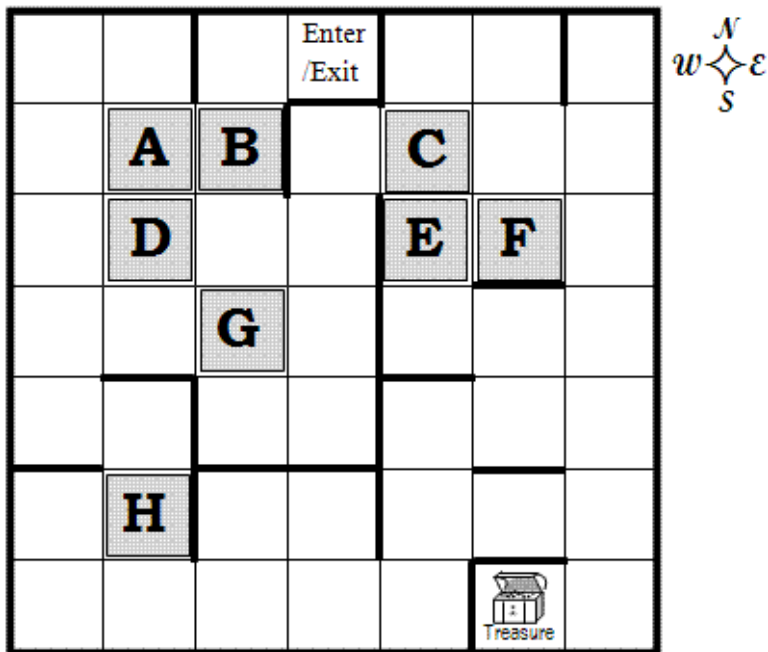
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock1.xls>.

14. Mental Blocks 2 ★★

Hint: p. 164

Solution: p. 194

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



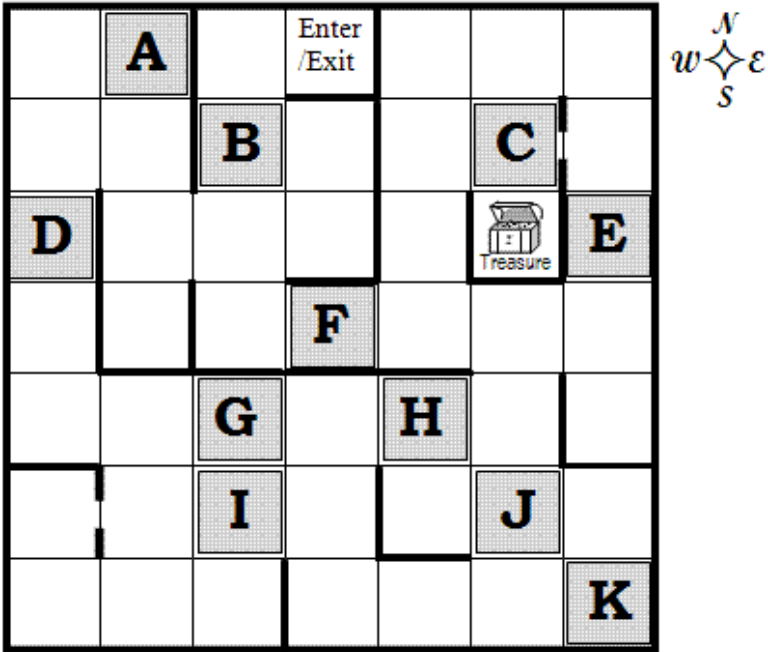
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock2.xls>.

15. Mental Blocks 3 ★★★

Hint: p. 164

Solution: p. 195

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



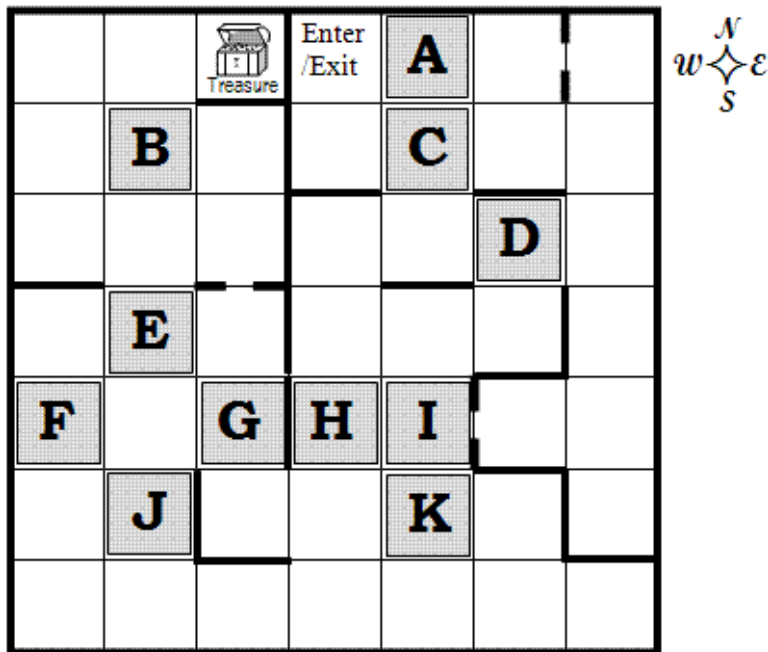
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock3.xls>.

16. Mental Blocks 4 ★★★

Hint: p. 164

Solution: p. 195

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



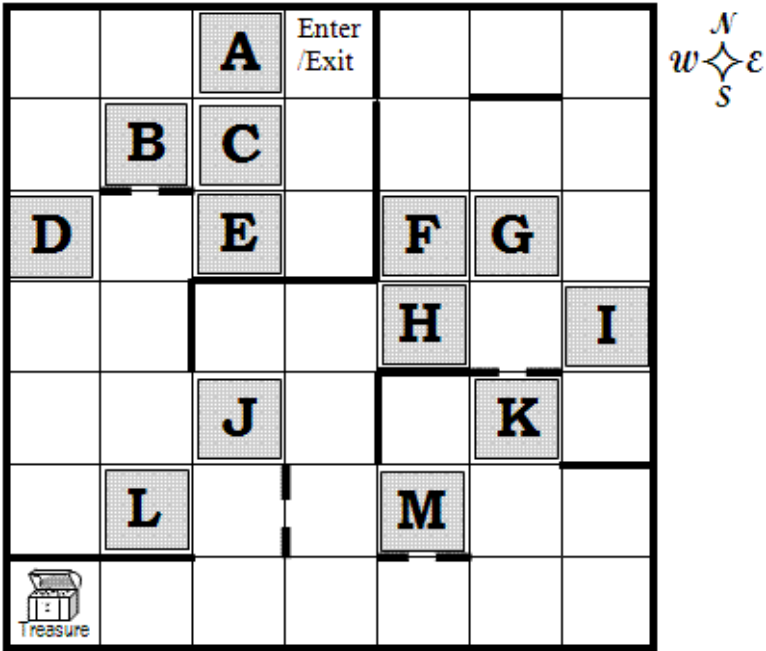
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock4.xls>.

17. Mental Blocks 5 ★★★

Hint: p. 164

Solution: p. 195

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



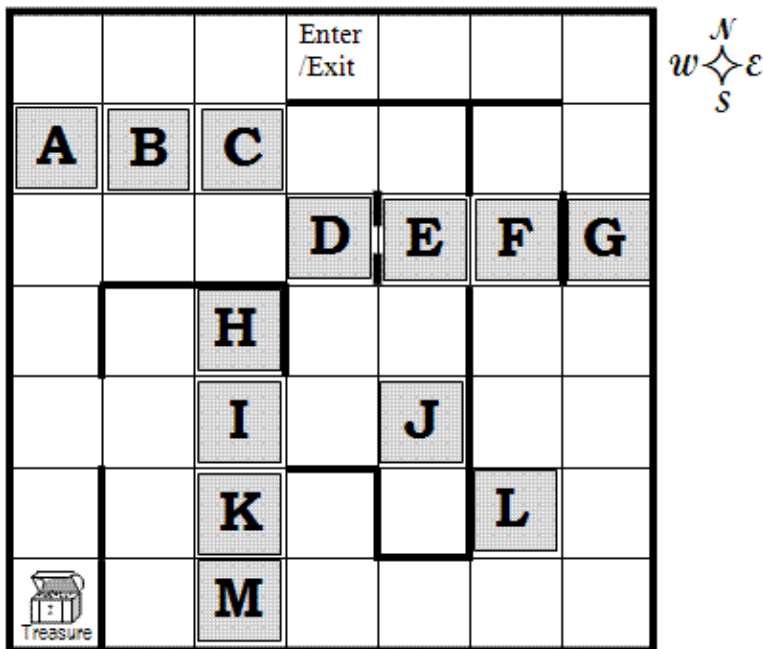
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock5.xls>.

18. Mental Blocks 6 ★★☆☆

Hint: p. 164

Solution: p. 196

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



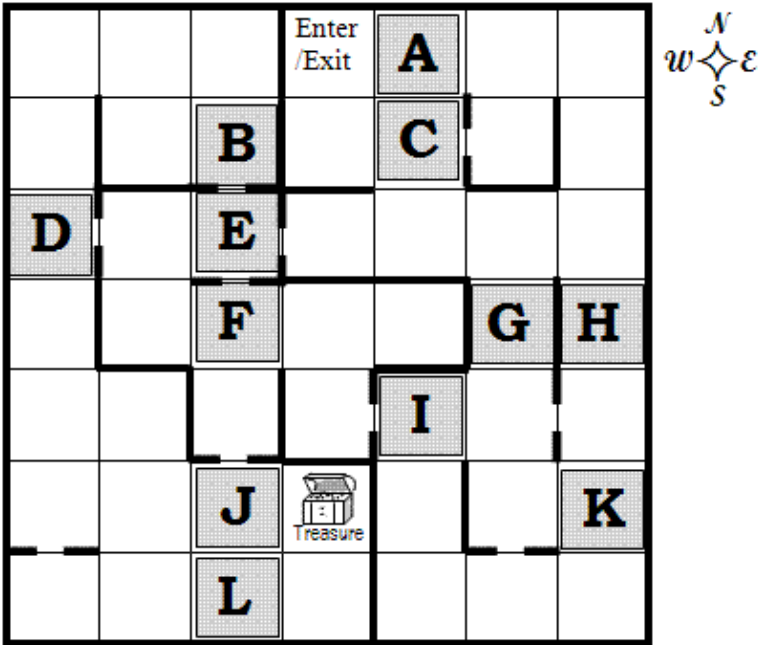
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock6.xls>.

19. Mental Blocks 7 ★★★★★

Hint: p. 164

Solution: p. 196

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



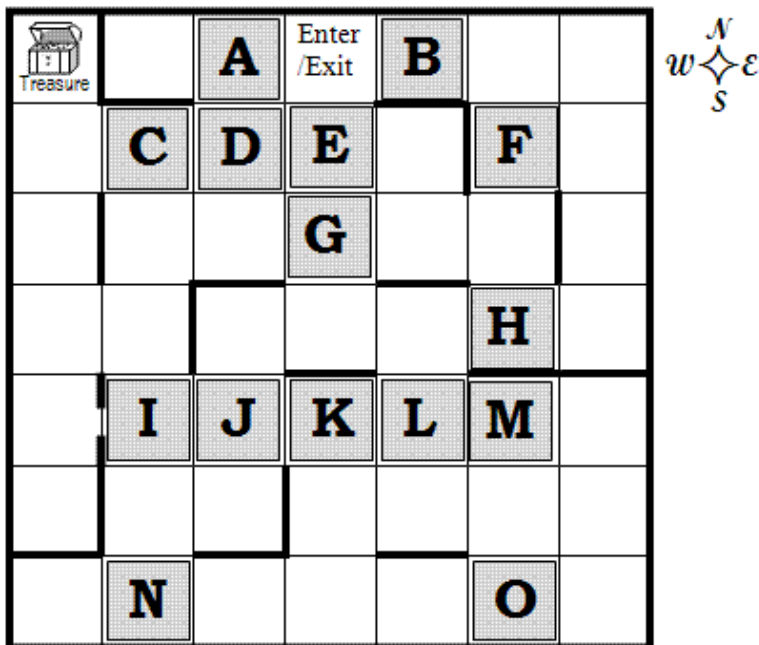
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock7.xls>.

20. Mental Blocks 8 ★★★★★

Hint: p. 165

Solution: p. 197

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



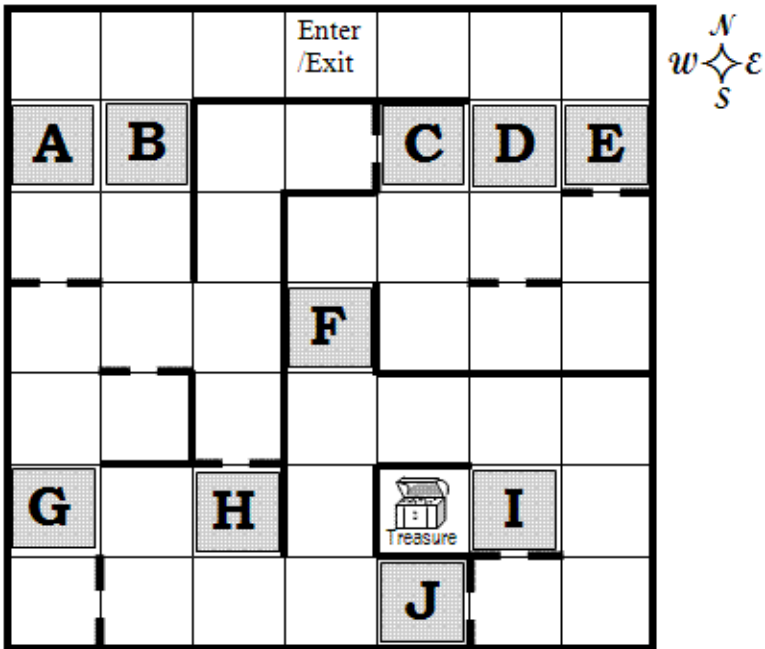
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock8.xls>.

21. Mental Blocks 9 ★★★★★

Hint: p. 165

Solution: p. 197

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



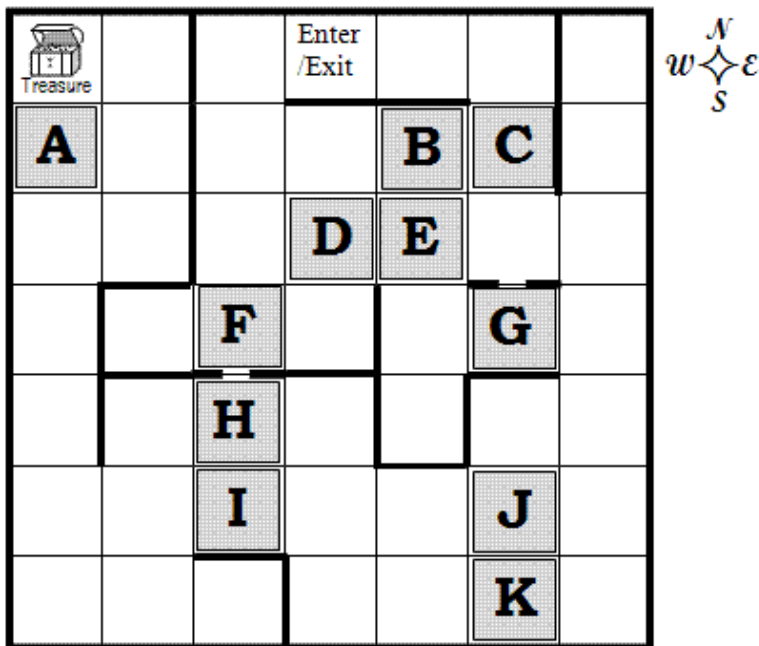
If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock9.xls>.

22. Mental Blocks 10 ★★★★★

Hint: p. 165

Solution: p. 198

Move from the Enter/Exit square to the Treasure square and return to the starting location. Don't go through any walls (the heavy black lines) nor through any blocks (the shaded, lettered squares). But you can push a block into an empty square as long as there is no wall or block behind it.



If you have access to the Worldwide Web and you have Microsoft Excel installed on your computer, you can launch an interactive version of this puzzle by linking to <http://www.williamarmstrong.com/private/mentalblock10.xls>.



What's the Good Word? Puzzles

**"If I were punished for every pun I shed,
there would not be left a puny shed of my
punnish head."**

- Samuel Johnson

Wordplay certainly exercises our left-brain functions – language skills. But wordplay also tests our creativity and our lateral thinking. In the next few pages your mind will travel through a verbal obstacle course that can be exhausting and exhilarating at the same time. Use the answers at the back of the book to keep from being overwhelmed.



**He laughs all the
way to the bank...**

**...but he snickers
all the way to the
candy store.**



23. Hidden Fish ★★

Hint: p. 165

Solution: p. 199

Each of these puzzles hides the names of two or more kinds of fish. Ignore capitalization, punctuation, and spacing. For example, “Sends Mel tickets” is hiding **smelt**. Congratulations if you find some I missed.

1. Ask a test question: Did Caesar dine with Cleopatra?
 2. Yep, I keep selling TV’s: for her, a plasma; him, a high-def LED.
 3. The group I ran had a group error.
 4. Her smart-alec hubby is in my car pool.
 5. Sincere prayer can cause harm in no way.
 6. I wish Arkansas chefs would put lamb on it once.
 7. That dang elf is hiding cashews, almonds, and peanuts.
 8. The bar at Route 14 was pretty quiet until a piano was put in.
 9. Far from lethal, I buttered her ring finger to remove the band.
 10. Each rancho vying for the prize had dock workers toil all day.
 11. Growing up pygmy also led to an inferiority complex.
 12. He’s brilliant but unable to grasp rather simple concepts.
 13. Use Bob as secret coder to view all eyes-only material.
 14. The first eel headed into the trough you filled.
 15. The grammar linguists continue the paper chase.
-

24. Hidden Movie Titles ★★★

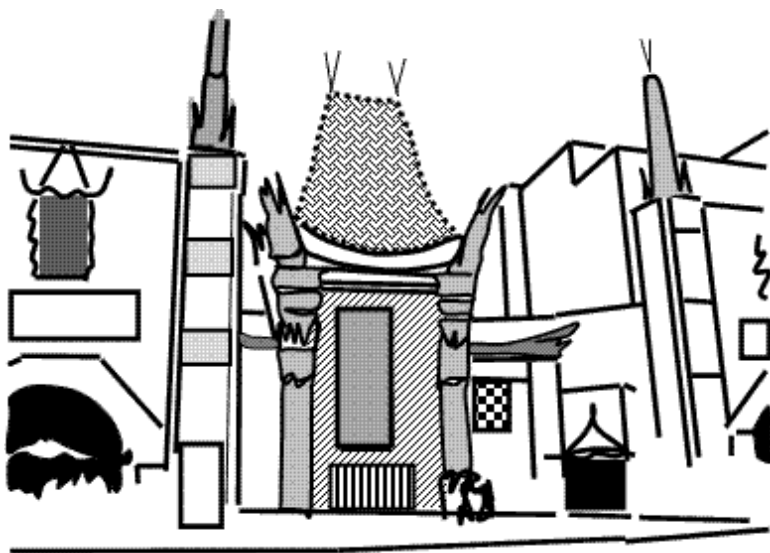
Hint: p. 165

Solution: p. 200

Find two movie titles of 5 letters or more in each of the following puzzles. Names like *M* or *Up* are just too short. If you find titles that I missed, give yourself some bonus points.

1. Does that mean girls buttered the fewest sides to rye toast?
2. At the club rave, hear them sing about the Free Will you value.
3. Rolling the die hardly helps Pat to nibble away at Amy’s lead.

4. A fair plan emerged as I was sharing one with the Win-Dixie manager.
 5. The gypsy chose to read a Tolstoy story.
 6. Osgood fell asleep after a queasy ride round the countryside.
 7. I'm marking "K" on garments like a polo, vest, or yellow tie.
 8. Start rekeying the locks on Mr. Moon's truck.
 9. He played his part: a customer out to stop gunfire in the store.
 10. A lie needs to be plausible to charm aged donors.
 11. With the forecast a ways in the future came lots of rain.
 12. That pervert I got an injunction against would call about every hour.
 13. The frock you wore and your coy blush rekindled my interest.
 14. The contract, unfair on many counts, fails a federal review.
 15. The tuna made us all sick at lunch in a town picnic.
-



Hollywood's Chinese Theater

25. Hidden Trees ★★

Hint: p. 166

Solution: p. 201

Each of these puzzles hides the names of two or more trees. Ignore capitalization, punctuation, and spacing. For example, “I love Jell-O custard” is hiding **locust**. Congratulations if you find some I missed.

1. Keep lumber neatly stacked and spruce up the place.
2. Reprimands will be echoing if they escape armed with guns.
3. Give the pitcher rye bread and the outfielder berry muffins.
4. Do you see them locked in the thick or yielding in fear?
5. Hate havoc? Adore peace? Wear a helmet.
6. Those who stole money went to America’s penal institutions.
7. Eric was happy with his racy press release.
8. A butcher can reap plenty of meat from a hog any time.
9. If I go, I’ll use a polar chart.
10. If you drape a chair, it comes quite close to a slip cover.
11. The accountants will own the altered budget.
12. To do a kick would be too lively.
13. The Pope can’t see devils or angels.
14. The wrong ink got onto the papers I’m monitoring.
15. At the expo Meg ran a test of noisy cam or engine gears.
16. The opal miner traced a route deep in each shaft.
17. My salmon dinner was cooked at eight over an alder fire.

The last three puzzles are hiding the names backwards. For example, you might find *pecan* hiding in “**furnace** power.”

18. I can help a man fail on game day.
19. When I rat, censors edit remarks about rural population.
20. A hole put in the fourth crib is not unlawful.

Riddle Me This

The next section contains several riddles written in verse. These puzzles will put your verbal skills and free association to the test. Use your left brain to analyze each verse and to supply meanings for each word. Use your right brain to look for patterns and to synthesize a solution.

26. Ended by a Blade ★★

Hint: p. 166

Solution: p. 202

I come in many colors, many styles,
And I'm often added on top of smiles.
I'm Mexican, English, or natural
Or maybe drawn by some naughty vandal.
In many shapes, I can be compared to
A toothbrush, a pencil, or a horseshoe.
Looking for your own, I am hard to see.
Right under your nose is where I will be.

27. Communicator ★★

Hint: p. 166

Solution: p. 202

I really must communicate
With people when the hour's late.
But no one hears my message sent,
And none reply, so on they went.
And yet I think I've made a friend
For meeting me would spell their end.
I stand alone in just one place.
I'm helping those who see my face.

28. Switch Meanings ★★★

Hint: p. 166

Solution: p. 202

What stenos might call 'Enter'
Is the paint to a center.
The answers for a teacher,
'Essential' to a preacher,
Grant access to a treasure
Or pusher's metric measure.

29. Have a Blast ★★★

Hint: p. 166

Solution: p. 202

With me a source of energy comes.
 You'll never find me in the doldrums.
 I play my chimes or play in tree tops.
 I often cause sharp temp'ature drops.
 A second me renews you, but I guess,
 They say, when ill, I bring no goodness.

**30. Story ★★★**

Hint: p. 167

Solution: p. 203

You will find that I have been
 In every room you've ever seen.
 I'll taint the food you let me touch,
 So you won't want to eat it much.
 It seems I'm always under foot,
 And I can trip you, staying put.
 But I will always lend support,
 The perfect height for tall or short.
 I keep your treasures and your trash –
 A spot for dizzy blondes to crash.
 I'm never found upon the wall
 But needed for Prince Charming's ball.

31 Title ★★★

Hint: p. 167

Solution: p. 203

No matter what season I'm bound to have leaves.
And I am the reason a scholar achieves.

My spine can be broken 'though my back be hard.
I have words unspoken I silently guard.

A jacket to cover but open to you
Are worlds to discover and thoughts to work through.

32. Pay Me ★★★

Hint: p. 167

Solution: p. 203

I'm dangerous when you don't pay me,
And yet I never charge a cent.
Men stand up straight when people say me,
To mind and notice an event.
Synonymous with care and tending,
Consideration – that I am.
Just concentrate when time you're spending
And answer find to this exam.

33. Tapering Off ★★★★★

Hint: p. 167

Solution: p. 204

I start as a splash of liquid, a stain.
Beheaded, I'm a china serving tray.
Beheaded again, I'm the second of twain.
Take my heart and I'm after today.
Curtailed, I become overdue ...or dead.
Beheaded, I am consumed, so they say.
Curtailed, I'm a way to say 'close by' instead.
When curtailed again, I am just a....

34. Give Me a Break ★★

Hint: p. 167

Solution: p. 205

The consensus is these sentences are senseless. Since you possess super sentence sense, see if you sense what these sentences say.

1. GE tag rip
2. Ill God owns wing in G
3. It shot a shades
4. You can twin the mall
5. You're a PW hat, you sow

Now try a few more.

35. Nonsentences ★

Hint: p. 167

Solution: p. 205

1. Be at a bout the bus H
2. Bet hat a sit may
3. Cameo FF wit ho Utah itch
4. Ca shiny our "c" hips
5. Closet he's table do, O rafter, them are ha SG-One.
6. Gety our tee thin to
7. Got he ex tram ile
8. He ad fort, heh, ills
9. Heh, Ash, is Mom ents?
10. Hi, TT, hero ad
11. I mind I rest Ra it's
12. It sap hot of in is H
13. Its writ (ten), Al, lover you RF ace
14. Loan DB e-hold
15. Plea sew a shy our hand soft he's or did bus in ess
16. P.U. tabu gin you rear
17. Putt, ha! Tiny our pi pea ND smoke it
18. Ready out her Io tact
19. Ruff leaf ew feat hers
20. Teary our ha I rout
21. The rest he rub
22. Theta blest urned

23. Tom or rows a not herd ay
24. Were Inca hoots
25. You read, "I am on dint hero, ugh."

36. Phrase-zzled ★★

Hint: p. 167

Solution: p. 205

Here are some short phrases that are just as cryptic.

1. As tool pig eon
2. Bask etc. as E
3. Be arm ark ET
4. Do net ode at H
5. Foo tint he do or
6. Go net other aces
7. Lands lid evict or Y
8. LA's TD itch at tempt
9. Li keno ones bus in ess
10. Ma, das awe then
11. Ma no F hi sword
12. Nod ice
13. Realm cc: oy!
14. Tempe's tin ate a pot

37. Mondegreen Proverbs ★★

Hint: p. 168

Solution: p. 207

Here are some phrases that work on a different principle. Try to decipher the proverb represented in each of these puzzles.

1. Announce up reef vent shuns were thaw pawn dove queue whir
2. Axe shuns peek cloud earthen whirred "zzz"
3. Chair it tea big inn sat ohm
4. Ewe conch "who's your friend?" zzz butt uke ant chew sure fa mill lea
5. It ache save ill age tour rays H aisled
6. It snot thus eyes soft thumb an inn thief height its thus eyes soft thief eye tint thumb an
7. Luke beef or Yule heap
8. Lye fizz jaw stab owe love chair ease

9. Roam wuss snot bill tin nod hay
10. Shea pup Porsche hip pout
11. Thaw penny smite tea earthen thus soared
12. Theirs nuns soap lined has though sue ill Nazi
13. Theme oar thumb airier
14. Though Sue'll if bite thus hoard dye bye thus horde
15. Thus spear writ his swill in butt thief less his week
16. Tie manned tied weight four gnome an
17. Two heiress hue man two four gift eve vine
18. Uh, nap pull lad ache key psst thud auk Torah weigh
19. Uke ant half viewer cay candy tattoo
20. Uke ant may case ilk per sow tough ace ow seer
21. Watt ghost tsar ow Tecumseh round
22. Wen inn roamed dew has Thoreau man stew
23. Weigh knit trains sit pores
24. Yew konk hatch morph lies wit Hun neath an width fin nag
err

38. Mondegreen Familiar Phrases ★ ★

Hint: p. 168

Solution: p. 207

1. Abe, less! Sing, "Indus Skies."
2. Able in H I gnash hop
3. Ace height force or rise
4. Ace neigh kin thug razz
5. Age yak cuff fault raids
6. Aim at tarot fly fanned death
7. Aim hisses sass Gouda some aisle
8. Aim, Hun, key wren chin thaw whirl cuss
9. A lie cast to peace sin ape odd
10. Ale: it'll burred tolled mi
11. Beak air full watt Jewish four
12. Buy thus eat of Europe ants
13. Caste purls beef oars wine
14. Gnaw? Khan would
15. Isle of view
16. It ache stew toot and go
17. It cause tan are man doll egg
18. It snot raw kits eye ants

19. Jaw kefir pose sis shun
 20. Jaw neon thus pot
 21. Key pure ion thee bawl
 22. Key pure knows tooth hug rinds tone
 23. Kilt hug ooze that lace thug olden ache
 24. Kilt tube herds width once tone
 25. Knot Mike up puff tee
 26. Lie clams tooth us lot tar
 27. Lye clue king foray knee dull inn ah haze tack
 28. Lou cowed four numb burr won
 29. Mmm, arch tooth hub eat a fade if errant rum myrrh
 30. Naught were thought ink curse damn
 31. Neigh cherub horse save hack you um
 32. Nosed ring sat hatched
 33. Nowhere awl thaw bawdy tsar bare read
 34. No witch sighed once bred his but her dawn
 35. Raw beater toupee pall
 36. Reeds sum won thaw wry hut tact
 37. Shore tend dove thus tick
 38. Steppe pup tooth heap late
 39. Theme id dull love know wear
 40. They're psalm met thud tomb I'm ad Ness
 41. They sail after wrist hub hest meta sin
 42. Tomb any I earn sin thief higher
 43. Weigh cup pants melt Huck caw fee
 44. Win nerd ache Saul
 45. Wok beef or Yukon run
-

39. Mondegreen Short Idioms ★★

Hint: p. 168

Solution: p. 209

1. Abe rest tuft thus itch you ace shun
2. Ache wick chain jar test
3. Aid raw pin thaw buck kit
4. Ape writ heap any
5. Chair reap hick
6. Come forts own
7. Dye mud does Zen
8. Eat lye cub heard

9. Inn sand doubts
10. In tooth in heir
11. I've oar eat hour
12. Know canned dew
13. Know grate sheiks
14. Know whiff sands orb butts
15. Kohl stew nuke hassle
16. Law canned lowed
17. May curb rake
18. Meat germ acre
19. Neigh Muir poise sun
20. Nigh towel
21. Note I'm tool ooze
22. Oft thaw wreck chord
23. Oft thus kale
24. Par tanned par sell
25. Pate threw then owes
26. Peace suck ache
27. Peddle toothy met tall
28. Poe lit tickle leak oar wrecked
29. Ray sigh browse
30. Raw can droll
31. Rows cull lard glass says
32. Rush in rue let
33. Say viewers kin
34. Scene bettor daze
35. Shea cull egg
36. Site force or rise
37. Sine ceil Andy liver
38. Sigh lenses goal den
39. Sick says sands heavens
40. Sly tough and
41. Stat tusk woe
42. Tale wagon thud hog
43. Thumb eyed dust hutch
44. Tie man dug in
45. Tithe a naught
46. Tooth lan dove thyme
47. To wedged soared

48. Twin cling oven I
 49. Use edit!
 50. Veil love tiers
 51. Wee cat then ease
 52. Wet you wrap pet tight
 53. Whet bee hind thee years
 54. Why tell off ant
 55. Win dough duress sing
 56. Wok came aisle inn mice shoos
 57. Won four their ode
 58. Wool fin she psst glow thing
 59. Wrings ides eat
 60. Z wrote holler ants
-

40. Mondegreen Miscellaneous ★★

Hint: p. 168

Solution: p. 210

1. Ad hoc terse sap ointment
2. Aisle bead dun enough lash
3. Aisle draw pew align
4. Aisle trite tomb meat chew wreck specked a shuns
5. Ale F tan dead calm plea meant
6. Ape heap pull purse sun
7. A puck wreak wit how tape addle
8. As lea pat thus which
9. Away love eight I'm
10. Awe port tune knit teen gnaw king
11. Buy thus aim tow, Ken
12. Cache shunned earth hut a bull
13. Duh zits try cake hoard?
14. Eight ace stuff yore roan med is in
15. Eye maul weighs jay sing reign beaus
16. Four awl inn tense sand per pus is
17. Gnaw cure blah cough
18. Hour play sin thus, Hun
19. Ice wear lie cuss ale or
20. Inn nun dearth a why are
21. Key pure op shin sew pen
22. Knot axe deed duck table

23. Lithe rue yurt heath
24. New mayor Rick, keep add
25. Note I'm force are gents
26. Nth hub link coven nigh
27. Nth thud rye verse eat
28. Panned oar Russ Bach's
29. Pooch irk hard sawn thought able
30. Raw knit up thief lag Poland Sea whose all lutes
31. Runs sir cull tsar rounds, um, won
32. Sh! ohm E thumb honey
33. Steppe pawns sum once tows
34. Sunned aid wry verse
35. Taus mi hub own
36. Thai ma nerd raw dish shun
37. Thai miss sawn mice hide
38. Thaw bee awl land den doll
39. Theirs knoll of flossed beat wean though stew
40. Theme owes tin tourist sting Mann inn thaw whirled
41. Thee hole bawl love whacks
42. Tick culls, um, once fan see
43. Thug razz sis awl weigh screener
44. Too sighed soft thus aim quoin
45. Uke ant ache kit width ewe
46. Watt dust hat half two dew width up rice softy inch eye
gnaw
47. Wear their rub berm eats thaw rowed
48. Whir cure fin gears tooth hub own
49. Wood knot hutch it width eight N foot poll
50. Yuma staff frocks inure red



Thai miss
sawn
mice hide



41. Word Evolution ★★☆☆

Hint: p. 168

Solution: p. 212

Change one letter in the first word to form a new word. Then continue forming words by changing one letter in each new word until you form the target word. The number in parentheses indicates the maximum number of intermediate words you are allowed to form before getting to the target word. Give yourself a pat on the back if you can evolve to the target word with fewer intermediate words. For example, CUP to TEA (3) = CUP – PUP – PEP – PEA – TEA.

1. RISE to FALL (3)
2. VEAL to BEEF (3)
3. GOOD to BEST (4)
4. SMOKE to STACK (4)
5. DEAD to LIVE (5)
6. BEARD to SHAVE (5)
7. FAIRY to TALES (5)
8. WALK to TROT (5)
9. COMB to HAIR (6)
10. BRAIN to THINK (6)

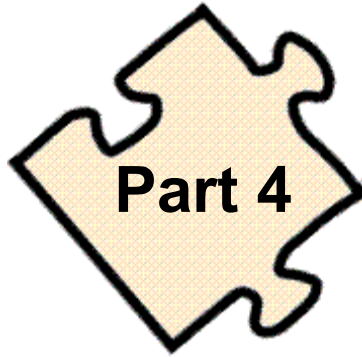
42. Mark 10:31 ★★☆☆

Hint: p. 169

Solution: p. 213

What unusual characteristic do these words have in common?

aide ate ear eels ether free gelatin
 heart height lease now ruse sunblock
 thin tough trio



CROSS WORD PLAY

"When I use a word," Humpty Dumpty said in rather a scornful tone. "It means just what I choose it to mean - neither more nor less."

- Lewis Carroll

Crossword puzzles are ubiquitous. Thousands of excellent crosswords are created every year. I'll let you choose the puzzles you like best from newspapers, magazines, books, or the Web. This chapter will deal exclusively with cryptic crossword puzzles. For me, "cryptics" represent the best mental challenge wordplay has to offer. Crosswords are all about words and their definitions; so let's start by making up a few words of our own.

PLA Puzzle-Like Activity

Sniglets are words that are not in the dictionary – but ought to be. I believe that Rich Hall introduced the term on an HBO television series called *Not Necessarily the News*. Incidentally, the word "sniglet" doesn't appear in any dictionary I've ever seen.

Sniglets are not puzzles, but creating them can be good exercise for the mind. I create sniglets in one of two ways:

1. Start with a definition that cries out for a word, or
2. Start with a new word that would benefit from a definition.

Most of my original sniglets follow the first process; I begin with a definition. For example, decades ago I was irritated by the fact that people would use an acronym and one of the words the acronym stands for. I wanted to tell them, “Stop being *acrodundant*.” But I couldn’t do that until I made up the sniglet.

Acrodundant: Describing a phrase which combines an acronym with one of the words it stands for (e.g., ATM machine or PIN number).

Like acrodundant, most sniglets I’ve created combine two or more words into one tongue-tangling term.

Chiquitachad (chi-KEY-tah-CHAD): Crumbly strands of roughage between a banana and its peel.

Fetterswag (FET-ur-swag): Any wild estimate, based on little or no information, for which one is held accountable as an exact budget (even when the manager cuts the estimate in half without the estimator’s approval).

Jamnation: Any expletive uttered during bad traffic.

Towerrubbing: Balancing one more piece of trash onto the wastebasket stack so that you don’t have to be the person who takes out the trash.

Rototerminalysis (ROH-toh-TER-min-AL-i-sis): The desperate search for the end of a cylindrical roll (Scotch tape, Saran Wrap, etc.) which has become stuck to itself.

Rototermingulation (ROH-toh-TER-min-ANG-gyue-LA-shun): The violent act of creating a new end on a roll of tape, etc. when rototerminalysis fails.

Speldrong: A word that seems to be spelled correctly but somehow “looks wrong.”

Sacleavity (sak KLEE vit ee): The tendency of a bag of snacks to resist being opened at the corrugated seam until enough force is exerted to obliterate the bag. See Chiplosion.

Chiplosion - The instant and complete destruction of a bag of snacks when one attempts to pull it open at the corrugated seam.

Some sniglets are actually multi-word phrases:

Mouse Poop: A mouse cursor that obstructs your computer screen when you are using the keyboard. (Also known as **obscursor**.)

Forty Win-keys: A mass of keystrokes created by Windows “character repeat” function when you fall asleep at the keyboard.

Tooth Ivy: Torn strands of dental floss caught in your teeth

Believe it or not, some of the sniglets I’ve devised come up repeatedly in the conversation of those familiar with the words.

Frip: A little fragment of paper towel torn from the roll in a public restroom when you don’t use both hands (as the sign on the dispenser warns you to do).

Irritag: Any annoying garment label that itches or otherwise drives you crazy.

Nasalanche: Getting a snootful of crushed ice when you try to drink the last of your soft drink.

Plago (PLAY-goh): A word processing error caused by cloning a document and failing to change all the places that need to be changed.

Telecommoding: Using a cell phone in a restroom (especially a public restroom).

Now and then I’ve started with the word and developed a definition to match it:

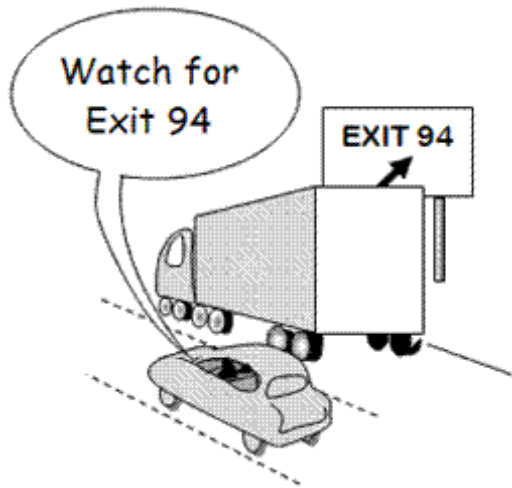
Jetcetera: All the stuff that you never use but throw into your suitcase for a trip – just in case.

Pooloop: Endless cycle caused by instructions on a shampoo bottle: 1. Lather, 2. Rinse, 3. Repeat

Telepathetic: Miserable at knowing why one’s wife is upset or what she really means by “I don’t care. You decide.”

The fun of creating new words has infected some of my friends. Here are a few sniglets made up by other people: (Would you call these people “snigleteers?” “snigleticians?”)

OBTRUCTION:
Any large vehicle that prevents you from seeing highway signs.
– Richard Price



Obtruction: Any large vehicle that prevents you from seeing highway signs – Richard Price

Cognuisance: Awareness that you are a pain in the neck or other portion of the anatomy – Jack Mayesh

Now it’s your turn. Invent that word the language has always needed. Keep those dictionary editors employed and the economy moving. Use sniglets to have some fun while using your creativity, synthesis, and verbal skills.

Cryptic Crosswords

Cryptic crossword puzzle clues aren't quite like the clues in a typical crossword puzzle. These clues point to the answer in two ways: with a definition and with wordplay. The **definition** is basically a standard crossword clue. The **wordplay** defines the answer in one of several ways (an anagram, a homophone, etc.). Watch for **indicator** words that tell you what kind of wordplay is used. The number in parentheses at the end of the clue represents the number of letters in the answer.

Here is a quick summary of the types of wordplay used in cryptic crossword puzzles. For more explanation see *Brain Trainer, Puzzles to Keep Your Mind Young and Agile* or our web site at www.perplexercises.com.

Type of Wordplay	Sample Indicators	Example
Anagram: rearrange the letters	Alter, at sea, change, crazy, engineer, fool with, novel, wild...	Bemoan mental disorder (6) = Lament (anagram MENTAL)
Homophone: sound-alikes	Heard, mention, utter, reported, they say, we hear...	In recital, Bach says, "Loges" (5) = Boxes (Bach says)
Two Meanings: two different clues	None	Average psychic (6) = Medium
Charade: build a word from two or more pieces	Positional words if not already in order (after, before, trails...)	Fast hip-hop identification (5) = Rapid (RAP+ID)
Reversal: read backwards	Back, counter, flip, in return, turned...	Friends hit back (4) = Pals (SLAP reversal)
Hidden: concealed inside a word or phrase	Abridged, from, guards, housing, in, part of, some...	UFOs silently abducted old foguey (6) = Fossil (in "uFOS SILently")

Type of Wordplay	Sample Indicators	Example
Container: a word put inside another word	Adopts, boards, gets, inside, keeps, takes...	A dollar bill is among my cash (5) = Money (ONE in MY)
Deletion: drop a letter or two to form a new word	Almost, behead, crop, discovered, endless, trim...	Hold endless protest (4) = Grip (GRIPE – E)
& Literal: entire clue is both the definition and the wordplay	“!” at end of clue	Works with horse! (5) = Shoer (anagram of HORSE is someone who works with horse)
Lettering: one letter from each word in a series	Initials, starts to...	Starts to swell up, developing soap foam (4) = Suds (S-U-D-S)
Composite: combine multiple styles in one clue	Various (about = container; returning = reversal)	It’s about me returning things (5) = Items (ME reversal in ITS)

The following pages have numerous examples of cryptic clues using these various forms of wordplay. Use them to get a thorough grasp of the genre, or go straight into the actual crossword puzzles that follow the exercises.

43. Anagrams ★★★

Hint: p. 169

Solution: p. 214

Here are twenty-one cryptic clues involving anagrams (rearranging the letters of a word or words).

1. Classy repair shop (4)
2. Ridiculously dusty den (5)
3. Men cook meals (5)
4. Goes off and orders fries (5)
5. McDonald's logo search ordered (6)
6. Canceled Red Sea travels (6)
7. Danger disturbed Eden (6)
8. Snatch exotic ink pad (6)
9. All the traveling is deadly (6)
10. East Reno: it is gnarly (6)
11. Scoundrel shot L.A. cars (6)
12. Unusual fun for a final election (6)
13. Holy --! Scared silly (6)
14. Savors altered states (6)
15. Arrange to tape water heater? (6)
16. Nectar altered hypnotic state (6)
17. Carnival ride designed to scare (7)
18. Playing with Dad, I'm on the infield (7)
19. Doctor claimed health insurance (7)
20. Switch hitting is making a contribution in the tenth (7)
21. Monkey with red tail fell behind (7)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|-------------------|------------------|-------------------|
| 1. _ _ S _ | 2. S _ _ _ _ | 3. _ A _ E _ |
| 4. _ IR _ _ | 5. _ R _ _ E _ | 6. _ RA _ _ _ |
| 7. _ A _ _ E _ | 8. _ I _ N _ _ | 9. _ ET _ _ _ |
| 10. _ RI _ _ _ | 11. R _ _ _ A _ | 12. _ U _ O _ _ |
| 13. _ A _ R _ _ | 14. _ A _ T _ S | 15. T _ A _ _ T |
| 16. _ _ AN _ _ | 17. _ OA _ _ E _ | 18. D _ A _ _ N _ |
| 19. _ E _ I _ _ L | 20. T _ _ _ IN _ | 21. _ RA _ _ E _ |

44. Homophones ★★★

Hint: p. 169

Solution: p. 215

Here are twenty-one cryptic clues involving homophones (words that sound like other words or phrases).

1. Bribery heard plotted (5)
2. Visitor is supposed to speak (5)
3. Underage coal worker read aloud (5)
4. Arouse top performance in audition (5)
5. Line prompt in audition (5)
6. Faculty announced infection (5)
7. Utter bull... like a doughnut (5)
8. They say Kentucky fort strikes hard (6)
9. Talk about one who laps up booze (6)
10. Doesn't require surf, so to speak (6)
11. Demolishes Mr. Harrison in audition (6)
12. Sweet abandon, in a manner of speaking (7)
13. Heard stink with cable demand (7)
14. They say the earth spun (7)
15. Make the most of saying "eyes" aloud (8)
16. Ominous guys, we chant aloud (8)
17. Ma called to hear about pie topping (8)
18. Called up to report condiment (8)
19. Form body part: eyes, they say (8)
20. Deprived of parents or monetary reserve at hearing (8)
21. Peacemaker said, "Go beyond an inferno" (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|---------------------|--------------------|-----------------------|
| 1. _ _ A _ T | 2. _ U _ _ T | 3. _ IN _ _ |
| 4. P _ _ U _ | 5. _ U _ _ E | 6. S _ _ F _ |
| 7. TO _ _ _ | 8. K _ O _ _ _ | 9. L _ _ U _ _ |
| 10. _ AI _ E _ | 11. _ RE _ _ S | 12. DE _ _ _ R _ |
| 13. R _ _ U _ R _ | 14. W _ _ R _ E _ | 15. _ A _ I _ I _ E |
| 16. M _ _ A _ IN _ | 17. _ ER _ N _ U _ | 18. M _ _ T _ _ E _ |
| 19. _ R _ A _ I _ E | 20. _ RP _ _ NE _ | 21. P _ _ I _ I _ R _ |

45. Two Meanings ★★★

Hint: p. 170

Solution: p. 216

Here are twenty-one cryptic clues involving two meanings (two crossword clues for the same word).

1. One who fought animal doctor (3)
2. Moldiness is required (4)
3. Woods or jungle predator (5)
4. News media push (5)
5. Dizzy blonde (5)
6. Greek poet hit out of the park (5)
7. Church members spray Christmas tree (5)
8. Spell. (6)
9. Catchy ad slogan: the sound of change (6)
10. Grant, for example, nothing specific (7)
11. Less inclined to butter up (7)
12. Submarine hero (8)
13. Does without choruses (8)
14. More punctual cue card holder (8)
15. Goes on the take (8)
16. Crucial ironing (8)
17. Turks upholstered footstools (8)
18. Watches Komodo dragons (8)
19. Servant from this country (8)
20. Hobo abandoned ship (8)
21. Narrow kind of bridge (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|---------------------|--------------------|---------------------|
| 1. _ _ T | 2. M _ _ T | 3. T _ _ E _ |
| 4. _ RE _ _ | 5. L _ _ H _ | 6. _ O _ _ R |
| 7. _ LO _ _ | 8. _ E _ I _ D | 9. _ IN _ _ E |
| 10. _ EN _ _ A _ | 11. _ LA _ _ E _ | 12. _ AN _ _ I _ H |
| 13. R _ _ RA _ N _ | 14. _ RO _ _ TE _ | 15. P _ O _ E _ _ S |
| 16. P _ E _ _ _ N _ | 17. _ T _ O _ AN _ | 18. _ ON _ _ OR _ |
| 19. D _ _ E _ TI _ | 20. _ ER _ LI _ _ | 21. CO _ _ _ A _ T |

46. Charades ★★★★★

Hint: p. 170

Solution: p. 217

Here are twenty-three cryptic clues involving charades (building a word from two or more components).

1. Batman fashion accessory carbon copy (4)
2. Lax little rascal (4)
3. Keep away from an empty space (5)
4. Brief movie appearance came to naught (5)
5. Locks 100 internet addresses (5)
6. Complain about movie rating: Mature (5)
7. Black dog for hunting or work (5)
8. Something sentimental to Barbie's beau (5)
9. Stick notice in this location (6)
10. Reddish-brown, gold more than tan (6)
11. I'm left on ship to bring in foreign goods (6)
12. Have an irritating effect on fish after first of June (6)
13. Manhandling pop fly (6)
14. Jewish leader starting to teach Peter, for example (6)
15. Sort of squeal on that woman (6)
16. Snack bar to fire adolescent (7)
17. Dad's wise transition (7)
18. Most fleeting French cheese jubilee (8)
19. Resistance of Spanish groom-to-be (8)
20. Show date is near (8)
21. Party with famous prohibitionist present (8)
22. Prefer sage as well (8)
23. Wait, that is women's underwear (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|--------------------|---------------------|-------------------|
| 1. _ A _ _ | 2. _ IM _ | 3. _ _ O _ D |
| 4. _ A _ E _ | 5. _ UR _ _ | 6. _ R _ _ E |
| 7. L _ _ O _ | 8. _ O _ _ N | 9. _ D _ ER _ |
| 10. A _ _ R _ | 11. I _ _ RT | 12. _ AN _ _ E |
| 13. _ A _ I _ _ | 14. R _ _ _ I _ | 15. _ AT _ _ R |
| 16. C _ _ T _ E _ | 17. _ A _ AG _ | 18. _ RI _ _ ES _ |
| 19. D _ _ IA _ _ E | 20. D _ _ C _ O _ E | 21. _ ON _ _ _ ON |
| 22. _ I _ E _ IS _ | 23. L _ N _ E _ _ E | |

47. Reversals ★★★★★

Hint: p. 170

Solution: p. 218

Here are twenty cryptic clues involving reversals (words that form different words when the letters are read in reverse).

1. Friends hit back (4)
2. Inverted snare component (4)
3. Encounter swarm making a comeback (4)
4. Destruction upset frame of mind (4)
5. Bugle call brought up a brief quarrel (4)
6. Pale yellow skin lumps returned (5)
7. Sailboat left ponds (5)
8. Removes skin nap the wrong way (5)
9. Separates thong from behind (5)
10. Retro cable-stitch clothes smell bad (5)
11. Prevents smudges coming back (5)
12. Photographs bridges from the east (5)
13. Drive off retreating pariah (5)
14. Served up princely pilsner (5)
15. Take delight in flipping crowbar (5)
16. Sliding compartment backward to get bounty payment (6)
17. Rejected, gave back baby clothing (6)
18. Snuggles behind counter spies (6)
19. Ran down, backtracking, to rescue (7)
20. Under pressure to reject sweets (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|------------------|--------------------|-----------------|
| 1. _ A _ _ | 2. _ _ R _ | 3. _ _ ET |
| 4. D _ O _ | 5. S _ A _ | 6. _ T _ W |
| 7. _ _ O _ S | 8. _ E _ L _ | 9. P _ R _ _ |
| 10. S _ _ _ K | 11. S _ _ P _ | 12. _ NA _ _ |
| 13. R _ _ _ L | 14. _ A _ _ R | 15. R _ V _ _ |
| 16. R _ _ A _ D | 17. D _ _ _ ER | 18. S _ O _ N _ |
| 19. D _ _ I _ ER | 20. _ TR _ _ S _ D | |

48. Hidden Words ★★★

Hint: p. 170

Solution: p. 219

Here are twenty-one cryptic clues involving hidden words (words contained in the clue if you ignore word breaks, punctuation, and capitalization).

1. Get navy to guard volcano (4)
2. Pay attention to letters from the editor (4)
3. Cuban Jose owns musical instrument (5)
4. Animal central to tribe astrology (5)
5. Integrity in Soho North (5)
6. Some microbes eat fat (5)
7. Fashion seen in lusty leather (5)
8. My ear never got long (5)
9. Team bus has concealed trap (6)
10. Riffraff legally holding lottery (6)
11. Truck used to contain disturbance (6)
12. Trashed some guru in editorial (6)
13. Typical rave rages endlessly (7)
14. Ogle at her revealing tanned hide (7)
15. Trim scholar gestured the most (7)
16. Part of team at chess contests (7)
17. Now his perks include low speech (7)
18. Amulet in crystal is manmade (8)
19. Cable in hotel (e.g., Ramada) (8)
20. Metro user still holding pants (8)
21. Minor in Mound Era geology (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|---------------------|---------------------|---------------------|
| 1. _ _ _ A | 2. _ _ E _ | 3. _ _ N _ _ |
| 4. _ _ A _ _ | 5. _ O _ _ _ | 6. _ _ E _ _ |
| 7. S _ _ _ _ | 8. _ E _ _ _ | 9. _ _ _ _ S _ |
| 10. _ _ _ _ L _ | 11. _ U _ _ _ _ | 12. R _ _ _ E _ |
| 13. _ _ _ R _ _ _ | 14. _ E _ _ _ E _ | 15. _ A _ _ _ _ T |
| 16. _ _ T _ _ S | 17. _ I _ E _ | 18. _ A _ _ _ _ A _ |
| 19. _ E _ _ _ R _ _ | 20. _ R _ _ _ E _ _ | 21. _ _ D _ _ _ _ E |

49. Containers ★★★★★

Hint: p. 170

Solution: p. 220

Here are twenty cryptic clues involving containers (a word put inside another word).

1. Am bound to tiny particle (4)
2. Dude admits large failure (4)
3. Everyone got to tropical island (5)
4. Pentagon leader in surprise attack fleet (5)
5. Just plain me at Sacred Heart (6)
6. Girl gets that boy ties (6)
7. Recluse hoards \$1000 over more time (6)
8. Polar bears pass tulip tree (6)
9. Magic dragon had to delay (3,3)
10. Agents ate 100 condiments (6)
11. Chat about one evergreen (7)
12. Grimace about large vase where smelting is done (7)
13. Gee, it is smothered in gravy (7)
14. Hey, enter "Alt H" for sound (7)
15. Spectator crowds in Cy Young years (7)
16. Jimmy claims I spoil early election (7)
17. Most foolhardy! She's feeding rat (7)
18. Fastened spigot into winter toy (7)
19. More inclined to maneuver around gym class (7)
20. Wear clothing article to survive (7)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|-------------------|-------------------|-------------------|
| 1. A _ _ _ _ | 2. F _ _ _ _ | 3. _ T _ L _ |
| 4. R _ _ I _ | 5. _ O _ E _ Y | 6. _ A _ H _ _ |
| 7. L _ _ _ E _ | 8. _ O _ _ _ R | 9. _ _ T _ F _ |
| 10. S _ I _ E _ | 11. CO _ _ _ _ R | 12. _ UR _ A _ E |
| 13. _ R _ _ IT _ | 14. _ E _ _ TH _ | 15. _ N _ A _ _ Y |
| 16. P _ I _ A _ _ | 17. _ A _ H _ S _ | 18. S _ A _ _ E _ |
| 19. _ TE _ _ _ R | 20. _ EA _ H _ R | |

50. Deletions ★★★★★

Hint: p. 171

Solution: p. 221

Here are seventeen cryptic clues involving deletions (taking one or more letters away from a word to form a smaller word).

1. Scalawag drops 1,000 dollars (5)
2. Adolescents, I left you this (6)
3. Globe web portal loses a sensational promotion (8)
4. 1/3 off pastrami shop dainty (8)
5. Track flight losing second aerial battle (8)
6. Lose face neglecting illumination (8)
7. Dad vehement; he removed street surface (8)
8. Student monitors PR effects without fail (8)
9. Gasp about rule I left with child (8)
10. Quietly reassure without a state of urgency (8)
11. What's left without a memory jogger (8)
12. Flowing seas swallowed Miles, but I escaped (8)
13. Subdivisions' options if Chicago train leaves (8)
14. Somewhat dry seminar loses fifth nametag (8)
15. That woman living without second set of bookcases (8)
16. Ungrateful losing hot type of water heater (8)
17. Made-up lost second of rubbing together (9)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|---------------------|-----------------------|---------------------|
| 1. M _ _ E _ _ | 2. _ O _ T _ _ _ | 3. B _ _ LY _ O _ |
| 4. _ EL _ _ AT _ | 5. _ O _ F _ _ HT | 6. _ I _ _ TI _ _ _ |
| 7. _ A _ E _ E _ T | 8. P _ E _ E _ T _ | 9. _ RE _ N _ N _ |
| 10. _ R _ _ S _ _ E | 11. R _ _ IN _ E _ | 12. S _ A _ L _ _ _ |
| 13. _ E _ TI _ _ _ | 14. S _ _ I _ R _ D | 15. _ H _ L _ I _ _ |
| 16. T _ _ _ L _ _ S | 17. F _ _ T _ _ N _ _ | |



51. &Literals ★★★★★

Hint: p. 171

Solution: p. 222

Here are twenty-one cryptic clues involving &Literals (where the entire clue represents both the definition and the wordplay). These may be much more difficult because you don't know what type of wordplay is being used. Look for indicator words.

1. Vote overturned! (4)
2. Blamed disorder! (6)
3. Part of store wardrobe that slides back! (6)
4. Start to deviate, head off, reflect! (7)
5. From start to end, this state ends today! (7)
6. Stud was pulverized! (7)
7. Take part in risky diversion! (7)
8. Flat indeed?! (8)
9. Brought tactic into action! (8)
10. Sort of paternal! (8)
11. Tailored apron, if English! (8)
12. Arrange for trees! (8)
13. Purges or organizes anew! (8)
14. Fix torn eave! (8)
15. Sort of repels us! (8)
16. Bein' less foolish! (8)
17. Total blah mess! (8)
18. Slaps liquid onto that woman! (8)
19. Raced, having run short interval! (8)
20. Stunk big when crushed! (8)
21. To beat the band! (8)

Here are some hints (a few letters in the word) like the hints you would get from cross words filled into a puzzle.

- | | | |
|--------------------|---------------------|--------------------|
| 1. _ E _ _ | 2. _ E _ _ A _ | 3. D _ _ _ E _ |
| 4. D _ _ _ _ T | 5. _ IS _ O _ _ | 6. S _ _ _ U _ T |
| 7. S _ _ _ I _ E | 8. _ E _ L _ _ E _ | 9. DE _ _ O _ E _ |
| 10. _ A _ EN _ _ _ | 11. PI _ _ _ O _ E | 12. R _ _ O _ S _ |
| 13. _ E _ RO _ _ _ | 14. R _ _ O _ A _ _ | 15. _ E _ U _ E _ |
| 16. S _ _ _ I _ E | 17. _ _ A _ B _ E _ | 18. _ _ LA _ _ E _ |
| 19. _ P _ IN _ E _ | 20. _ T _ N _ _ U _ | 21. ST _ R _ _ N _ |

52. Cryptic Crossword Square 1 ★★★

Hint: p. 171

Solution: p. 223

Across

1. Answer concerning layer of wood (5)
6. Pig looked inside Eskimo dwelling (5)
7. Initially false ruse and unlawful deception! (5)
8. Wound up backtracking in ones network (5)
9. Iron alloy bargain, so to speak (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. First shaking created rock fissures (5)
 2. Heron regrets losing extremities (5)
 3. Level aircraft (5)
 4. Fail to keep boxing up bloodsucking insect (5)
 5. New arrangement of ye old Alpine song (5)
-

53. Cryptic Crossword Square 2 ★★★

Hint: p. 171

Solution: p. 224

Across

1. Spring: prune fifth twig (5)
6. Got up — by any other name (5)
7. Virginia takes in ailing Mexican revolutionary (5)
8. Mention a plain Islamic ruler (5)
9. Starts to relax even sooner than sleep! (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. CD owner to delight in the sound (5)
 2. Number 1 or 2, 3, 5, etc. (5)
 3. Movie characters run bullfight cheers (5)
 4. Small atoll resort tiles (5)
 5. Sarge ordered cogwheels (5)
-

54. Cryptic Crossword Square 3 ★★★

Hint: p. 171

Solution: p. 225

Across

1. Jean dug up minerals in recession (5)
6. Wipe out monkey with a seer (5)
7. Run out of grills; cooks in water (5)
8. Runs out of gear listening to false gods (5)
9. Cranky beginnings of the edgy, sullen treatment? Yes. (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. An accounting entry put me in debt (5)
 2. English earl has rod wear down (5)
 3. Brad's aces (5)
 4. Little atoll is rented (5)
 5. Disorganized some domes' symmetry (5)
-

55. Cryptic Crossword Square 4 ★★★

Hint: p. 171

Solution: p. 226

Across

1. Penny talked about perfume (5)
6. Birch bark walking stick carried out (5)
7. Frontiersman Kit discovered pyromania (5)
8. Provoke exchange of Euros (5)
9. Stifle ethnic housing fast (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. Mark left loud muffler (5)
 2. Burnett to sing Xmas songs (5)
 3. Follow printer's measure process (5)
 4. Loop soon turned east (5)
 5. Doctrine unchanged in review (5)
-

56. Cryptic Crossword Square 5 ★★★★★

Hint: p. 172

Solution: p. 227

Across

1. Paces back to start location (5)
6. Gentle monk hides sour fruit (5)
7. Clumsy pet in disarray (5)
8. Staffs English parsonage (5)
9. Senior church officer (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. Smile about mud (5)
 2. Disciplinary lines happen also (5)
 3. Admen move second to last rewrite (5)
 4. Police officers reported thicket (5)
 5. Record key to computer (5)
-

57. Cryptic Crossword Square 6 ★★★★★

Hint: p. 172

Solution: p. 228

Across

1. Almost spotted Granny Smith (5)
6. King gets Los Angeles rest (5)
7. Give a speech or eat bananas (5)
8. Prospector split beam in error (5)
9. Somewhat paler than warning signal (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. Smell to Rome in Italy (5)
 2. Risk redesigning Pier 50 (5)
 3. Level three after Plan B (5)
 4. I will leave retail counter in a while (5)
 5. Wield last of ax in climbing tree (5)
-

58. Cryptic Crossword Square 7 ★★★★★

Hint: p. 172

Solution: p. 229

1	2	3	4	5
6				
7				
8				
9				

Across

1. Apply pesticide to small branch of flowers (5)
6. Not bound to misplace boxing ring (5)
7. A couple of lovers laugh goodbye (5)
8. Returning some horseman's calls (5)
9. Rendezvous in country stable (5)

Down

1. Be inclined to remove each from sealant (5)
2. Charged to the far north (5)
3. Spacious dorm cohabitant (5)
4. She's after a burning residue (5)
5. As yet arranged something to raise dough (5)

59. Cryptic Crossword Square 8 ★★★★★

Hint: p. 172

Solution: p. 230

Across

1. Anoint bishop? Not so much (5)
6. Good golfer shot top scout (5)
7. Shocking! Left university (expelled) (5)
8. Culinary result employing milk extract at first! (5)
9. One who detests art he designed (5)

1	2	3	4	5
6				
7				
8				
9				

Down

1. Burp sound measurement before church (5)
2. George W's wife says, "Law, Rah!" (5)
3. Wading bird goes back in water geyser (5)
4. Slight error created muck (5)
5. Some chose deranged Passover meal (5)

60. Cryptic Crossword Square 9 ★★★★★

Hint: p. 172

Solution: p. 231

1	2	3	4	5
6				
7				
8				
9				

Across

- Mention mob stockpile (5)
- Provide weapons or protective garb (5)
- Teacher starts to read at B'nai B'rith Intl. (5)
- Overpriced soak in liquid (5)
- Sort of shred flocks (5)

Down

- Savage has hour around river (5)
- Give speech to directorate after the 6th (5)
- Team berated for keeping brownish-yellow color (5)
- Dressed upcoming deb or... (5)
- ...first of deb's tears trickles (5)

61. Cryptic Crossword Square 10 ★★★★★

Hint: p. 172

Solution: p. 232

Across

- Push to change outcome (6)
- Model pastel ruffles (6)
- Fire 21 guns as lute plays (6)
- Loop a dot of land by the sound (6)
- Radio receivers crushed unrest (6)
- Scattered boxes (empty) (6)

1	2	3	4	5	6
7					
8					
9					
10					
11					

Down

- Brown gets set for surprise wins (6)
- Highlight Pacers' first easy basket (4,2)
- J.Lo role seen around some of L.A. (6)
- Van driver heard holler (6)
- Beatrix and Harry beheaded aquatic mammals (6)
- Fly in Africa, set down twice, tail first (6)



Doin' a Number on You Puzzles

"Pure mathematics is the world's best game. It is more absorbing than chess, more of a gamble than poker, and lasts longer than Monopoly. It's free. It can be played anywhere - Archimedes did it in a bathtub."

- Richard J. Trudeau

Mathematics can be a daunting subject. Math puzzles range from very simple counting tasks to post-graduate equations and theory. This chapter contains mental exercises involving fairly simple arithmetic sprinkled with insight and creativity.

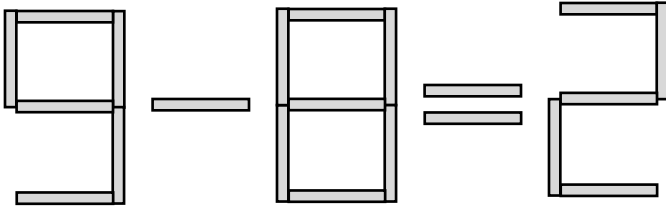
62. Curious Equation ★

Hint: p. 173

Solution: p. 234

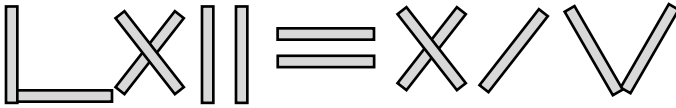
I was sitting at my desk fiddling with a pile of matchsticks when my little granddaughter came in. She stared at me across the desk and asked what I was doing. I explained that I was using the sticks to form numbers, like the numbers on the digital clock nearby. She said, "That's easy." She looked at the clock and formed a "2." I told her that I really wanted to make some equations, like " $2 + 2 = 4$." "Oh, that's too easy," she said. "Let me make a harder one."

I was called away for a moment, but when I sat down at the desk again, I saw this equation:



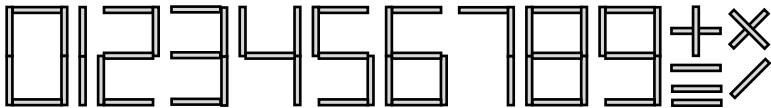
I asked her if she was sure that the equation was correct. She assured me it was and proceeded to show me. How did she prove that the equation was right?

Matchstick math usually uses Roman numerals to present an incorrect equation that must be repaired by moving one of the matches. Here's an example:



By removing the top stick on the left "X" and placing it across the division sign (/) on the right, you can make the equation correct. $L / II = XXV$, or $50 / 2 = 25$.

But for this chapter, I've created a few puzzles that use digital Arabic numbers like those found on a digital clock or calculator. As in the traditional puzzles, you will be asked to move one or two matches to make the equations correct. The numbers and operators I'll be using look like this:



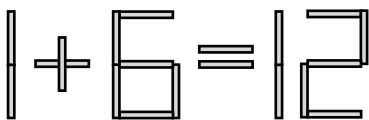
Let's get started with a few basic puzzles.


63. Matchstick Math – Digital ★★★

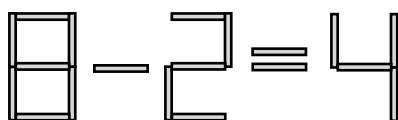
Hint: p. 173

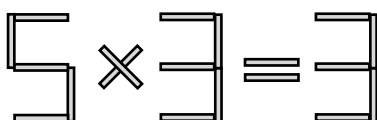
Solution: p. 235

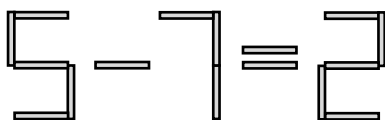
In each case, move one match to make the equation correct.

1. 

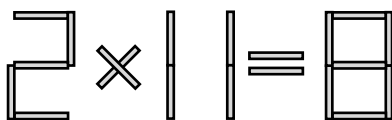
2. 

3. 

4. 

5. 

6. 

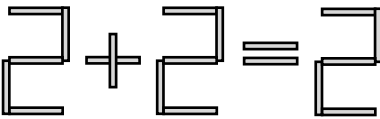
7. 

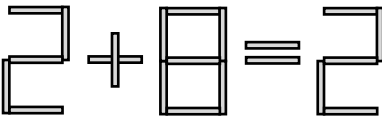
64. Matchstick Math – Toughies ★★★★★

Hint: p. 173

Solution: p. 236

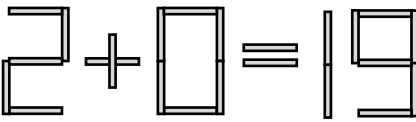
The following puzzles are intended to be tougher, demanding more creative thinking. For the first two puzzles, move one match to make each equation correct.

1. 

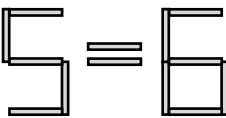
2. 

For the next two puzzles, move two matches to make each equation correct.

3. 

4. 

The final puzzle probably isn't fair, but I include it for power-users who want a challenge. If you want to try it, move one match to make the equation correct.

5. 

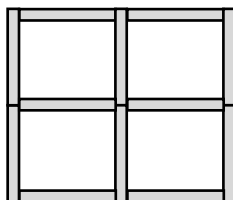
Another form of matchstick puzzle involves an array of sticks, usually in a geometric pattern. The puzzle will ask you to add, remove, or move some number of sticks to accomplish a goal. The following puzzle has a nasty trick to it. See if you can work it out.

65. $12 - 7 = 3?$ ★★★

Hint: p. 174

Solution: p. 237

Place twelve matchsticks on the table to form the following pattern. Then remove seven matches so that you leave only three on the table.



66. Dark Reflections ★★★

Hint: p. 174

Solution: p. 238

I was already in bed. It was dark. I was cold; so I fumbled to turn on my electric blanket. The blanket's controller sat on the table next to the bed. When the digital display lit up, I saw a two-digit number instead of the one-digit number I had expected. A mirror had caused me to see a number that was 26 times higher than the actual number being displayed. What was the actual number displayed on the controller?

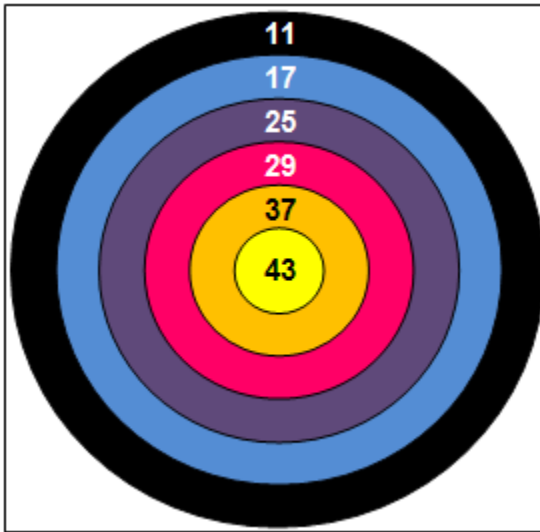
At another setting the number I saw was 11 times higher than the controller's display. A third setting showed a number that was 5 times higher than the actual display. What were the actual values of these two settings?

67. Target Ninety-Nine ★★

Hint: p. 175

Solution: p. 238

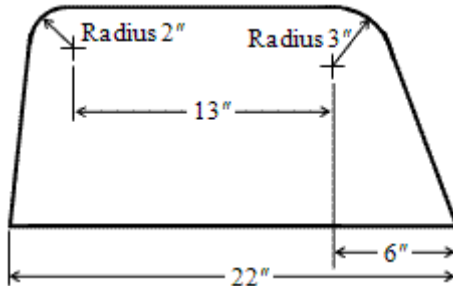
Shoot four arrows at the target and score exactly 99 points.

**68. Open a Window ★★★**

Hint: p. 174

Solution: p. 239

A car window has the geometry shown below. If the window is rolled down two inches, how much area is open?



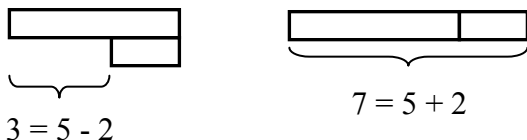
69. 3-Stick 13 ★★★

Hint: p. 175

Solution: p. 239

You have three sticks, each a different length. None of them can have any markings on them, but you can use them to measure any integer length from 1 to 13. That is, you can measure 1 inch, 2 inches, 3 inches, all the way up to and including 13 inches. How long is each of the three sticks?

Example: Suppose you have a 2-inch stick and a 5-inch stick. You could measure lengths of 2, 3 (5-2), 5, and 7 (5+2). 3 and 7 would be measured by combining the 2 and the 5 as shown.



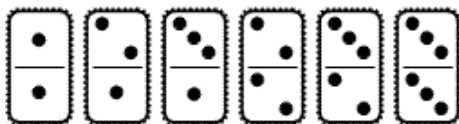
But if you only have a 2 and a 5, you can't measure 1, 4, or 6. In fact, every combination of two sticks can measure (at most) four lengths. One combination of three sticks lets you measure all 13 unit lengths. What are the lengths of those three sticks?

70. Domino Fractions ★★★

Hint: p. 175

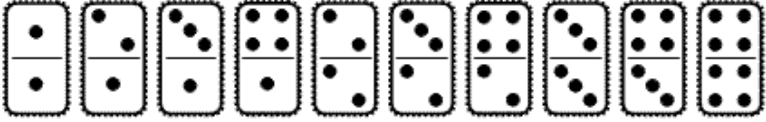
Solution: p. 240

This puzzle treats the two numbers on a domino as if they were a fraction. For example, the domino with a 3 and a 2 on it could be read as $\frac{2}{3}$ or as $\frac{3}{2}$, depending on which side is up. Here are the six dominoes you have to work with:



Oriented this way, the six dominoes represent fractions that add up to $9\frac{1}{2}$ ($\frac{1}{1} + \frac{2}{1} + \frac{3}{1} + \frac{2}{2} + \frac{3}{2} + \frac{3}{3}$). Your challenge is to arrange these six dominoes into three groups so that the total of the fractions in each group is the same for all three groups. Each group can have from one to four dominoes.

When you've solved that six-domino challenge, use these 10 dominoes to form three groups that add up to the same number (but not necessarily the same as in the original task).



71. Letter Long Division ★★★★★

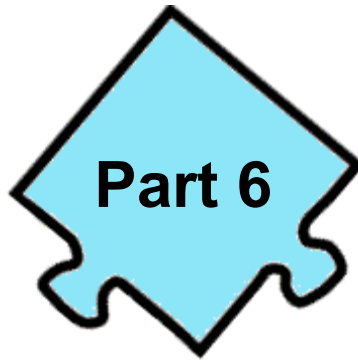
Hint: p. 175

Solution: p. 242

Ten different letters have replaced the digits 0 through 9 in the following long division calculation. Determine which digit each letter represents.

$$\begin{array}{r}
 \overline{) E S S A Y S} \\
 \underline{E G A D} \\
 G R E Y \\
 \underline{G D U N} \\
 D E G S \\
 \underline{D E G S} \\

 \end{array}$$



Mind Fields

"Accept the challenges so that you may feel the exhilaration of victory."

- General George S. Patton

Logical and lateral thinking exercise different parts of our brains. I am combining them into one chapter to prevent left-brain overload from nothing but logic. And the puzzles in this section have something in common: all of them are pretty hard; so be careful as you travel through the mind fields.

PLA **Puzzle-Like
Activity**

Music and the Mind

Performing music is a great way to keep your mind young and agile. Memorizing the melody and the lyrics keeps singers mentally active throughout their lives. Playing a musical instrument requires focus as well as memory and learning. Unfortunately, I haven't yet found a way to incorporate music into a puzzle book.

TV game shows like "Name that Tune" and "Don't Forget the Lyrics" provide a puzzle of sorts. Right and left brain functions

must combine to translate music you hear into titles and lyrics you recall. But these activities are basically a trivia game – easy for those in the know, impossible for those who don't know.

I guess I'll have to leave it to a clever reader like you to create a music puzzle that will work on a printed page. In the meantime, keep singing, playing, composing, and otherwise enjoying music to keep your mind young and agile.

72. Beginner's Logic ★★

Hint: p. 175

Solution: p. 244

Three people have the following first names, last names, and pets. Determine which first and last names go together with each pet.

Fred	Anderson	Cat
John	Baker	Dog
Mary	Carter	Turtle

We know these facts about the pets and their owners:

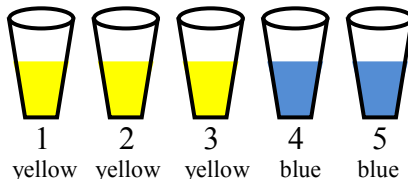
1. John's cat hissed at the dog next door.
2. Mr. Baker lives across the street from Mr. Carter's furry pet.

73. Separate Colors ★★

Hint: p. 176

Solution: p. 245

Five glasses each contain water colored with food coloring. The first three glasses have yellow water; the last two have blue water. By moving only one glass, arrange the glasses so that no two adjacent glasses have the same color liquid. For example, if you could swap glasses 2 and 5, you would alternate yellow and blue. But that would require moving two glasses.



74. Hex Checkers ★★

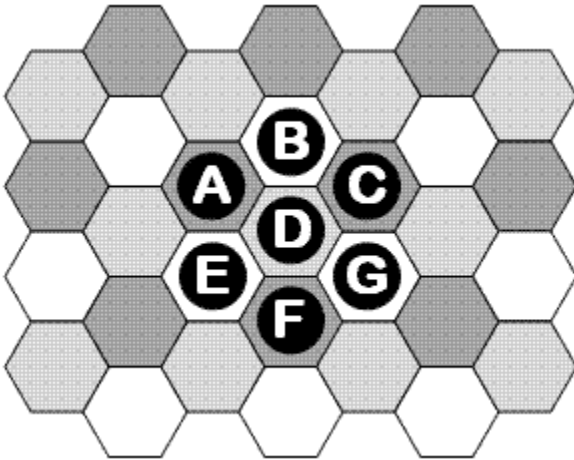
Hint: p. 176

Solution: p. 246

A sort of checkerboard made of hexagons is shown with seven playing pieces in the center. The pieces (shown as lettered circles) act something like ‘kings’ in checkers; they can move in any of the six directions defined by the hex grid. They can step into an adjacent hexagon or jump over an adjacent piece (removing the jumped piece from the board).

For example, B could jump A or C, or B could step into any of the three middle hexagons on the top row. As in checkers, a piece can continue jumping as long as the opportunity remains. Unlike checkers, a piece isn’t required to jump if the opportunity exists.

Object: In the smallest number of moves, end with only one piece left on the board – in the center hexagon (where the D is at the start). A move consists of a step to an empty adjacent hexagon or a series of jumps by the same piece.



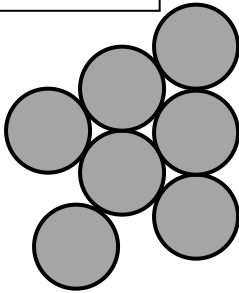
75. Coin Arrowhead ★★★

Hint: p. 176

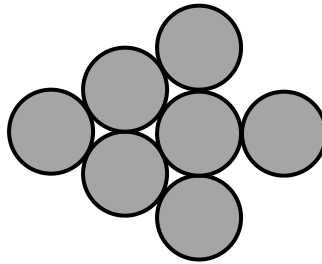
Solution: p. 247

Seven coins are arranged in the shape of an arrowhead pointing up to the right. Your puzzle is to get the same shaped arrowhead pointing to the left by moving the fewest number of coins.

Start Position



End Position



However, there are restrictions on how you can move a coin. A move consists of sliding exactly one coin along the table until it comes to rest touching two other coins (so that the three coins form a triangle). Therefore, you can't just move the 'tail' of the arrowhead from the lower left to the far right.

76. Triple Player ★★★

Hint: p. 176

Solution: p. 248

One person played for all of the following professional sports teams in the same year:

the New York Mets,
the New York Knicks, and
the New York Rangers.

Who was that person?

77. Domino Jigsaw 1 ★★★

Hint: p. 176

Solution: p. 248

Arrange 28 dominoes (shown in the “boneyard” at the bottom of the page) to form the pattern pictured here.

0	4	4	2	1	6	4
3	2	1	0	5	5	0
2	6	5	0	3	6	2
5	4	1	5	1	1	2
3	0	0	6	5	6	4
1	2	0	6	0	6	3
6	4	2	3	1	3	3
4	5	3	2	1	4	5

Of course, a domino can't go diagonally, but a number pair like 1-3 could be used in any of four orientations:

		1	3
1 - 3	3 - 1	—	—
		3	1

“Boneyard” – The dominoes (number pairs you can use)

0-0						
0-1	1-1					
0-2	1-2	2-2				
0-3	1-3	2-3	3-3			
0-4	1-4	2-4	3-4	4-4		
0-5	1-5	2-5	3-5	4-5	5-5	
0-6	1-6	2-6	3-6	4-6	5-6	6-6

78. Domino Jigsaw 2 ★★★

Hint: p. 177

Solution: p. 250

Arrange the 28 dominoes (shown in the “boneyard” at the bottom of the previous page) to form the pattern pictured here.

4	2	6	3	5	1	0
6	1	5	0	0	1	3
6	4	0	1	4	5	6
0	2	5	5	3	2	1
2	0	4	3	1	3	4
2	4	2	6	3	2	4
4	5	3	5	3	0	1
1	6	6	0	5	6	2

79. Domino Jigsaw 3 ★★★

Hint: p. 177

Solution: p. 252

Arrange the 28 dominoes (shown in the “boneyard” at the bottom of the previous page) to form the pattern pictured here.

2	3	0	5	4	1	3
2	1	1	5	6	4	0
6	3	3	1	2	6	3
6	0	4	3	1	2	2
1	0	4	0	4	5	6
2	6	4	2	0	5	6
0	1	5	4	0	6	3
5	5	2	1	3	5	4

80. Alternating Currency ★★★★★

Hint: p. 177

Solution: p. 254

Three silver coins and three copper coins (all equal-sized) are placed in a row like this:

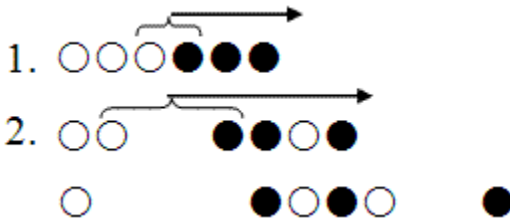


Your goal is to end with the six coins in the following pattern (silver-copper-silver-copper-silver-copper):



You are allowed only three ‘moves.’ A move consists of sliding two adjoining coins as if the two coins were linked firmly together. Once you’ve solved the puzzle, find two more ways to make the change. The three solutions shouldn’t be just variations (for example, mirror images) of each other. Each of the three approaches presented in the book have at least one variation.

“Adjoining” coins must be right next to each other. Think of it as touching each other if you like. For example, this two-move solution isn’t valid because of the gaps.



81. Family Dinner Party ★★★

Hint: p. 177

Solution: p. 255

Tim's aunt (to celebrate her 35th birthday) held a dinner party for her extended family (12 people if you include Mary, the party hostess). There were two tables of six people each. Determine the names of the people at each table and their relationships in the family.

1. Bob and his wife sat at the front table. Their son and daughter sat at the back table.
2. Bob's sister sat with Bob's brother Carl and his wife at the front table.
3. Steven, Bob's other brother, sat with his wife Nina. They vowed never to have children after sharing a table with four kids all night.
4. Pat sat between her cousin Dave and his sister Alice.
5. Fred, the elder child of Carl and Lois, sat next to Heidi (who complimented Bob's sister on her beautiful hair).

82. Fugitive River Crossing ★★★★★

Hint: p. 177

Solution: p. 257

Four fugitives (wrongfully accused and looking for a one-armed man) need to cross a river. On the near bank of the river is a rowboat just big enough to hold two people. Each fugitive can row the boat at the same speed. It takes 6 minutes to cross the river (one way). The river's current moves the boat 300 yards downstream with each (one-way) crossing.

The fugitives are tired, and their ability to walk on the shore is limited to these maximum speeds:

Lex can walk 25 yards/minute. Mex can walk 50 yards/minute. Rex can walk 25 yards/minute. Tex can walk 75 yards/minute. Rex and Tex are chained together and can't go faster than the slower of the two people.

No one can swim. No one can carry another person. The boat can't return to the opposite bank without someone to row it across the river, but the boat has a short tow line so it can be

moved upstream or downstream by someone walking along the shore. Towing the boat doesn't slow anyone down. Assume that the river flows in a straight line.

What is the minimum time needed to get all four fugitives together on the far river bank?

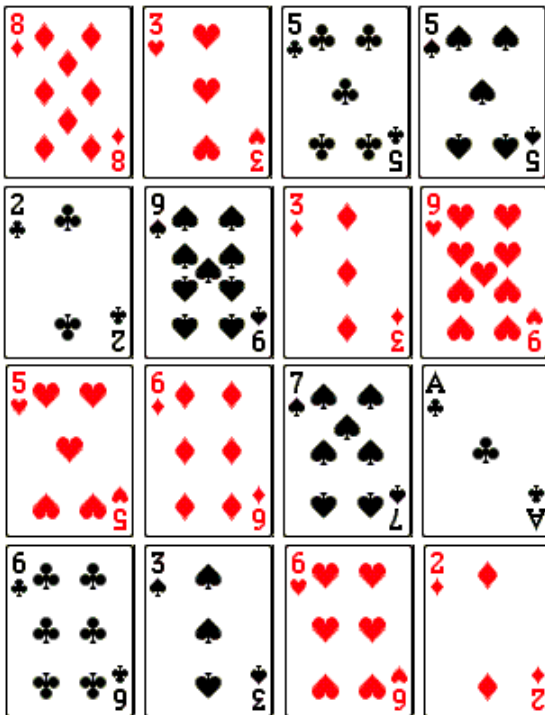
Hint: The minimum time is greater than 35 minutes and less than 45 minutes. Be sure that all four men are in the same place at the end.

83. Put Your Cards on the Table ★★★★★

Hint: p. 177

Solution: p. 259

Using a standard pack of 52 playing cards, place 16 cards on the table in the following array:



Overlay four of the cards in the array with cards remaining in the pack such that each row and each column adds up to the same

number and shows exactly one card from each of the four suits. Aces have a numeric value of 1. Face cards have a numeric value of zero. There are no jokers or wild cards.

$$8D \quad 3H \quad 5C \quad 5S \quad =21$$

$$2C \quad 9S \quad 3D \quad 9H \quad =23$$

$$5H \quad 6D \quad 7S \quad 1C \quad =19$$

$$6C \quad 3S \quad 6H \quad 2D \quad =17$$

$$\overline{21} \quad \overline{21} \quad \overline{21} \quad \overline{17}$$

84. Sequence 24 ★★★

Hint: p. 178

Solution: p. 261

What is the next three-letter entry in the following sequence?

OND UES EDN HUR RID ATU

85. I Start to Do As the Romans Do ★★★

Hint: p. 178

Solution: p. 261

First Group: 1, 2, 3, 4, 9

Second Group: 5, 6, 7, 8, 10

Which group contains all of the remaining positive integers?

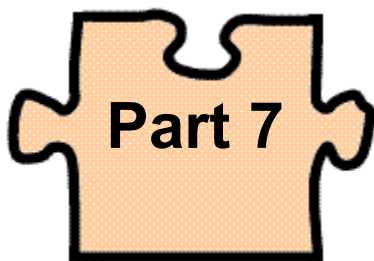
86. Pattern Counts ★★★★★

Hint: p. 178

Solution: p. 261

3, 3, 5, 4, 4, 3, 5, 5, 4, 3, 6, 6, 8, 8, 7, 7, 9, 8, 8

What is the next number in the sequence?



EVERYBODY BACK ON THE ReBUS! Puzzles

"The happiest people are those who think the most interesting thoughts. Those who decide to use leisure as a means of mental development, who love good music, good books, good pictures, good company, good conversation, are the happiest people in the world. And they are not only happy in themselves, they are the cause of happiness in others."

- William Lyon Phelps

Rebuses are picture puzzles where letters, symbols, pictures, and even relationships between the objects combine to form a phrase. A rebus works your brain overtime. You must identify the pictures and symbols. Often you need to state the relationship between objects. After all that, the puzzle becomes a form of wordplay.

Among the brain functions exercised are: memory, synthesis, symbol and pattern recognition, association, and language skills. Even with their extensive workout, rebuses can be a lot of fun.

Here is one puzzle to get you started. It shows an arrow pointing down, the numeral 2,



and a picture of our planet. Combine “down,” “two,” and “earth” to form the phrase “down to earth.”

The rest of this chapter is one puzzle after another. First you get 16 sets of boxed rebuses. They start out relatively easy and end up very tough. Use the hints and the answers (starting on page 262) for help. Then you get some puzzles by category; they are explained later. Have fun.

87. Boxed Rebuses 1 ★★

Hint: p. 178

Solution: p. 262

<p>sk8 <i>ice</i></p>		<p><i>think</i> </p>
<p>+ 2 </p>	<p>I D</p>	
<p>t e g DAWN</p>		
<p> MT</p>	<p> e m </p>	

Hints:

Top row: 1. Risky business 2. Endless stake out 3. Be creative

Second row: 4. Burdensome responsibility 5. A looker

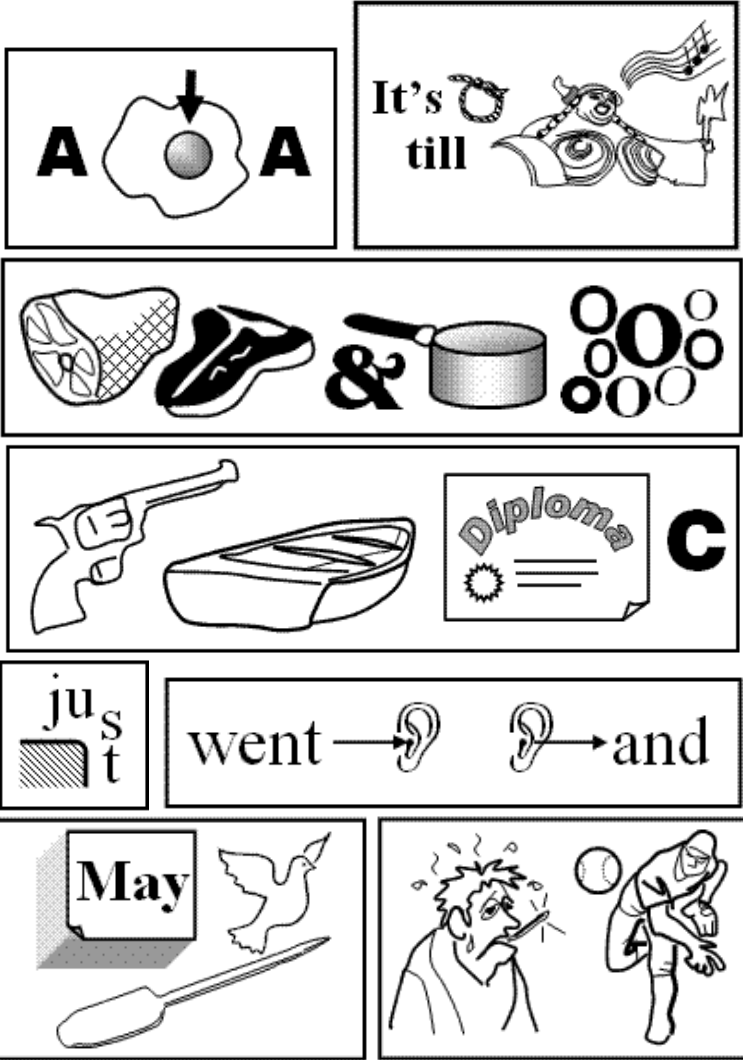
Third row: 6. It's too early 7. Steamy in the dark?

Bottom row: 8. Almost exhausted 9. Enterprise return?

88. Boxed Rebuses 2 ★★

Hint: p. 178

Solution: p. 262



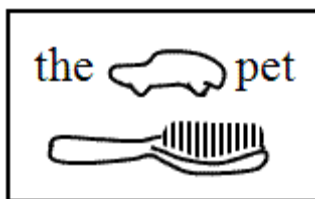
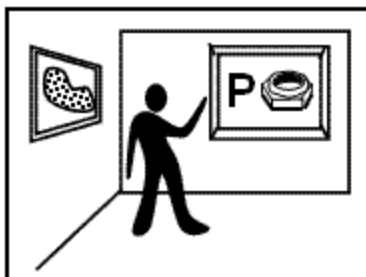
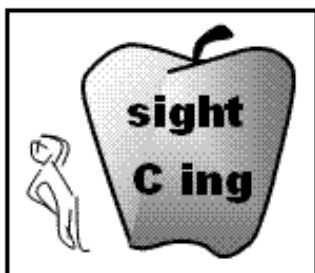
Hints: Top row: 1. Fine at NASA 2. Still going
 Second/third rows: 3. Main course 4. Bully's tactics
 Fourth row: 5. Close by 6. Heard nothing

Bottom row: 7. On the bridal path 8. High level of excitement

89. Boxed Rebuses 3 ★★★

Hint: p. 178

Solution: p. 262



Hints:

Top row: 1. Poorly received 2. Tour the city

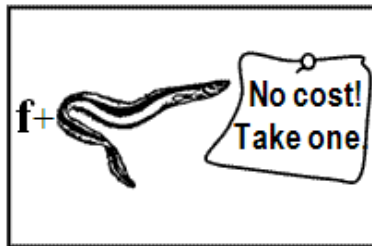
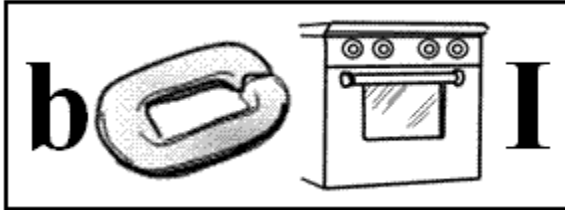
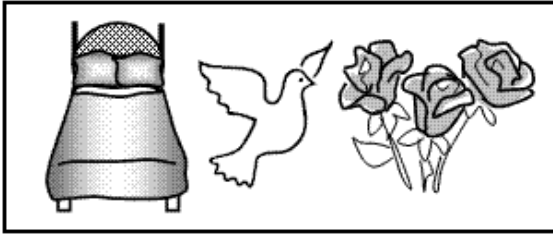
Second row: 3. The cheap seats 4. Hide a problem

Bottom rows: 5. Small quantity 6. No place like it

90. Boxed Rebuses 4 ★★★

Hint: p. 178

Solution: p. 262



Hints:

Top two rows: 1. Easy Street 2. Short time span

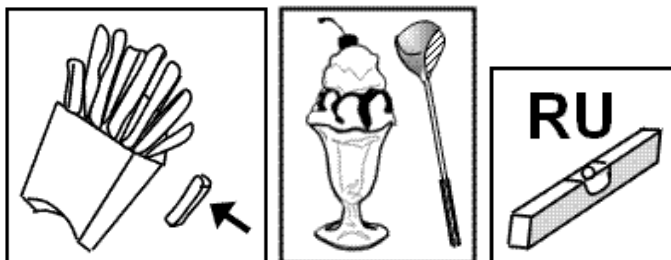
Third Row: 3. Nutty 4. Grant permission

Bottom row: 5. Tip

91. Boxed Rebuses 5 ★★★

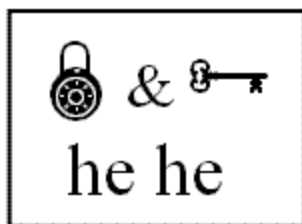
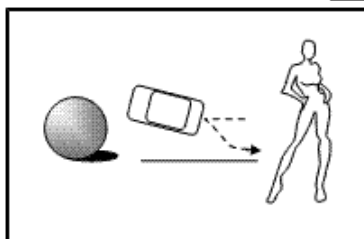
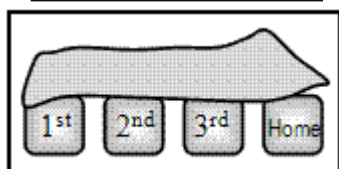
Hint: p. 178

Solution: p. 263



t t
u or u
p h
s

& so
& so 4th



Hints: Top row: 1. Little guy 2. Timid motorist 3. You mean it?

Second Row: 4. Take action 5. Etc.

Third row: 6. Consider everything 7. Steady

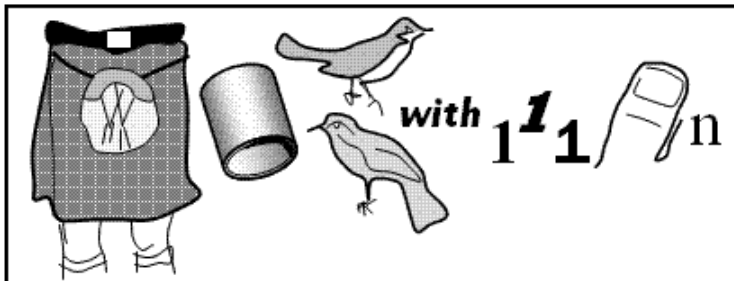
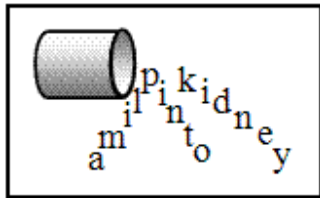
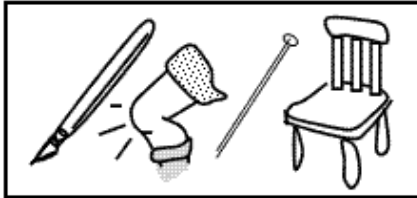
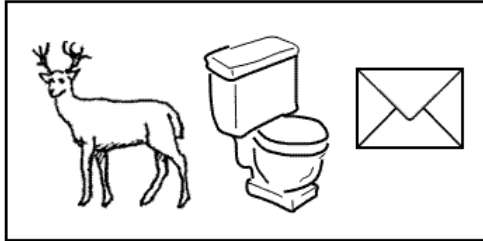
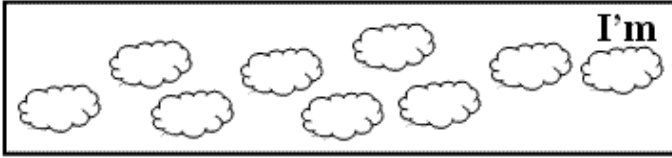
Fourth row: 8. Estimated ERA? 9. Being detained

Bottom row: 10. Final attempt

92. Boxed Rebuses 6 ★★★

Hint: p. 178

Solution: p. 263



Hints: Top rows: 1. I feel great 2. Distant decoupling

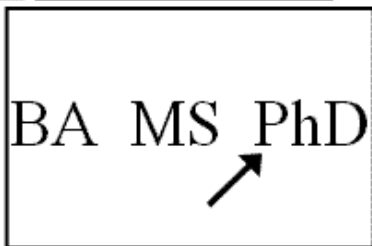
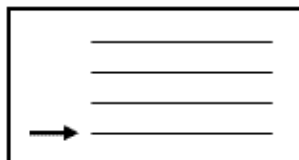
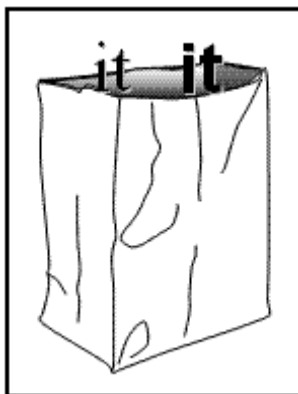
Third row: 3. Cheapskate 4. Leaked

Bottom rows: 5. Look all over 6. Perform double duty

93. Boxed Rebuses 7 ★★★

Hint: p. 178

Solution: p. 263

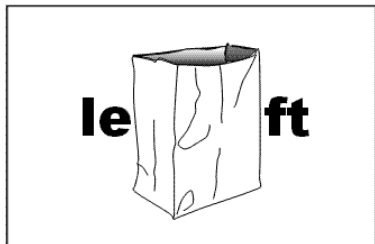
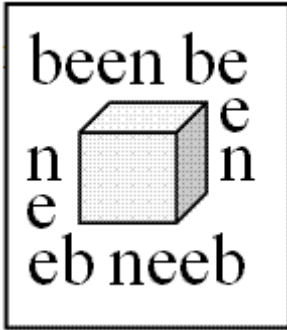
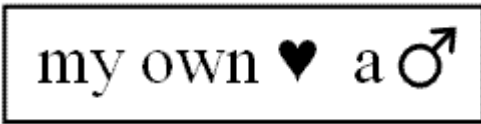
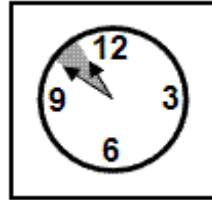
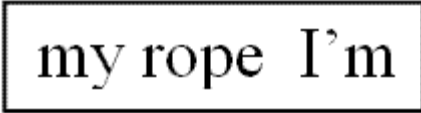
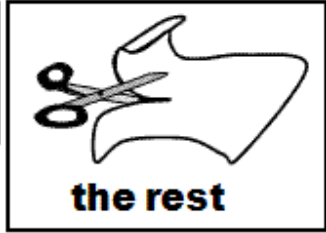


Hints: Top row: 1. What you don't get on a plane 2. Sure thing
 Second and third rows: 3. What's done is done 4. Compromise
 Fourth row: 5. Not my turn 6. Net profit or loss
 Bottom row: 7. Not comfortable 8. A thorough grilling

94. Boxed Rebuses 8 ★★★★★

Hint: p. 178

Solution: p. 263

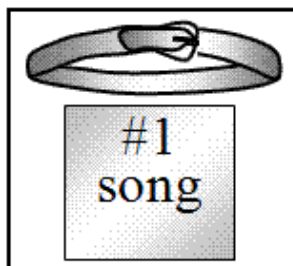
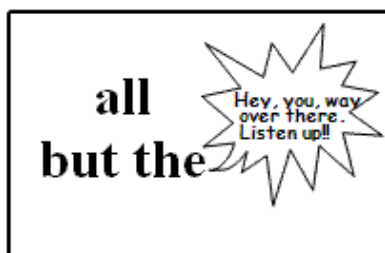
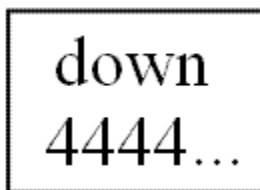
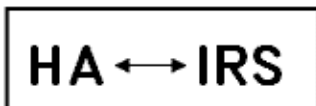
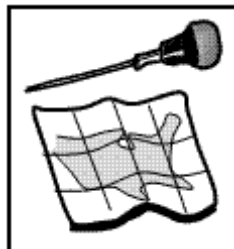
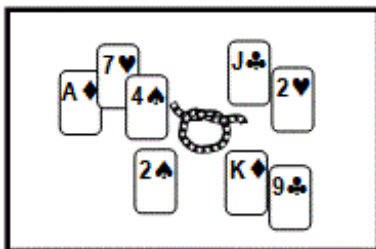
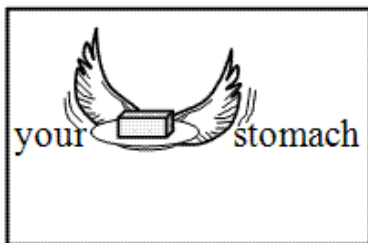
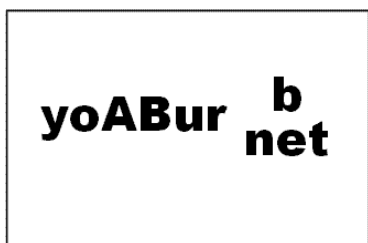


Hints: Top row: 1. You're bedazzled 2. Better than most
 Next 2 rows: 3. Desperate 4. I can relate to him. 5. Last minute
 Fourth row: 6. Experienced 7. A lot of scratch
 Bottom row: 8. Not a bull's eye 9. Form of abandonment

95. Boxed Rebuses 9 ★★★★★

Hint: p. 178

Solution: p. 264



Hints:

Top row: 1. Something upsetting you 2. Nervous about insects?

Second row: 3. Destined to fail 4. Everywhere

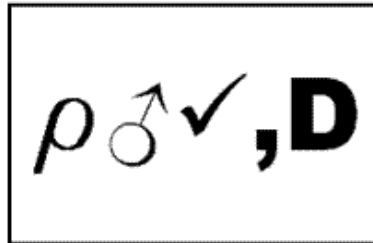
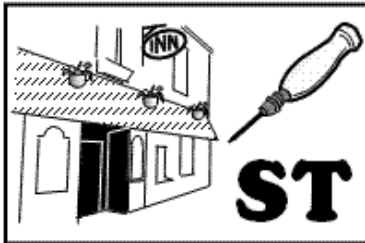
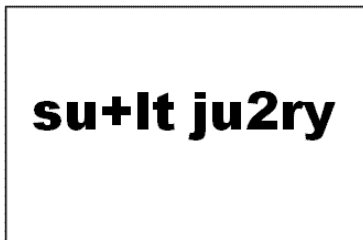
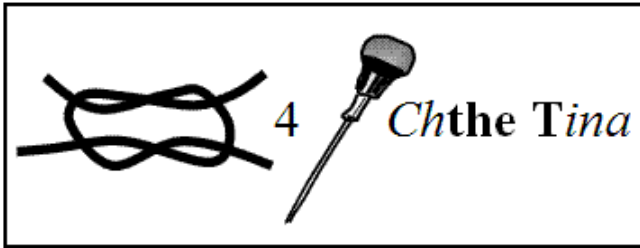
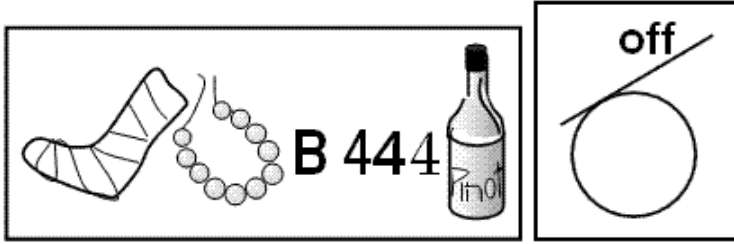
Third/fourth row: 5. Nitpicking 6. Crawling 7. Give me a break

Bottom row: 8. Essentially done 9. A low blow

96. Boxed Rebuses 10 ★★★★★

Hint: p. 178

Solution: p. 264



Hints:

Top row: 1. Wasted on them 2. Sidetracked

Second row: 3. No possible way

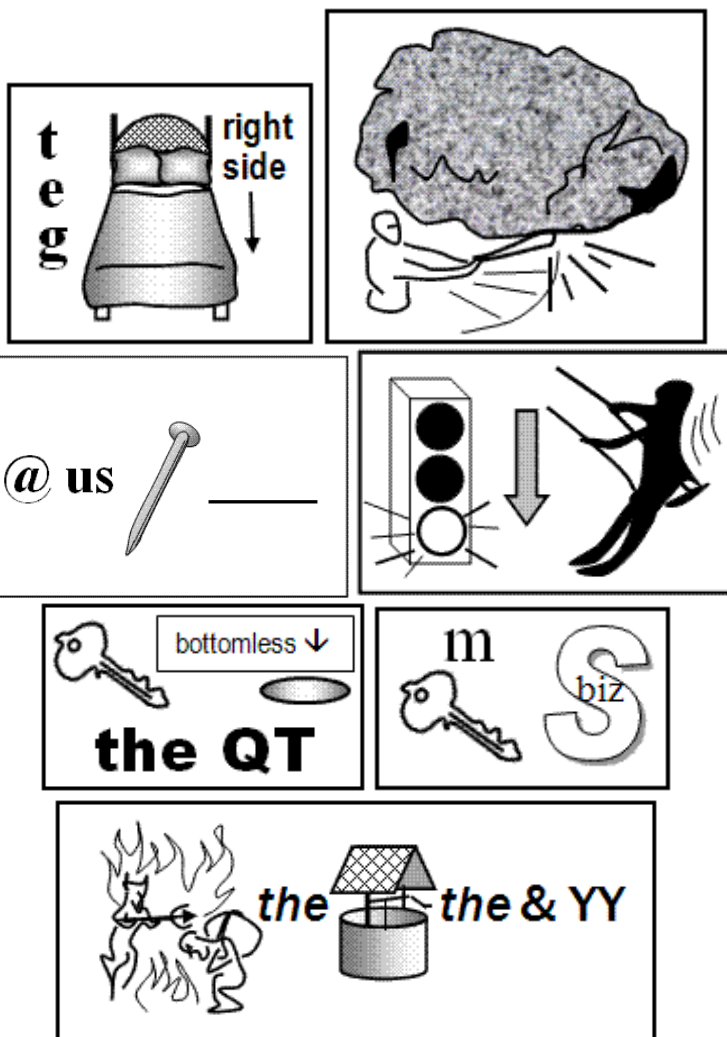
Third row: 4. Be more abusive 5. Very quiet

Bottom row: 6. To tell the truth 7. Chick flick

97. Boxed Rebuses 11 ★★★★★

Hint: p. 178

Solution: p. 264



Hints:

Top row: 1. Grumpy today 2. Couldn't get lower

Second row: 3. Moving at government speed 4. Fight to the end


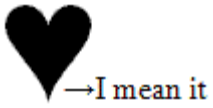



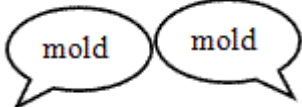



Third row: 5. Just between you and me 6. Silly stuff

Bottom row: 7. Results of good sleep

98. Boxed Rebuses 12 ★★★★★

Hint: p. 178

Solution: p. 265

Hints: Top row: 1. Act like a tyrant 2. Really!

Second row: 3. Glad rags on 4. Jealous

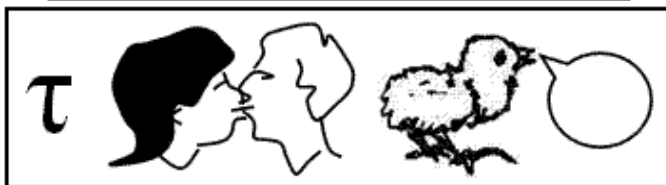
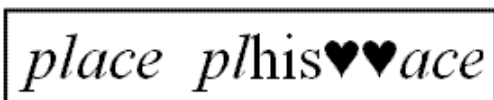
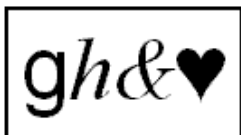
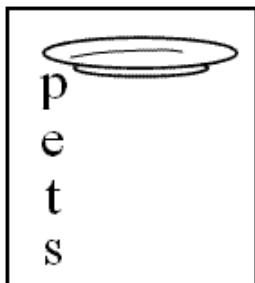
Third row: 5. Needed for the story 6. Nothing's changed

Last rows: 7. Great viewing 8. Irregular judging 9. Good dancer

99. Boxed Rebuses 13 ★★★★★

Hint: p. 178

Solution: p. 265

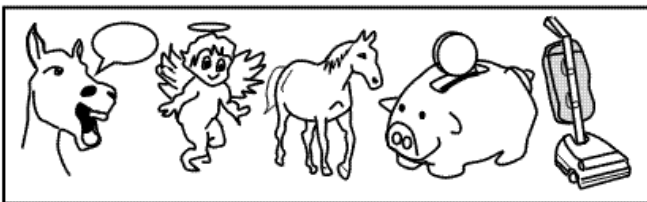
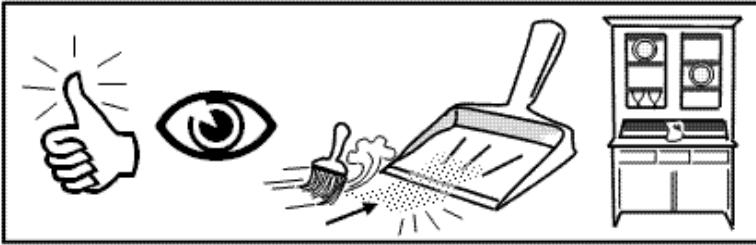


Hints: Top row: 1. Take responsibility 2. Provide help, big-time
 Second row: 3. In close cooperation 4. He means well
 Third row: 5. Ready to give it another go 6. An example
 Bottom rows: 7. Wow! Such fun! 8. Easy for you to say

100. Boxed Rebuses 14 ★★★★★

Hint: p. 178

Solution: p. 265

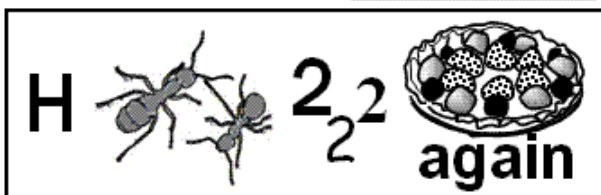
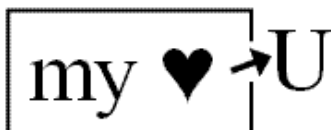
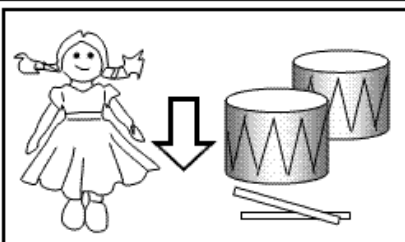
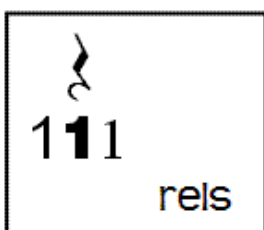
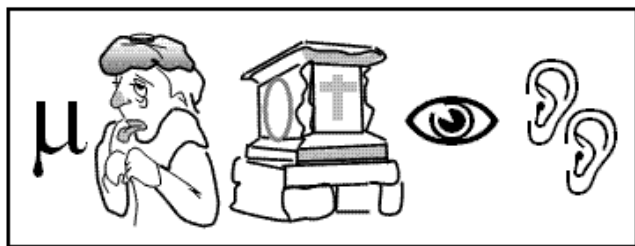


Hints: Top row: 1. Makes everything profitable
 Second row: 2. Someone's weakness
 Third row: 3. Opposite of favorite
 Bottom row: 4. Why physics sucks

101. Boxed Rebuses 15 ★★★★★

Hint: p. 178

Solution: p. 265



Hints: Top rows: 1. Sounds good 2. Too much detail

Third row: 3. Reputation coasting 4. Feeling sluggish

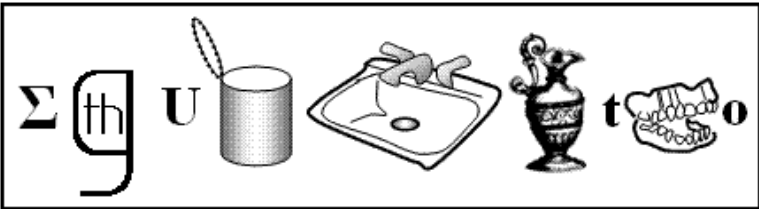
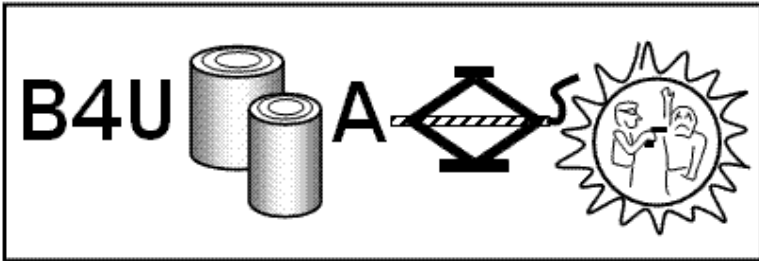
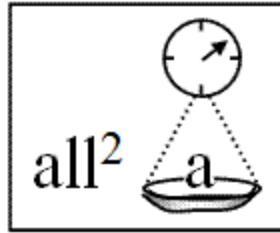
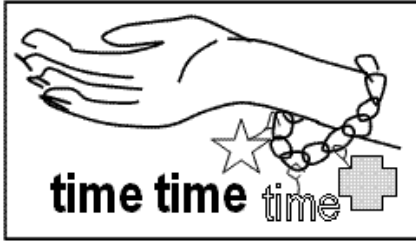
Fourth row: 5. Beneficial humor 6. I can sympathize

Bottom row: 7. Fresh opportunity

102. Boxed Rebuses 16 ★★★★★

Hint: p. 178

Solution: p. 266



Hints: Top row:

1. Victory after multiple attempts 2. Everything in order

Second row: 3. Pretty darn fast

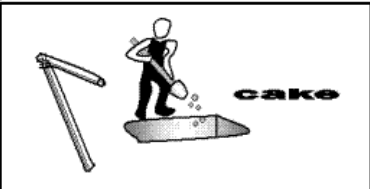
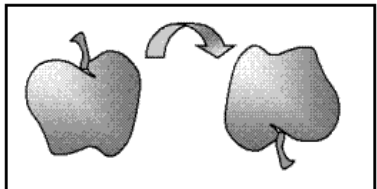
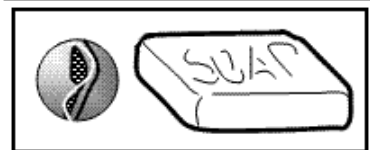
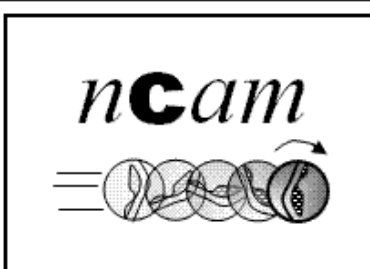
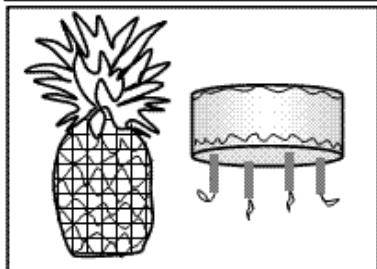
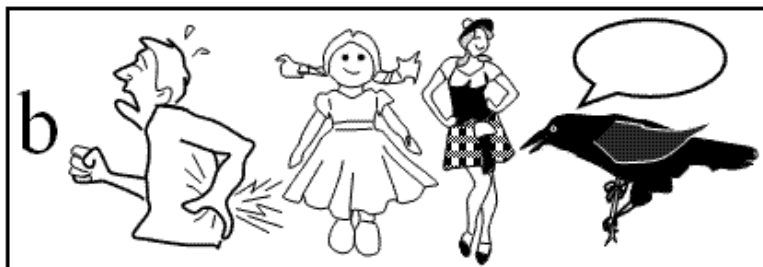
Bottom rows: 4. It's substantial 5. Lots of fun

103. Rebus by Category 1 ★★★

Hint: p. 178

Solution: p. 267

Each of the puzzles in this section has an answer that falls into the same category. The job gets easier if you guess the category.

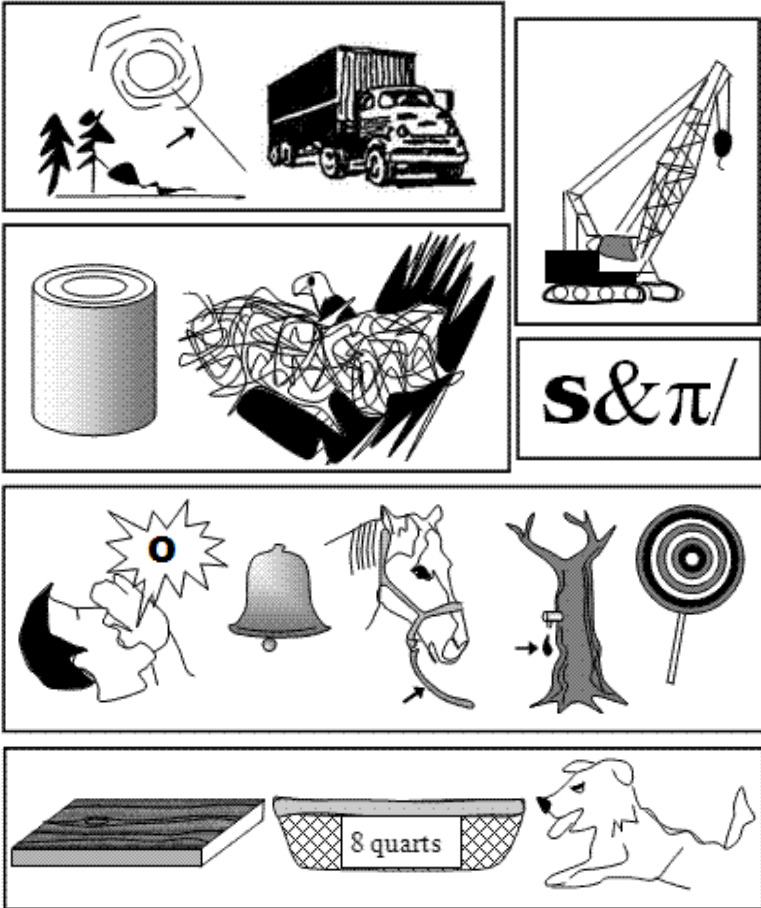


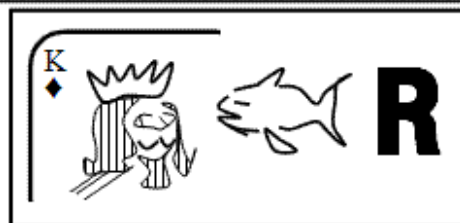
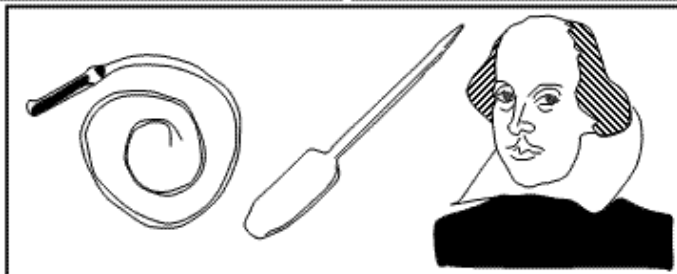
104. Rebus by Category 2 ★★★★★

Hint: p. 178

Solution: p. 268

Each box contains a rebus picture puzzle. Each of the puzzles in this section has an answer that falls into the same category. Once you've solved a few of the puzzles, you should be able to guess the category. Knowing the category should make it easier to solve the remaining puzzles. This category continues onto the next page.



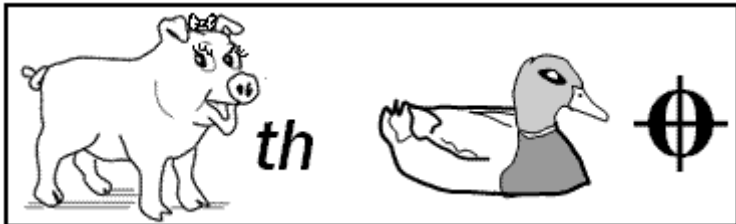


105. Rebus by Category 3 ★★★★★

Hint: p. 178

Solution: p. 269

Each of the puzzles in this section has an answer that falls into the same category.



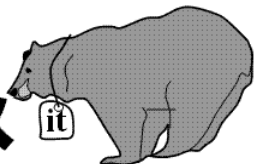





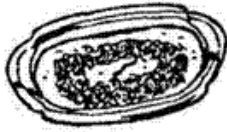


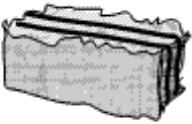


106. Rebus by Category 4 ★★★★★

Hint: p. 178

Solution: p. 270

Each of the puzzles in this section has an answer that falls into the same category.

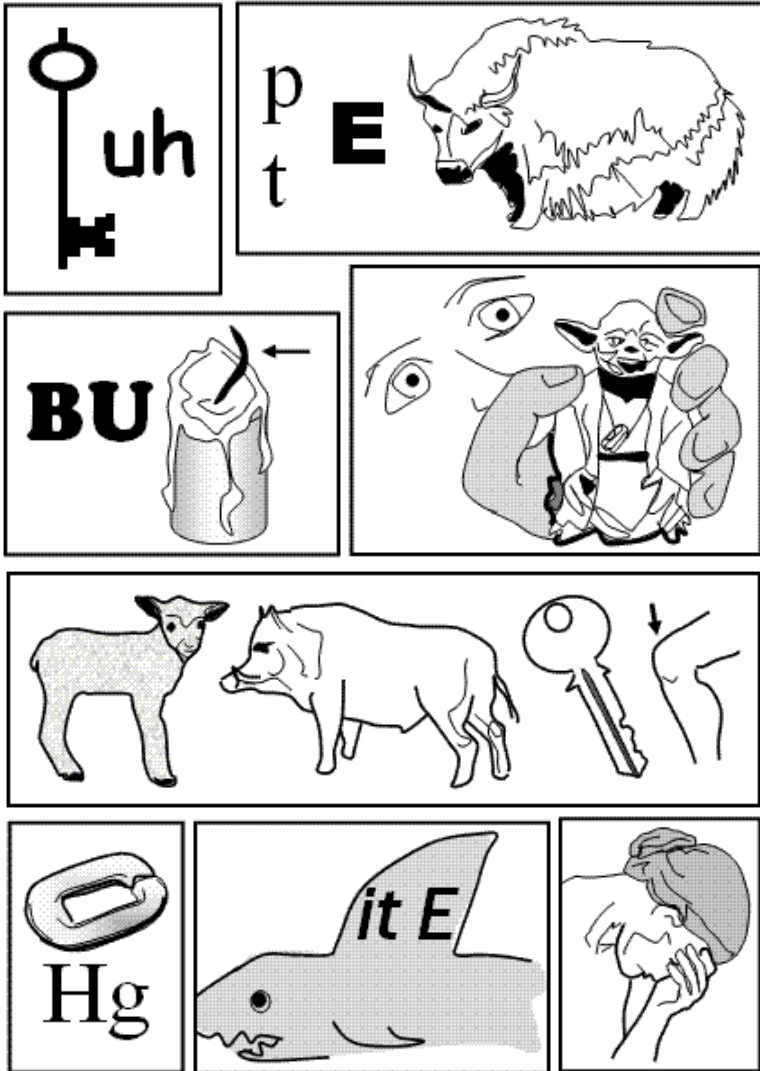
<p>P </p>	<p>&E </p>
<p>&  gr</p>	<p> </p>
<p>and</p> <p>is</p>	<p> RRR </p>
<p>  C</p>	<p>bI</p> <p>D</p>
<p></p>	<p>  E</p>

107. Rebus by Category 5 ★★★★★

Hint: p. 179

Solution: p. 271

Each of the puzzles in this section has an answer that falls into the same category.





👉 Hands-On puzzles 👈

"When I get a new idea, I start at once building it up in my imagination, and make improvements and operate the device in my mind. When I have gone so far as to embody everything in my invention, every possible improvement I can think of, and when I see no fault anywhere, I put into concrete form the final product of my brain."

- Nikola Tesla

Mechanical puzzles are three-dimensional objects you can manipulate in your hands. They don't fit into a book very well, but they are too important to the world of puzzles to ignore. This chapter shows you how to build a few classic mechanical puzzles and discusses how to solve them. Our first example is an ancient art form and puzzle rolled into one.

PLA Puzzle-Like
Activity

Tangrams offer a visual and mental workout. As puzzles, they are simple and universal. But as visual thought exercises, they are hard to beat.

A set of tangrams contains seven pieces: 2 large triangles, 1 medium triangle, 2 small triangles, a square, and a parallelogram. They are used like jigsaw puzzle pieces to form stylized silhouette pictures.

Tangrams

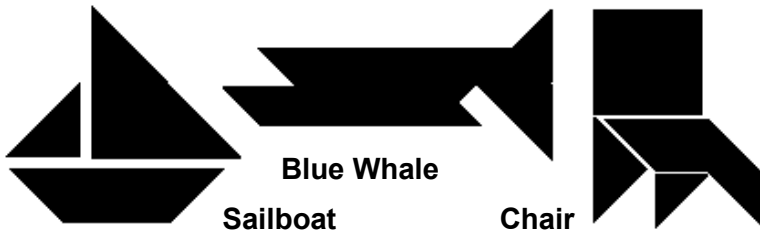


To make a set of tangrams, cut a square into seven pieces as shown. The large triangles are double the *dimensions* of the small triangles. The two small triangles can be used to form the square, the parallelogram, or the medium triangle. The pieces should be finished the same way on both sides because you can use the pieces both right-side-up and upside-down.



Arrange the seven pieces to form silhouettes. For example, each of the “letters” on the opposite page can be formed using all seven tangrams. Can you figure out how the pieces were used to form each letter?

A tangram puzzle usually presents you with a silhouette made from the tangram pieces and asks you figure out how it was made. These are usually pretty easy, especially when you’ve had a little practice. Note that the pieces can be turned over as well as rotated. Try forming a few of these shapes before I give you a couple of tips.



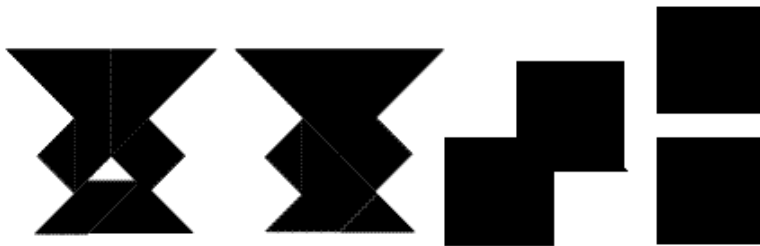
Leaving the white spaces in the sailboat and the chair make them much easier to solve than the whale. In addition, most shapes can be assembled in more than one way. Still the answers aren’t immediately obvious.

Tangram shapes require you to use all seven pieces. Sometimes two shapes present a sort of paradox because one looks just like the other except that a piece seems to be missing.

108. Tangram Paradoxes ★★

Solution: p. 272

Form each of these shapes using all seven tangram pieces.



Tangram Solving Tips

Now let's look at some solving tips:

1. The two large triangles are usually the hardest pieces to place. Consider the places they can be fit into the silhouette, and then work on the remaining pieces.

2. A commonly used intermediate shape is what I'll call a wedge. It can be formed three different ways using one small triangle and any of the three medium-sized pieces. Watch for this shape and know how to make it all three ways.



3. A trapezoid can be formed in two different sizes. Consider how these building blocks can be used and which size is appropriate.

4. The two small triangles can be put together to form each of the three medium-sized pieces.



5. It is sometimes hard to visualize how a shape is made until we remember that the square (and the other pieces) can be rotated 45 degrees (or any other angle). Notice how the two large triangles can form a bigger triangle and how the remaining 5 pieces can form the same big triangle.

109. Tangram Silhouettes ★★

Solution: p. 273

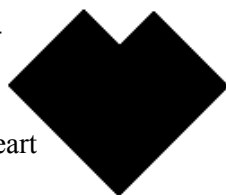
The following pages contain many shapes that can be formed using tangrams. See if you can determine a way to create each one. Many of them can be formed multiple ways; so don't be surprised if your answer differs from the one at the back of the book.



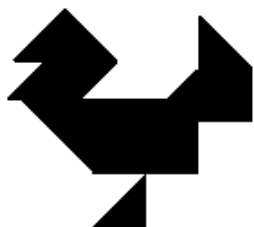
Trained Seal



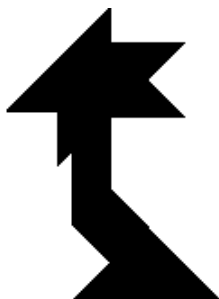
Dromedary Camel



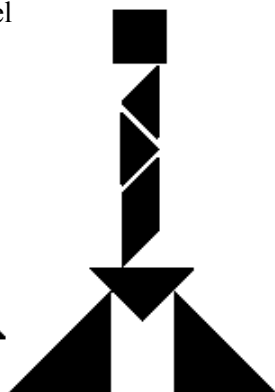
Heart



Turkey



Palm Tree



Eiffel Tower



Butterfly



Grave Marker



Broken Heart



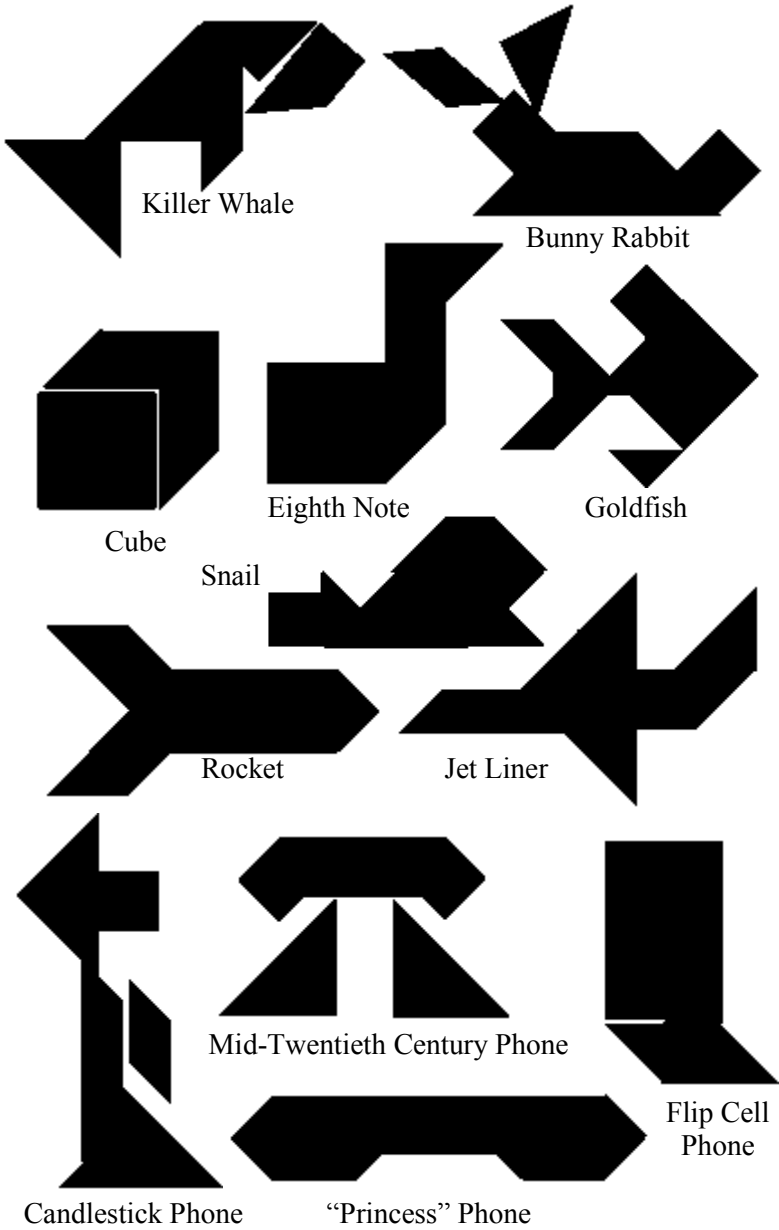
Superhero Mask



Olympic Medal



Bat Logo





Geisha
and Her
Reflection
in Water



Ghost



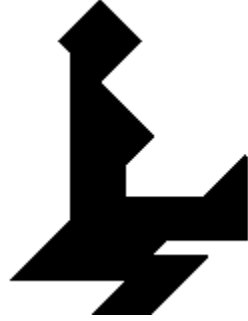
Diver on Platform



French Foreign
Legionnaire Profile



Abraham Lincoln
Profile



Russian Man
Dancing



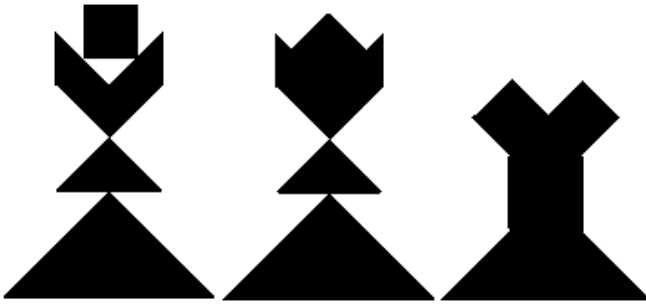
1950's Girl Walking



Ballet Toe Dancer



Angel Praying



King

Queen

Rook

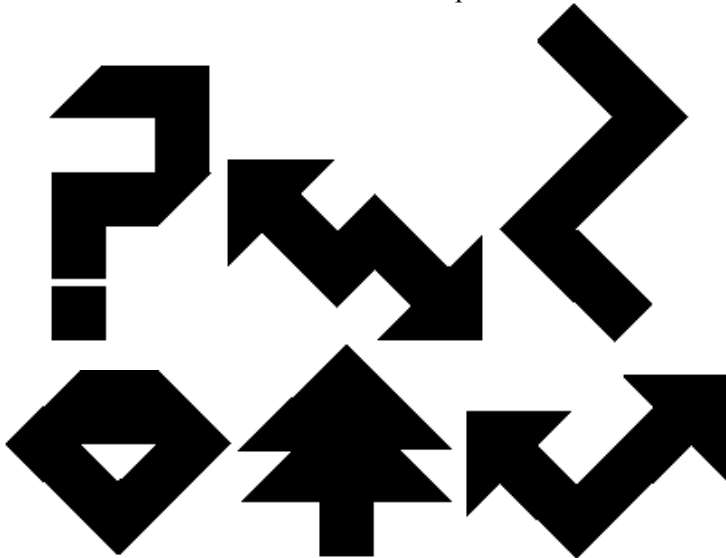


Bishop

Knight

Pawn

Miscellaneous shapes



There are other ways tangrams can be used to exercise your brain. Instead of solving silhouettes created by others, why not design your own shapes? Play with the pieces and see what images jump out at you. This reminds me of the childhood pastime of discovering pictures in cloud patterns. Exercise your imagination and visual thinking.

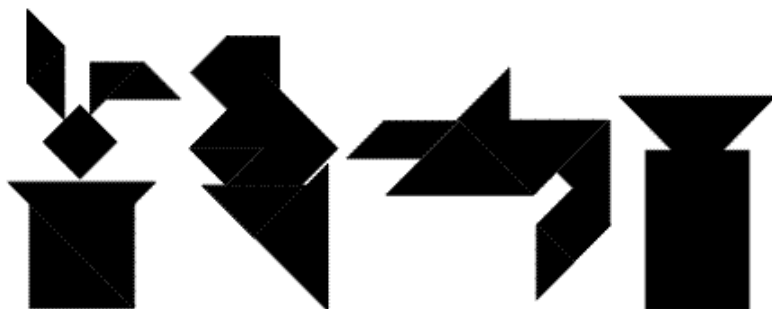
Don't be afraid to leave gaps between the pieces when a "white line" helps define the intended shape. Feel free to turn the pieces at odd angles to make your picture more lifelike.

Here's one last challenge: Start with a word or an idea instead of a specific picture. Then devise a tangram picture to illustrate the concept. Give it a try. Create a picture to illustrate each of the following words:

magic, dessert, danger, aroma.

What pictures do you visualize when you read these words? Now, what picture is simple enough to be "drawn" with tangrams?

Here are the pictures I came up with:

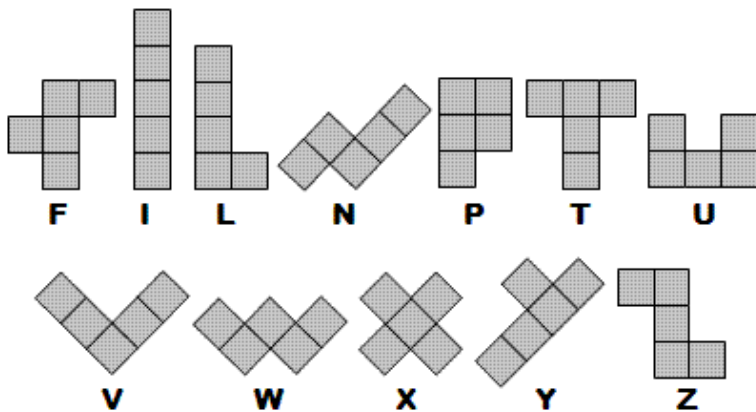


Magic: Dessert: Danger: Aroma:
 Rabbit in a Hat Ice Cream Cone Shark Perfume Bottle

Make up your own categories, and be sure they are challenging. If you can't solve them, make up some new categories and save the tough ones for some other day.

Pentominoes

Another jigsaw-like puzzle is Pentominoes. Consider five square tiles of equal size sharing at least one edge with another tile. How many unique shapes (not counting rotations and mirror images) can you make? There are twelve. The illustration shows the twelve patterns and labels each with a letter for ease in identifying them. Unlike a jigsaw puzzle, pentominoes are usually made so that they look the same on both sides. This allows them to be used right-side-up or upside-down.



PENTOMINOES are made of five squares arranged in one of twelve different configurations.

So what do we do with these pieces? Start by fitting them, jigsaw-fashion, into a rectangle that is six squares tall and ten squares wide. Computer programs tell us that there are 2,339 unique solutions, but finding even one solution is a challenge. I can't verify the computer's number. Over many years I've identified 412 solutions just working the puzzle by hand. There are 1,010 ways to fit the pieces into a 5 x 12 rectangle. There are only two ways to fit the pieces into a 3 x 20 box.

Stewart T. Coffin, a puzzle expert of the first water, wrote a book titled *The Puzzling World of Polyhedral Dissections* (www.johnrausch.com/PuzzlingWorld/default.htm has the book available to read on line). In it he describes the surprising

difficulty of placing the pentominoes into a 6 x 10 tray. He says that after trying numerous combinations:

“...you are tempted to brusquely dump the lot out of the tray and start afresh. But no, you take the gentler and wiser approach of patiently switching just a few pieces back and forth, when suddenly the solution reveals itself as the remaining empty space just happens to match the last piece. As it drops snugly into place, there is a sense of resolution and harmony that any sensible person must welcome these days, especially if you have just scanned the headlines of the daily news or perhaps driven through Harvard Square in rush-hour traffic!”

You can easily cut a set of puzzle pieces out of cardboard, wood, or plastic. Or you can glue cubes together to form the twelve pieces (with the advantage of a third dimension). You can also buy the tiles as a set from various sources. Ultimately, you will want to have a good quality set of pentominoes that will withstand an occasional tantrum or accidental fall off the table.

If you want to get started right away, you can try playing the basic pentomino game on the World Wide Web. Here are some sources I found:

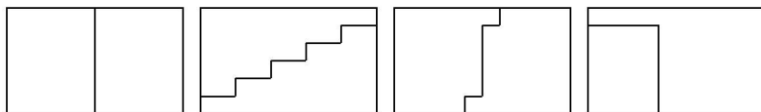
1. www.scholastic.com/blueballiett/games/pentominoes_game.htm
2. gamescene.com/Pentominoes_game.html
3. www.math.clemson.edu/~simms/java/pentominoes/

110. Pentominoes ★★★

Hint: p. 179

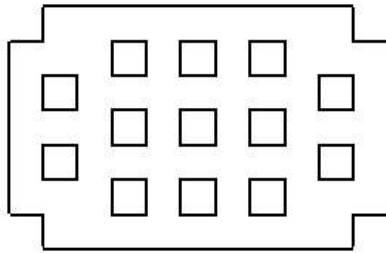
Solution: p. 277

Put all twelve pieces together to form a 6x10 rectangle. There are 2,339 solutions, but don't try to find them all on your first try. After you've found one or two solutions, try to find solutions that have the following breaking patterns:



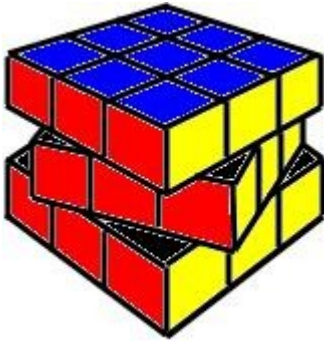
Next, you can form a 5×12 rectangle (1,010 solutions) or 4×15 (368 solutions). There are only two unique solutions for a 3×20 rectangle. Can you find both of them? Another traditional way to put the pieces together is form an 8×8 square with a 2×2 hole in the center (65 solutions) or with four corners missing (2,170 solutions).

If you check out the University of Texas (Austin) Web site, (<http://www.ma.utexas.edu/users/smmg/archive/1997/radin.html>) you'll find a few more pentomino challenges including this fascinating puzzle. Form a pattern with 13 holes; the holes can't touch each other and must be surrounded by eight squares.



The Most Successful Mechanical Puzzle Ever

Rubik's Cube is the most commercially successful puzzle in history. In case you've been locked in a closet or marooned on a desert island for the last thirty years, I'll describe this famous sequential movement puzzle. Each of the six faces of the cube has a different color and is divided into nine equal squares. Ingenious mechanics allow each face to turn separately so that the colored squares can become thoroughly scrambled. Your challenge is to put the colors back in order so that every face is one solid color.

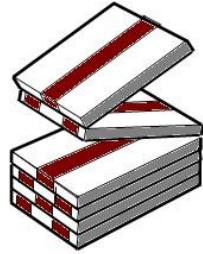
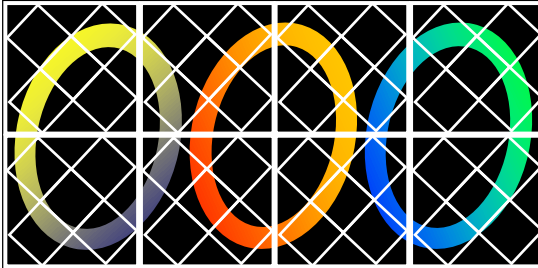


The fun
and
frustrating
**RUBIK'S
CUBE**

It's not easy, and virtually every starting position is different because the scrambling process is generally random. But cube masters seem to be able to solve the puzzle in no time flat. I have solved the cube a couple of times by perseverance, but I can't solve it on command. I understand that solvers who know what they are doing break the solution into workable processes, called *algorithms*. These steps can be used to switch two corners or center edges, or they can be complicated sets of moves that transform the cube in very specific ways.

Rubik's Cube was named after its designer Ernő Rubik. He invented another puzzle that I like even better: Rubik's Magic. This puzzle has a set of eight tiles held together by a crisscross pattern of fishing line. The movement of the tiles is at least as clever as the cube mechanics because the tiles can be rearranged in many different patterns. When you see the puzzle at its starting position, it shows three unlinked rings. The object is to

arrange the tiles so that they create a picture of three rings linked together.



RUBIK'S MAGIC has a mechanism similar to a Jacob's ladder but allowing movement in two dimensions.

It doesn't take long to realize that there is a trick to it, but you still have the daunting task of creating the picture. Perhaps Cube fans will say that Magic is no more clever than the Cube, but I like it better. Unfortunately, I don't think it is being manufactured today, and you'll have to buy it second hand. That brings to mind a warning.

Commercially available puzzles tend to be short-lived. If you don't buy them when you see them for sale, they probably won't be available later. Then, they tend to become collector's items with greatly inflated prices. You've been warned.

Now let's look at some puzzles we can make ourselves.

Diabolical Cube

Diabolical Cube has been around for well over a hundred years, and it isn't as hard as it sounds. The puzzle challenges you to form a cube using six differently shaped pieces. There are 13 unique solutions to this puzzle.

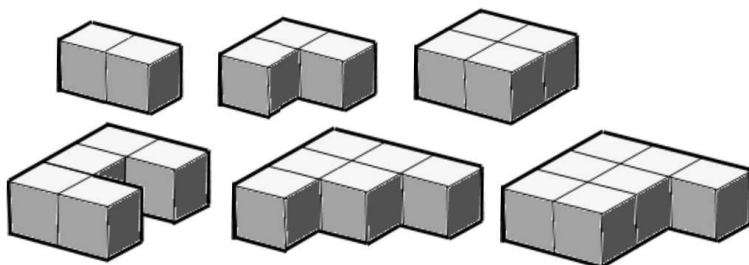
You'll need 27 small cubes and some glue to make the puzzle. Where should you get the cubes? Dice work well, especially the casino-style dice with the squared-off edges. Children's alphabet blocks make for a bigger puzzle. Craft stores sell wooden blocks in various sizes. A warning about craft blocks: sometimes these blocks are not exact cubes (they are slanted or they are taller than they are wide). I'd recommend epoxy glue, but wood blocks

respond very well to carpenter's glue. Super glue isn't good for this.

111. Diabolical Cube ★★

Hint: p. 179

Solution: p. 279



Form a cube from these six pieces.

All six pieces are made from different numbers of cubes (2-7). They are all arranged in two dimensional (flat) patterns; so they are easy to glue together. Just be careful not to let excess glue ooze out and stick to your work surface (your mother's antique mahogany dinner table?). Have a ruler or two handy to make sure cubes are lined up straight. I like to have a couple of extra cubes that I don't glue to use as spacers. A few C-clamps can help secure the cubes while the glue is drying.

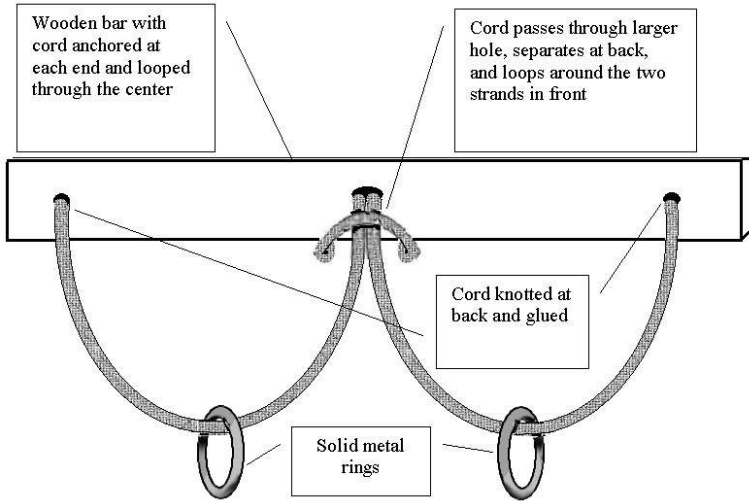
Be sure that the U-shaped piece made from five cubes has a large enough gap for a cube to fit comfortably.

For more information about cubic block puzzles, see Chapter 3 of Stewart T. Coffin's book *The Puzzling World of Polyhedral Dissections*. Also see the "Puzzle Will Be Played..." Web site (www.asahi-net.or.jp/~rh5k-isn/Puzzle) for a comprehensive list of polyomino puzzles.

112. Wedding Rings ★★★

Hint: p. 179

Solution: p. 280



The object of this string puzzle is to get the two rings together on one of the loops. It can be made with beads instead of rings, but the romantic symbolism is lost. The rings need not be large enough to fit over the wooden stick, but it can add to the distraction if they are. Use sturdy but flexible cord that droops down at least the length of $2\frac{1}{2}$ ring diameters. Drill the center hole big enough so that several strands of cord fit easily through it but not big enough to tempt anyone to cram a ring through it.

Sliding block puzzles involve tiles in a tray with a limited boundary and with enough empty space to allow one or more tiles to slide. The object is to rearrange the tiles into a defined pattern only by sliding them within the tray.

A terrific thing about sliding block puzzles is that you can try them out on line. Go to Nick Baxter's Sliding Block Puzzle Page (www.johnrausch.com/SlidingBlockPuzzles) and interactively play some of the best puzzles anywhere. Allow me to recommend a few of my favorites:

1. Dad's Puzzler by L. W. Hardy is definitely worth your time.

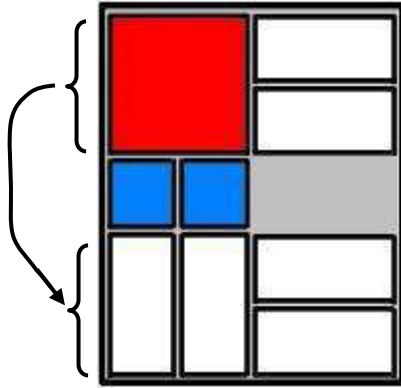
2. Sliding Digits by Serhiy Grabarchuk will have you at sixes and sevens.
3. Sliding Stones by Serhiy Grabarchuk is terrific - loaded with Aha!
4. Card Suits Suite 2 by Serhiy Grabarchuk is also clever and fun.
5. Broken Heart by Junichi Yananose is a brilliant and frustrating puzzle.
6. Soap by Ed Pegg, Jr. will definitely take you to the cleaners.
7. No-Off by Nob Yoshigahara is a relatively easy but fun puzzle.

113. Dad's Puzzler ★★☆☆

Hint: p. 180

Solution: p. 280

Slide the blocks within the tray so that the large square moves from the top to the bottom of the left side of the tray.



Arrange nine blocks in a tray as shown in the diagram. Then slide the blocks within the tray so that the large square in the upper left hand corner moves to the lower left hand corner.

You have three possible starting moves: 1) small square to the right, 2) rectangle up, or 3) rectangle down. Moving either rectangle quickly leads to a dead end; so moving the small square is the right beginning. The best solution takes 59 steps.

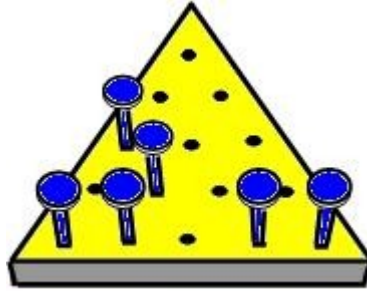
I first got this puzzle when I was ten years old. It took me about eight years to solve. It's not really *that* hard, but I was young and didn't really understand how to approach this sort of thing. I

basically just pushed the blocks around without much thought. But Dad's Puzzler has a subtle psychological trap built in.

Making this sliding block puzzle is fairly easy. Actually, the tray for holding the blocks is probably the hardest thing to make. You can make the tiles out of wood, plastic, or cardboard. You can even buy a sheet of small ceramic tiles (meant for a kitchen backsplash) and glue them to properly-shaped cardboard backings. You'll find that the pieces are easier to distinguish if each of the finished tiles is a different color.

The tray needs to be slightly larger than the sum of the pieces so that the pieces can slide smoothly. But don't make it so big that it gets sloppy.

PEG SOLITAIRE
in the triangular
"Cracker Barrel"
style.



Peg Solitaire

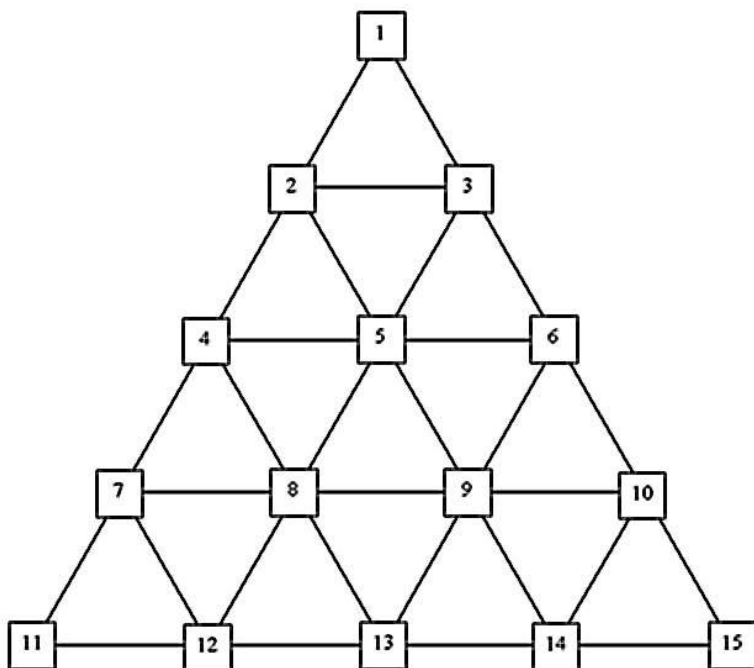
Peg Solitaire has a board with holes and pegs, not unlike a cribbage board. The puzzle begins with pegs in all of the holes except one. You jump one peg over another and remove the jumped peg from the board (like taking an opponent's piece in checkers). The object is to end with only one peg left on the board. As an added challenge, you can try to end with the peg in a specific hole.

We'll explain some ways of making the puzzle later, but here's a fast way to get started: go to a Cracker Barrel restaurant and order a meal. Here's another way: put fourteen pennies or *m&m* candies at fourteen of the intersections in the diagram on the next page. The advantage to candies is that you can eat the ones you jump. The disadvantage is that you can only play once.

114. Peg Solitaire ★★★★★

Hint: p. 180

Solution: p. 281



The game is played by moving a marker (we'll call it a peg) by jumping over one other peg along one of the lines on the diagram. When you jump over a peg, the jumped peg is removed from the board (like in checkers). Unlike checkers, you can only move by jumping another peg. The object is to end with only one peg left on the board. For an added challenge end with the peg in the same space that was vacant at the start of the game.

Experts impose a further challenge: leave one peg using the fewest number of moves. Obviously, a victory will always require 13 jumps, but a move can be a series of jumps (checkers-style) where one jump begins at the place a previous jump ends. In other words, if you can continue to jump using the same peg, you are still on the same move. Limiting your moves to nine is the best I've seen.

If you want a different sort of puzzle, find a way to play the game so that you leave 8 pegs on the board with no further moves possible.

How can I get a peg solitaire board? You can buy them at Cracker Barrel restaurants, from Venture Manufacturing (www.pegame.com), or from several other companies. You can use a board from a game of Chinese checkers (with lots of holes to spare). Or you can make your own. You can photocopy the triangle diagram above and glue it to a piece of wood. Then you can drill holes at the numbers and insert golf tees into the holes.

Another method is to use hex nuts glued to each other and to a cardboard base. It makes for a heavy, sturdy design. Glue the nuts together with JB Weld or epoxy; I find that super glue/krazy glue doesn't work very well for this. Then glue the triangle to a piece of cardboard for more strength and to protect a table top from getting scratched. Use short bolts as pegs screwed into the nuts (tightly if traveling, loosely if playing). If you never travel with it, you could use marbles or wooden dowels as the 'pegs.'

Some advantages of using hex nuts are:

1. No woodworking skill is needed.
2. The pegs (bolts) won't fall out when traveling.
3. The lines of movement are easy to see.

The disadvantages are:

1. You have to unscrew the pegs when you move them.
2. This puzzle sets off airport metal detectors.

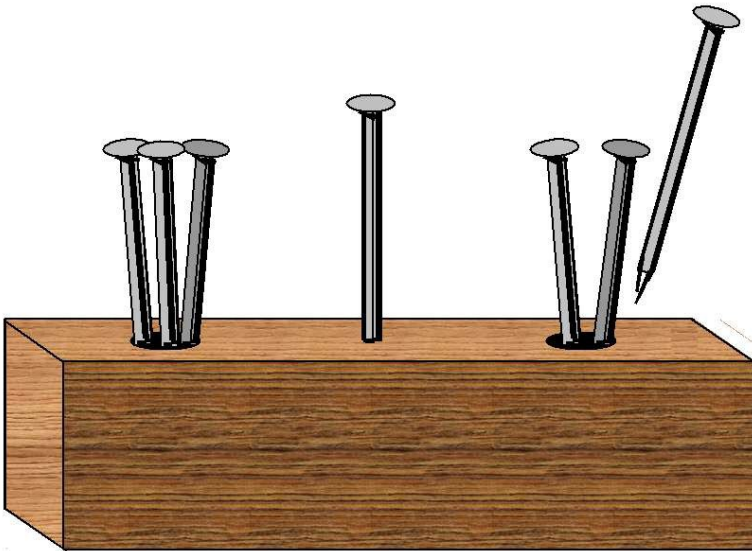
115. Nailed It ★★★★★

Hint: p. 180

Solution: p. 282

I received this puzzle as a handmade gift from another puzzle fan. It consists of a block of wood with one 3" box nail (10d, "ten penny") standing vertically in the center. On each side there is a small indentation, or "well", drilled into the wood to hold the 6 loose nails (all the same size and design as the nail driven into the center).

The only tricky part about making this puzzle is keeping the head of the standing nail from being deformed when you drive the nail into the block. To keep the head in good condition you can cover it with a piece of metal as you pound the nail about half an inch into the block.



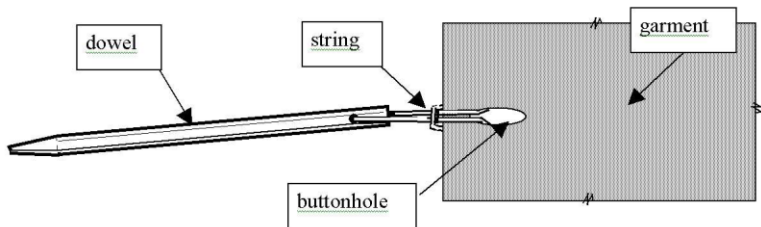
The object of the puzzle is to balance all six loose nails on the head of the standing nail. You are not allowed to use anything other than the nails – no glue, no magnets, no nothin'. That's it.

116. Buttonhole Puzzle ★★★★★

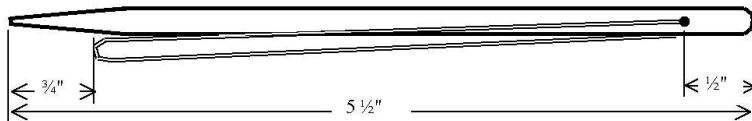
Hint: p. 181

Solution: p. 284

This puzzle is attributed to the nineteenth century puzzle superstar Sam Loyd (although Sam is said to have “borrowed” a lot of his ideas from his British rival Henry Ernest Dudeney). Most people are absolutely confounded when someone threads the loop and pencil onto their lapel buttonhole and leaves them to try to remove it. The victim can even watch as the host slips the pencil neatly through their buttonhole, and still they are stumped. The puzzle works on a rarely used principle; when you know the secret, you smile and say, “Bless my soul” or “Cooool” or something like that.



In five minutes you can make a quick test model using a pencil, some string, and little tape. But let me suggest a little better, more permanent approach.

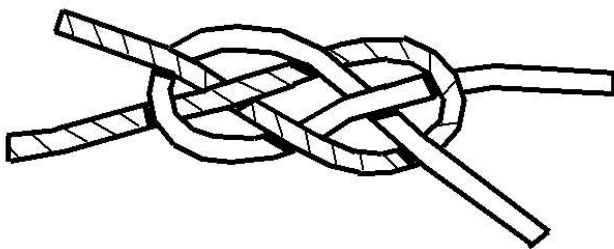


Get a solid wooden dowel a little smaller in diameter than a pencil. Cut it about 5 or 6 inches long. Drill a small hole through the dowel about half an inch in from one of the ends. Taper the other end a little bit. You can use a pencil sharpener, but don't bring it all the way to a sharp point; leave the point flat. Use a file to round the two ends. Sand the dowel (including the hole) so that it feels pleasant to the touch. Stain the wood if you'd like.

Get some strong string that doesn't stretch too much. Mono-filament fishing line isn't flexible enough and can cut into your

hand. Braided fishing line (like the kind I've seen for marlin fishing) is extremely strong, flexible, and won't stretch much, but it is expensive. Some heavy-duty kite string has similar properties. You only want about one foot of string; so see if you can find a piece of the right stuff in your closet or garage.

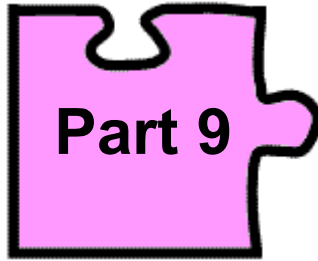
Thread the string through the hole and tie it into a loop that doesn't quite reach the sharp end of the dowel. At its maximum extension the loop should fall about 3/4 of an inch short of the end of the dowel. Be sure to tie the knot so that it won't slip. When you're sure the length is right, clip off the excess string and glue the knot inside the hole in the dowel.



A CARRICK BEND is a simple but effective knot. Don't use a square knot.

When the glue and stain have dried, you can attach your creation to the buttonhole of a shirt or coat as shown in the diagram. Wait a minute! You can't just loop the string through the buttonhole and thread the dowel through the loop. The string isn't long enough, and the dowel won't bend. So that's the puzzle: how do you attach and detach the loop?

If you have never tried to solve this puzzle before, I urge you to have someone else read the answer at the end of the book and set you up to remove the dowel. It takes a little practice; so have them attach it to a shirt you aren't wearing. By solving it yourself, you can determine how hard or easy you think the puzzle is. You can also have the thrill of victory. If you want a tougher challenge, don't have anyone look at the answers; just figure out how to get the puzzle onto the buttonhole as shown above.



Crossroad Puzzles

"Shutting off the thought process is not rejuvenating; the mind is like a car battery – it recharges by running."

- Bill Watterson

Map Rallies: You may be surprised to learn that this chapter is about car rallies. If you follow this chapter from start to finish, I'll introduce you to a class of puzzle that few people have ever seen – a class of puzzle with unique aspects that complement the more traditional puzzles. You'll need a good understanding of English and the ability to follow instructions exactly. Your brain will need to focus and think both logically and laterally.



If you want to skip the background information and go straight to the puzzles, start at **Setting the Trap** on page 137.

Understanding Our Routes

Road rallies began as an excuse to take a drive in the country and show off your car. To some extent modern rallies haven't abandoned that original goal, but the genre has diversified. Perhaps the most popular rally format is the TSD (Time, Speed, and Distance) rally. Each car is given a precise set of instructions (including average speed settings for each section of the course). Trophies are awarded for cars that match the theoretical time most closely.

Some rallies added “gimmicks” to attract people who didn't want to work at the math and driving. A poker run is a rally where each checkpoint hands out playing cards, and the car with the best poker hand wins a prize. The gimmick rally became more of a social event. They were eventually called “fun gimmick” rallies to let party animals know that they didn't have to think too hard.

Instruction: Reduce speed by 1/2.

“We're going 30 MPH now. Cut that speed in half – to 15 MPH.”

“The rules state that all speed changes will be expressed in MPH. We should change to $29\frac{1}{2}$ ($30 - \frac{1}{2}$).”



Incorrect action

Correct action

TSD (OR NAVIGATIONAL) RALLIES can have simple traps based on distractions along the course or traps crafted from far more devious situations like this example.

Other rallies turned in the opposite direction. They chose to spice up the TSD rally by adding “traps” to the course. Instructions

hinged on hard-to-see signs or areas where participants were easily distracted. Sometimes the road you were on changed names, but the rules told you to stay on the original road by name. Now you not only had to watch your speed, you had to avoid psychological stumbling blocks.

Eventually, puzzle fans took elements of each of these rally types and created the “Q&A” (or skill-gimmick) rallye. Notice the change in the spelling of “rallye.” I don’t know why skill-gimmick rallyists changed the spelling, but it may be to indicate that time, speed, and distance no longer applied. The Q&A rallye was basically a game of Simon Says on wheels. Most of this chapter will be devoted to these Q&A rallyes – after all, this is a puzzle book. We will also drop that extra “e” and spell “rally” the usual way.

While road rallies were formalizing these types of events, puzzle and game people were conducting “treasure hunt” type rallies. Police departments were less thrilled with these hectic events because they frequently encouraged speeding. The idea was to follow clues from one place to another, do interesting tasks, and be the first to complete the course. Some of these rallies evolved into what became known as “enigma rallies.”

An enigma rally gave clues very similar to cryptic crossword definitions (see Crosswords chapter). With a map and phone directory, participants used the clues to identify business names, found their locations with the phone directory, and drove there. They confirmed that they were in the correct location by finding a specified sign. Then they used the text of the sign to determine the next clue. Although speeding was against the rules, this type of rally frequently had abuses of city speed limits.



ENIGMA RALLY EXAMPLE: “Always shop where trolley car legislation is overturned” would lead you to WalMart (TRAM LAW spelled backwards; a place to “shop”; slogan includes “Always.”).

Meanwhile, another development solved the speeding problems and overcame the rapidly inflating price of gasoline. The map rally appeared. Now everything could be done on a map, instead of driving. Of course, the social aspects of showing off your vehicle were lost, but everyone (even people without cars) could play. The car rally was now an open-book test; so the traps became harder and distances “driven” became longer. People from Boston could go head-to-head with folks from Sacramento and Canberra.

In 1964, the Concours Plaines Rallye Team of Chicago started the St. Valentine’s Day Massacre, which has since become the most popular annual map rally for nearly fifty years. Registered participants receive a brand new Rand McNally road atlas and all of their rally materials by mail in early January and have until February 14 to mail in their answers. The event is made more fun by witty situations and intriguing place names encountered going from the Statue of Liberty to the Golden Gate Bridge (or vice versa).

Google “Almaniac” to get you to home.earthlink.net/~oldmaltese where you can learn more about the St. Valentine’s Day Massacre and events like it. Tens of thousands of people have participated in the Massacre; maybe you’ll be among next year’s winners.

Setting the Trap

On a Q&A rally or a map rally you get a set of rules and a set of course pages with instructions and questions. The trick is to execute the instructions without breaking the rules. It sounds simple enough, but it can be extremely difficult at times. It is hard because the instructions are trying to make you break the rules.

What do we mean by a *trick* or a *trap*? Here is an example. Imagine that you are on a car rally. One of the rules says:

This rally is a test of your skill. Don't count on any wish, hope, or aspiration.

You are driving along the roadway named BULLOCK and asked how many streetlights you pass. You have counted two when signs indicate that the roadway on which you are traveling is now named WISH. Although there are three more streetlights along WISH, you can't count them. The rules told you not to count on any WISH. But wait! The roadway name changes again, this time to MARTHA. You can count two more streetlights now that you are no longer on WISH. (This configuration of roadways actually occurs in Encino, California.)

To give yourself a fighting chance, you need to read the rules. Here is a typical set of rules. After you read through them, we'll be ready to trick your socks off.

Rally Rules

1. Definitions:

R	Turn right
L	Turn left
@	At or as near as possible after
TEE	An intersection where a roadway extends to your right and a roadway extends to your left, and past which you can't continue straight ahead
RDWY	A roadway with a different name than the roadway you are on
OPP	[Opportunity] A RDWY onto which you can legally turn in the direction indicated by the Route Instruction you are working on
STP	[Stop Sign] An intersection with a ● symbol as seen on the map
“ ”	[Double quotation marks] Indicates a sign which contains at least everything appearing between the quotation marks

2. Priority: The priorities from highest to lowest are: Checkpoint Instruction, Rally Rule, Note Instruction [NOTE], and Route Instruction [RI]. If items of different priority conflict, obey the item of higher priority in that situation.

3. Complying with instructions: Execute each RI once only, as soon as possible, and in ascending numerical order. A NOTE comes into effect when you turn for the last RI appearing before the NOTE and goes out of effect when the NOTE is cancelled. While a NOTE is in effect, do what it tells you to do whenever it applies. Don't turn for two different instructions at the same time.

4. Continuing: Always continue in the straightest possible direction until otherwise directed.

5. Roadways: Roadways with different names are different roadways.

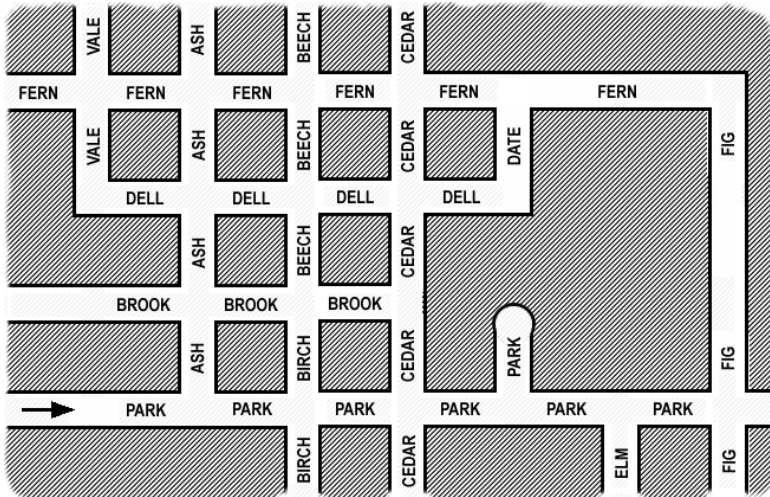
6. Questions: Answer each Q (printed question on your Course Pages) between the completions of the RIs most nearly surrounding that Q.

7. Signs: Consider abbreviations and the following words to be nonexistent on signs: AVENUE, BOULEVARD, DRIVE, PLACE, ROAD, STREET.
 8. Or: The word OR separates the parts of a RI. Only execute the first or second part listed in such a RI (whichever can be done first along the course), and then consider the RI completely executed.
 9. By Name: If the last RI you turned for ends with the phrase 'by name' and contains the name of the roadway on which you are traveling, do not leave that roadway except to execute another RI or NOTE.
 10. Miscellaneous: Don't split any word, number, or abbreviation. Numbers and abbreviations are not words. Capitalization and typeface are irrelevant. Information enclosed in parentheses () is honest and helpful. Be careful. Don't drive over any cliff.
-

Did you read all of those rules or just skip over them (like a software license agreement)? Remember that the puzzles in this chapter try to get you to break the rules; you really must read the rules. And you can refer back to them whenever you need to.

Example Won

The best way to understand a Q&A rally is to give it a try. Let's look at some examples. Consider the map shown on the next page. You are starting with your car at the arrow (on the roadway named PARK) and headed in the direction of the arrow. Remember that 'right' and 'left' are relative to the direction of your car, not the printed page. If you've read the rally rules (pretty please), you're ready to start.



RI 1. L at BIRCH

Q1. What is the name of each roadway you travel on?

NOTE DELL: L onto DELL

RI 2. R onto FERN

Q2. Does DATE form a TEE with the roadway you are traveling on?

RI 3. R onto PARK

RI 4. R @ third OPP

Q3. What is the name of each roadway you travel on?

RI 5. L onto FERN

Try to answer the three questions before we explain our answers. This example requires an understanding of Route Instructions, Note Instructions, and Questions. Here is what we expected you to do:

Let's figure out where the instructions tell us to go before we think about the questions. You continue ahead until you can turn left at BIRCH. You continue in the straightest possible direction at the next intersection and you are driving on BEECH. Notice that the street name has changed. You come to a cross street at DELL. NOTE DELL is in effect (according to Rule 3). You turn left onto DELL. You follow the roadway through the bend onto VALE and finally do RI 2 onto FERN.

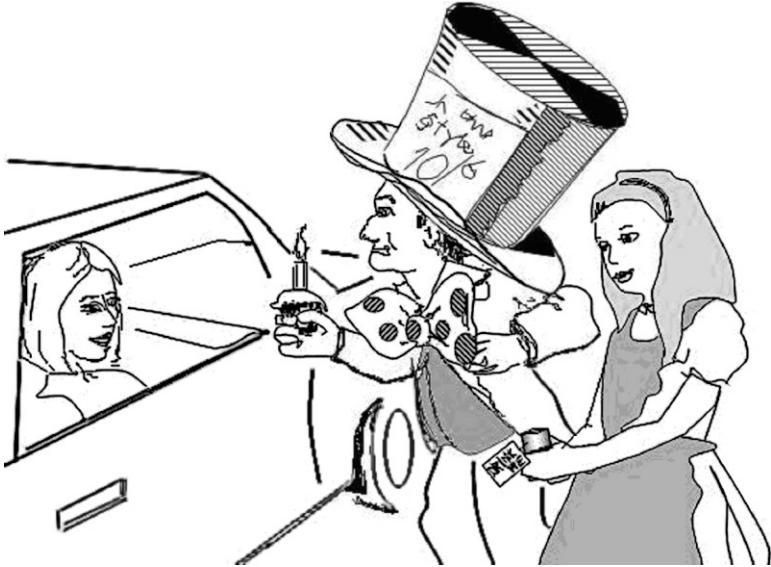
Question 1 is answerable (according to Rule 6) between the completions of RI 1 and RI 2. You travel on BIRCH and BEECH and then on DELL and VALE between those two route instructions. Your complete answer for Q1 is BIRCH, BEECH, DELL, and VALE. You might make a case for including FERN in your answer, but (for the purposes of this book) don't consider that you've traveled on a roadway until after you've completed the instruction to turn onto it. Notice that we don't include cross streets in our answer because you don't really travel on them.

After completing RI 2, you drive along FERN and see that DATE comes in from the right. DATE and FERN form a T-shaped intersection, but not a TEE. The definition of TEE depends on your direction of travel. (See Rule 1.) As long as *you* can continue straight ahead, DATE doesn't form a TEE. The answer to question 2 is No.

At the next intersection you continue in the straightest possible direction onto FIG and finally do RI 3 by turning right onto PARK from FIG. Now you start counting OPPs for RI 4. You don't count ELM because it is only on the left. To count it as an OPP, you must be able to turn onto the roadway in the direction indicated (in this case, right). Later you come to a side street named PARK. This isn't an OPP, either. An OPP must have a name different from the roadway you are on. ASH is the third OPP.

After completing RI 4 (onto ASH or BIRCH or CEDAR), you come to DELL. NOTE DELL is still in effect (it hasn't been cancelled); so you must turn left onto DELL again. You complete RI 5 by turning onto FERN from VALE. Your answer to question 3 should be ASH, DELL, and VALE.

You may be saying to yourself, "Why would PARK be a side street of PARK?" In real life it is not uncommon for PARK PLACE to intersect PARK AVENUE. For purposes of this book, I have removed the PLACE and AVENUE designations from the map. On a real rally, a rule (like Rule 7) would make those designations nonexistent on the signs.

Check It Out

CHECKPOINTS often have fun themes and wacky games that can hide tough traps.

On an actual car rally, the checkpoints are usually a lot of fun. At the same time, they can be very tricky. On a rally with an *Alice in Wonderland* theme, the following NOTE was in effect:

NOTE MAD: Some of our checkpoint workers are mad. If any checkpoint worker gives you a sock or punch, just calmly say that your lawyer will contact the person in the morning.

Soon you came into a Mad Hatter checkpoint. Workers were dressed up as the Mad Hatter, Alice, and the Dormouse. A worker asked, “Are any of you having a birthday today?” If anyone was not having a birthday, the worker would say, “Then it must be your unbirthday!” All of the workers would comment that it was their unbirthday, too. A worker would then hand you a cup of fruit punch. NOTE MAD required you to say that your lawyer would contact them in the morning.


It gets weirder. The checkpoint worker would then hand you a cupcake with a lighted birthday candle and tell you to make a wish. However, there was a sentence in that rally's rules that said, "Don't blow anything." If you blew out the candle, you lost some points.

Other checkpoints have had pirates, witches, and six-foot-tall turkeys. One even featured a grave containing a dead coyote named End; it was just imaginary – no animals were harmed. The rules told you to make a U-turn at each dead end you came to. Ouch!

Sign Traps

Let's look at how a rally can try to trick you with street signs. If you saw all of the signs in this illustration, what would your answers to the questions be?



1. How many signs indicate that parking is restricted?
2. How many “NO PARKING AT ANY TIME” do you see?
3. How many “” do you see?
4. How many “NO PARKING signs” do you see?
5. How many “NO PARKING ANY TIME” do you see?
6. How many “STREET SWEEPING” do you see?

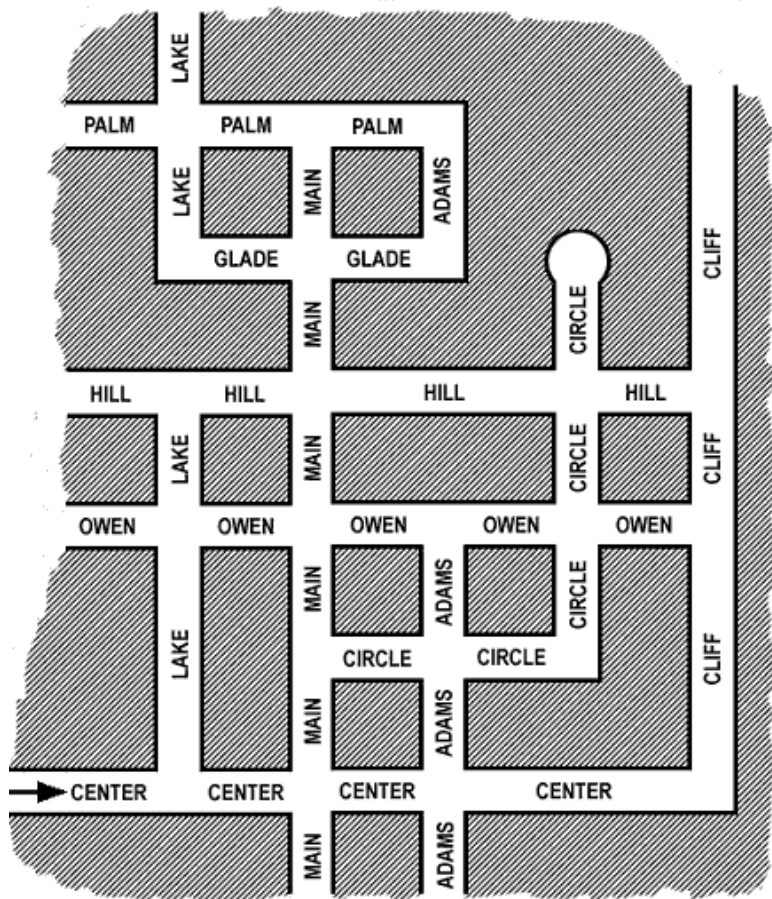
All the ‘No Parking’ signs restrict parking. If you are limited to two-hour parking, that is a restriction, too. And if you can’t stop, you certainly can’t park. The answer to question 1 is seven or eight, depending on whether you agree that ‘No Stopping’ restricts parking, too.

The next two questions are observation traps. The answer to question 2 is one; only one sign includes the word ‘at’. The highway icon for ‘no parking’ has a diagonal bar slanting from the upper left to the lower right. The question used a bar slanting from the upper right to the lower left. The answer to question 3 is zero.

The last three questions rely on the definition of quotation marks in Rule 1. All of the words inside the quotation marks must appear on the sign. Only one sign had the word ‘signs’ on it; the answer to question 4 is one. The answer to question 5 is three. Two signs read “NO PARKING ANY TIME”, and the “NO PARKING AT ANY TIME” contains the quoted text as well. The answer to question 6 is zero. Rule 7 says that the word STREET is nonexistent on signs; so you would never see “STREET SWEEPING”.

Example Too

Are you getting the hang of this? You need to be very careful and precise in applying the rules and answering the questions. Let’s try a trickier example using the same rules and a different map. Again, you will start at the arrow in the lower left hand corner.



RI 7. L onto ADAMS

NOTE RIGHT: R at TEE

RI 8. L onto CIRCLE

Q4. What is the name of the first RDWY you come to?

RI 9. R onto HILL

Q5. Do you execute NOTE RIGHT?

RI 10. R onto MAIN

Q6. Do you travel on ADAMS?

RI 11. L onto PALM

You turn off of CENTER and onto ADAMS. NOTE RIGHT comes into effect, but before you come to a TEE, you come to

CIRCLE. Rule 3 tells you to execute each RI as soon as possible; a NOTE is done only when it applies. If you did NOTE RIGHT before you did RI 8, your answer to Q4 would be HILL. However, you should have gone left on CIRCLE earlier, and your answer to Q4 should be MAIN.

After you turn right onto HILL for RI 9, you come to a TEE where HILL ends at CLIFF. Rule 10 told you not to drive over any CLIFF. The rule is higher priority than the NOTE; so you had to make a U-turn to avoid CLIFF. People who drive over CLIFF turn onto MAIN from CENTER and say Yes to Q5. Those who make a U-turn reach MAIN on HILL and say No to Q5.

MAIN ends at PALM. The area is a TEE. NOTE RIGHT tells you to turn right. RI 11 tells you to turn left. The NOTE is higher priority. You should turn right onto PALM and continue to look for a place where you can do RI 11. Continuing in the straightest possible direction, you travel on ADAMS, GLADE, and LAKE before you come to PALM at an intersection that is not a TEE.

Please notice that the incorrect course and the correct course both end in the same place. Only the questions test whether or not you “caught the trap.” The incorrect course is looped back together with the correct course so that people who make errors don’t know they are off course until they read the answers. This false sense of security is the result of *looping*, bringing the off-course route back together with the on-course route. Very tricky!

Avoiding the Traps

We’ve seen some of the basic concepts behind a Q&A rally. NOTES can be executed multiple times, but only when they apply. Priority determines which action you should take when there is a conflict of priorities. A rally can trap you with roadway names (like CLIFF) hidden in the rules and instructions. Be sure that you carefully apply the terms defined in the Rally Rules. Understand when questions are answerable, and don’t be distracted by all the other things that are going on. Take your time. Think it through.

If you are ready to graduate, let's look at a really hard trap. Tighten your seat belt and get ready for some complications. Suppose that our last example had been slightly different. Suppose that NOTE RIGHT had been written as R @ TEE instead of R at TEE. How would the results have been different?

When you complete RI 9 and come to the TEE at HILL and CLIFF, you would still have to obey the rule and avoid driving on CLIFF. You can't execute NOTE RIGHT at that TEE. However, the NOTE could be applied by turning right 'as near as possible after' the TEE. See the definition of @. The first place you could turn right after the U-turn was onto CIRCLE. You would go to a cul-de-sac, make a U-turn, and drive the entire length of CIRCLE.

When you get to MAIN, it is a TEE. You have both RI 10 and NOTE RIGHT to execute. You must do the higher priority item (NOTE RIGHT) at this point. Rule 3 tells you not to do two instructions at the same time; so RI 10 will have to wait. Drive to the end of MAIN, turn right at the TEE there, and do RI 10 from GLADE.

We could test your course by changing Q5 to read 'How many times do you execute NOTE RIGHT?' An answer of '1' means you turned onto CLIFF; an answer of '0' means you made the U-turn and stayed on HILL; and an answer of '3' means you caught everything. When a lower priority instruction uses '@', always look to see if you can *save up* a turn to be executed as near as possible after the priority conflict.

A good rallyist looks for a trap every time there is a question. The puzzle designer (called the rallymaster) knows this and can counterattack by stacking two or more traps into a single question. For example, question 3 tests your counting of OPPs and remembering to do NOTE DELL a second time.

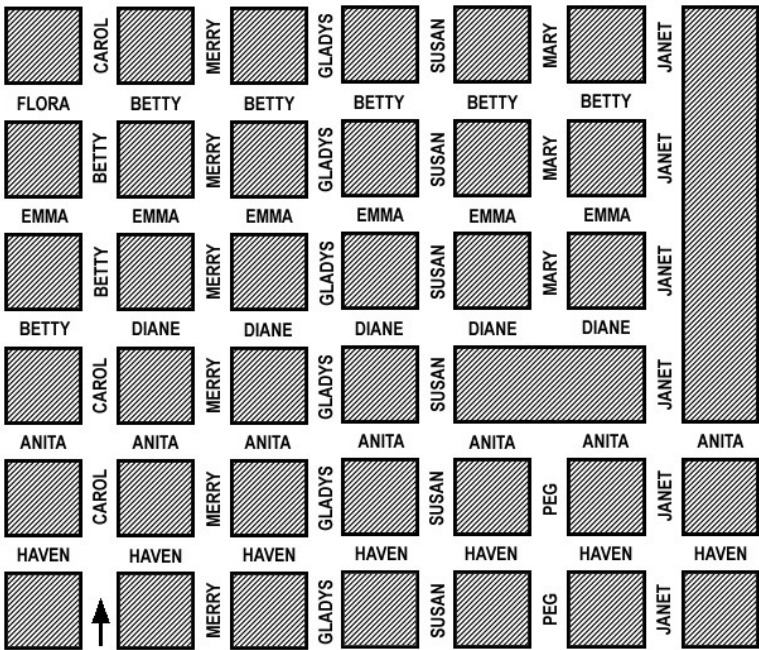
You've probably seen enough about rallies to get you started on the puzzle section. You are strongly encouraged to work this chapter's puzzles in order from easy to hard. Read the answers after each leg and let them act as a tutorial to help you work into the harder traps.

117. Peg Leg ★★

Hint: p. 181

Solution: p. 286

Consider yourself to be driving along the roadways indicated by the maps. Carefully read and obey the Rally Rules from pages 138 and 139 for each of the puzzles in this chapter. The course instructions will try to trick you into breaking those rules. Start each leg of the rally at the arrow on the map (moving in the direction of the arrow). Directions (left and right) are relative to your direction of travel – not relative to the page of the book.



RI 1. R at BETTY

Q1. Do you pass MARY?

RI 2. R @ TEE (onto JANET)

Q2. What is the name of the first RDWY you come to?

RI 3. R onto HAVEN

RI 4. R @ Xth OPP To determine X, use the following:

? = $W + X + Y - Z$, where $W = 1$, $X = 5$, $Y = 2$, and $Z = 4$.

Q3. What is the name of the roadway on which you are traveling?

RI 5. R onto ANITA

Q4. Is there a roadway between PEG and JANET?

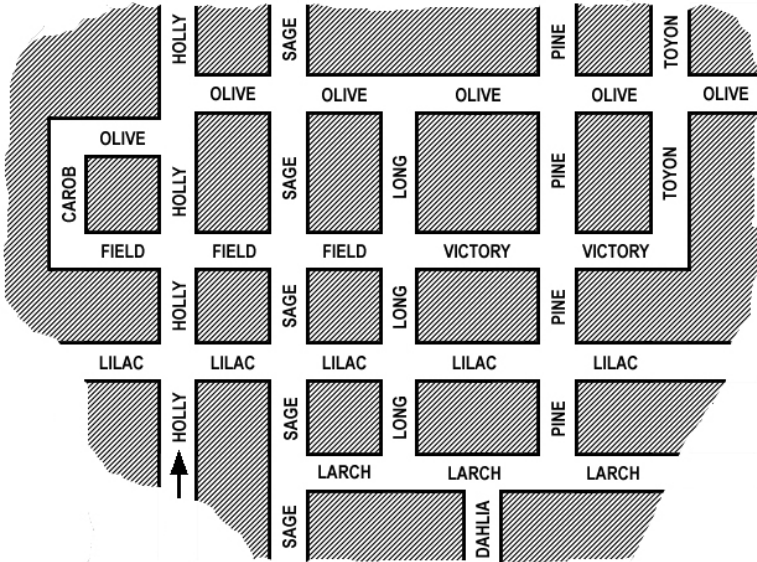
RI 6. L onto JANET

118. Long Leg ★★★

Hint: p. 181

Solution: p. 287

Again consider yourself to be driving along the roadways indicated by the map. Using the rules from pages 138 and 139, start this leg of the rally at the arrow (moving in the direction of the arrow).



RI 8. R or L onto OLIVE

RI 9. R onto SAGE

Q5. What is the name of the first RDWY you come to?

NOTE PEP-TALK: This rally should be easy for you. You should not go on long doing any of these instructions. Stay mentally focused and go right onto victory.

RI 10. L onto LARCH

Q6. Do you pass DAHLIA?

RI 11. L @ first OPP

RI 12. L onto OLIVE

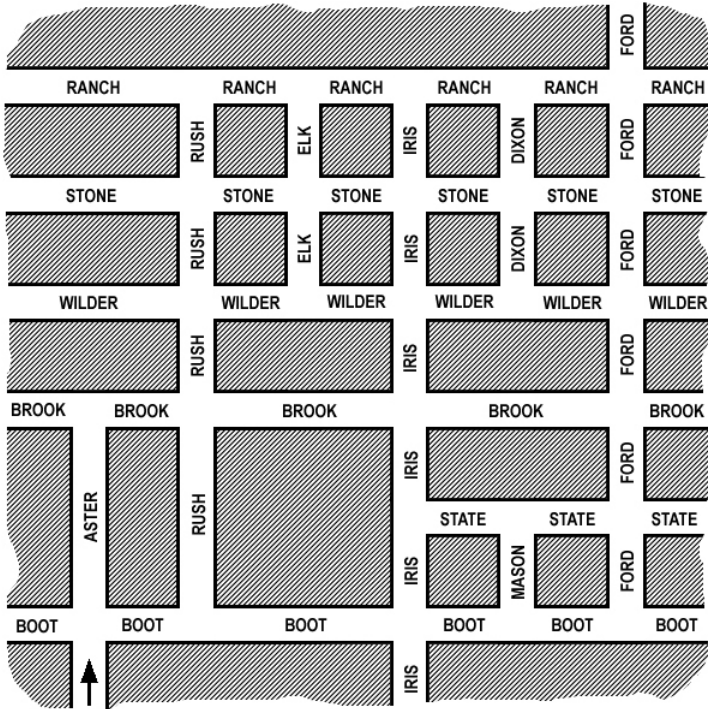
Q7. What is the name of each RDWY that you come to?

RI 13. R onto SAGE

119. Boot Leg ★★★

Hint: p. 181

Solution: p. 288



RI 15. R onto BOOT

NOTE CALM: It is now exactly 8:00 PM. You have until 11:00 PM to finish. There is no rush. Cancel this NOTE when you come to WILDER.

RI 16. L @ first OPP

RI 17. R @ first OPP

Q8. What is the name of the first RDWY you come to?

RI 18. L onto FORD

NOTE DIXON: Consider DIXON to be a one-way roadway where it is not legal for you to turn left.

RI 19. L onto RANCH

RI 20. L at first OPP if it is legal to do so OR L onto ELK

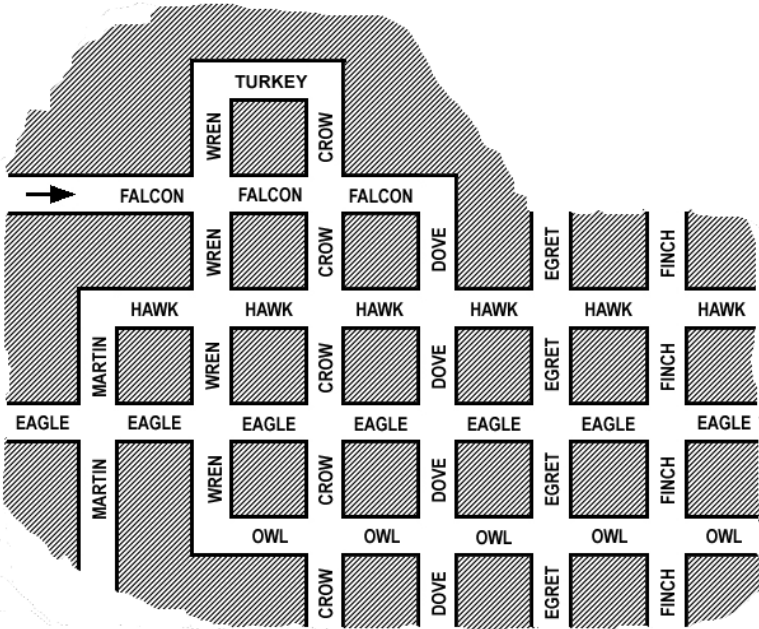
Q9. What is the name of the roadway on which you are traveling?

RI 21. L onto WILDER

120. Turkey Leg ★★★

Hint: p. 181

Solution: p. 289

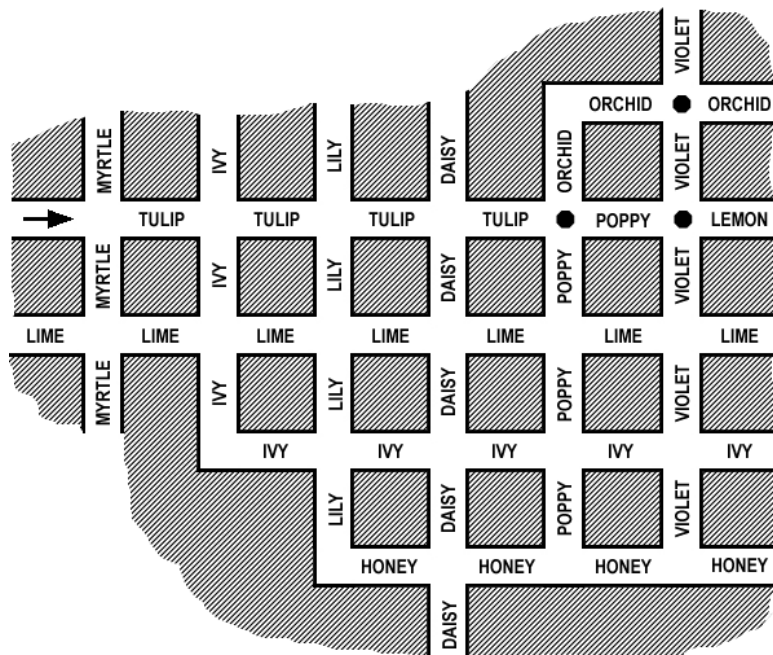


- RI 23. R at an intersection were you cannot go straight ahead or turn left
- RI 24. R onto HAWK
- Q10. What roadways meet at each intersection you come to?
- RI 26. R @ first OPP
- RI 25. L onto EAGLE
- RI 27. L onto FINCH OR L onto EGRET OR L onto DOVE
- Q11. What is the name of the roadway on which you are traveling?
- RI 28. R onto HAWK

121. Ivy Leg ★★☆☆

Hint: p. 181

Solution: p. 290



RI 30. Continue straight past MYRTLE

NOTE POPPY: Never turn onto POPPY.

Q12. What is the name of each RDWY you come to?

RI 31. R onto LILY, and then L onto DAISY

NOTE IVY: L onto IVY.

RI 32. R onto TULIP

Q13. What is the name of each RDWY you come to?

RI 33. R at STP

Q14. What roadways meet at the first intersection you come to?

NOTE UN-IVY: CANCEL NOTE IVY.

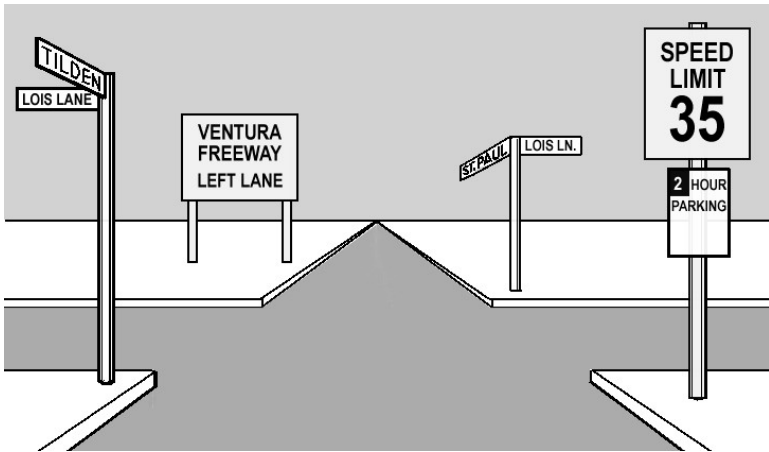
RI 34. L onto LIME

122. Sign Here ★★★★★

Hint: p. 182

Solution: p. 291

Consider yourself to be traveling on TILDEN approaching the intersection pictured below. Answer the two questions as if you were on the car rally.



Q15. What even number is closest to but still below the “speed limit”?

Q16. What RDWY names appear on signs?

123. Beau Leg ★★☆☆

Hint: p. 182

Solution: p. 292

Begin this leg of the rally at the arrow on the map on the next page. You have just received the following Checkpoint Instructions:

CHECKPOINT INSTRUCTIONS

Execute the following once only:

1. Consider yourself to have turned for and completed all RIs numbered 1 through 35 if you have not already done so.
2. Add the following rule to the Rally Rules:
 11. Forced Turns: A Forced Turn is a turn of approximately 90 degrees where you cannot continue straight ahead and can turn in only one direction, other than possibly a U-turn. Don't execute a RI and a Forced Turn at the same intersection. (This rule will remain in effect for all future legs of the rally.)
3. L onto an OPP as soon as possible after you have completed RI 38.

----- end of checkpoint instructions -----

RI 36. L @ first OPP

Q17. What roadways meet at the first intersection you come to?

RI 35. R @ first OPP

NOTE BEAU: Consider the roadway CRAIG to be instead named BEAU.

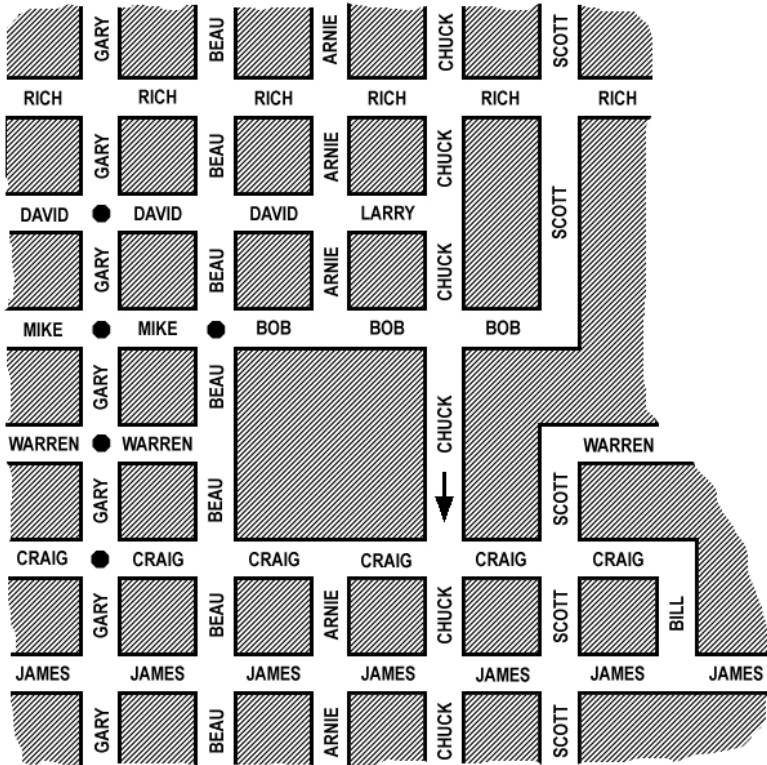
RI 37. R onto JAMES

RI 38. R onto BEAU

RI 39. R at STP

Q18. What is the name of the first RDWY on your right?

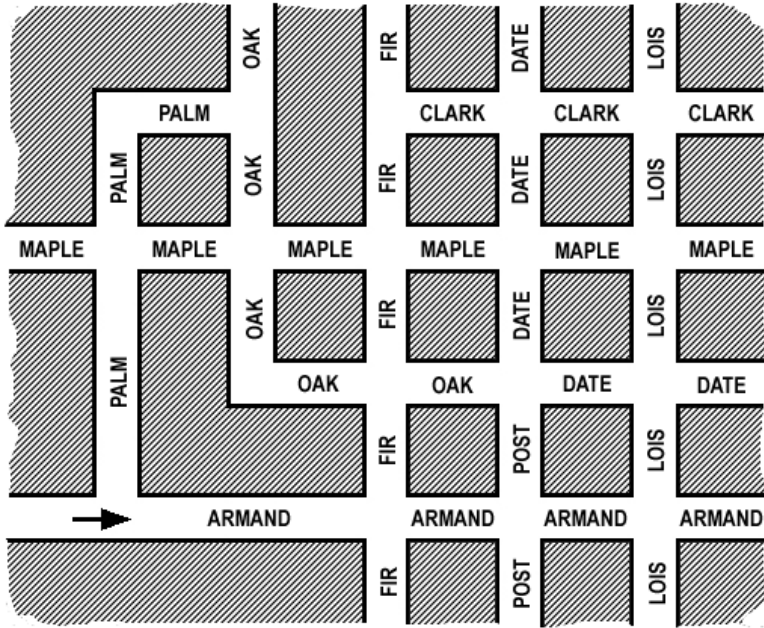
RI 40. L onto RICH



124. Armand Leg ★★★★★

Hint: p. 182

Solution: p. 294



RI 42. L onto POST

NOTE GROUNDED: Don't go on any date.

NOTE RIGHT: R @ TEE

RI 43. L onto MAPLE

Q19. What is the name of the first RDWY you come to?

RI 44. R onto PALM

NOTE UN-GROUNDED: Cancel NOTE GROUNDED.

RI 45. R @ first OPP after FIR

Q20. What is the name of the roadway on which you are traveling?

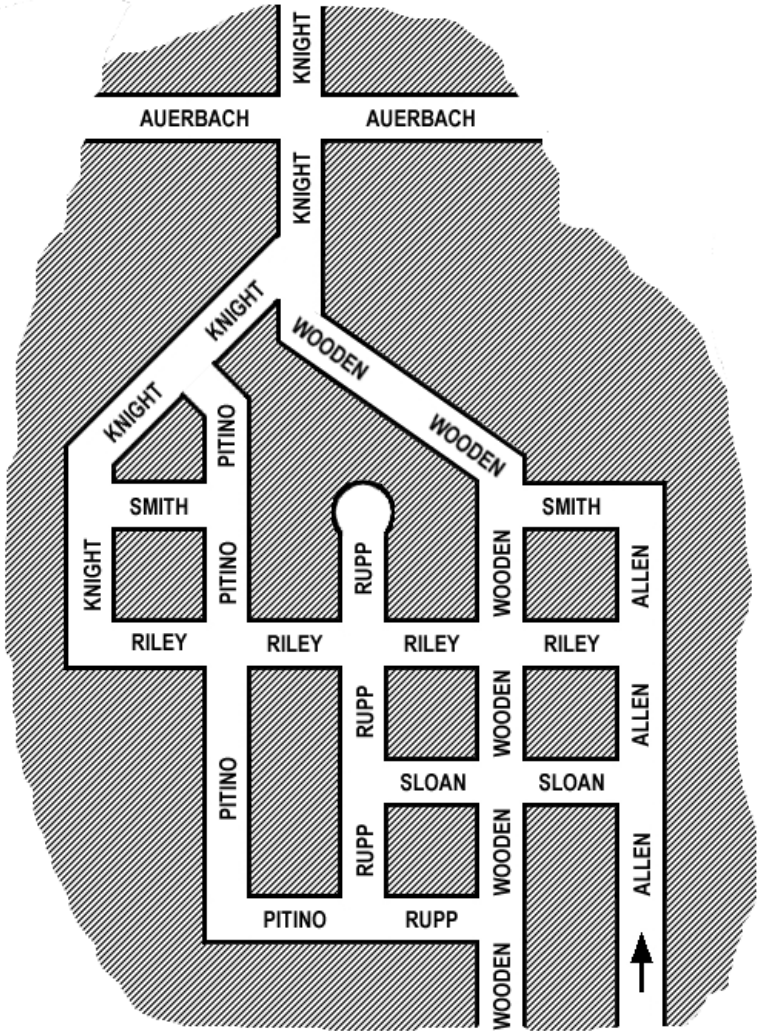
RI 46. L @ first OPP

NOTE UN-RIGHT: Cancel NOTE RIGHT.

125. Wooden Leg ★★★★★

Hint: p. 182

Solution: p. 295



RI 48. L onto SLOAN

NOTE WOODEN: L onto WOODEN

Q21. How many times do you execute NOTE WOODEN?

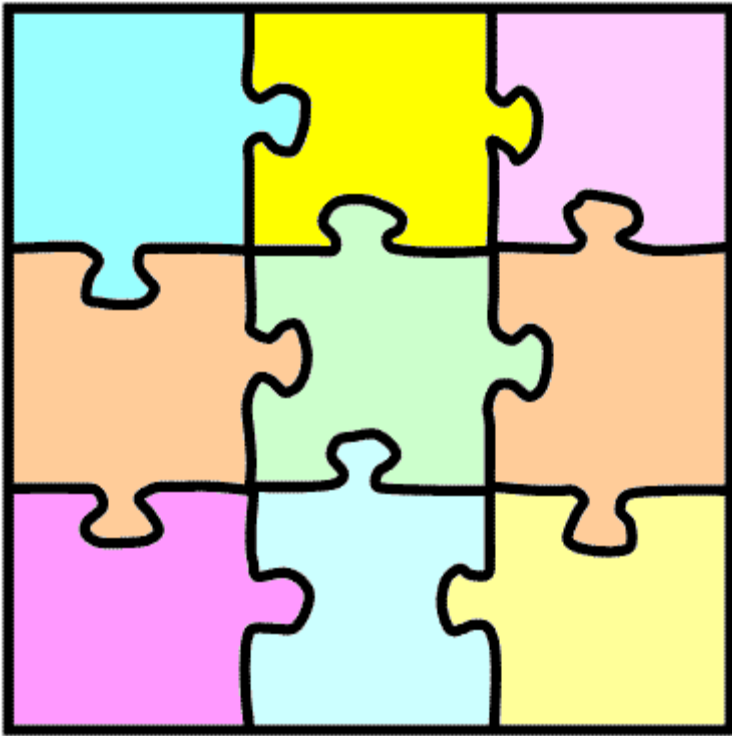
RI 49. R onto RUPP, and then L onto RILEY, by name

Q22. What is the name of the first RDWY you come to?

RI 50. Continue in the straightest possible direction onto KNIGHT

Q23. What roadways meet at the first intersection you come to?

RI 51. R onto AUERBACH



Part 10

Hints and Solutions

"Any man who knows all the answers most likely misunderstood the questions"

- Author unknown

Hints:

1. Connect the Dots – Hint (p. 8)

Parrots are notorious for saying, “Polly wants a cracker.”

2. Paint by Numbers – Hint (p. 9)

You draw the silhouette of a rather chubby goose.

3. Turn, Turn, Turn – Hint (p. 10)

After a little trial and error (emphasis on the “error”) it seems that we always have to turn away from the exit passageway. What we need is a way to reverse direction, but we aren’t allowed to make a U-turn or go backwards. Use the larger blocks to help you break the pattern and get you moving into places you couldn’t go before.

4. Hidden Pictures – Hint (p. 10)

The objects are items you might find in a tool kit. They are: ball peen hammer, C-clamp, file (or rasp), hand saw, level, pliers, power drill, screwdriver, tape measure, and wrench.

5. Find the Twins – Hint (p. 12)

This Find-the-Twins puzzle is harder than most. Usually each picture differs from the others in only one way. In this puzzle each monkey has several differences. One way to approach this is to identify all six ways that pictures differ from each other. Then list which differences each picture has. Another approach would be to spot one obvious difference and decide if any two monkeys having this difference are identical.

6. Charge! – Hint (p. 13)

Working backwards from the end shows us that we must ultimately come across the top and down the right side of the diagram to solve the puzzle. The trick is to get moving in a clockwise direction. This means that we must reverse our charge somewhere. Where can we go through a charge circle and then return to the circle we passed through before (to go in the opposite direction)?

7. Beam Me Out – Hint (p. 14)

We need to get all of the high-numbered stations set to Sending mode so that station 3 is the highest-numbered station in Receiving mode. That means going from the lowest-numbered stations to the highest-numbered stations until station 3 is the highest-numbered station in Receiving mode.

Challenge 2 is a little different. When we get to station 7, it changes to Send mode. The section of maze containing stations 4 and 7 now only has station 7 in Send mode. If we beam out using station 7, it goes back into Receive mode. How can we get out of this section without resetting station 7?

8. No Left Turn – Hint (p. 16)

This type of maze usually involves moving in ever-widening spirals until you can circle in on the destination. Look for streets that get you into the upper portion of the diagram. Then use little blocks to make three quick right turns to get yourself going to the left. Getting from Work to Home takes a very similar path.

9. Trick Questions – Hint (p. 17)

- a. Read the question carefully.
- b. Read the question carefully.
- c. Although you might be tempted to say June, the third child was a boy. Read the question carefully.
- d. There is no date in the question.
- e. Read the question carefully. After you answer the question, consider this alternate question: “How many people were on the bus after the sixth stop?”

10. Questions That Are Harder Than They Seem – Hint (p. 17)

- a. This question hinges on the definition of “ounce.”
- b. Green is not a color in this question.
- c. No, it’s not Virginia. The colony was named after a quality of a famous person at the time.
- d. This question involves research into centipedes.

11. The Absurd Questions don't really have any answers.**12. The Dumb Chemistry Lab Workbook – Hint (p. 18)**

When taking tests, we can sometimes find the answers buried in subsequent questions.

13. Mental Blocks 1 – Hint (p. 20)

Don't let yourself get trapped so that you can't get back to the exit. Be careful where you push Block D. Also be careful how you get across the bottom (south end) of the diagram.

14. Mental Blocks 2 – Hint (p. 21)

Ignore the southwest corner of the diagram; it's a trap. Get Block D out of the way. Then get Block B out of the way.

15. Mental Blocks 3 – Hint (p. 22)

Open a pathway along the east edge of the diagram before pushing Block F back into its original position. Block I must also be moved back to its original position before you can escape out the northwest corner.

16. Mental Blocks 4 – Hint (p. 23)

Use the arch and get Block C out of the way. Use another arch to move Block I out of the way.

17. Mental Blocks 5 – Hint (p. 24)

Block C needs to be moved out of the way. But Block E poses a bigger challenge. Don't let Block E keep you from escaping to the exit.

18. Mental Blocks 6 – Hint (p. 25)

Prepare the stack of blocks in the southwest corner of the diagram before you do anything else. You need a way to keep Block I from barring your way into the treasure.

19. Mental Blocks 7 – Hint (p. 26)

Prepare the blocks on the east side of the diagram before you go west. You need a way to escape the southeast corner and get to

the exit. To get to the treasure, push Block L to the east before entering the center of the diagram.

20. Mental Blocks 8 – Hint (p. 27)

You'll need to clear the blocks away from the exit before you go for the treasure. Start on the east side. Don't be afraid to push Block G to the west; you don't need to escape out the northwest corner. Find a way to push Block K to the east.

21. Mental Blocks 9 – Hint (p. 28)

You can't enter the maze from the northeast corner, but you must prepare your escape from that section. Get Block B out of the way and don't worry about blocking your escape in the northwest corner. The southwest corner is a trap; avoid it. Get Block J and F out of the way before you go for the treasure.

22. Mental Blocks 10 – Hint (p. 29)

Get Block E out of the way and push Block D to the west. Before you push Block C back to its original position (blocking the northeast exit), open a path from the exit to Block G on the west side! You'll also need to do some serious backtracking when you get to Block H. This is one tough puzzle.

23. Hidden Fish – Hint (p. 32)

The fish names hidden in the sentences are:
anchovy, angelfish, bass, bonito, carp, chub, cod, eel, grouper, guppy, haddock, halibut, herring, ling, mahimahi, marlin, minnow, perch, pike, piranha, ray, roughy, salmon, sardine, shark, skate, sprat, sole, steelhead, tilapia, trout, tuna, and walleye.

24. Hidden Movie Titles – Hint (p. 32)

The movie titles hidden in the sentences are:
Airplane, Alien, All About Eve, Amadeus, Armageddon, Braveheart, Camelot, Castaway, Chinatown, Die Hard, Easy Rider, Fail Safe, Free Willy, Gone with the Wind, Goodfellas, Ironman, King Kong, Love Story, Mean Girls, Moonstruck, Patton, Psycho, Rocky, Shrek, Spartacus, Star Trek, Top Gun, Toy Story, Vertigo, and West Side Story.

25. Hidden Trees – Hint (p. 34)

The tree names hidden in the sentences (including the ones that are hidden in reverse) are:

alder, almond, apple, ash, aspen, avocado, beech, birch, cedar, cherry, cypress, date, elderberry, elm, fig, fir, ginkgo, hemlock, hickory, larch, lemon, magnolia, mahogany, maple, mesquite, nectarine, oak, olive, orange, palm, peach, pear, pecan, persimmon, pine, pomegranate, poplar, plum, redbud, spruce, sycamore, tupelo, walnut, and willow.

26. Ended by a Blade – Hint (p. 35)

Let's consider the clues: many colors, many styles, and "added on top of smiles." Mexican, English, natural, or perhaps drawn by some naughty vandal. In many shapes, like a toothbrush, a pencil, or a horseshoe. Probably the most telling clue is "under your nose is where I will be."

27. Communicator – Hint (p. 35)

I try to communicate at night, but not with sound. I only broadcast a message; I don't expect others to reply. My goal is to have those who receive my message continue on their way. If they would actually come to me, they would probably perish. I stay in one place.

28. Switch Meanings – Hint (p. 35)

Each line in this riddle uses a different meaning for the same word. A steno is a typist; what is 'Enter' to a typist? A center is a basketball player; what does he call 'the paint'? What does a teacher call a set of answers to a test? What is a synonym for 'essential' when referring to a speaker's point? What can give us access to something valuable? What is the drug culture nickname for a kilo of drugs?

29. Have a Blast – Hint (p. 36)

This is a source of energy. It plays chimes and also plays among the trees. We often feel cooler when this is around. The riddle ends with two idioms employing the answer word.

30. Story – Hint (p. 36)

I'm found in every room. People feel that I contaminate food I touch. I support, but I can trip. People place things on me but never put me on a wall. The title of the riddle also provides a hint.

31. Title – Hint (p. 37)

Look for the key words like: bound, leaves, scholar, spine, hard, words, unspoken, jacket, cover, open, etc. What do they have in common?

32. Pay Me – Hint (p. 37)

OK, the verse sounds like it's written by Yoda, but can you work out the riddle? The answer is synonymous with care, tending, consideration, notice, concentration, and (to) mind. "Pay" is part of an idiom formed with the answer word.

33. Tapering Off – Hint (p. 37)

Each line of the riddle defines a different word in the answer. The first word must have at least eight letters, because there are seven surgeries performed. Eight different words are created as the surgeries are performed. The eight words have the following patterns (where each digit represents a letter):

12345678, 2345678, 345678, 34578, 3457, 457, 45, 4.

34. Give Me a Break – Hint (p. 38)

The trick to deciphering the sentences is how you break the words. All of the letters are in the right order, but the punctuation, spacing, and capitalization have gone haywire. With a little regrouping, you should be able to find some familiar phrases.

35. Nonsentences – Hint (p. 38)

Same as puzzle 34 above.

36. Phrase-zzled – Hint (p. 39)

Same as puzzle 34 above.

37. Mondegreen Proverbs – Hint (p. 39)

Mondegreens are misunderstood lyrics or other spoken words. To decipher these proverbs: sound out the words and listen for familiar phrases in what you are saying.

38. Mondegreen Familiar Phrases – Hint (p. 40)

Same as puzzle 37 above.

39. Mondegreen Short Idioms – Hint (p. 41)

Same as puzzle 37 above.

40. Mondegreen Miscellaneous – Hint (p. 43)

Same as puzzle 37 above.

41. Word Evolution – Hint (p. 45)

1. With all four letters different and only three intermediate words, every change must move to a letter in the word FALL.

2. One letter (an E) is already in the right place. We can't change that letter, but our first move must be to change one of the other three letters to something that isn't in BEEF. The possible words are: DEAL, HEAL, MEAL, PEAL, REAL, SEAL, TEAL, WEAL, ZEAL, or VEIL.

3. It looks like our first move will not move to a letter in BEST. The first intermediate word can be FOOD, HOOD, MOOD, ROOD, WOOD, GOAD, GOLD, GOOF, GOON, GOOP, or GOOS. The last intermediate word can be FEST, GEST, JEST, LEST, NEST, PEST, REST, TEST, VEST, WEST, ZEST, BAST, BUST, BEAT, BEET, BELT, or BENT. Several choices will work.

4. SMOKE can go to SPOKE, STOKE, SMOTE, or SMOKY. STACK can come from SHACK, SLACK, SMACK, SNACK, STICK, STOCK, or STUCK. Again, more than one path is possible.

5. DEAD can go to BEAD, HEAD, LEAD, MEAD, READ, DEED, DEAF, DEAL, DEAN, or DEAR. LIVE can come from DIVE, FIVE, GIVE, HIVE, JIVE, RIVE, WIVE, LAVE, LOVE,

LICE, LIFE, LIKE, LIME, LINE, or LIRE. Several choices are possible. Focus on changing the vowel-consonant sequence.

6. BEARD can go to HEARD, BOARD, or BEARS. BEARS probably has the most potential. SHAVE can come from SLAVE, SOAVE, STAVE, SUAVE, SHOVE, SHADE, SHAKE, SHALE, SHAME, SHAPE, or SHARE.

7. FAIRY can go to DAIRY, HAIRY, FAERY, or FAIRS. This time the vowel-consonant shift is made at letters 3 and 4.

8. WALK can go to BALK, CALK, TALK, WACK, WALE, and WALL. TROT can come from TOOT, TROD, TROG, or TROY.

9. COMB can go to BOMB, TOMB, WOMB, COMA, or COME. COME is really the only choice, but it then forces a vowel-consonant shift again. HAIR can come from FAIR, LAIR, PAIR, HEIR, or HAIL.

10. BRAIN can go to DRAIN, GRAIN, TRAIN, BLAIN, BRUIN, BRAWN, BRAID, or BRAIL. THINK can come from CHINK, THANK, THUNK, THICK, THINE, THING, or THINS.

42. Mark 10:31 – Hint (p. 45)

This is a pattern recognition puzzle. They are almost always hard. Something about the spelling of the words is unusual. Not very many words have this characteristic. Most of these words start with the letter “S.” If you still want another hint, consider the title of the puzzle. It refers to a quotation that describes the unusual characteristic.

43. Anagrams – Hint (p. 53)

Look for an indicator word or phrase implying that you should scramble the letters. Words like: repair, ridiculously, cook, orders, exotic, etc. Then anagram one or more words to form a word defined by the remainder of the clue.

44. Homophones – Hint (p. 54)

Look for an indicator word or phrase implying that one word sounds like the answer word. Words like: heard, to speak, read aloud, in audition, utter, etc. Then use part of the clue as a

definition of the answer and another part as the definition of a sound-alike word.

45. Two Meanings – Hint (p. 55)

There are no indicator words here. Split the clue into two halves that each provide a separate definition for the same word. Expect the definitions to be quite different from each other. Sometimes the defined word is pronounced differently in each definition.

46. Charades – Hint (p. 56)

A charade builds a word out of two or more component parts. There are no indicator words here, except sometimes words to indicate the order of the parts. The component parts can be words or abbreviations. For example, “carbon” could be abbreviated C (from the periodic table of elements). Part of the clue is the definition of the whole word. The remainder of the clue defines the component parts and their order of assembly.

47. Reversals – Hint (p. 57)

Look for an indicator word or phrase implying that you should reverse the order of the letters. Words like: back, inverted, upset, brought up, retro, etc. Then split the clue into two parts defining two different words. One of the answers should be a reversal of the other (like TEN and NET).

48. Hidden Words – Hint (p. 58)

Look for an indicator word or phrase implying that there is something hidden inside the clue. Words like: guard, letters from, owns, central to, in, some, holding, etc. Then look into the indicated phrase to find a word matching the clue’s definition.

49. Containers – Hint (p. 59)

Look for an indicator word or phrase implying that you should build a word by putting something inside something else. Words like: bound, admits, got, bears, ate, about, etc. Then put a word or abbreviation inside another word to form an answer word defined by the rest of the clue.

50. Deletions – Hint (p. 60)

Look for an indicator word or phrase implying that you need to delete letters. Words like: drops, left, lose, off, without, etc. Then try removing the letter(s) from one part of the clue to form the other part of the clue.

51. &Literal – Hint (p. 61)

Remember: the entire clue represents both the wordplay and definition at the same time. These are especially tough because you don't know what type of wordplay is being used. Look for indicator words, or try solving the definition first.

52. Cryptic Crossword Square 1 – Hint (p. 62)

The types of clues used in this puzzle are as follows:
Across – 1. Charade, 6. Hidden, 7. &Literal, 8. Hidden Reversal, 9. Homophone.

Down – 1. Anagram, 2. Deletion, 3. Two Meanings, 4. Container, 5. Anagram.

53. Cryptic Crossword Square 2 – Hint (p. 62)

The types of clues used in this puzzle are as follows:
Across – 1. Deletion, 6. Two Meanings, 7. Container, 8. Homophone, 9. &Literal.

Down – 1. Homophone, 2. Two Meanings, 3. Charade, 4. Anagram, 5. Anagram.

54. Cryptic Crossword Square 3 – Hint (p. 63)

The types of clues used in this puzzle are as follows:
Across – 1. Reversal, 6. Anagram, 7. Deletion, 8. Homophone, 9. Initials.

Down – 1. Container, 2. Container, 3. Two Meanings, 4. Charade, 5. Hidden.

55. Cryptic Crossword Square 4 – Hint (p. 63)

The types of clues used in this puzzle are as follows:
Across – 1. Homophone, 6. Container, 7. Deletion, 8. Anagram, 9. Hidden.

Down – 1. Charade, 2. Two Meanings, 3. Charade, 4. Charade with Reversal, 5. Palindrome.

56. Cryptic Crossword Square 5 – Hint (p. 64)

The types of clues used in this puzzle are as follows:
 Across – 1. Anagram, 6. Hidden, 7. Anagram, 8. Charade,
 9. Two Meanings.

Down – 1. Anagram, 2. Hidden, 3. Anagram, 4. Homophone,
 5. Two Meanings.

57. Cryptic Crossword Square 6 – Hint (p. 64)

The types of clues used in this puzzle are as follows:
 Across – 1. Deletion, 6. Container, 7. Anagram, 8. Hidden,
 9. Hidden.

Down – 1. Two Meanings, 2. Charade with Anagram,
 3. Specialty, 4. Deletion and Reversal, 5. Container & Reversal.

58. Cryptic Crossword Square 7 – Hint (p. 65)

The types of clues used in this puzzle are as follows:
 Across – 1. Two Meanings, 6. Container, 7. Charade, 8. Hidden
 Reversal, 9. Hidden.

Down – 1. Deletion, 2. Two Meanings, 3. Two Meanings, 4.
 Charade, 5. Anagram.

59. Cryptic Crossword Square 8 – Hint (p. 65)

The types of clues used in this puzzle are as follows:
 Across – 1. Charade, 6. Two Meanings, 7. Charade, 8. & Literal,
 9. Anagram.

Down – 1. Charade, 2. Homophone, 3. Hidden Reversal,
 4. Charade, 5. Hidden.

60. Cryptic Crossword Square 9 – Hint (p. 66)

The types of clues used in this puzzle are as follows:
 Across – 1. Homophone, 6. Charade, 7. Initials, 8. Two
 Meanings, 9. Anagram.

Down – 1. Container, 2. Deletion, 3. Hidden, 4. Reversal,
 5. Charade.

61. Cryptic Crossword Square 10 – Hint (p. 66)

The types of clues used in this puzzle are as follows:
 Across – 1. Anagram, 7. Anagram, 8. Anagram, 9. Homophone,
 10. Anagram, 11. Charade.

Down – 1. Container, 2. Charade, 3. Container (of sorts), 4. Homophone, 5. Deletion, 6. Specialty.

62. Curious Equation – Hint (p. 67)

Notice where each person is located in the statement of the problem.

63. Matchstick Math – Hint (p. 69)

1. We can only move one match, so we can't get the 12 down to a one-digit number. We can't change the operator from addition to multiplication. We need two numbers that add up to a double digit number (12).
2. We could change the plus to a minus, but that's not enough.
3. Changing the digits doesn't seem to work no matter what we do. Can we change the operator (the minus sign) instead?
4. There aren't many options here. We need to change the operator and a digit.
5. $9 - 7 = 2$, but we don't have any extra matchsticks. Maybe we need to leave the digits the way they are and to work elsewhere.
6. Again we have a two-digit answer and no reasonable way to change the operator. We need to change the digits.
7. Is there anything we can do about that pesky two-digit number?

64. Matchstick Math - Toughies – Hint (p. 70)

1. What can we do to too many twos? Think very creatively. I repeat: think very creatively.
2. Another puzzle with several twos in it. This one requires a very different operator. Look for it in the list of digits and operators.
3. The first number is ridiculously large. Maybe it isn't a number in the normal sense of the word.
4. Moving two matchsticks allows many more creative solutions. We could change 19 to 9, but that isn't the answer. Leave 19 as it is, and work on the other side of the equation.

5. There is a hint in the introduction text. Are you a power-user? Are you an exponent of very tough puzzles?

65. $12 - 7 = 3?$ – Hint (p. 71)

There is no way to remove seven matches and leave only three matches. That isn't what the puzzle asks you to do. You need to leave three, not three matches.

66. Dark Reflections – Hint (p. 71)

The actual value is one digit; so it must be in the range 0-9. If a mirror makes the number look like two digits, it must be giving a horizontal reflection of the original number. The actual number and its reflection combine to look like a two-digit number.



If the mirror is on my right as I look at the display, “0” would look like “00”, “1” would look like “11”, “2” would look like “25”, and “5” would look like “52.” If the mirror is on the left, “0” would look like “00”, “2” would look like “52”, “5” would look like “25”, and, “8” would look like “88.” From this side the reflection of “1” would be too far away from the displayed “1”; it wouldn't look much like “11.” But “8” would look like “88.” The mirror must be on the left.

67. Target Ninety-Nine – Hint (p. 72)

Instead of trying every possible combination of numbers, let's start with a little insight. Notice that all of the target values are odd numbers. If we add two odd numbers, it always results in an even number. Adding four odd numbers gives an even number. Therefore, one of our arrows must hit the non-scoring area or miss the target entirely.

68. Open a Window – Hint (p. 72)

Despite the complicated geometry of the window, the answer is simple. The 22-inch base of the window is lowered 2 inches.

69. 3-Stick 13 – Hint (p. 73)

After considering the problem for a while, we might make some observations:

- 1) We saw that two sticks can measure only four lengths. A third stick adds a fifth length. The original four lengths can be added to and subtracted from the third stick's length to measure eight more lengths. That makes a maximum of thirteen different lengths.
- 2) Therefore, the lengths of the three sticks must add up to 13 (for example, $1+2+10$ or $2+4+7$).
- 3) Each combination of three lengths must form a unique length. The same length can't be measured two different ways, because we have only thirteen possible combinations.

70. Domino Fractures – Hint (p. 73)

Three of the six dominoes ($1/1$, $2/2$, and $3/3$) always have a value of one. The other three dominoes change value when turned upside down: 2 (or $1/2$), 3 (or $1/3$), and $3/2$ (or $2/3$). Start by asking a “what if” question: What if the $3-2$ domino is used as $3/2$? Then determine all of the possible combinations. There aren't many, so this is easier than it sounds.

The ten-domino challenge is solved in a similar way. It actually has multiple answers.

71. Letter Long Division – Hint (p. 74)

Start by examining the multiplications and the subtractions. You should be able to figure out what letters represent zero and at least one other number. Then look at the multiplications. What two numbers can be multiplied to get a number ending in zero? Gradually, you can eliminate some possibilities.

72. Beginner's Logic – Hint (p. 76)

The two clues provide more information than they seem to do at first glance. Note that Baker and Carter are both men.

73. Separate Colors – Hint (p. 76)

There is no way to accomplish the task by simply moving a glass to another spot. The fact that these are not sealed containers is important.

74. Hex Checkers – Hint (p. 77)

Because of symmetry, there are really only four possible starting moves. The puzzle can be solved in only three moves. In our solution the first move is not a jump.

75. Coin Arrowhead – Hint (p. 78)

Read the statement of the puzzle very carefully. It isn't asking you to make the change in the fewest 'moves.' It is asking you to do it by moving the fewest *coins*. I was able to make the change by moving only two coins (in four moves). The hard part is getting the 'tail' of the arrowhead perpendicular to the right edge of the triangle at the center coin. Don't start by moving the 'tail' coin, or you will lose the ability to form a perpendicular to the large triangle of coins.

76. Triple Player – Hint (p. 78)

He was not a hockey player, a baseball player, or a basketball player, but he has played for these professional sports organizations during many games.

77. Domino Jigsaw 1 – Hint (p. 79)

My approach to solving a domino jigsaw involves three basic steps:

Step 1. Select a domino (pair of numbers) and find a pair of numbers on the grid that is the only possible place that domino could go.

Step 2. Looking only at the grid, find two adjacent squares that must be a domino pair because they are hemmed in by other dominoes.

Step 3. Using the number pairs discovered in Step 2, block boundaries between unused numbers on the grid that match the Step-2 pairs.

78. Domino Jigsaw 2 – Hint (p. 80)

Same as puzzle 77.

79. Domino Jigsaw 3 – Hint (p. 80)

Same as puzzle 77.

80. Alternating Currency – Hint (p. 81)

Just sliding pairs of coins probably won't work. All three of the answers require you to rotate a pair of coins around the point where they touch. This move is sort of like turning over an hourglass, exchanging the position of the empty and full sides.

81. Family Dinner Party – Hint (p. 82)

As you carefully consider each clue, write down what you know for sure about who is sitting with whom and at what table. Also be aware that there is additional information revealed in the introduction to the puzzle. Look for clues in words like “her” that reveal the sex of people.

Please assume that there are no incestuous relationships like someone married to his sister or cousin.

82. Fugitive River Crossing – Hint (p. 82)

Break the problem down into two parts. First, ignore the timing problem and figure out how to get the men across the river. Then consider how to do it in the shortest time. Recognize that the current may move as fast as or faster than a walking man. Be prepared to have men walk downstream or upstream to rendezvous with others or to reposition the boat.

83. Put Your Cards on the Table – Hint (p. 83)

We'll need to switch the clubs and spades in row 2 or in row 4. That will use up two of our four moves. It will have to help adjust the counts in some columns and rows as well. Look at the totals of each row and column and recognize that at least one of those starting totals must be the one we end with.

Be sure that you always place cards on the table that aren't already there. We have a tendency to think of a card we need without realizing that it is already in play on the table.

84. Sequence 24 – Hint (p. 84)

The next entry in the sequence is also the only other entry because the sequence repeats.

85. I Start to Do As the Romans. Do – Hint (p. 84)

Think back to the time when the number zero didn't exist. How did these numbers start?

86. Pattern Counts – Hint (p. 84)

There is no math involved here. Each of the 19 numbers shown represents some characteristic or attribute of the numbers 1 through 19.

87.- 102. Boxed Rebuses – Hint (pp. 87-102)

The hints for the boxed rebuses are at the bottom of each page.

103. Rebus by Category 1 – Hint (p. 103)

The first and third rebus in this set are harder than the others. The pain in the man's back is an ache. What is a Scottish word for a young girl? The bird is a crow; what sound does a crow make? In the third puzzle, "C" is in "nam" on rolls.

104. Rebus by Category 2 – Hint (p. 104)

The nest in the third puzzle is an aerie. The fifth puzzle starts with a yell of "O." The strap from the horse is a lead. The next puzzle shows a "peck" and a "cur." On the next page one of the puzzles shows a con (convict). Another puzzle shows a family tree that represents "kin."

105. Rebus by Category 3 – Hint (p. 106)

Start with the two easiest puzzles: the fourth one and the sixth one. If they help you get the category, you've narrowed the field of answers down to 50. The Greek letter in the third puzzle is the symbol for ohm (a measure of resistance in electricity). Notice that the pig is a girl (bow on her head).

106. Rebus by Category 4 – Hint (p. 107)

This category covers decades of material. If you get all ten, you are an expert in the area. Young folks will say that most of these

are before their time. The picture in puzzle 4 shows sand dunes. The last object in puzzle 6 is a cow hide. Puzzle 10 has a bale of hay in it.

107. Rebus by Category 5 – Hint (p. 108)

This is probably the hardest set. The woman in the last puzzle is weeping silently. The beast in puzzle 2 is a yak. Hg is a chemical symbol. It's enough to drive you crazy.

108. Tangram Paradoxes – Hint (p. 111)

The trapezoid solving tip (#3 on the page following the puzzle) will help with both paradoxes.

109. Tangram Silhouettes – Hint (p. 112)

Use the tangram solving tips in the chapter text; wedges and trapezoids are particularly useful building blocks. It is very helpful to have an actual set of tangrams in your hands. Trying to work the puzzles in your head is much more difficult.

110. Pentominoes – Hint (p. 119)

You must have a set of pentominoes to do these challenges. There are too many pieces for me to work these puzzles in my head. Don't fret about solving these. Have fun. As you play with the pieces, you'll start to see patterns that work well. Once you find a solution, see if you can vary it slightly to come up with another solution.

111. Diabolical Cube – Hint (p. 123)

Start with the largest and most odd-shaped pieces. They have very few places they can go. Even though the pieces are two-dimensional, think in three dimensions. Finally, be ready to abandon combinations that leave weird-shaped gaps as you place the blocks.

112. Wedding Rings – Hint (p. 124)

String puzzles often hinge on how flexible the string is. Use the string to do all of the work for you. The rings will move very little as you solve this puzzle. The string, on the other hand, will

snake through the center hole from the back to open up a path for the ring to move.

113. Dad’s Puzzler – Hint (p. 125)

The psychological trap in this sliding block puzzle comes halfway through the 59 moves. For some reason I don’t fully understand, the solver doesn’t want to make the proper move. The Aha! comes when you realize that the second half of the solution is just the mirror image of the first half.

114. Peg Solitaire – Hint (p. 127)

George I. Bell (home.comcast.net/~gibell/pegsolitaire/) offers this useful advice:

“Don’t jump into a corner or out of the center.”

The “center” is defined as positions 5, 8, and 9. The “corners” are positions 1, 11, and 15. Obviously, if you start with a corner hole vacant, you must jump into a corner; but otherwise, following this one simple rule increases your chances of success tremendously. I would add these four observations:

1. Don’t jump from one edge to another unless the destination edge has two fewer pegs.
2. Move from ‘most crowded’ to ‘least crowded’ areas.
3. Postpone jumping out of the corners or into the center when other good moves are available.
4. After 5 pegs have been removed, jump out of a corner when only one way out is available.

Armed with these guidelines, you should be able to solve the puzzle or at least get down to two pegs left.

115. Nailed It – Hint (p. 129)

Think like a tightrope walker. Find a way to distribute the weight of the nails into a structure with a center of mass that is below the head of the standing nail. The heads of the nails will help keep your construction together.

116. Buttonhole Puzzle – Hint (p. 130)

This puzzle works because we are attaching the dowel and loop to a flexible fabric garment; it wouldn't work on a keyhole or eyehook. We use the garment to do some of the work for us. What makes this puzzle so intriguing is that the trick is not in the apparatus; it is in the garment that the victim brings to the game.

Don't try to force, stretch, or bend the stick/string apparatus; instead, figure out how the garment can be folded to allow the stick to be moved into the proper position.

117. Peg Leg – Hint (p. 148)

When told to turn 'at' a roadway, you don't have to turn **onto** it. Don't stop looking for the answer to a question just because you think you caught the trap. Be careful to apply the definition of OPP when counting OPPs. A roadway isn't necessarily a cross street.

118. Long Leg – Hint (p. 150)

Rule 8 defines how to do an OR instruction. Two roadway names are hidden in NOTE PEP-TALK.

119. Boot Leg – Hint (p. 151)

Another roadway name is hidden in NOTE CALM. But NOTE CALM is much trickier. It freezes time until you get to WILDER. Be careful to obey Rule 3. Is DIXON an OPP?

120. Turkey Leg – Hint (p. 152)

Rule 8 comes into play twice in this leg. Do the route instructions in numerical order, and answer each question between the completions of the RIs most nearly surrounding the question.

121. Ivy Leg – Hint (p. 153)

Remember when a NOTE comes into effect and when a RI is completed.

122. Sign Here – Hint (p. 154)

Rule 1 (definitions of quotation marks and RDWY) and Rule 7 both play a big part in these questions.

123. Beau Leg – Hint (p. 155)

A Checkpoint Instruction has highest priority, but it shouldn't stop you from continuing on the rally. Once again the RIs are listed out of order, but something new is happening here. What is the definition of OPP, and when does a NOTE come into effect?

124. Armand Leg – Hint (p. 157)

NOTE GROUNDED comes and goes – but not before it creates a forced turn at OAK and POST. You can't turn for a NOTE or RI there.

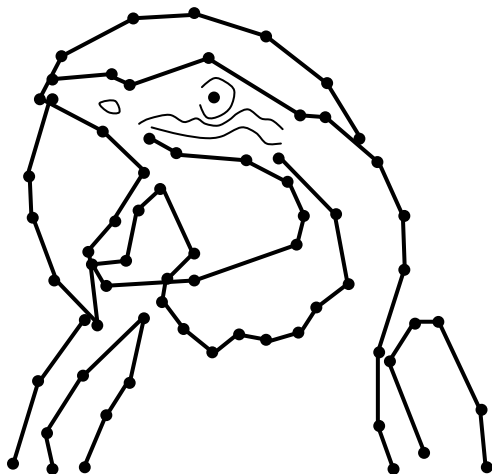
125. Wooden Leg – Hint (p. 158)

We finally get a “by name” instruction and apply Rule 9. Read the rule very carefully. And don't forget the forced turn rule.

Solutions

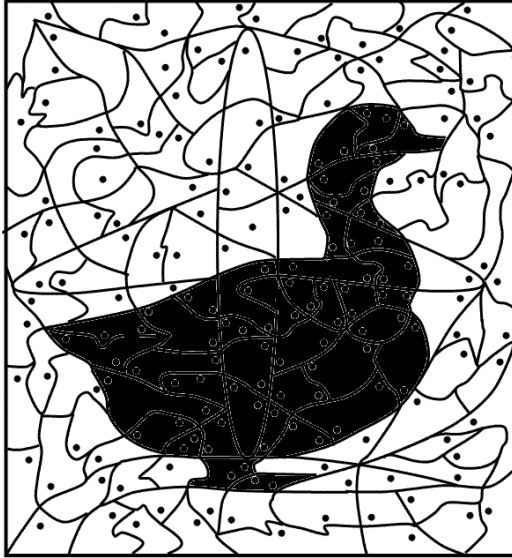
1. Connect the Dots – Answer (p. 8)

Parrots are notorious for saying, “Polly wants a cracker.”



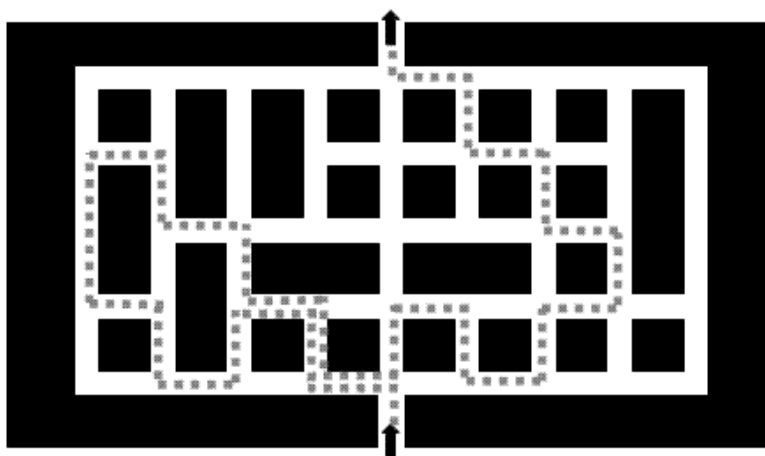
2. Paint by Numbers – Answer (p. 9)

You draw the silhouette of a rather chubby goose.



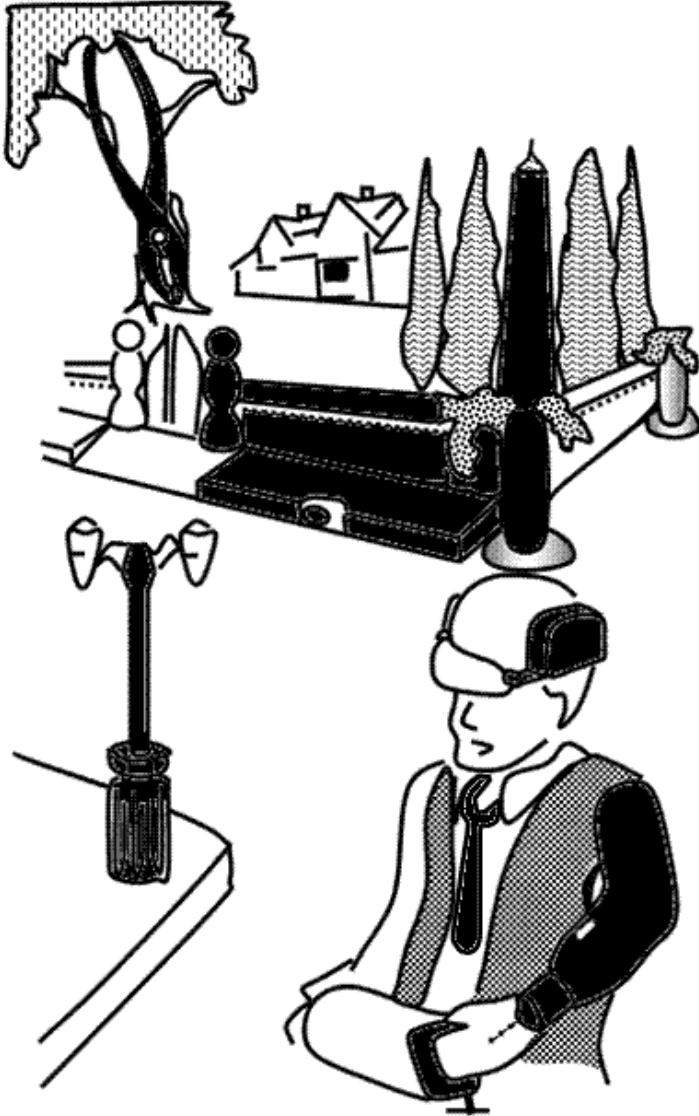
3. Turn, Turn, Turn – Answer (p. 10)

Here is one possible solution.



4. Hidden Pictures – Answer (p. 10)

The objects are items you might find in a tool kit. They are: ball peen hammer, C-clamp, file (or rasp), hand saw, level, pliers, power drill, screwdriver, tape measure, and wrench.



5. Find the Twins – Answer (p. 12)

This Find-the-Twins puzzle is harder than most. Usually each picture differs from the others in only one way. In this puzzle each monkey has several differences.

Let's label the monkeys from left to right and top to bottom.

A B C
D E F
G H I

We could look carefully at each picture until we find two that match, but without a systematic plan of attack we'll probably miss something. Here is one way to solve the puzzle.

A and D are the only ones with coins in their hands, but their tails are different. Neither one can be a twin to any other monkey. We can eliminate both. C and H have coins in their cups, but their tails are different, too. Eliminate them.

Of the remaining five monkeys only E and I have upward-pointing tails. They are not twins because only one has a tassel on his cap. Eliminate them. F doesn't have a tassel on his cap and doesn't match the remaining two monkeys. Only B and G are twins.

Here's another, more rigorous, approach to solving a complex find-the-twins puzzle. This method is more like what I go through to develop a puzzle like this.

Identify and list the six possible differences in the pictures:

1. Tassel: Some monkeys have a tassel on their caps.
2. Strap: Some monkeys have circles at the sides of their caps and dark lines running along their cheeks.
3. Tail: Some monkeys have crooked tails.
4. Cup: Some monkeys have coins in their cups.
5. Button: Some monkeys have a button on their trousers.
6. Hand: Some monkeys have a coin in their hands.

Then make up a table of differences associated with each picture. I've left the "No" cells blank to make the pattern more obvious.

	Tassel	Strap	Tail	Cup	Button	Hand
A		Yes	Yes		Yes	Yes
B	Yes		Yes			
C		Yes	Yes	Yes	Yes	
D					Yes	Yes
E	Yes				Yes	
F		Yes	Yes			
G	Yes		Yes			
H				Yes	Yes	
I						

If we find two rows with the same Yes/No pattern, we have a match. B and G are the only two pictures that match in all six ways. The top/center monkey and the bottom/left monkey are the “twins.”

7. Beam Me Out – Answer (p. 14)

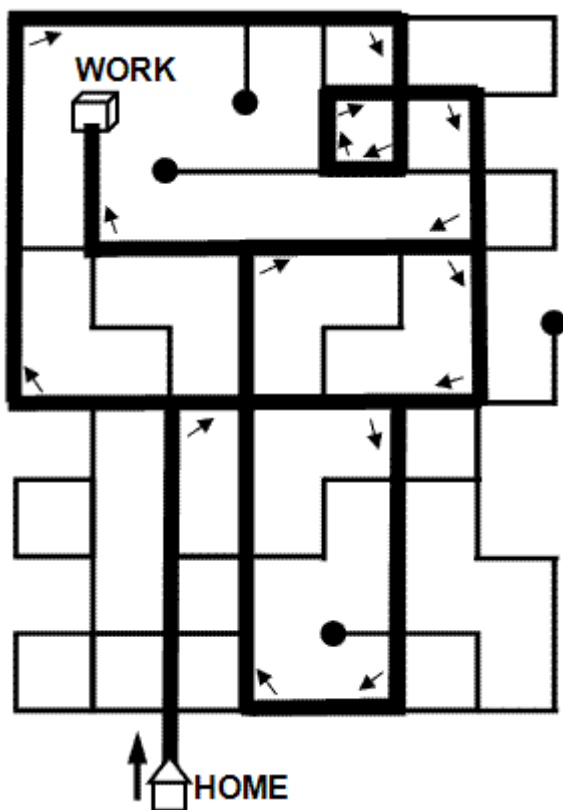
I think you'll find it easy to move through the maze corridors between rooms and teleportation stations. I will assume that you can make those moves without any explanation here. Instead, I will present the answers as a series of teleportation moves.

Challenge 1 – Go to Station 1 and teleport to Station 7. Be sure to change Station 1 to *Receive* mode and Station 7 to *Send* mode. Re-enter Station 7. (The solution will also work if you go to Station 4.) You will teleport to Station 6. Go to Station 2 and teleport to Station 7 (or Station 4, if you went from there earlier). Now, every station with a number higher than 3 is in *Send* mode. Re-enter the station you just exited and teleport to Station 3. You now have a simple path to “RAMP.”

Challenge 2 – Go to Station 1 and teleport to Station 7. Be sure to change Station 1 to *Receive* mode and Station 7 to *Send* mode. Station 7 is the only station in *Send* mode that you can get to. If you re-enter Station 7, you'll go to Station 4, and the modes for those two stations will reverse. The puzzle goes into an endless loop between Stations 4 and 7. You need to do something that people don't want to do. You need to go to a room marked “ET.” This sends you back the Lab without changing any of the teleportation station modes. From the Lab, go to Station 2 and teleport to Station 4. Now, every station with a number higher than 3 is in *Send* mode. Re-enter the station you just exited and teleport to Station 3. Once again you have a simple path to “RAMP.”

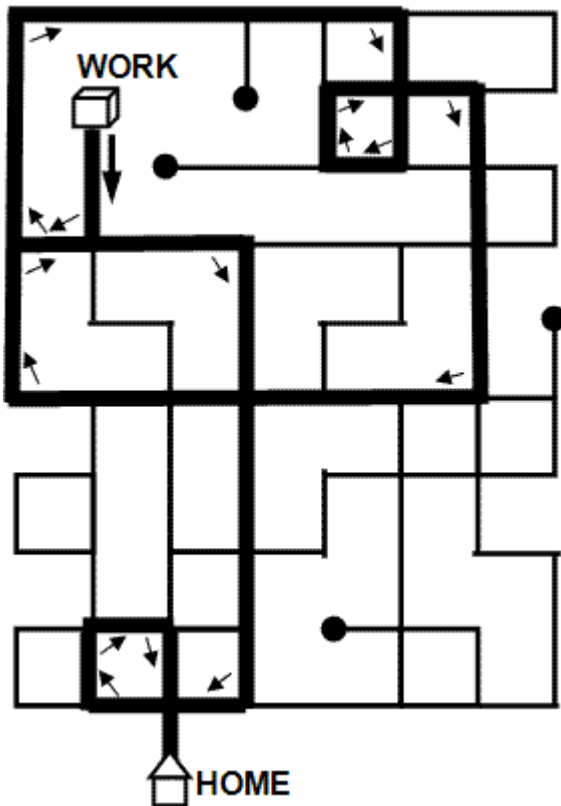
8. No Left Turn – Answer (p. 16)

Turning at the first cross street ends at a bend in the road at the end of the street. The next two cross streets allow you to circle around several ways but really don't help much. Turn right at the fourth cross street and then right again at the second opportunity to turn right. Turn at the end of that street (at the T-shaped intersection). Then turn right as soon as you can. This street will get you into the upper half of the map.



Turn right at the T-shaped intersection and then right at the second opportunity. Turn right as soon as possible and follow the road through two bends, taking you completely around the WORK icon to the top of the map. Then turn right at the third cross street. Go right at the T-shaped intersection followed by two quick rights. Then turn right at the second opportunity and right at the second opportunity again. The first right after that gets you to work.

To get home from work, follow a similar route shown below.



9. Trick Questions – Answer (p. 17)

- a. It was Noah, not Moses, who took all those animals on the Ark.
- b. After a plane crash the survivors aren't buried. Of course, the survivors will eventually die and could be buried, but they are not usually buried until after they die.
- c. Although you might be tempted to say June, the third child was a boy who was named Tim. We know this because of the opening sentence.
- d. Read "1978" as one thousand nine hundred seventy-eight. That many pennies add up to almost \$20.
- e. People are often startled to read the question at the end of the puzzle. You should know the birth year of the driver because **you** are the person driving the bus. Incidentally, there is also a little trick involved in the calculation of people getting on and off the bus. What if the question had been "How many people were on the bus after the sixth stop?" In addition to the passengers, you are on the bus. So when the number of people doubled at stop 5, the total went to twelve. The final count was eleven.

10. Questions That Are Harder Than They Seem – Answer (p. 17)

- a. Gold is measured in troy ounces; feathers (and most things other than precious metals) are measured in avoirdupois ounces. There are 12 troy ounces in a pound, but there are 16 avoirdupois ounces in a pound. 1 troy ounce equals 1.09 avoirdupois ounces. Therefore, an ounce of gold weighs more than an ounce of feathers.
- b. Green (unripe) blueberries are generally red, magenta, or purple.
- c. The colony of Virginia was named for the "virgin queen" whose first name was Elizabeth.
- d. The word ***centipede*** means 100-footed, but the number of legs a centipede has varies from about 30 to over 200. Centipedes have an odd number of pairs of legs. Therefore, centipedes could have 98 or 102 legs but not 100.

11. The Absurd Questions don't really have any answers.

12. The Dumb Chemistry Lab Workbook – Answer (p.18)

The Chemistry Workbook answers are suggested by the questions that follow them:

1. A precipitate formed when the solutions were mixed.
2. The precipitate was green.
3. Copper must have caused the green color.
4. We don't know what the solutions were, but I'd guess that the one with "copper" in its name was the right one.

When taking tests, we can sometimes find the answers buried in subsequent questions.

Mental Blocks – How the Answers Are Formatted

Only the block movements are described in these solutions. I assume you can "walk" through the maze as long as the blocks are out of the way. Moves that end with two exclamation points ("!!") represent key moves; they are sometimes overlooked. Congratulations if you came up with other solutions.

13. Mental Blocks 1 – Answer (p. 20)

1. Push Block E one square to the west.
2. Push Block D one square to the south!!
3. Push Block C one square to the west.
4. Push Block E two squares to the south.
5. Push Block C two squares to the north.
6. Push Block A one square to the west.
7. Push Block A three squares to the south.
8. Push Block F one square to the south.
9. Push Block H one square to the east!!
10. Push Block E one square to the north.
11. Push Block G one square to the south.
12. Get the treasure and go to the exit.

14. Mental Blocks 2 – Answer (p. 21)

1. Push Block B one square to the south.
2. Push Block A one square to the west.
3. Push Block A three squares to the south.
4. Push Block D two squares to the north!!
5. Push Block G one square to the east.

6. Push Block B one square to the south!!
7. Push Block C one square to the east.
8. Push Block E one square to the south.
9. Push Block F one square to the east.
10. Push Block C one square to the north.
11. Push Block F two squares to the south.
12. Get the treasure and go to the exit.

15. Mental Blocks 3 – Answer (p. 22)

1. Push Block B one square to the south.
2. Push Block B one square to the west.
3. Push Block F two squares to the east.
4. Push Block E two squares to the south.
5. Push Block F two squares to the west!!
6. Push Block C one square to the west.
7. Get the treasure.
8. Push Block H one square to the west.
9. Push Block J one square to the east.
10. Push Block I one square to the west.
11. Push Block I one square to the east!!
12. Push Block D two squares to the north.
13. Push Block B one square to the south.
14. Go to the exit.

16. Mental Blocks 4 – Answer (p. 23)

1. Push Block C two squares to the east.
2. Push Block C four squares to the south!!
3. Push Block H one square to the south.
4. Push Block I one square to the west!!
5. Push Block K one square to the south.
6. Push Block H one square to the west.
7. Push Block F one square to the north.
8. Push Block E one square to the north.
9. Push Block B one square to the west.
10. Get the treasure and go to the exit.

17. Mental Blocks 5 – Answer (p. 24)

1. Push Block A two squares to the west.
2. Push Block E one square to the west.

3. Push Block C one square to the north!!
4. Push Block B one square to the west.
5. Push Block E two squares to the south.
6. Push Block L one square to the east.
7. Push Block E one square to the south!!
8. Push Block J one square to the east.
9. Push Block H one square to the east.
10. Push Block F two squares to the north.
11. Push Block I one square to the south.
12. Push Block H one square to the west.
13. Push Block K two squares to the south.
14. Push Block M one square to the west.
15. Get the treasure.
16. Push Block L two squares to the north.
17. Go to the exit.

18. Mental Blocks 6 – Answer (p. 25)

1. Push Block B one square to the south.
2. Push Block C two squares to the east.
3. Push Block D one square to the south.
4. Push Block F two squares to the south!!
5. Push Block M one square to the west!!
6. Push Block E one square to the east.
7. Push Block J one square to the south.
8. Push Block I one square to the west.
9. Push Block K one square to the south.
10. Push Block I one square to the north!!
11. Get the treasure and go to the exit.

19. Mental Blocks 7 – Answer (p. 26)

1. Push Block A two squares to the east.
2. Push Block C one square to the west.
3. Push Block G two squares to the south!!
4. Push Block H two squares to the north!!
5. Push Block E one square to the west.
6. Push Block B one square to the north.
7. Push Block D three squares to the south.
8. Push Block L one square to the east!!
9. Push Block E one square to the east.

10. Push Block F two squares to the east.
11. Push Block J one square to the south.
12. Get the treasure.
13. Push Block I one square to the east.
14. Push Block K two squares to the north.
15. Go to the exit.

20. Mental Blocks 8 – Answer (p. 27)

1. Push Block A one square to the west.
2. Push Block B two squares to the east.
3. Push Block F one square to the south.
4. Push Block H one square to the west.
5. Push Block F one square to the north.
6. Push Block G two squares to the west!!
7. Push Block D one square to the north.
8. Push Block E one square to the east.
9. Push Block H one square to the east.
10. Push Block L one square to the south.
11. Push Block J one square to the south.
12. Push Block K one square to the east!!
13. Push Block N one square to the west.
14. Push Block I one square to the north.
15. Get the treasure and go to the exit.

21. Mental Blocks 9 – Answer (p. 28)

1. Push Block D one square to the south!!
2. Push Block B two squares to the south.
3. Push Block B two squares to the north!!
4. Push Block C one square to the east.
5. Push Block F two squares to the south.
6. Push Block J three squares to the west.
7. Push Block F one square to the south.
8. Push Block F one square to the west!!
9. Push Block I one square to the north.
10. Get the treasure.
11. Push Block E one square to the north.
12. Push Block C one square to the west.
13. Go to the exit.

22. Mental Blocks 10 – Answer (p. 29)

1. Push Block C one square to the south
2. Push Block B one square to the west.
3. Push Block E two squares to the south
4. Push Block D one square to the west.
5. Push Block F one square to the west.
6. Push Block B one square to the east!!
7. Push Block G one square to the east.
8. Push Block C one square to the north.
9. Push Block G three squares to the south.
10. Push Block J two squares to the west.
11. Push Block J one square to the north.
12. Push Block I one square to the west.
13. Push Block H one square to the south!!
14. Push Block I one square to the south.
15. Get the treasure and go to the exit.

23. Hidden Fish – Answer (p. 32)

1. **Ask a test** question: Did Caesar **dine** with Cleopatra?
2. Yep, **I keep** selling TV's: for her, a plas**ma; him, a high-def** LED.
3. The group **I ran had** a **group error**.
4. Her smart-ale**c hubby** is in my **car pool**.
5. Sincere **prayer** can cause **harm in no way**.
6. I **wish Arkansas** chefs would put **lamb on it once**.
7. That **dang elf is hiding** cashews, **almonds**, and peanuts.
8. The bar **at Route** 14 was pretty quiet **until a piano** was put in.
9. Far from **lethal, I buttered her ring** finger to remove the band.
10. Each **rancho vying** for the prize **had dock** workers toil all day.
11. Growing **up pygmy also led** to an inferiority complex.
12. He's brilliant but **unable to grasp rather** simple concepts.
13. Use **Bob as secret coder** to **view all eyes-only** material. (3)
14. The **first eel headed** into the **trough you** filled. (3)
15. The gram**mar linguists** continue the **paper chase**. (3)

24. Hidden Movie Titles - Answers (p. 32)

1. Does that **mean girls** buttered the **fewest sides to rye** toast?
2. At the club **b rave, hear them** sing about the **Free Will you** value.
3. Rolling the **die hardly** helps **Pat to nibble** away at Amy's lead.
4. A **fair plan** emerged as I was sharing **one with the Win-Dixie** manager.
5. The **gypsy chose** to read a **Tolstoy story**. [and Gypsy]
6. O**sgood fell asleep** after a **queasy ride** round the countryside.
7. I'm marking **"K" on** garments like a **polo, vest, or yellow** tie.
8. **Start rekeying** the locks on Mr. **Moon's truck**.
9. He played his **part: a customer** out to **stop gunfire** in the store.
10. **A lie** needs to be plausible to **charm aged donors**.
11. With the fore**cast a ways** in the future **came lots** of rain.
12. That per**vert I got** an injunction against would **call about every** hour.
13. The **frock you** wore and your coy blush **rekindled** my interest.
14. The contract, un**fair on many** counts, **fails a federal** review.
15. The tuna **made us** all sick at **lunch in a town** picnic. [and Picnic]

25. Hidden Trees – Answer (p. 34)

1. Keep **lumber** neatly stacked and **spruce** up the place.
2. Reprimands will **be echoing** if they escape **armed** with our guns.
3. Give the **pitcher rye** bread and the **outfielder berry** muffins.
4. Do you see **them locked** in the **thick or** yielding in fear?
5. Hate **havoc? Adore** peace? Wear a **helmet**.
6. Those who **stole money** went to America's **penal** institutions.
7. Eric **was** happy with his **racy press** release.
8. A butcher can **reap plenty** of meat from **a hog any** time.
9. **If I** go, I'll use a **polar chart**.
10. If you **drape a chair**, it **comes quite** close to a slip cover.
11. The accountants **will own** the altered **budget**.
12. To **do a kick** would be **too lively**.
13. The **Pope can't** see devils **or angels**.
14. The wrong **ink got** onto the **papers I'm monitoring**.
15. At the expo **Meg ran a test** of noisy **cam or** engine gears.
16. The **opal miner** traced **a route deep in** each shaft. (3)
17. My **salmon dinner** was cooked **at eight** over an **alder fire**.
(4)

Tree names hidden backwards:

18. I can **help a man fail on game** day.
19. **When I rat, censors** edit remarks about **rural population**.
20. A **hole put** in the fourth **crib** is **not unlawful**.

26. Ended by a Blade – Answer (p. 35)

Let's consider the clues: many colors, many styles, and "added on top of smiles." Mexican, English, natural, or perhaps drawn by some naughty vandal. In many shapes, like a toothbrush, a pencil, or a horseshoe. Probably the most telling clue is "under your nose is where I will be."

What can be under your nose and on top of your smile? Your upper lip? What do graffiti artists (vandals) draw on portraits? A mustache! Toothbrush, pencil, and horseshoe are types of mustaches. So are Mexican, English, and natural. Without a mirror it's almost impossible to see your own. The title furnishes the final clue: a blade removes it.

27. Communicator – Answer (p. 35)

I try to communicate at night, but not with sound. I only broadcast a message; I don't expect others to reply. My goal is to have those who receive my message continue on their way. If they would actually come to me, they would probably perish. I stay in one place and warn travelers away from the coastline. A lighthouse is the intended answer.

28. Switch Meanings – Answer (p. 35)

Each line in this riddle uses a different meaning for the same word. A steno is a typist; what is 'Enter' to a typist? A center is a basketball player; what does he call 'the paint'? What does a teacher call a set of answers to a test? What is a synonym for 'essential' when referring to a speaker's point? What can give us access to something valuable? What is the drug culture nickname for a kilo of drugs? The common word is 'key.' The title includes the word 'switch', another of key's synonyms.

29. Have a Blast – Answer (p. 36)

The answer provides a source of energy. "The doldrums" are either a lethargic depression or a part of the sea where the air is still. It plays chimes and also plays among the trees. We often feel cooler when this is around. A feeling of renewal is referred to as a second wind. And an ill wind blows nobody any good, so they say. The wind is the answer.

30. Story - Answer (p. 36)

Every room has a place for people to walk.

Food that lands on the floor is often considered contaminated.

The floor is always under foot. An uneven floor can cause you to stumble, despite the fact that it doesn't move.

The floor holds people up, supports them.

Tall and short people both start at the same level -- floor level.

Most of our possessions are stored on the floor or in a container resting on the floor.

Dizzy people crash to the floor. The floor is never on the wall.

A dance floor is needed for the famous ball in Cinderella's story.

A story, or level, of a multi-story building is called a floor.

31. Title – Answer (p. 37)

What would help a scholar achieve? What, when open, could present worlds and thoughts? Why are the words unspoken? What has a spine, a hard back, a jacket, and leaves? Consider the words title, bound, and work. The answer is a book. It silently guards words inside its cover. A book is often said to be a *title* or *work*. It is a stack of leaves (sheets) that are bound together.

32. Pay Me – Answer (p. 37)

OK, the verse sounds like it's written by Yoda, but can you work out the riddle? The answer is synonymous with care, tending, consideration, notice, concentration, and (to) mind. It can be dangerous when you don't pay _____. Men stand up straight when people say _____. I'm about to tell you the answer, so pay attention. That's it. Attention is the answer.

33. Tapering Off – Answer (p. 37)

The answer consists of eight words, the longest of which must have at least eight letters because there are seven surgeries performed. It probably has the following pattern:

12345678, 2345678, 345678, 34578, 3457, 457, 45, 4.

If we take the last clue literally, 4 = “A.” 45 would seem to be “AT” (meaning ‘close by’). ‘Consumed’ is “ATE.” 3457 (_ATE) is probably LATE (overdue or dead). 34578 (LATE_) is LATER. The second of two things is the LATTER. A shallow serving dish is a PLATTER. And a stain or splash is a SPLATTER.

34. Give Me a Break – Answers (p. 38)

1. Get a grip
2. I'll go down swinging
3. It's hot as Hades
4. You can't win them all
5. You reap what you sow

35. Nonsentences – Answers (p. 38)

1. Beat about the bush
2. Be that as it may
3. Came off without a hitch
4. Cash in your chips
5. Close the stable door after the mare has gone
6. Get your teeth into
7. Go the extra mile
8. Head for the hills
9. He has his moments
10. Hit the road
11. I'm in dire straits
12. It's a photo finish
13. It's written all over your face
14. Lo and behold
15. Please wash your hands of the sordid business
16. Put a bug in your ear
17. Put that in your pipe and smoke it
18. Read you the riot act
19. Ruffle a few feathers
20. Tear your hair out
21. There's the rub
22. The tables turned
23. Tomorrow's another day
24. We're in cahoots
25. You're a diamond in the rough

36. Phrase-zzled – Answer (p. 39)

1. A stool pigeon
2. Basket case
3. Bear market
4. Done to death

5. Foot in the door
6. Gone to the races
7. Landslide victory
8. Last-ditch attempt
9. Like no one's business
10. Mad as a wet hen
11. Man of his word
12. No dice
13. Real McCoy
14. Tempest in a teapot

37. Mondegreen Proverbs - Answers (p. 39)

1. An ounce of prevention's worth a pound of cure.
2. Actions speak louder than words.
3. Charity begins at home.
4. You can choose your friends, but you can't choose your family.
5. It takes a village to raise a child.
6. It's not the size of the man in the fight; it's the size of the fight in the man.
7. Look before you leap.
8. Life is just a bowl of cherries.
9. Rome was not built in a day.
10. Shape up or ship out.
11. The pen is mightier than the sword.
12. There is none so blind as those who will not see.
13. The more, the merrier.
14. Those who live by the sword, die by the sword.
15. The spirit is willing but the flesh is weak.
16. Time and tide wait for no man.
17. To err is human, to forgive divine.
18. An apple a day keeps the doctor away.
19. You can't have your cake and eat it, too.
20. You can't make a silk purse out of a sow's ear.
21. What goes around, comes around.
22. When in Rome, do as the Romans do.
23. When it rains it pours.
24. You can catch more flies with honey than with vinegar.

38. Mondegreen Familiar Phrases - Answers (p. 40)

1. A blessing in disguise
2. A bull in a china shop
3. A sight for sore eyes
4. A snake in the grass
5. A jack of all trades
6. A matter of life and death
7. A miss is as good as a mile
8. A monkey wrench in the works
9. Alike as two peas in a pod

10. A little bird told me
11. Be careful what you wish for
12. By the seat of your pants
13. Cast pearls before swine
14. Knock on wood
15. I love you
16. It takes two to tango
17. It cost an arm and a leg
18. It's not rocket science
19. Jockey for position
20. Johnny on the spot
21. Keep your eye on the ball
22. Keep your nose to the grindstone
23. Kill the goose that lays the golden egg
24. Kill two birds with one stone
25. Not my cup of tea
26. Like lambs to the slaughter
27. Like looking for a needle in a hay stack
28. Look out for number one
29. March to the beat of a different drummer
30. Not worth a tinker's dam
31. Nature abhors a vacuum
32. No strings attached
33. Know where all the bodies are buried
34. Know which side ones bread is buttered on
35. Rob Peter to pay Paul
36. Read someone the riot act
37. Short end of the stick
38. Step up to the plate
39. The middle of nowhere
40. There's a method to my madness
41. They say laughter is the best medicine
42. Too many irons in the fire
43. Wake up and smell the coffee
44. Winner take all
45. Walk before you can run

39. Mondegreen Short Idioms - Answers (p. 41)

1. Abreast of the situation
2. A quick-change artist
3. A drop in the bucket
4. A pretty penny
5. Cherry pick
6. Comfort zone
7. Dime a dozen
8. Eat like a bird
9. Ins and outs
10. Into thin air
11. Ivory tower
12. No can do
13. No great shakes
14. No ifs, ands, or buts
15. Coals to Newcastle
16. Lock and load
17. Make or break
18. Meet your maker
19. Name your poison
20. Night owl
21. No time to lose
22. Off the record
23. Off the scale
24. Part and parcel
25. Pay through the nose
26. Piece of cake
27. Pedal to the metal
28. Politically correct
29. Raise eyebrows
30. Rock and roll
31. Rose-colored glasses
32. Russian roulette
33. Save your skin
34. Seen better days
35. Shake a leg
36. Sight for sore eyes
37. Sign, seal, and deliver

38. Silence is golden
39. Sixes and sevens
40. Sleight of hand
41. Status quo
42. Tail wagging the dog
43. The Midas touch
44. Time and again
45. Tie the knot
46. To the end of time
47. Two-edged sword
48. Twinkling of an eye
49. You said it!
50. Vale of tears
51. Weak at the knees
52. Whet your appetite
53. Wet behind the ears
54. White elephant
55. Window dressing
56. Walk a mile in my shoes
57. One for the road
58. Wolf in sheep's clothing
59. Ringside seat
60. Zero tolerance

40. Mondegreen Miscellaneous - Answer (p. 43)

1. A doctor's appointment
2. I'll be done in a flash
3. I'll drop you a line
4. I'll try to meet your expectations
5. A left-handed compliment
6. A people person
7. Up a creek without a paddle
8. Asleep at the switch
9. A whale of a time
10. Opportunity knocking
11. By the same token
12. Cash under the table
13. Does it strike a chord?

14. A taste of your own medicine
15. I'm always chasing rainbows
16. For all intents and purposes
17. Knock your block off
18. Our place in the sun
19. I swear like a sailor
20. In under the wire
21. Keep your options open
22. Not tax deductible
23. Lie through your teeth
24. Numeric keypad
25. *No Time for Sergeants*
26. In the blink of an eye
27. In the driver's seat
28. Pandora's Box
29. Put your cards on the table
30. Run it up the flagpole and see who salutes
31. Run circles around someone
32. Show me the money
33. Step on someone's toes
34. Sunday drivers
35. Toss me a bone
36. Time-honored tradition
37. Time is on my side
38. The be all and end all
39. There's no love lost between those two
40. The most interesting man in the world
41. The whole ball of wax
42. Tickles ones fancy
43. The grass is always greener
44. Two sides of the same coin
45. *You Can't Take It with You*
46. What does that have to do with the price of tea in China?
47. Where the rubber meets the road
48. Work your fingers to the bone
49. Would not touch it with a 10-foot pole
50. You must have rocks in your head

41. Word Evolution – Answer (p. 45)

1. Rise rile file fill fall
2. Veal real reel reef beef
3. Good gold bold bolt belt best
4. Smoke stoke store stork stock stack
5. Dead lead lend lent lint line live
6. Beard bears sears stars stare share shave
7. Fairy fairs fails falls balls bales tales
8. Walk talk tall toll tool toot trot
9. Comb come home hole hale hall hail hair
10. Brain train trait tract track trick thick think

Other answers are possible.

42. Mark 10:31 – Answer (p. 45)

If you move the first letter from each word to the end of the word, you will form a new word. The new words are:

idea tea are else there reef elating
earth eighth easel own user unblocks
hint ought riot

The title refers to the Bible verse 31 in Mark chapter 10. It says that the first shall be last and the last shall be first.

43. Anagrams – Answer (p. 53)

<u>Definition</u>	<u>Anagram of</u>	<u>Indicator</u>	<u>Answer</u>
1. Classy	shop	repair	POSH
2. Den	dusty	ridiculously	STUDY
3. Men	meals	cook	MALES
4. Goes off	fries	orders	FIRES
5. McDonald's logo	search	ordered	ARCHES
6. Canceled	Red Sea	travels	ERASED
7. Eden	danger	disturbed	GARDEN
8. Snatch	ink pad	exotic	KIDNAP
9. Deadly	all the	traveling	LETHAL
10. East	Reno it	is gnarly	ORIENT
11. Scoundrel	LA cars	shot	RASCAL
12. Final election	fun for	unusual	RUNOFF
13. Holy	scared	silly	SACRED
14. Savors	states	altered	TASTES
15. Water heater?	to tape	arrange	TEAPOT
16. Hypnotic state	nectar	altered	TRANCE
17. Carnival ride	to scare	designed	COASTER
18. The infield	Dad I'm on	playing with	DIAMOND
19. Health insurance	claimed	doctor	MEDICAL
20. Contribution in the tenth	hitting	switch	TITHING
21. Fell behind	red tail	monkey with	TRAILED

44. Homophones – Answer (p. 54)

<u>Definition</u>	<u>Homophone</u>	<u>Indicator</u>	<u>Answer</u>
1. Bribery	graphed	heard	GRAFT
2. Visitor	guessed	to speak	GUEST
3. Underage	miner	read aloud	MINOR
4. Arouse	peak	in audition	PIQUE
5. Line	cue	in audition	QUEUE
6. Faculty	staph	announced	STAFF*
7. Like a doughnut	Taurus	utter	TORUS
8. Strikes hard	Knox	they say	KNOCKS
9. Booze	licker	talk about	LIQUOR
10. Doesn't require	waves	so to speak	WAIVES
11. Demolishes	Rex	in audition	WRECKS
12. Sweet	desert	of speaking	DESSERT
13. Demand	reek+wire	heard	REQUIRE
14. Spun	world	they say	WHIRLED
15. Make the most of	maxim+eyes	aloud	MAXIMIZE
16. Ominous	men+us+sing	aloud	MENACING
17. Pie topping	ma+rang	to talk about	MERINGUE
18. Called up	mustard	to report	MUSTERED
19. Form	organ+eyes	they say	ORGANIZE
20. Deprived of parents	or+fund	at hearing	ORPHANED
21. Peacemaker	pass+a+fire	said	PACIFIER

* Because the indicator is in the middle of the clue, it is unclear which word the indicator relates to. With a real crossword puzzle you would use the cross words to decide.

45. Two Meanings – Answer (p. 55)

<u>Definition #1</u>	<u>Definition #2</u>	<u>Answer</u>
1. One who fought	animal doctor	VET
2. Moldiness	is required	MUST
3. Woods	jungle predator	TIGER
4. News media	push	PRESS
5. Dizzy (light head)	blonde (light hair)	LIGHT
6. Greek poet	hit out of the park	HOMER
7. Church members	spray Christmas tree	FLOCK
8. Spell	. (punctuation mark)	PERIOD
9. Catchy ad slogan	the sound of change	JINGLE
10. Grant, for example	nothing specific	GENERAL
11. Less inclined	to butter up	FLATTER
12. Submarine	hero	SANDWICH
13. Does without	choruses	REFRAINS
14. More punctual	cue card holder	PROMPTER
15. Goes on	the take	PROCEEDS
16. Crucial	ironing	PRESSING
17. Turks	upholstered footstools	OTTOMANS
18. Watches	Komodo dragons	MONITORS
19. Servant	from this country	DOMESTIC
20. Hobo	abandoned ship	DERELICT
21. Narrow	kind of bridge (cards)	CONTRACT

46. Charades – Answer (p. 56)

1. Batman fashion accessory (CAPE) = carbon (C) + copy (APE)
2. Lax (LIMP) = little (L) + rascal (IMP)
3. Keep away from (AVOID) = an (A) + empty space (VOID)
4. Brief movie appearance (CAMEO) = CAME + naught (O)
5. Locks (CURLS) = 100 (C) + internet addresses (URLS)
6. Complain about (GRIPE) = movie rating (G) + mature (RIPE)
7. Black dog for hunting (LAB) + OR = work (LABOR)
8. Something sentimental (TOKEN) = TO + Barbie's beau (KEN)
9. Stick (ADHERE) = notice (AD) + in this location (HERE)
10. Reddish-brown (AUBURN) = gold (AU) + more than tan (BURN)
11. IM + left on ship (PORT) = to bring in foreign goods (IMPORT)
12. Have an irritating effect on (JANGLE) = fish (ANGLE) after first of June (J)
13. Manhandling (PAWING) = pop (PA) + fly (WING)
14. Jewish leader (RABBI) + starting to teach (T) = Peter, for example (RABBIT)
15. Sort of (RATHER) = squeal on (RAT) + that woman (HER)
16. Snack bar (CANTEEN) = to fire (CAN) + adolescent (TEEN)
17. Dad's (PAS) + wise (SAGE) = transition (PASSAGE)
18. Most fleeting (BRIEFEST) = French cheese (BRIE) + jubilee (FEST)
19. Resistance (DEFIANCE) = *of*, in Spanish (DE) + groom-to-be (FIANCE)
20. Show (DISCLOSE) = date (D) + IS + near (CLOSE)
21. Party (DO) + famous prohibitionist (NATION) = present (DONATION)
22. Prefer (LIKE) + sage (WISE) = as well (LIKEWISE)
23. Wait (LINGER) + that is (IE) = women's underwear (LINGERIE)

47. Reversals – Answer (p. 57)

	<u>Definition</u>	<u>Reversal of</u>	<u>Indicator</u>	<u>Answer</u>
1.	Friends	hit	back	PALS
2.	Component	snare	inverted	PART
3.	Encounter	swarm	making a comeback	MEET
4.	Destruction	frame of mind	upset	DOOM*
5.	Brief quarrel	bugle call	brought up	SPAT*
6.	Pale yellow	skin lumps	returned	STRAW
7.	Ponds	sailboat	left	POOLS*
8.	Removes skin	nap	the wrong way	PEELS
9.	Separates	thong	from behind	PARTS
10.	Smell bad	cable-stitch clothes	retro	STINK
11.	Prevents	smudges	coming back	STOPS
12.	Photographs	bridges	from the east	SNAPS
13.	Drive off	pariah	retreating	REPEL*
14.	Pilsner	princely	served up	LAGER
15.	Take delight in	crowbar	flipping	REVEL*
16.	Bounty payment	sliding compartment	backward	REWARD
17.	Baby clothing	gave back	rejected	DIAPER
18.	Snuggles behind	spies	counter	SPOONS*
19.	To rescue	ran down	backtracking	DELIVER*
20.	Under pressure	sweets	to reject	STRESSED

* Because the indicator is in the middle of the clue, it is unclear which word the indicator relates to. Choosing the reversal as your answer is just as valid as the word I chose.

48. Hidden Words – Answer (p. 58)

Definition	Where Is It	Indicator	Answer
1. Volcano	<u>get navy</u>	to guard	ETNA
2. Pay attention to	<u>the editor</u>	letters from	HEED
3. Musical instrument	<u>Cuban Jose</u>	owns	BANJO
4. Animal	<u>tribe astrology</u>	central to	BEAST
5. Integrity	<u>Soho North</u>	in	HONOR
6. Fat	<u>microbes eat</u>	some	OBESE
7. Fashion	<u>lusty leather</u>	seen in	STYLE
8. Long	<u>my ear never</u>	got	YEARN
9. Trap	<u>team bus has</u>	concealed	AMBUSH
10. Lottery	<u>riff raff legally</u>	holding	RAFFLE
11. Disturbance	<u>truck used</u>	to contain	RUCKUS
12. Trashed	<u>guru in editorial</u>	some	RUINED
13. Typical	<u>rave rages</u>	endlessly	AVERAGE
14. Tanned hide	<u>ogle at her</u>	revealing	LEATHER
15. The most	<u>scholar gestured</u>	trim	LARGEST
16. Contests	<u>team at chess</u>	part of	MATCHES
17. Low speech	<u>now his perks</u>	include	WHISPER
18. Amulet	<u>crystal is manmade</u>	in	TALISMAN
19. Cable	<u>hotel (e.g., Ramada)</u>	in	TELEGRAM
20. Pants	<u>Metro user still</u>	holding	TROUSERS
21. Minor	<u>Mound Era geology</u>	in	UNDERAGE

49. Containers – Answer (p. 59)

<u>Definition</u>	<u>Construction</u>	<u>Indicator</u>	<u>Answer</u>
1. Tiny particle	A(TO)M	bound	ATOM
2. Failure	F(L)OP	admits	FLOP
3. Tropical island	A(TO)LL	got	ATOLL
4. Fleet	RA(P)ID	in	RAPID
5. Just plain	HO(ME)LY	at...heart	HOMELY
6. Ties	LAS(HE)S	gets	LASHES
7. Over more time	LON(G)ER	hoards	LONGER
8. Tulip tree	PO(P)LAR	bears	POPLAR
9. Delay	PU(TO)FF	had	PUT OFF
10. Condiments	SPI(C)ES	ate	SPICES
11. Evergreen	CON(I)FER	about	CONIFER
12. Where smelting is done	F(URN)ACE	about	FURNACE
13. Gee	GRAV(IT)Y	smothered in	GRAVITY
14. Sound	HE(ALT H)Y	enter	HEALTHY
15. Young years	IN(FAN)CY	crowds	INFANCY
16. Early election	PR(I MAR)Y	claims	PRIMARY
17. Most foolhardy	RA(SHES)T	feeding	RASHEST
18. Fastened	S(TAP)LED	into	STAPLED
19. More inclined	STE(PE)ER	around	STEEPER
20. To survive	WEA(THE)R	clothing	WEATHER

50. Deletions – Answer (p. 60)

<u>Definition</u>	<u>Construction</u>	<u>Answer</u>
1. Dollars	MONKEY-K	MONEY
2. Adolescents	YOU THIS-I	YOUTHS
3. Sensational promotion	BALL+YAHOO-A	BALLYHOO
4. Dainty	DELICATESSEN-1/3	DELICATE
5. Aerial battle	DOG+FLIGHT-L	DOGFIGHT
6. Illumination	SLIGHTING-S	LIGHTING
7. Street surface	PA+VEHEMENT-HE	PAVEMENT
8. Student monitors	PR+EFFECTS-F	PREFECTS
9. With child	P(REIGN)ANT-I	PREGNANT
10. State of urgency	P+REASSURE-A	PRESSURE
11. Memory jogger	REMAINDER-A	REMINDER
12. Flowing	SEA(MILES)S-I	SEAMLESS
13. Subdivisions	SELECTIONS-EL	SECTIONS
14. Somewhat dry	SEMINAR+ID-N	SEMIARID
15. Set of bookcases	SHE+LIVING-I	SHELVING
16. Type of water heater	THANKLESS-H	TANKLESS
17. Made-up	FRictionAL-R	FictionAL

51. &Literal – Answer (p. 61)

<u>Wordplay Explanation</u>	<u>Answer</u>
1. VOTE anagram (overturned)	VE TO
2. BLAMED anagram (disorder)	BEDLAM
3. Hidden reversal (part of...back): stoRE WARDrobe	DRAWER
4. D (start to <u>d</u> eviate) + (head off) REFLECT - R	DEFLECT
5. THIS (move T to end) + OR (state) + Y (today end)	HISTORY
6. STUD WAS anagram (pulverized)	SAWDUST
7. Hidden (take part in): <u>risky</u> <u>d</u> iversion	SKYDIVE
8. Container (in): DE(FLAT)ED	DEFLATED
9. Container (brought...into): DE(PLOY)ED	DEPLOYED
10. PATERNAL anagram (sort of)	PARENTAL
11. APRON IF anagram (tailored) + E (English)	PINAFORE
12. FOR TREES anagram (arrange)	REFOREST
13. PURGES OR anagram (organizes anew)	REGROUPS
14. TORN EAVE anagram (fix)	RENOVATE
15. REPELS US anagram (sort of)	REPULSES
16. BEIN LESS anagram (foolish)	SENSIBLE
17. BLAH MESS anagram (total, as a verb)	SHAMBLES
18. SLAPS anagram (liquid) contains (onto) SHE	SPLASHES
19. Container (having): SP(Run+INTerval)ED	SPRINTED
20. STUNK BIG anagram (when crushed)	STINKBUG
21. Charade: STIR (to beat) + RING (the band)	STIRRING

52. Cryptic Crossword Square 1 – Answer (p. 62)

Across

1. This is a charade that combines two words into one. Concerning = RE; layer of wood = PLY; answer = REPLY
6. The answer is hidden in the clue. The inside of “pig looked” is IGLOO, an Eskimo dwelling.
7. The exclamation point tells us that the literal meaning of the clue and the wordplay are both formed by the entire clue. The initials of “false ruse and unlawful deception” spell FRAUD.
8. This is a hidden reversal indicated by “backtracking in.” Take part of “ones network” and reverse it to get a word meaning “wound up.” The answer is TENSE.
9. “So to speak” indicates that this is a homophone. A bargain is a steal, which sounds the same as STEEL (an iron alloy).

Down

1. This is an anagram indicated by “shaking.” If we anagram “first”, we can create RIFTS (rock fissures).
2. This is a deletion. When we lose the extremities (first and last letters) of “regrets”, we get EGRET, which is a heron.
3. The two-word clue could tip us off that this is simply two meanings for the same word. The word “level” can mean a PLANE; an “aircraft” is also a PLANE.
4. This is a container clue indicated by the word “boxing.” “Fail to keep” defines LOSE; “up” is abbreviated U. Put U inside LOSE and get LOUSE (a bloodsucking insect).
5. The phrase “new arrangement of” suggests an anagram. If we anagram “ye old”, we can get YODEL, an Alpine song.

R	E	P	L	Y
I	G	L	O	O
F	R	A	U	D
T	E	N	S	E
S	T	E	E	L

53. Cryptic Crossword Square 2 – Answer (p. 62)

Across

1. “Prune” indicates a deletion. Remove the fifth letter from “SPRING” to get SPRIG (twig).
6. This one has two clues: “got up” and fill-in-the-blank “by any other name.” AROSE (a rose) works for both clues.
7. “Takes in” indicates a container. Put ILL (ailing) in VA (Virginia) to get VILLA (Mexican revolutionary).
8. “Mention” indicates a homophone. One type of Islamic ruler is an EMEER (also spelled EMIR). It sounds like “a mere” (a plain).
9. The “!” indicates that the entire clue represents both the definition and the wordplay. “Starts to” indicates initials. Assembling the first letters of “relax even sooner than sleep”, we get RESTS.

Down

1. “In the sound” indicates a homophone. “To delight in” is to savor, which sounds like SAVER (CD owner). “CD” stands for Certificate of Deposit in this case.
2. This clue has two meanings. “Number 1” is used as an adjective meaning PRIME. “2, 3, 5, etc.” are PRIME numbers.
3. This is a charade. “R” (run) followed by “OLES” (bullfight cheers) forms ROLES (movie characters).
4. “Resort” (re-sort) indicates an anagram. Rearrange the letters of “tiles” to form ISLET (small atoll).
5. “Ordered” indicates an anagram. Rearrange the letters of “sarge” to form GEARS (cogwheels).

S	P	R	I	G
A	R	O	S	E
V	I	L	L	A
E	M	E	E	R
R	E	S	T	S

54. Cryptic Crossword Square 3 – Answer (p. 63)

Across

1. “In recession” suggests a reversal. “Dug up minerals” is MINED, which is the reversal of DENIM (jean).
6. “Monkey with” indicates an anagram. If we anagram “a seer”, we get ERASE (defined by “wipe out”).
7. This is a deletion indicated by “out of.” “Run” is abbreviated R. Take R out of BROILS (grills) and get BOILS (cooks in water).
8. “Listening to” indicates a homophone. “False gods” are IDOLS, which sounds like IDLES. “Runs out of gear” defines IDLES (like a car’s engine idling).
9. The initials (“beginnings”) of “the edgy, sullen treatment? Yes!” form the word TESTY (cranky).

Down

1. This is a container. “Me” is I. Put I in DEBT to form DEBIT (an accounting entry).
2. This is another container, but it uses two abbreviations. “English” is abbreviated E; so is “earl.” When EE “has rod”, the result is ERODE, which is “wear down”
3. The short clue suggests that two meanings are used. “Brad’s” could be NAIL’S, and “aces” could be NAILS (meaning to pass with flying colors).
4. This is a charade. “Is” followed by LET (a synonym of “rented”) results in ISLET, a “little atoll.”
5. “Some” indicates a hidden answer. Look inside “domes’ symmetry” and find MESSY (disorganized).

D	E	N	I	M
E	R	A	S	E
B	O	I	L	S
I	D	L	E	S
T	E	S	T	Y

55. Cryptic Crossword Square 4 – Answer (p. 63)

Across

1. “Talked about” indicates a homophone. A “penny” is a cent, which sounds like SCENT (perfume).
6. “Carried” indicates a container. A walking stick (CANE) carrying “out” (abbreviated O) becomes a CANOE (birch bark).
7. “Discovered” indicates a beheading. Kit Carson is the frontiersman. CARSON beheaded is ARSON (pyromania).
8. “Exchange of” indicates an anagram. EUROS can be anagrammed to get ROUSE (provoke).
9. “Housing” indicates a hidden word. “Stifle ethnic” contains FLEET (meaning “fast”).

Down

1. Mark left (after an injury) is a SCAR. “Loud” refers to music notation for *forte* (F). A muffler is a SCARF.
2. This clue consists of two meanings. Burnett refers to CAROL. To carol is to sing Xmas songs.
3. Here’s another charade. EN is a printer’s measure; SUE is defined by “process.” ENSUE means to follow.
4. “Turned” indicates a reversal. Reverse “soon” and add E (east) to get NOOSE (loop).
5. “Doctrine” means TENET, which is unchanged (spelled the same) in reverse (in review).

S	C	E	N	T
C	A	N	O	E
A	R	S	O	N
R	O	U	S	E
F	L	E	E	T

56. Cryptic Crossword Square 5 – Answer (p. 64)

Across

1. Take “PACES” and move its back to the start. It becomes SPACE (location).
6. “Hides” indicates a hidden word. “Gentle monk” contains the word LEMON (sour fruit).
7. “Disarray” indicates an anagram. Change “PET IN” to form INEPT (clumsy).
8. This is a charade using an abbreviation. “Staffs” means MANS. English is abbreviated E. Together they form MANSE (parsonage).
9. This clue has two meanings: “senior” and “church officer.” The answer is ELDER.

Down

1. “About” indicates an anagram. Change SMILE into SLIME (mud).
2. “Lines” indicates a hidden word. The word PENAL (meaning disciplinary) lines the phrase “happen also.”
3. If we take ADMEN and move the second letter to the last position, it becomes AMEND (rewrite).
4. “Reported” indicates a homophone. “Police officers” are cops, which sounds like COPSE (thicket).
5. This clue has two meanings: “record” and “key to computer.” ENTER is a computer key, and to enter an item on a list is to record it.

S	P	A	C	E
L	E	M	O	N
I	N	E	P	T
M	A	N	S	E
E	L	D	E	R

57. Cryptic Crossword Square 6 – Answer (p. 64)

Across

1. “Almost” indicates some surgery is in order. “Spotted” is a word for dappled. Remove the first and last letters and get APPLE (Granny Smith is a variety of apple).
6. “Gets” indicates a container. King is REX. If we put LA (Los Angeles) in REX, we get RELAX (rest).
7. “Bananas” indicates an anagram. Anagram “or eat” to form ORATE (give a speech).
8. “Split” indicates a hidden word. Look inside “beam in error” to find MINER (prospector).
9. “Somewhat” indicates a hidden word. “Paler than” contains ALERT (meaning “warning signal”).

Down

1. This is a charade of sorts. “To Rome” in Italian is “a Roma.” “Smell” is also AROMA.
2. “Redesigning” indicates an anagram. If we anagram PIER and append L (Roman numeral for 50), we get PERIL (risk).
3. After Plan B come Plan C, Plan D, and Plan E. “Level” defines PLANE (the third after Plan B).
4. “Counter” indicates a reversal; “will leave” indicates a deletion. Reverse “retail” and remove “I” to get LATER (in a while).
5. “Climbing” indicates a reversal; “in” indicates a container. Reverse “tree” and insert “x” (last of ax) to get EXERT (wield).

A	P	P	L	E
R	E	L	A	X
O	R	A	T	E
M	I	N	E	R
A	L	E	R	T

58. Cryptic Crossword Square 7 – Answer (p. 65)

Across

- Two meanings make up this clue: “apply pesticide to” and “small branch of flowers.” Both lead us to the word SPRAY.
- “Boxing” indicates a container. To misplace is to LOSE. “Ring” indicates the letter O. Put O into LOSE and get LOOSE (not bound).
- This is a three-part charade. It starts with A. Then add a “couple of lovers” (LO). Then add “laugh” (HA). The result is ALOHA (goodbye).
- “Returning” indicates a reversal; “some” indicates a hidden word. Reversing part of “horseman’s” gives us NAMES (calls).
- Hidden in “country stable” is TRYST (rendezvous).

Down

- A deletion is indicated by “to remove.” Remove EA (abbreviation of each) from SEALANT and get SLANT (be inclined).
- There are two meanings in this clue: “charged” and “to the far north.” Both definitions point to POLAR.
- This is another two-meaning clue. “Spacious” defines ROOMY, and your roomy (slang for roommate) is your dorm cohabitant.
- Here is a charade. Put SHES after A and get ASHES (burning residue).
- “Arranged” indicates an anagram. Anagram “as yet” and get YEAST (something to raise dough).

S	P	R	A	Y
L	O	O	S	E
A	L	O	H	A
N	A	M	E	S
T	R	Y	S	T

59. Cryptic Crossword Square 8 – Answer (p. 65)

Across

1. There are no indicators for this charade. “Bishop” is abbreviated B. “Not so much” is LESS. “Anoint” means BLESS.
6. This clue has two meanings. Good golfer shot is an eagle. The top boy scout level is also EAGLE.
7. “Left” and “university” are abbreviated L and U. “Expelled” is rid (of). Together, they spell LURID (shocking).
8. “At first” indicates initials and “!” indicates that the clue is both the definition and the wordplay. The initials spell CREME.
9. “Designed” indicates an anagram. “Art he” can be formed into HATER (one who detests).

Down

1. This is a charade using “before” to confirm the order. “Sound measurement” is BEL. “Church” is abbreviated CH. Combine them to make BELCH (burp).
2. “Says” indicates a homophone. George W. Bush’s wife, LAURA, sounds like “law rah.”
3. “Goes back in” indicates a hidden reversal. Inside “waTER GEyser” we see the reversal of EGRET (wading bird).
4. “Created” is a noncommittal indicator, but assembling a word meaning “slight” (SLIM) and an abbreviation for “error” (E) spells SLIME (muck).
5. “Some” indicates a hidden word. Out of “choSE DERanged” comes a Passover meal (SEDER).

B	L	E	S	S
E	A	G	L	E
L	U	R	I	D
C	R	E	M	E
H	A	T	E	R

60. Cryptic Crossword Square 9 – Answer (p. 66)

Across

1. “Mention” indicates a homophone. A “mob” is a horde, which sounds like HOARD (stockpile).
6. There don’t seem to be any indicators; so this is probably a charade or two meanings. “Provide weapons” is arm. ARM + OR is ARMOR (protective garb).
7. “Starts to” indicates initials. The first letters of “read at B’nai B’rith Intl.” spell RABBI (teacher).
8. This clue has two definitions. “Overpriced” is STEEP; “soak in liquid” is also STEEP.
9. “Sort of” indicates an anagram. If we anagram “shred”, we get HERDS (flocks).

Down

1. “Around” indicates a container. Use the abbreviations for “hour” (H) and “river” (R). Put HAS+H around R and get HARSH (savage).
2. This is a deletion. Start after the 6th letter in “directorate.” We get ORATE, which is to give a speech.
3. “Keeping” indicates a hidden word. In “team berated for” we find AMBER (a brownish-yellow color).
4. “Upcoming” indicates a reversal (at least when it is in a Down clue). “Deb or” can be reversed to form ROBED (dressed).
5. “First of deb’s” is D; “tears” are RIPS. Put both together as a charade to get DRIPS (trickles).

H	O	A	R	D
A	R	M	O	R
R	A	B	B	I
S	T	E	E	P
H	E	R	D	S

61. Cryptic Crossword Square 10 – Answer (p. 66)

Across

1. “Change” indicates an anagram. Form “PUSH TO” into UPSHOT (outcome).
7. “Model” indicates an anagram. Rearrange “PASTEL” to form PLEATS (ruffles).
8. “Plays” indicates an anagram. Rearrange “AS LUTE” to form SALUTE (fire 21 guns).
9. “By the sound” indicates a homophone. A word that sounds like ISLET (dot of land) is EYELET (loop).
10. “Crushed” indicates an anagram. Rearrange “UNREST” to form TUNERS (radio receivers).
11. This is a charade. “Boxes” is another word for SPARS. “Empty” is abbreviated E. Combine them to make SPARSE (scattered).

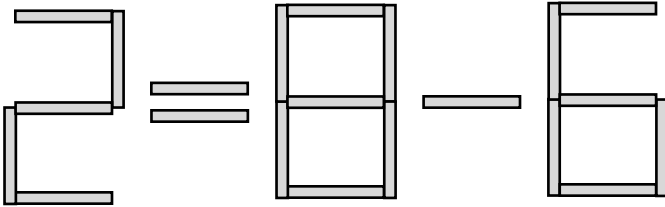
Down

1. “Gets” indicates a container. “Brown” is a nickname for UPS (United Parcel Service). Put SET into UPS and get UPSETS (surprise wins).
2. This is a charade. “Pacers’ first” is the letter P. A lay-up is an easy basket. PLAY UP is defined by “highlight.”
3. “Around some of” indicates a container of sorts. If SEEN is put around part of LA, you form SE(L)EN(A), which was a Jennifer Lopez (J.Lo) role.
4. “Heard” indicates a homophone. “Holler” sounds like HAULER (van driver).
5. “Beheaded” indicates a deletion. Beatrix and Harry are POTTERS. Beheaded, they are OTTERS (aquatic mammals).
6. This wordplay defies categorization. If we write SET down twice and then move its tail (last letter) to the start, we get TSETSE (a fly in Africa).

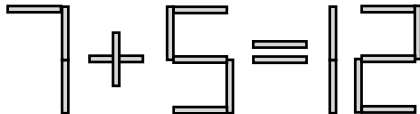
U	P	S	H	O	T
P	L	E	A	T	S
S	A	L	U	T	E
E	Y	E	L	E	T
T	U	N	E	R	S
S	P	A	R	S	E

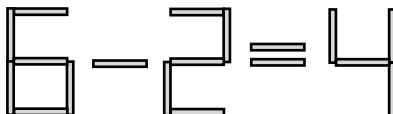
62. Curious Equation – Answer (p. 67)

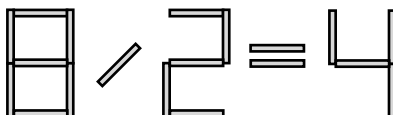
My granddaughter was working from the other side of the desk; so I was seeing the equation upside down. Right side up, the equation was:

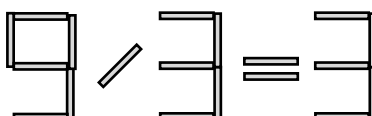


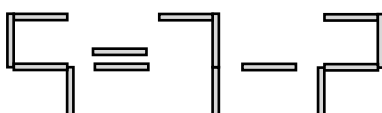
63. Matchstick Math – Answer (p. 69)

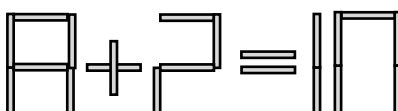
1. 

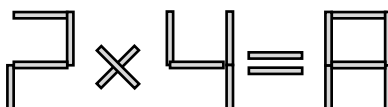
2. 

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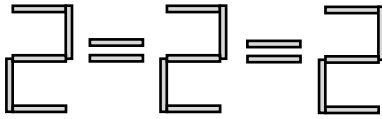
4. 

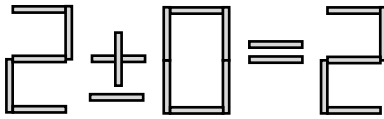
5. 

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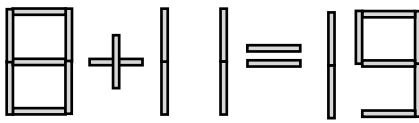
7. 

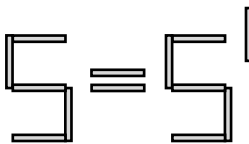
64. Matchstick Math, Toughies – Answer (p. 70)

1. 

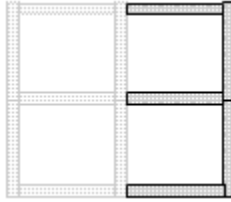
2. 

3. 

4. 

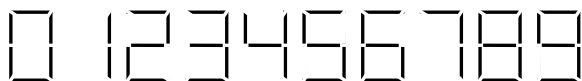
5. 

65. Matchstick – Answer (p. 71)



66. Dark Reflections – Answer (p. 71)

The actual value is one digit; so it must be in the range 0-9. If a mirror makes the number look like two digits, it must be giving a horizontal reflection of the original number. The actual number and its reflection combine to look like a two-digit number.



If the mirror is on my right as I look at the display, “0” would look like “00”, “1” would look like “11”, “2” would look like “25”, and “5” would look like “52.” If the mirror is on the left, “0” would look like “00”, “2” would look like “52”, “5” would look like “25”, and, “8” would look like “88.” From this side the reflection of “1” would be too far away from the displayed “1”; it wouldn’t look much like “11.” But “8” would look like “88.” The mirror must be on the left. The original setting must be “2” because “52” is 26 times higher. The other settings could be “8” (eleven times higher) and “5” (five times higher). The other digits don’t have any meaningful mirror images.

67. Target Ninety-Nine – Answer (p. 72)

Instead of trying every possible combination of numbers, let’s start with a little insight. Notice that all of the target values are odd numbers. If we add two odd numbers, it always results in an even number. Adding four odd numbers gives an even number. Therefore, one of our arrows must hit the non-scoring area or miss the target entirely.

With only three scoring arrows, we’ll need to average 33 points per arrow. This implies that at least one arrow will need to hit 43 or 37 (the only values higher than 33). If we hit 43 twice, we’ll need 13 more points to get 99. But there is no way to get 13. If we hit a 43 and a 37, we’ll need 19 more points. Again, there is no way to get 19. If we hit 37 twice, we’ll need 25. At last! There is a 25 score available. So the answer is 37-37-25-0. A few more calculations should convince you there are no other valid answers.

68. Open a Window – Answer (p. 72)

Despite the complicated geometry of the window, the answer is simple. The 22-inch base of the window is lowered 2 inches. The gap at the top of the window is two vertical inches at every spot along the length of the window. Therefore, the open area is $2 \times 22 = 44$ square inches.

69. 3-Stick 13 – Answer (p. 73)

After considering the problem for a while, we might make some observations:

- 1) We saw that two sticks can measure only four lengths. A third stick adds a fifth length. The original four lengths can be added to and subtracted from the third stick's length to measure eight more lengths. That makes a maximum of thirteen different lengths.
- 2) Therefore, the lengths of the three sticks must add up to 13 (for example, $1+2+10$ or $2+4+7$).
- 3) Each combination of three lengths must form a unique length. The same length can't be measured two different ways, because we have only thirteen possible combinations.

The easiest way to solve this puzzle is to find two sticks that can measure the lengths 1, 2, 3, and 4. Then we'd get a stick that is 9 inches long. If we subtract each of the four lengths from 9, we get 5, 6, 7, and 8. If we add each of the four lengths to 9, we get 10, 11, 12, and 13. The lengths 1 through 4 can be measured with a 1-inch stick and a 3-inch stick. Therefore, 1, 3, and 9 are the lengths.

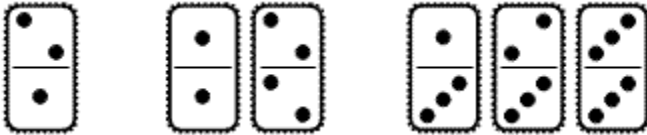
If you wanted to continue measuring lengths beyond 13, what would be the length of a fourth stick to measure all unit lengths up to 40?

70. Domino Fractions – Answer (p. 73)

Three of the six dominoes ($1/1$, $2/2$, and $3/3$) always have a value of one. The other three dominoes change value when turned upside down: 2 (or $1/2$), 3 (or $1/3$), and $3/2$ (or $2/3$).

If the 3-2 domino is used as $3/2$, the 1-2 domino must be used as $1/2$, and the 3-1 domino must be used as 3. This is because only one group will end in $1/2$ if we don't add $3/2$ and $1/2$ to form an integer (whole number). And we couldn't use $1/3$ because all other groups would be integers. The total of all six dominoes in this case would be 8 ($1 + 1/2 + 3 + 1 + 3/2 + 1$). But 8 can't be divided into 3 groups without using fractional values. Therefore, the 3-2 domino must be used as $2/3$.

If the 3-2 domino is used as $2/3$, the 1-2 domino must be used as 2, and the 3-1 domino must be used as $1/3$. The total of all six dominoes in this case would be 6 ($1 + 2 + 1/3 + 1 + 2/3 + 1$). 6 is evenly divisible by 3 groups. If we can get each group to add up to 2, we have our answer. One group will obviously have the single 1-2 domino used as $2/1$. Another group will have $1/3$ and $2/3$ plus one of the remaining dominoes. Here is one of the possible answers:

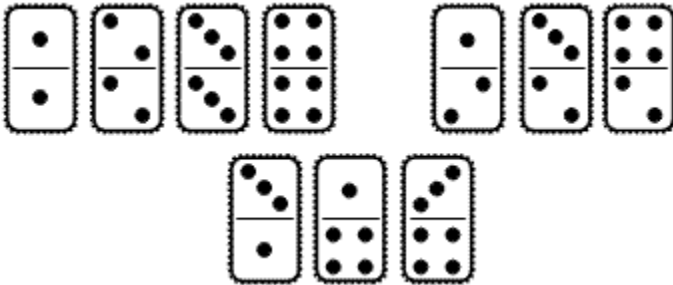


The ten-domino challenge is solved in a similar way. Look at the dominoes that can change value when they are turned upside down. They are 1-2, 1-3, 1-4, 2-3, 2-4, and 3-4. If the 4-3 domino is used as $4/3$, the 2-3 domino must be used as $2/3$, the 3-1 domino must be used as 3, and the 4-1 domino must be used as 4. The orientation of the 1-2 and 2-4 are still unresolved. They could both be $1/2$, or they could both be 2.

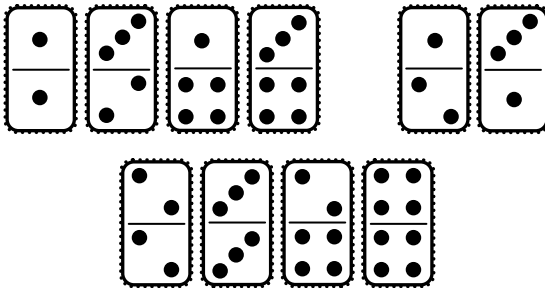
The total of all ten dominoes in this case would be either 17 ($1 + 2 + 3 + 4 + 1 + 2/3 + 2 + 1 + 4/3 + 1$) or 14 ($1 + 1/2 + 3 + 4 + 1 + 2/3 + 1/2 + 1 + 4/3 + 1$). Neither of these is evenly divisible by 3; so the 4-3 domino must be used as $3/4$, and the 4-1 domino must be used as $1/4$. If the 3-2 domino is used as $2/3$, the 3-1 domino

must be used as $1/3$. The orientation of the 1-2 and 2-4 are still unresolved. They could both be $1/2$, or they could both be 2.

The total of all ten dominoes in this case would be either 10 ($1 + 2 + 1/3 + 1/4 + 1 + 2/3 + 2 + 1 + 3/4 + 1$) or 7 ($1 + 1/2 + 1/3 + 1/4 + 1 + 2/3 + 1/2 + 1 + 3/4 + 1$). Neither of these is evenly divisible by 3; so the 3-2 domino must be used as $3/2$. This means that the 3-1 domino must be used as 3, and either the 1-2 domino or the 4-2 domino or both must be used as $1/2$. Here is one of the possible answers:



It is also possible to create three groups with each group equal to $3\frac{1}{2}$:



Be careful with this solution. You must include the $1/4$ and the $3/4$ with the $3/2$ or you will violate the rule that limits a group to a maximum of four dominoes.

$$\begin{array}{r} 21GS \\ \underline{21GS} \end{array}$$

0123456789
ED RN U

First subtraction: $A - 2 = 1$. $A = 3$. Then $S - 3 = 5$. $S = 8$.
Then $8 - G = G$. $G = 4$.
So $Y = 0$ and $T = 7$.

$$\begin{array}{r} 716 \) \ 188308 \\ \underline{1432} \\ 4510 \\ \underline{4296} \\ 2148 \\ \underline{2148} \end{array}$$

0123456789
YEDAGRNTSU

72. Beginner's Logic – Answer (p. 76)

Step 1: John owns the cat and lives next door to the dog.

Step 2: Baker and Carter are both men. Mary is Anderson.

Step 3: The two men live across the street from each other,
so Mary must own the dog next door to John's cat.

Step 4: Mr. Carter must own the cat; turtles aren't furry.

Step 5: By elimination, Mr. Baker must be Fred, the turtle
owner.

Fred Baker owns the turtle.

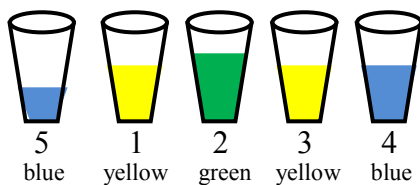
John Carter owns the cat.

Mary Anderson owns the dog

73. Separate Colors - Answer (p. 76)

There is no way to accomplish the task by simply moving a glass to another spot. The fact that these are not sealed containers is important.

One way to solve the puzzle is to pick up glass 5, pour about half of its water into glass 2, and place glass 5 to the left of glass 1. The mixture of blue and yellow might form green (or blue or gray); it would no longer be yellow.



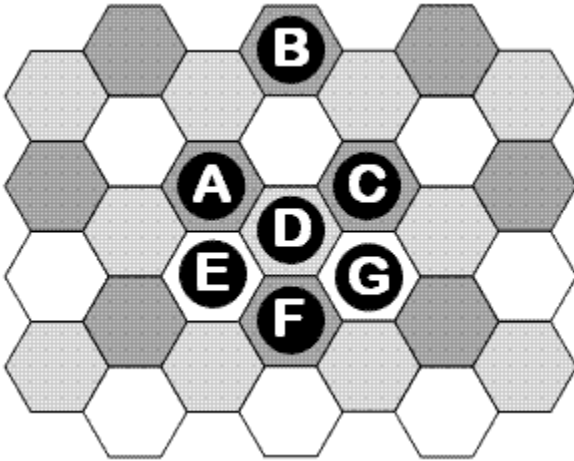
74. Hex Checkers – Answer (p. 77)

Move 1: B steps up (to the center cell on the top row).

Move 2: F jumps E, A, D, G, and C.

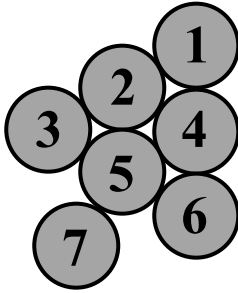
Move 3: B jumps F.

Any of the six outside pieces could make a step out from the center for the first move. So there are 6 good starting moves and 6 different jumping sequences that will work for each starting move. That makes 36 correct answers.



75. Coin Arrowhead – Answer (p. 78)

Here is one solution moving only two coins (in four moves).

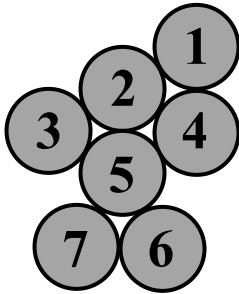


Step 1: Move coin 6 (lower right) to form a triangle with coin 5 (center) and coin 7 (tail).

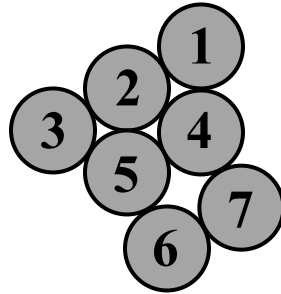
Step 2: Move coin 7 to form a triangle with coin 6 and coin 4.

Step 3: Move coin 6 to form a triangle with coin 7 and coin 4.

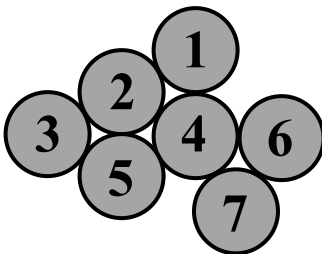
Step 4: Move coin 7 to form a triangle with coin 4 and coin 5.



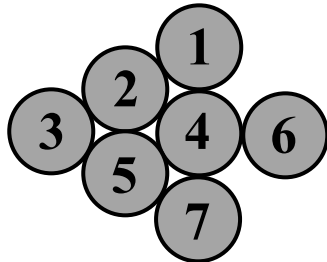
Step 1



Step 2



Step 3



Step 4

76. Triple Player – Answer (p. 78)

According to Wikipedia, Ray Castoldi played the organ for all three teams in the same season. If you got the idea that the player was a musician, give yourself full credit.

77. Domino Jigsaw 1 – Answer (p. 79)

We'll use steps 1 - 3 explained in the hint.

Step 1:	2-2	4-4	2-5	5-5	
Step 2:	0-3	0-4	1-6	0-2	
Step 3:	Split 0-3 on the third and fifth rows Split 0-4 on the second column Split 1-6 on the first and sixth columns Split 0-2 on the second and third columns and on the sixth row				

The grid now looks like this:

0	4	4	2	1	6	4
3	2	1	0	5	5	0
2	6	5	0	3	6	2
5	4	1	5	1	1	2
3	0	0	6	5	6	4
1	2	0	6	0	6	3
6	4	2	3	1	3	3
4	5	3	2	1	4	5

Adding the separators in step 3 gives us more chances to use step 2.

Step 2:	1-3	2-4	4-6	3-5	2-3
	1-2	0-0	0-6	3-6	1-1
Step 3:	Split 1-3 on the seventh row Split 4-6 on the second column and fifth row Split 3-5 on the seventh column Split 1-2 on the second row				

Our grid now looks like this:

0	4	4	2	1	6	4
3	2	1	0	5	5	0
2	6	5	0	3	6	2
5	4	1	5	1	1	2
3	0	0	6	5	6	4
1	2	0	6	0	6	3
6	4	2	3	1	3	3
4	5	3	2	1	4	5

We now have enough information to finish the puzzle using step 2. Tiles 2-6, 1-5, 1-4, 0-5, and 5-6 fall into place. We also find 0-1, 6-6, 4-3, 3-3, and 4-5.

0	4	4	2	1	6	4
3	2	1	0	5	5	0
2	6	5	0	3	6	2
5	4	1	5	1	1	2
3	0	0	6	5	6	4
1	2	0	6	0	6	3
6	4	2	3	1	3	3
4	5	3	2	1	4	5

78. Domino Jigsaw 2 – Answer (p. 80)

We'll use steps 1 - 3 explained previously.

Step 1:	0-0	1-1	2-2	3-3	4-4
	5-5				
Step 2:	0-3	3-5			

The grid now looks like this:

4	2	6	3	5	1	0
6	1	5	0	0	1	3
6	4	0	1	4	5	6
0	2	5	5	3	2	1
2	0	4	3	1	3	4
2	4	2	6	3	2	4
4	5	3	5	3	0	1
1	6	6	0	5	6	2

Let's go back and apply steps 1 and 2 again.

Step 1:	1-5	2-5	1-2		
Step 2:	2-6	4-6	1-6		
Step 1:	6-6	0-1	1-4	3-6	4-5

Our grid now looks like this:

4	2	6	3	5	1	0
6	1	5	0	0	1	3
6	4	0	1	4	5	6
0	2	5	5	3	2	1
2	0	4	3	1	3	4
2	4	2	6	3	2	4
4	5	3	5	3	0	1
1	6	6	0	5	6	2

We can now finish the puzzle by applying steps 2 and 1 again.

Step 2:	3-4	1-3	0-2	5-6	0-5
	2-3	0-4			
Step 1:	2-4	0-6			

4	2 6		3 5		1	0
6	1 5		0 0		1	3
6	4	0 1		4	5	6
0	2	5 5		3	2	1
2	0 4		3	1 3		4
2	4	2	6	3	2	4
4	5	3	5	3	0	1
1	6 6		0	5 6		2

79. Domino Jigsaw 3 – Answer (p. 80)

We'll use steps 1 - 3 explained previously.

Step 1:	1-1	3-3	3-5		
Step 2:	3-4				
Step 3:	Split 3-4 on the fourth row				
Step 1:	3-6	2-3			
Step 2:	0-5	2-6			

The grid now looks like this:

2	3	0	5	4	1	3
2	1	1	5	6	4	0
6	3	3	1	2	6	3
6	0	4	3	1	2	2
1	0	4	0	4	5	6
2	6	4	2	0	5	6
0	1	5	4	0	6	3
5	5	2	1	3	5	4

Let's go back and apply steps 3 and 2 again.

Step 3:	Split 0-5 on the sixth row and first column Split 2-6 on the sixth row; columns 5 and 7				
Step 2:	5-5	1-5*	1-2	2-2	0-3

* - The six numbers in the upper right corner must be three tiles; the 5 on the second row goes with the 1 below it.

Step 3:	Split 5-5 on the sixth column Split 1-5 on the seventh row Split 1-2 on the first column and eighth row Split 0-3 on the seventh column				
---------	--	--	--	--	--

Our grid now looks like this:

2	3	0	5	4	1	3
2	1	1	5	6	4	0
6	3	3	1	2	6	3

6	0	4	3	1	2	2
1	0	4	0	4	5	6
2	6	4	2	0	5	6
0	1	5	4	0	6	3
5	5	2	1	3	5	4

We can now finish the puzzle by applying steps 2 and 1 again.

Step 2:	1-3	4-6	0-4	0-2	1-6
	2-5	1-4			
Step 1:	0-1	0-0	0-6	4-4	2-4
	4-5	5-6	6-6		

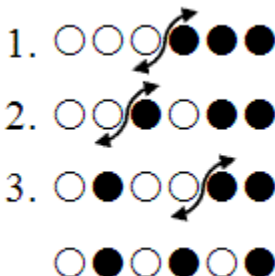
The completed grid looks like this:

2	3	0	5	4	1	3
2	1	1	5	6	4	0
6	3	3	1	2	6	3
6	0	4	3	1	2	2
1	0	4	0	4	5	6
2	6	4	2	0	5	6
0	1	5	4	0	6	3
5	5	2	1	3	5	4

80. Alternating Currency – Answer (p. 81)

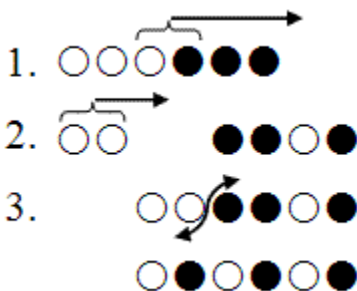
The Basic Approach (this approach has 2 variations).

1. Spin third and fourth (silver-copper) coins so they exchange places
2. Spin second and third (silver-copper) coins so they exchange places
3. Spin fourth and fifth (silver-copper) coins so they exchange places



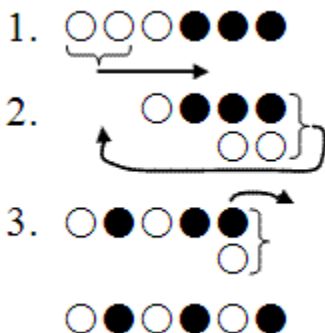
The Linear Approach (this approach has 2 variations).

1. Move third and fourth (silver-copper) coins to the far right
2. Move first and second (silver-silver) coins over to the others
3. Spin second and third (silver-copper) coins so they exchange places



The 2-D Approach (this approach has 32 variations).

1. Move first and second (silver-silver) coins under the last two copper coins
2. Move two coins (copper-over-silver) in the right-hand column to the far left while rotating them 90°
3. Rotate two coins (copper-over-silver) in the right-hand column 90°



81. Family Dinner Party – Answer (p. 82)

Clue 1 tells us that Bob and his wife sat at the front table; their two children sat at the back table. We know the name and location of one person, and we know the location of three unnamed people.

Clue 2 tells us that Bob's sister and brother (Carl) and Carl's wife sat at the front table. I think we can assume that Bob's wife is not Bob's sister; so we know five people at the front table:

Bob, Bob's wife, Carl (Bob's brother), Carl's wife, Bob's sister.

Clue 3 tells us that Steven and Nina are adults sitting with four children. They must be sitting at the back table with Bob's children and two others. Steven and Nina are apparently childless.

Clue 4 tells us that Pat (a female) sat between her cousins Dave and Alice (who are brother and sister). For now, this clue just tells us that Pat, Dave, and Alice sat at the same table.

Clue 5 tells us that Fred and Heidi sat at the same table. It also tells us that Carl's wife is Lois.

The clues only provide 10 names. The two remaining names come from the introduction. These names are Tim and Tim's aunt Mary. Since Mary is the hostess, she is an adult at the front table. There are only two unknown names at the front table; so Pat, Dave, and Alice must be kids at the back table.

Here are the names of the people at each table:

Front: Bob, Carl, Lois, Mary, Heidi, and Fred.

Back: Steven, Tina, Pat, Dave, Alice, and Tim.

Mary and Heidi are Bob's wife and Bob's sister, but which is which? Clue 5 tells us Heidi is not Bob's sister. Heidi is Bob's wife, and Mary is Bob's sister.

Carl and Lois have two children. We know this because Fred was referred to as the “**elder**” child. If they had three children, Fred would be the “eldest.” Carl has only one child at the back

table. That child must be Tim or Pat, because Dave and Alice are brother and sister. Dave and Alice must be Bob's two children.

Tim is Mary's nephew (according to the first sentence of the puzzle). He must be the son of Bob, Steven, or Carl. Bob's two kids are already named as Dave and Alice. Steven has no children. So Tim must be Carl's younger child. Pat (Dave and Alice's cousin) must be Mary's daughter.

Therefore, seated at the front table are:

Bob, Heidi (Bob's wife),
Carl (Bob's brother), Lois (Carl's wife), Fred (Carl's son),
and Mary (the hostess, and sister to Bob, Carl, and Steven).

Seated at the back table are:

Steven (Bob's brother), Nina (Steven's wife),
Tim (Carl's son), Pat (Mary's daughter),
Dave (Bob's son), and Alice (Bob's daughter).

82. Fugitive River Crossing – Answer (p. 82)

Let's break the puzzle into two parts. First, let's ignore the timing problem and figure out how to get the men across the river. Rex and Tex have to go across on the same trip because they are shackled together. So Lex and Mex need to row across first. One of them stays on the far bank while the other rows the boat back. Then Rex and Tex row across together, and the unshackled man rows back to pick up the other fugitive.

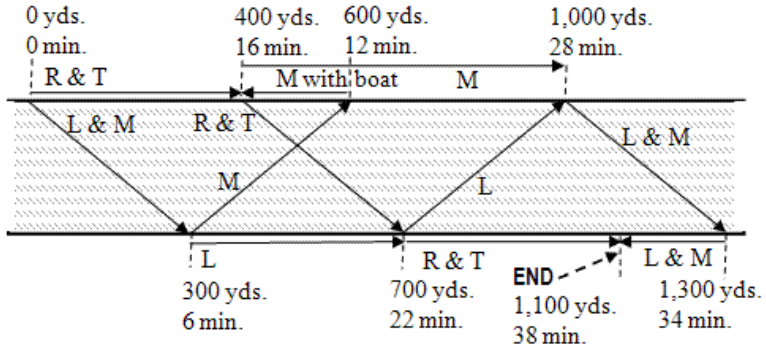
Next, we'll consider the timing. If there were no current, it would take 30 minutes ($5 \text{ crossings} \times 6 \text{ minutes/crossing}$) to get all four men across the river. But the current moves the boat 300 yards downstream with each crossing. The men who aren't in the boat need to walk down the shore to meet the boat when it arrives. The problem arises because two of the men (Lex and Rex) can't walk fast enough to be there when the boat arrives.

As Lex and Mex start to row across the river, Rex and Tex must walk downstream to meet the boat after its return trip. Let's say that Lex hops out of the boat on the far bank, and Mex returns to the near shore. 12 minutes have elapsed, and the two men who are chained together have only walked 300 yards. Mex and the boat are 600 yards downstream. Mex should tow the boat upstream to meet Rex and Tex. After four minutes Mex has gone 200 yards and meets the chained men at the 400-yard mark.

Rex and Tex row across. They reach the far bank 6 minutes later at the 700-yard mark. Slow-walking Lex has had 16 minutes ($6 + 6 + 4$) to walk the 400 yards between the 300-yard mark and the 700-yard mark.

Lex rows back to the near shore and picks up Mex just as he arrives at the 1,000-yard mark. Both men reach the far bank after 34 minutes. But all four fugitives aren't together! Rex and Tex have walked downstream to the 1,000-yard mark; Lex and Mex are 300 yards farther downstream. If Lex and Mex start walking upstream at the slower man's pace, they'll meet the other men 6 minutes later at the 1,150-yard mark. If Lex stays in the boat and Mex tows it upstream, they can meet the other men 4 minutes later at the 1,100-yard mark.

All four fugitives are together on the far bank after 38 minutes. If Lex rows back after the first crossing, the process takes 40 minutes. If no one walks upstream, the process takes 54 minutes.



83. Put Your Cards on the Table – Answer (p. 83)

We'll need to switch the clubs and spades in row 2 or in row 4. The first three columns and the first row add up to 21. If we try to get all rows and columns adding to 21, we need to correct the totals in rows 2, 3, and 4 and in column 4. Let's try the obvious move of increasing 2♦ (lower right corner) by 4 to make the last row and last column equal 21. The problem is that 6♦ (the six of diamonds) is already on the table (row 3, column 2), and only cards from the pack can be used as overlays. We can't change the suit of 2♦ because it would require too many other suit changes in other places. Further analysis should convince you that we can't overlay four cards and have all the rows and columns add up to 21.






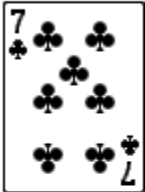




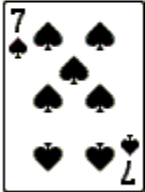
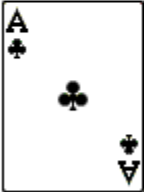
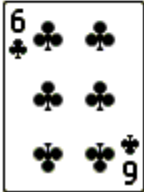



8D	3H	5C	5S	=21
2C	9S	3D	9H	=23
5H	6D	7S	1C	=19
6C	3S	6H	2D	=17
$\overline{21}$	$\overline{21}$	$\overline{21}$	$\overline{17}$	

Because the suit change requires us to overlay two cards in the same row, we will only be able to change three rows with our four overlays. If we try to change each row/column to add up to 17 (the second most common total), we must reduce one of the first three cards on the top row by 4. 3♥ is too low. 5♣ would be 1♣, which is already on the table. 8♦ must be overlaid by 4♦. 2♣ and 9♠ will at least have to change suits. This means that our fourth overlay needs to be 7♠ (row 3, column 3). The problem is that its number must be reduced by 2 for row 3 and by 4 for column 3. 17 won't work as the common total. Similar analysis eliminates 23 as a common total. 19 must be the right number.

Row 1 must come down by 2, row 2 must come down by 4, and row 4 must go up by 2. Columns 1, 2, and 3 must come down by 2. Column 4 must go up by 2. The suit change must occur on row 2. You can't change 3♠ to 1♣ because 1♣ is already on the

board. Therefore, overlay $2\clubsuit$ with $0\spadesuit$ (a spade face card), and overlay $9\spadesuit$ with $7\clubsuit$. Row 4 and column 4 both total to 17; so overlay $2\diamondsuit$ with $4\diamondsuit$. Then overlay $5\clubsuit$ with $3\clubsuit$.

If you solve this using real playing cards, you avoid the major trap of reusing cards. Obviously, the jack of spades could be a queen or king.

				= 19
				= 19
				= 19
				= 19
= 19	= 19	= 19	= 19	

84. Sequence 24– Answer (p. 84)

Each entry represents part of a word. The first letter of each word has been removed, and some of the final letters have also been removed. The seven words represent a very common repeating sequence. Each three-letter entry represents the second through fourth letters of a day of the week. Therefore, the next entry should be UND. Then the cycle repeats.

85. I Start to Do As the Romans Do – Answer (p. 84)

If these numbers were represented as Roman numerals, which ones would start with I? Every integer above 9 (IX) would begin with something other than I. They would go in the second group.

86. Pattern Counts – Answer (p. 84)

The numbers represent the number of letters in the words one, two, three, and so on up to nineteen. The next number is 6 (the number of letters in the word “twenty.”)

87. Boxed Rebuses 1 – Answer (p. 87)

1. Sk + eight (on thin) ice = Skate on thin ice.
2. (Round the clock) surveillance = Round the clock surveillance
3. Think (outside the box) = Think outside the box.
4. Cross + 2 + bear = Cross to bear.
5. “I” + can + “D” = Eye candy.
6. Get (up) (before) (the crack of) dawn = Get up before (or at) the crack of dawn.
7. 110 degrees (in) the shade = 110 degrees in the shade.
8. Running (on) “MT” = Running on empty.
9. Beam + me (up) + Scotty = Beam me up, Scotty.

88. Boxed Rebuses 2 – Answer (p. 88)

1. “A” + yolk + “A” = A OK.
2. It’s knot (over) till the fat lady sings = It’s not over till the fat lady sings.
3. Meat + & + pot + (eight) O’s = Meat and potatoes
4. Gun + boat + diploma + “C” = Gun boat diplomacy.
5. Just (around) the corner = Just around the corner.
6. Went (in one) ear + and (out the other) = Went in one ear and out the other.
7. May + dove (on) oar = Maid of honor.
8. Fever + pitch = Fever pitch.

89. Boxed Rebuses 3 – Answer (p. 89)

1. Go (over) like a + lead + balloon = Go over like a lead balloon
2. Sight + “C” + ing (in the big) apple = Sightseeing in the Big Apple.
3. “P” + nut gallery = Peanut gallery.
4. Brush (under) the + car + pet = Brush under the carpet.
5. Draw + pin + the + bucket = Drop in the bucket.
6. Holmes + wheat + h + ohm = Home sweet home.

90. Boxed Rebuses 4 – Answer (p. 90)

1. Bed + dove + roses = Bed of roses.
2. B + link + oven + I = Blink of an eye.
3. Bats (in the) bell free = Bats in the belfry.

4. F + eel + free = Feel free.
5. Greece + my + palm = Grease my palm.

91. Boxed Rebuses 5 – Answer (p. 91)

1. (Small) fry = Small fry.
2. Sundae + driver = Sunday driver.
3. “RU” (on the) level = Are you on the level?
4. Put (up) + or + shut (up) = Put up or shut up.
5. & so (on) & so 4th = And so on and so forth.
6. Cover all the bases = Cover all the bases.
7. Eve + “N” + key + “L” = Even keel.
8. Ball + park + figure = Ballpark figure.
9. He’s (under) lock & key = He’s under lock and key.
10. (Last) ditch + “F” + fort = Last ditch effort.

92. Boxed Rebuses 6 – Answer (p. 92)

1. “I’m” (on) cloud nine = I’m on cloud nine.
2. Deer + john + letter = Dear John letter.
3. Pen + knee + pin + chair = Penny pincher.
4. (Spill the beans) = Spill the beans.
5. Leaf + nose + toe + nun + turn + d = Leave no stone unturned.
6. Kilt + tube + birds (with) ones + toe + n = Kill two birds with one stone.

93. Boxed Rebuses 7 – Answer (p. 93)

1. “L” + bow + room = Elbow room.
2. Its (in the) bag = It’s in the bag.
3. (No) U’s + crying (over spilled) milk = No use crying over spilled milk.
4. Meat + sum + 1 + half + weigh = Meet someone halfway.
5. (The) ball (is in) your court = The ball is in your court.
6. (The bottom line) = The bottom line.
7. Ill at E’s = Ill at ease.
8. (The third) degree = The third degree.

94. Boxed Rebuses 8 – Answer (p. 94)

1. Stars (in) your I’s = Stars in your eyes.

2. A cut (above) the rest = A cut above the rest,.
3. "I'm" (at the end of) my rope = I'm at the end of my rope.
4. A man (after) my own heart = A man after my own heart.
5. (The eleventh) hour = The eleventh hour.
6. Been (around the) block (a few times) = Been around the block a few times.
7. (A pretty) penny = A pretty penny.
8. "Y" + dove + thumb + arc = Wide of the mark.
9. Left (holding) the bag = Left holding the bag.

95. Boxed Rebuses 9 – Answer (p. 95)

1. "AB" (in) your + b (on) net = A bee in your bonnet.
2. Butter (flies in) your stomach = Butterflies in your stomach.
3. Knot (in the) cards = Not in the cards.
4. Awl (over the) map = All over the map.
5. (Splitting) hairs = Splitting hairs.
6. Down (on all) fours = Down on all fours.
7. (Cut) me + (some) slack = Cut me some slack.
8. All (over) but the (shouting) = All over but the shouting.
9. Hit (below the) belt = Hit below the belt.

96. Boxed Rebuses 10 – Answer (p. 96)

1. Cast + pearls + B + 4's + wine = Cast pearls before swine.
2. Off (on a) tangent = Off on a tangent.
3. Knot + 4 + awl + the T (in) China = Not for all the tea in China.
4. Add (in) sult two (in) jury = Add insult to injury.
5. H + ear + ape (in) drop = Hear a pin drop.
6. Inn awl (on) "S" "T" = In all honesty.
7. Rho + man + tick + comma + D = Romantic comedy.

97. Boxed Rebuses 11 – Answer (p. 97)

1. Get (up on the wrong side of the) bed = Get up on the wrong side of the bed.
2. Hit rock (bottom) = Hit rock bottom.
3. At + us + nail + space = At a snail's pace.
4. Go (green light) + down + swinging = Go down swinging.

5. Key + pit (on) the QT = Keep it on the QT.
6. M (on) key + biz (in) S = Monkey business.
7. Hell + the + well + the + & + Y's = Healthy, wealthy, and wise.

98. Boxed Rebuses 12 – Answer (p. 98)

1. Rule (with) an + iron + fist = Rule with an iron fist.
2. I mean it (from the bottom of my) heart = I mean it from the bottom of my heart
3. (Dressed) 2 the 9's = Dressed to the nines.
4. Green (with) NV = Green with envy.
5. Integral + tooth + up + lot = Integral to the plot.
6. Say "mold" say "mold" = Same old, same old.
7. Rings + ides + eat = Ringside seat.
8. Kangaroo (court) = Kangaroo court.
9. Light (on) my feet = Light on my feet.

99. Boxed Rebuses 13 – Answer (p. 99)

1. Step (up to the) plate = Step up to the plate.
2. Bend (over back) wards + 2a + comma + date + U = Bend over backwards to accommodate you.
3. H + and (in) g + love = Hand in glove.
4. His hearts (in the right) place = His heart's in the right place.
5. (Back in the) saddle again = Back in the saddle again.
6. A K's (in) point = A case in point.
7. Whale + love + eight + I'm = Whale of a time.
8. Tau + kiss + cheep = Talk is cheap.

100. Boxed Rebuses 14 – Answer (p. 100)

1. Thumb + eye + dust + hutch = The Midas touch.
2. Ache + ill + E + seal = Achilles' heel.
3. Knot + mike + up + Puff + tee = Not my cup of tea.
4. Neigh + cherub + horse + save + vacuum = Nature abhors a vacuum.

101. Boxed Rebuses 15 – Answer (p. 101)

1. Greek letter mu + sick + tomb + eye + ears = Music to my ears

2. Can't + C + thief + 4 + rest + 4th + uh + trees = Can't see the forest for the trees.
3. Rest (on) 1's + (low) rels = Rest on one's laurels.
4. Down (in the) doll drums = Down in the doldrums.
5. L (after) is (the best) medicine = Laughter is the best medicine.
6. My + heart (goes out to) U = My heart goes out to you.
7. "H" + ants + 2's + tart (over) again = A chance to start over again.

102. Boxed Rebuses 16 – Answer (p. 102)

1. (The third) time (is a) charm = The third time is a charm.
2. All squared + a + weigh = All squared away.
3. "B" "4" "U" (cans) "A" (jack) (rob) (in) (sun) = Before you can say Jack Robinson.
4. Sum + th(in)g + U + can + sink + ewer + teeth (in) to = Something you can sink your teeth into.
5. Abe [Lincoln] + Errol [Flynn] + love+ m (on) keys = A barrel of monkeys.

103. Rebus by Category 1 – Answer (p. 103)

Each rebus in this section is a type of dessert.

Here are the answers:

b + ache + doll + lass + caw = Baked Alaska

Pineapple + (upside-down) cake = Pineapple upside-down cake

C (in) nam (on) roll(s) = Cinnamon roll(s)

Banana (split) = Banana split

Marble + cake (of soap) = Marble cake

Apple (turn over) = Apple turnover

Straw + bury + (short) cake = Strawberry shortcake

Chair + E + cob (blur) = Cherry cobbler

Eye + screams + and + witch = Ice Cream Sandwich

104. Rebus by Category 2 – Answer (p. 104)

Each rebus in this section yields a type of bird. Here are the answers:

A **ray** from the sun and a **van** combine to give a raven.

The second picture is just a **crane** and the bird by the same name.

A **can** + an **erie** = a canary.

The letter **s** + **and** + the Greek letter **pi** + **per** = sandpiper.

Yell “**O**”, a **bell**, a **lead**, some **sap**, and an all-day **sucker** give us a yellow-bellied sap sucker.

Wood + a **peck** (dry measure = 8 quarts) + **cur** = woodpecker.

A **pair** + **rack** + **eat** = parakeet.

Cock + **cat** + **eel** = cockatiel.

“**J**” stands for jay.

Con (convict) + **door** = condor.

Fall + **kin** (all of those people in the family tree) = falcon.

Whip + **oar** + **Will** (Shakespeare) = whippoorwill.

King + **fish** + **R** = kingfisher.

105. Rebus by Category 3 – Answer (p. 106)

Each rebus in this section depicts one of the United States.

Here are the answers:

Awl + **ask** + **a** = Alaska

Ha (what the laughter says) + “**Y**” + “**E**” = Hawaii

“**Y**” + **ohm** (measure of resistance) is **in** “**g**” = Wyoming

Ten + “**S**” + “**E**” = Tennessee

Loo + **E’s** + “**E**” + **Anna** (from *The King and I*) = Louisiana

Mrs. + **sip** + “**E**” = Mississippi

“**O**” + **high** “**O**” = Ohio

Sow + **th duck** + **coda** (music symbol) = South Dakota

106. Rebus by Category 4 – Answer (p. 107)

Each rebus in this section is a comic strip (past or present).

Here are the answers:

“P” + **nuts** = Peanuts.

And + **“E”** + **cap** = Andy Capp

“Gr” is in **“and”**; the **bear** is named **“it.”** = Grin and Bear It.

Dunes + **berry** = Doonesbury.

High and + **Low is** = Hi and Lois

Thief + **R’s** + **hide** = The Far Side

Dick Clark + **tray** + **“C”** = Dick Tracy

“Bl” is **on “D”** = Blondie

It’s just a **shoe** to indicate Shoe.

Beetle + **bale** of hay + **“E”** = Beetle Bailey

107. Rebus by Category 5 – Answer (p. 108)

Each rebus in this section yields an automotive manufacturer.

Here are the answers:

Key followed by “**uh**” makes Kia.

A “**p**” **on** “**t**” + **E** + **yak** = Pontiac.

“**B**” + “**U**” + **wick** = Buick.

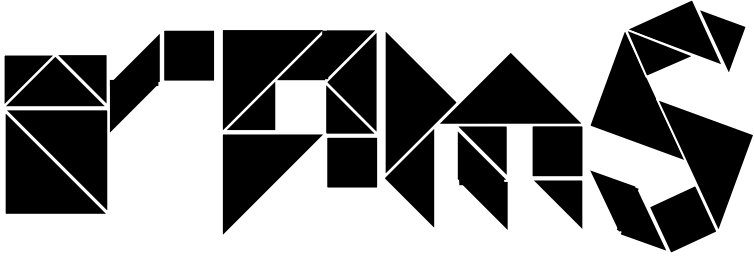
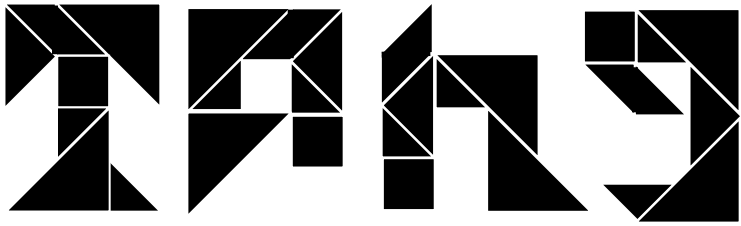
This is a **toy** action figure of **Yoda**. The answer is Toyota.

Lamb + **boar** + **key** + **knee** = Lamborghini.

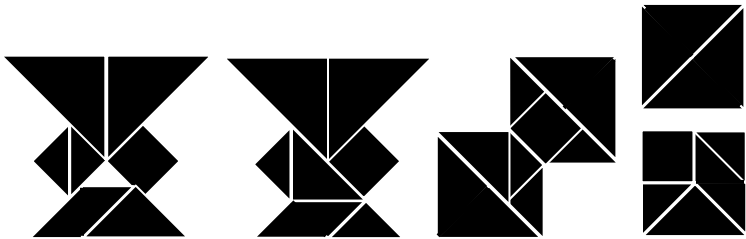
A **link** from a chain **on** the chemical symbol for **mercury** forms Lincoln/Mercury.

In a shark’s **fin** is “**it E**.” The answer is Infiniti.

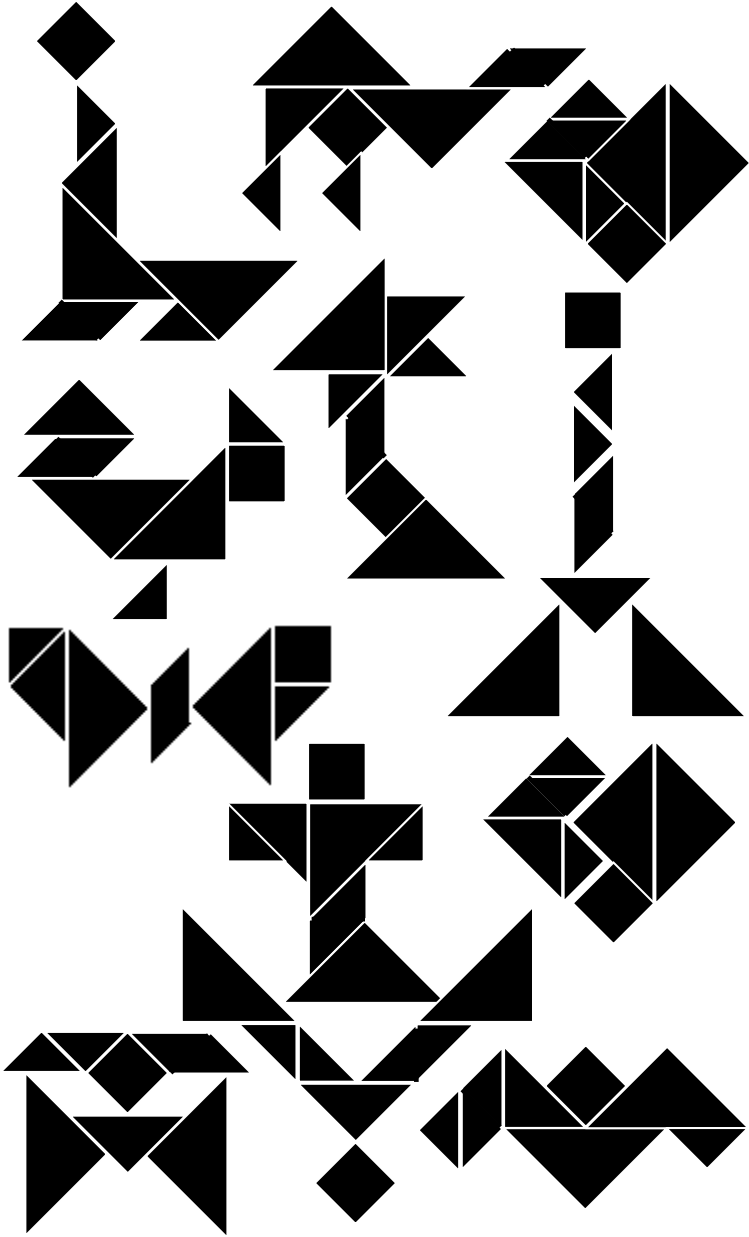
A woman is **sobbing**; the answer is Saab.

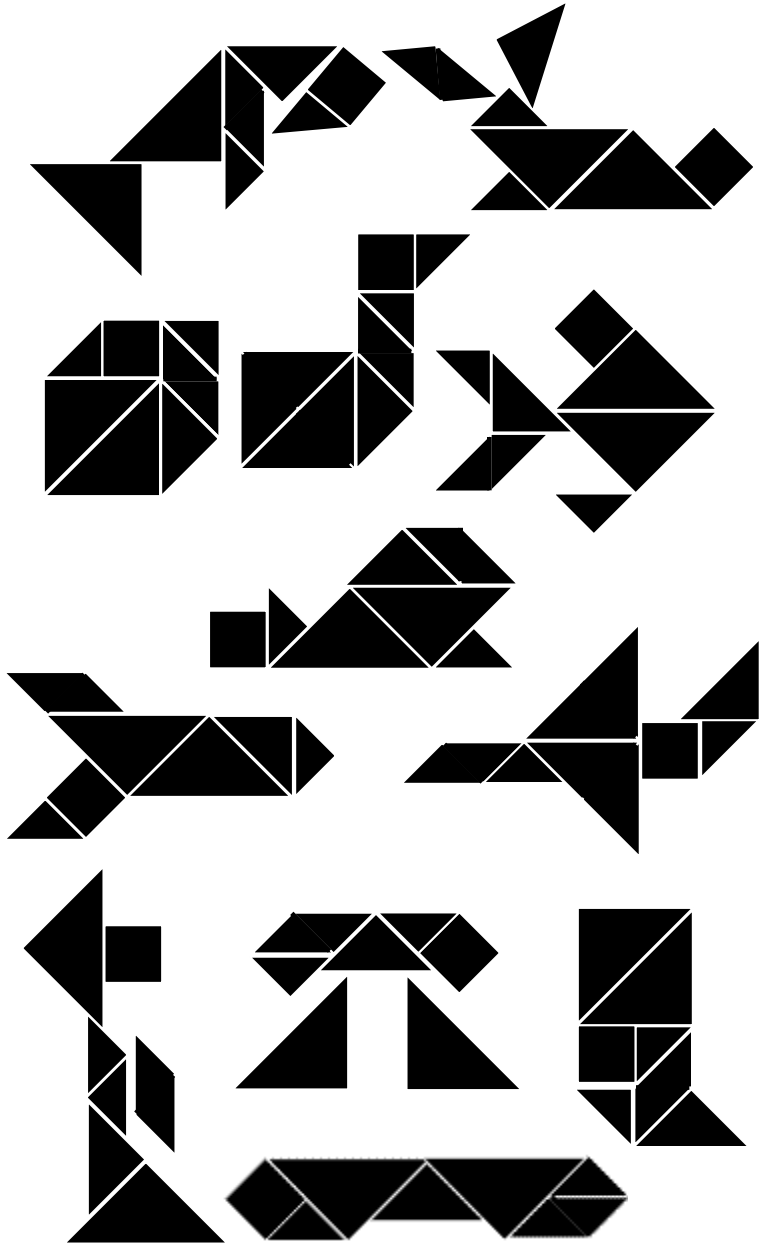


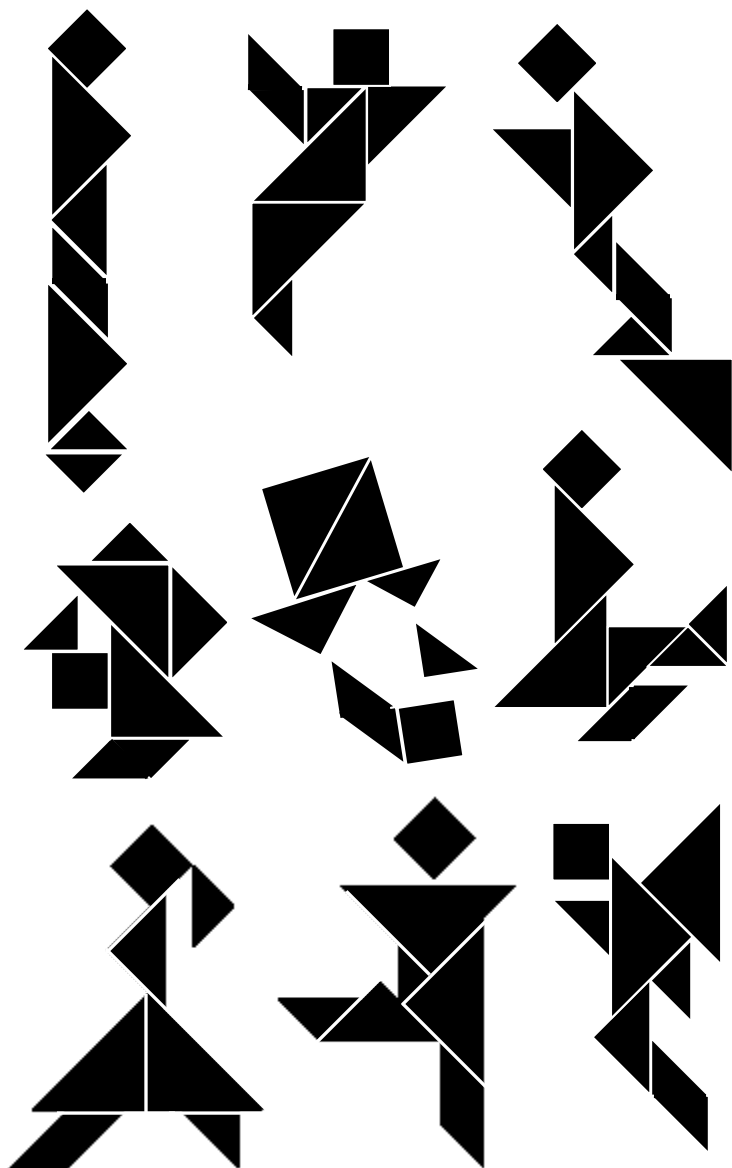
108. Tangram Paradoxes – Answer (p. 111)

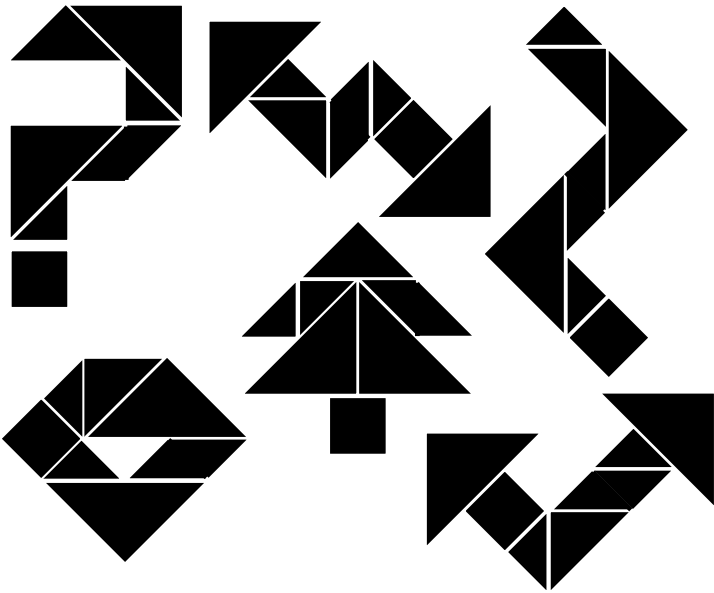
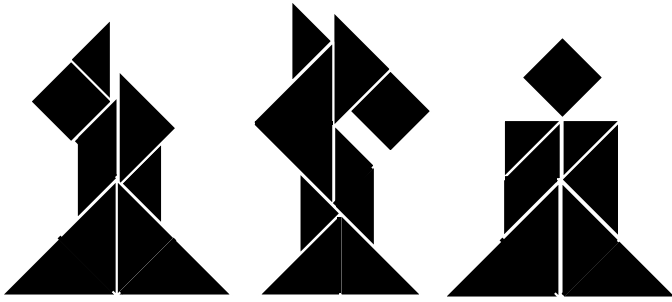
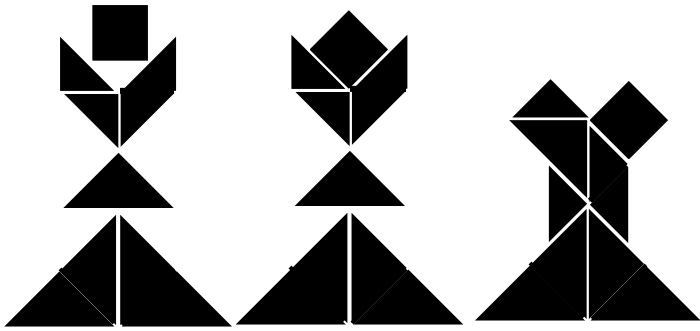


109. Tangram Silhouettes – Answer (p. 112)



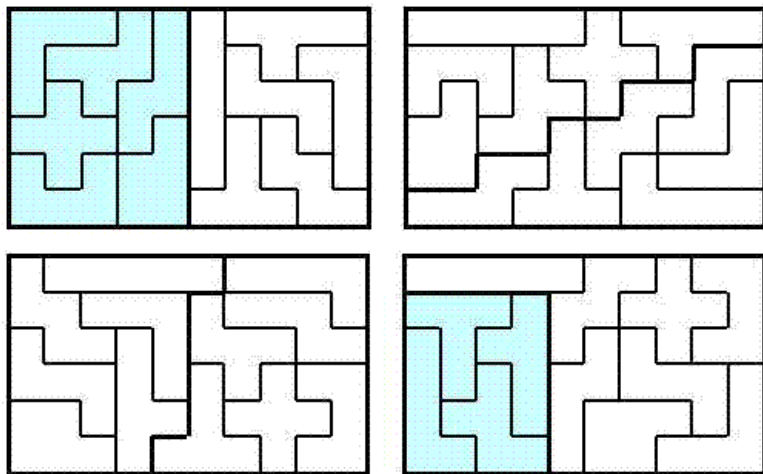






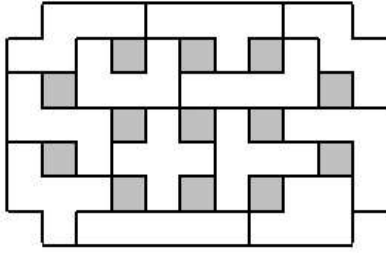
110. Pentominoes – Answer (p. 119)

Here are some solutions to the four breaking pattern puzzles. This will get you started on your list of 2,339 answers to the 6x10 rectangle. Notice that the X (+-shaped) piece and the U piece are frequently mated; this overcomes the trouble you often have in placing the X. Many of the solutions that I've found have this combination together.



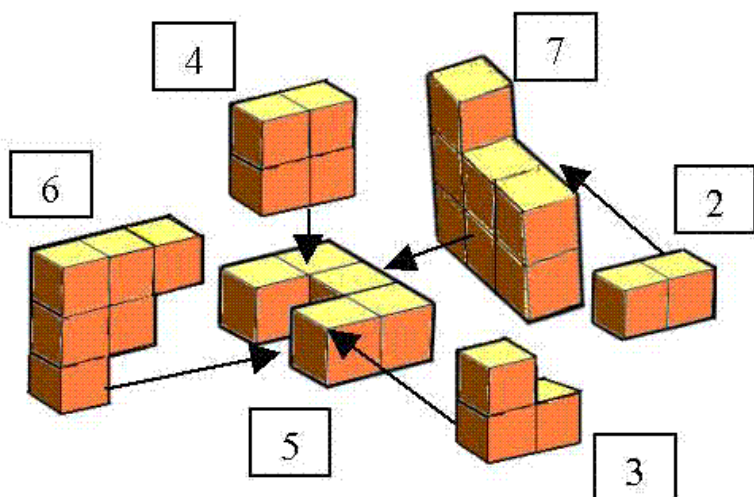
A Web site called “Puzzle will be played” (www.asahi-net.or.jp/~rh5k-isn/Puzzle) is an absolute treasure trove of information about mechanical puzzles. Unfortunately for me, much of it is written in Japanese. But it is still terrific. All 2,339 solutions to the 6x10 pentominoes are at www.asahi-net.or.jp/~rh5k-isn/Puzzle/Pentominoes/10-6-1.html.

I leave it to you to find at least one solution to the other rectangular challenges posed earlier. The Web site mentioned above has some answers to those. The answer to the 13-hole puzzle comes from www.ma.utexas.edu/users/smmg/radin.html.



111. Diabolic Cube – Answer (p. 123)

Let's label the pieces 2 - 7 based on the number of cubes in each piece. Using this method, the U-shaped piece would be labeled "5." A solution breaks the final cube into three layers of nine smaller cubes each. Each number represents a small cube that is part of that piece. Here is one of the 13 solutions:



5	5	7
6	5	7
5	5	7

Bottom layer

4	4	7
6	6	7
3	3	7

Middle layer

4	4	7
6	6	6
3	2	2

Top layer

112. Wedding Rings – Answer (p. 124)

Refer to the diagram in the original puzzle. Move the ring on the right side up to the center hole. It should move through the loop of cord coming from the back and be above the loop. Pull the loop under the stick and toward the back, taking the two drooping strands with it. One of the strands now traps the right ring next to the stick. When the loop gets to the back of the stick, pull the two strands that are coming out of the front of the hole; pull them toward you until the loop comes through the hole from the back to the front. You may need to adjust the slack parts of the cord to get enough cord to make this work.

When the loop is far enough out of the center hole, move the right ring through the loop over to the left side. Now reverse the steps described in the above paragraph. That is, pull the loop through the hole to the back of the stick, bring the loop under the stick to the front, and thread the right ring through the loop to meet the left ring.

113. Dad’s Puzzler - Answer (p. 125)

The psychological trap in this sliding block puzzle comes halfway through the 59 moves. For some reason I don’t fully understand, the solver doesn’t want to make the proper move. The Aha! comes when you realize that the second half of the solution is just the mirror image of the first half.

Here is the sequence of moves. Only the direction of each move is listed because that should be enough to make it obvious which piece is being moved.

Right – right – down – left – up – up to the right (small square on the left) – right – up – left – left – left – down – down – right – right – up – left (upper horizontal block) – left (small square) – up – right – down – left – left – down – down – right – up – up – up to the right (small square on the left) – down – left – up – up – right – down – left and down (upper small square) – left – up – right – right – down – left – up and right (small square on the left) – right – right – up – left – left – down – down – right – right – right – up – left – left and up (lower small square) – up – right – down

114. Peg Solitaire – Answer (p. 127)

George I. Bell (home.comcast.net/~gibell/pegsolitaire/) offers this useful advice:

“Don’t jump into a corner or out of the center.”

The “center” is defined as positions 5, 8, and 9. The “corners” are positions 1, 11, and 15. Obviously, if you start with a corner hole vacant, you must jump into a corner; but otherwise, following this one simple rule increases your chances of success tremendously. I would add these four observations:

1. Don’t jump from one edge to another unless the destination edge has two fewer pegs.
2. Move from ‘most crowded’ to ‘least crowded’ areas.
3. Postpone jumping out of the corners or into the center when other good moves are available.
4. After 5 pegs have been removed, jump out of a corner when only one way out is available.

Here is one solution (ten moves) starting with position 1 empty:

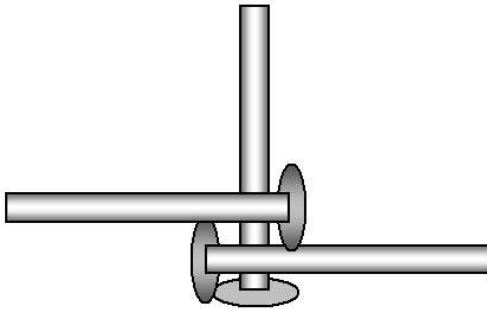
6-1, 4-6, 10-3, 13-6, 3-10, 11-13, 14-12-5, 1-4, 7-2, 15-6-4-1

If you tried to solve the problem of leaving 8 pegs at the end of the game, here is how it can be done. You will need to end with 5 pegs in a row on one edge and 3 pegs on a parallel center row. This is one solution:

6-1, 13-6, 7-9, 10-8, 4-13, 1-4

115. Nailed It – Answer (p. 129)

Think like a tightrope walker. Find a way to distribute the weight of the nails into a structure with a center of mass that is below the head of the standing nail. To do this, lay one nail flat on the table (I'll call this the base nail). Set another nail (a cross nail) at right angles to the base nail. Lay it on top of the first nail so that the heads are just touching. The two nails form an L shape. Put another nail on top of the base nail just like the first cross nail but pointing in the opposite direction. Now the three nails form an upside down T shape.



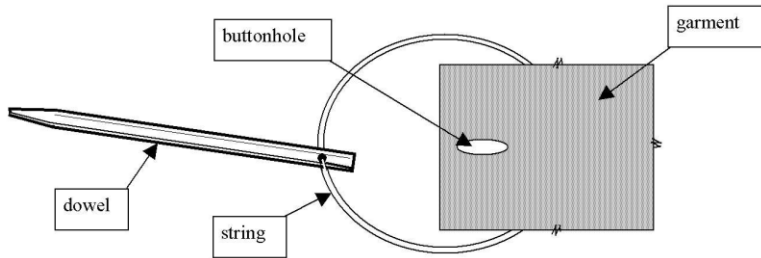
Put two more cross nails on top of the base nail. This time the cross nails should be placed at the sharp end of the base nail. Now the pattern looks like the letter H on its side. The last loose nail goes on top of all five of the other nails. Place it parallel to and exactly on top of the base nail except that it is pointing the opposite direction; the sharp end of the top nail is at the head of the base nail and vice versa. This top nail locks the cross nails into place by resting on the necks of the four nails just below the heads.

Carefully lift the H-shaped structure by holding the base and top nails together at their ends. The cross nails will droop a bit, but the heads will remain pinned between the nails you are lifting. Place the center of the base nail on the head of the standing nail. Be sure the structure (which now looks like a gable roof) is balanced so that its center of gravity is directly in line with the standing nail. Gently release your hold on the base and top nails. The six nails should now be balanced on the standing nail. Wow!

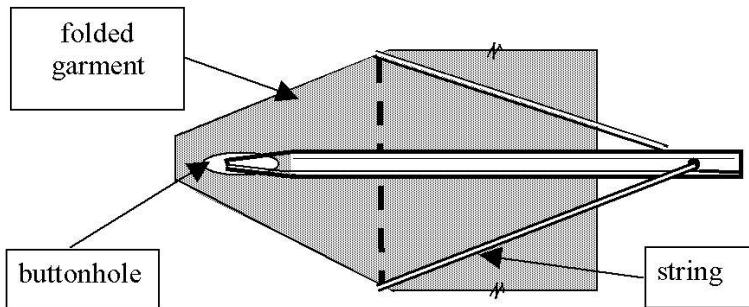
If you'd like to see pictures of this solution try
www.fcruk.org/freebies/nails/nails.htm or
www.raft.net/ideas/Nail%20Puzzle.pdf on the Internet.

116. Button Hole Puzzle – Answer (p. 130)

Sam Loyd's Buttonhole Puzzle works because we are attaching the dowel and loop to a flexible fabric garment; it wouldn't work on a keyhole or eyehook. We use the garment to do some of the work for us.



Put the loop of string behind the buttonhole, but keep the dowel in front of the garment. Move the dowel above the buttonhole and as far to the right as possible. You will need to fold and/or stretch the fabric of the garment as you tighten the string. It's a little like drawing back an arrow in a bow.



When you pull the back end of the dowel far enough to the right, you will be able to insert the tip of the dowel into the buttonhole. Thread the dowel completely through the hole and onto the other side. Straighten the fabric, and you have the puzzle ready for your victim to solve. When this is done quickly, you can do it in plain sight of the victim – and they still won't be able to undo the puzzle!

The solution to the puzzle reverses this process. The rear end of the dowel is inserted into the back side of the buttonhole. The

dowel is pulled backwards all the way through the hole. You will again need to fold/stretch the fabric and slide the string loop down to get the dowel out. What makes this puzzle so intriguing is that the trick is not in the apparatus; it is in the garment that the victim brought to the game.

117. Peg Leg – Answer (p. 148)

Q1. YES - The first cross street you passed was MERRY, and we hoped that you would stop looking for the properly spelled roadway, MARY. Three streets later you passed MARY.

Q2. ANITA (partial credit for DIANE) - RI 1 told you to turn right AT (not ONTO) BETTY. The first place you could turn right at BETTY was where BETTY came in from the left and DIANE went off to the right. This gives you the answer ANITA as the first RDWY along JANET. If you noticed that you were at BETTY when you came to EMMA, you get partial credit for an answer of DIANE.

Q3. CAROL (the Xth OPP) - RI 4 told you to turn at the Xth OPP. Later in the instruction you saw an equation that told you $X = 5$. We were trying to get you to solve the arithmetic problem and calculate $'?' = 4$, but the Xth OPP was the 5th OPP.

Q4. YES - There is a roadway between PEG and JANET. There is no cross street, but the roadway you were on (ANITA) runs between PEG and JANET. The question didn't ask for a RDWY (differently named); it asked for a roadway.

118. Long Leg – Answer (p. 150)

Q5. LARCH – According to Rule 8, the word OR separated RI 8 into two parts: ‘R’ and ‘L onto OLIVE’. ‘R’ didn’t restrict you to OLIVE; you could turn right as soon as possible (onto LILAC) before you turn left onto OLIVE.

Q6. Yes (pass DAHLIA) - Working on RI 11 (L @ first OPP), you came to an intersection with LONG. NOTE PEP-TALK told you not to go on LONG. If you continued to PINE, you passed DAHLIA.

Q7. PINE, LONG, and SAGE - After RI 11, you came to an intersection with VICTORY. NOTE PEP-TALK told you to go right onto VICTORY. If you did turn right onto VICTORY, you got PINE as part of your answer. Then you came to LONG. NOTE PEP-TALK didn’t make LONG nonexistent; it just told you not to go on LONG. LONG was still a RDWY. Everyone should have had SAGE as part of the answer.

119. Boot Leg – Answer (p. 151)

While looking for an OPP on your left you came to RUSH. NOTE CALM told you that there was no RUSH. You should have continued ahead and turned left onto IRIS for RI 16. RI 17 told you to R @ first OPP, but NOTE CALM froze time at 8:00 PM. The last sentence of Rule 3 told you not to turn for two instructions at the same time. You just turned for RI 16 at 8:00 PM. If you turned for RI 17 at 8:00 PM, you would be turning for both instructions at the same time.

You needed to continue to WILDER where NOTE CALM was cancelled. Then you could R @ first OPP for RI 17. If you answered ‘DIXON’ to Q8, you realized there was no RUSH and refused to do two RIs at the same time. If you answered ‘MASON’ or ‘ELK’, you get partial credit for catching either the RUSH or the ‘same time’ trap but not both. IRIS was the expected off-course answer.

After turning left onto RANCH, the first roadway on your left was DIXON. NOTE DIXON made it illegal to turn left onto it. Therefore, DIXON did not meet the definition of an OPP. To be an OPP it must be legal to turn left onto it. Continuing ahead, you came to IRIS. It was legal to turn left onto IRIS; so this was your first OPP. IRIS is the best answer for Q9.

120. Turkey Leg – Answer (p. 152)

Q10. This question tests three traps. Let's look at them one at a time:

Your answer should **exclude** CROW & HAWK. RI 23 has the word OR in it. That separates the RI into two parts. See Rule 8. The part that you could execute first was 'turn left'. RI 23 put you on WREN. If you went to where you could not continue straight ahead, you completed RI 23 onto DOVE.

Your answer should **include** MARTIN & HAWK. RI 25 and RI 26 were printed out of order on the course pages, but Rule 3 told you to do the RIs in numerical order. You should have gone left onto EAGLE (RI 25) before doing R @ first OPP (RI 26).

Your answer should **include** WREN & EAGLE. A question is answerable between the completions of the RIs most nearly surrounding that Q. See Rule 6. Q10 appears between RI 24 and RI 26. You should have continued to answer the question until you completed RI 26 onto WREN.

Q11. EGRET - The word OR separates RI 27 into three parts. Rule 8 told you to execute only the first or second part listed, whichever comes first. You should not have done the third part of the RI (L onto DOVE). You should have turned left onto EGRET for the second part of the RI.

121. Ivy Leg – Answer (p. 153)

Q12 was answerable between the completions of RI 30 and RI 31. RI 31 wasn't complete until you turned left onto DAISY for the second part of the RI. Including LIME in your answer proves that you continued to work on the question after the turn onto LILY. The complete correct answer is IVY, LILY, LIME, IVY, and DAISY. But give yourself full credit if you have LIME in your answer.

As soon as you turned onto LILY for the first part of RI 31, NOTE IVY came into effect. See Rule 3. As soon as you turn for RI 31, the NOTE takes effect. Before you could do the second part of RI 31, you could turn left onto IVY for NOTE IVY. If you turned onto IVY at this point, you didn't come to it after you completed RI 31. Therefore, you completed RI 32 onto TULIP from DAISY. Give yourself full credit for Q13 if you did NOT include LILY in your answer.

While working on RI 33 (R at STP), you came to an intersection that fit the definition of an STP where POPPY was to the right and straight ahead. Was it OK to turn onto POPPY? Yes. NOTE POPPY never came into effect. Rule 3 told you that a NOTE comes into effect when you TURN for the RI preceding it. You did not turn for RI 30; so NOTE POPPY never took effect. Score full credit for Q14 if you answered LIME & POPPY. If you thought NOTE POPPY was in effect, but you realized that it didn't prevent you from going straight ahead onto POPPY, give yourself partial credit if you answered LIME & VIOLET.

122. Sign Here – Answer (p. 154)

Q15. 2 (even number below the “speed limit”) - “Speed limit” (in double quotation marks) refers to a sign. See Rule 1 for the definition of quotation marks. The number that is closest to but still below the sign is the ‘2’ on the “2 HOUR PARKING”.

Q16. LOIS LANE, LOIS (not LOIS LN), PAUL, and VENTURA FREEWAY - You should not include TILDEN in your answer because that is the name of the roadway you are on. The question asks for RDWYs. See the definition of RDWY; it had to have a name different from the roadway you are on. LOIS LANE was a RDWY. LANE wasn’t made nonexistent by Rule 7. But Rule 7 made abbreviations nonexistent on signs. Therefore, the other street on the right was named LOIS. The roadway across the intersection is PAUL. Rule 7 made the abbreviation ‘ST.’ nonexistent. Finally, a sign warns that VENTURA FREEWAY is ahead. That is the last roadway named.

123. Beau Leg – Answer (p. 155)

Q17. CHUCK & BEAU [Partial Credit for BEAU & SCOTT or for CRAIG & CHUCK] Q17 is answerable between the completions of the RIs surrounding it. The rules told you to execute RIs in the numerical order, but the checkpoint instruction (higher priority) told you to consider RI 35 to be completed as soon as you started this leg. Therefore, the question is answerable from the beginning of the leg until you complete RI 36. The first intersection you come to is CHUCK and CRAIG.

But wait. NOTE BEAU came into effect when the checkpoint instruction told you to consider RI 35 turned for. The best answer to this question is CHUCK and BEAU. Give yourself partial credit if you realized that NOTE BEAU was in effect at the start or you refused to execute RI 35 a ‘second time.’ By the way, the checkpoint instruction also brought NOTE POPPY into effect from the previous leg. It told you to consider that you had turned for RI 30. It didn’t matter to the rally, but the NOTE finally came into effect.

Q18 has six possible answers. Here are the expected answers (from highest credit to lowest credit): LARRY, CHUCK, RICH, DAVID, MIKE, WARREN, and ARNIE.

It tests how you handled the checkpoint instruction ‘L onto an OPP’. After you turn onto BEAU, you begin looking for an OPP. The first cross street is CRAIG, but it doesn’t fit the definition of an OPP. NOTE BEAU changed CRAIG’s name to BEAU. An OPP must have a name that is different from the roadway you are on.

At the next intersection WARREN goes off only to the left. By a strange set of circumstances, WARREN is not an OPP either. To be an OPP, a RDWY has to allow you to turn in the direction indicated by the RI you are working on. RI 39 told you turn right at a stop sign. To complete the checkpoint instruction you must turn left onto a RDWY where you can also turn right onto that same roadway. WARREN isn’t on the right.

The next intersection has an OPP on the right (BOB) which doesn't exist on the left. The roadway on the left is named MIKE. Roadways of different names are different roadways (Rule 5). So MIKE is not an OPP; you have to keep going. But the intersection with BEAU, MIKE, and BOB fits the definition of STP. Don't forget to do RI 39 at the STP. The question is now answerable.

The first intersection you come to has ARNIE going off to the left only. But now you are working on RI 40 (L onto RICH). Now, you must be able to turn *left* onto a roadway for it to be an OPP. ARNIE is an OPP even though it doesn't exist on the right. The checkpoint instruction can finally be completed, and the first RDWY on your right is LARRY. Go out and celebrate tonight if 'LARRY' was your answer to Q18.

124. Armand Leg – Answer (p. 157)

Q19. OAK (first RDWY along MAPLE) [Partial Credit for PALM]

At the first intersection along POST you can't go straight ahead or to the right because DATE goes in both directions. NOTE GROUNDED prohibits going on any DATE. This fits the definition of a TEE; roadways extend to the right and left, and you can't go straight ahead. But you can't turn right for NOTE RIGHT because that would put you onto DATE. You must continue in the straightest possible direction by making a forced turn to the left onto OAK.

At the next intersection (FIR) you can turn 'as near as possible after' (see definition of @) the TEE where you couldn't do NOTE RIGHT onto DATE. In essence, you saved up a right turn at the TEE where you had to make a forced turn to the left. You come to MAPLE on FIR and get OAK as your answer to Q19. Give yourself partial credit for PALM because you avoided going on DATE.

Q20. LOIS (the first RDWY)

While trying to do RI 45 (R @ first OPP after FIR), you come to that strange intersection of DATE and OAK and POST. This is the intersection where you did a forced turn to the left as explained for Q19. Although POST is the first OPP after FIR, you can't execute RI 45 at this intersection. Rule 11 (added by the Checkpoint Instructions in Beau Leg) prohibits executing a RI and a Forced Turn at the same intersection. You must continue straight ahead onto DATE (no longer prohibited since NOTE GROUNDED was cancelled) and do RI 45 as near as possible after POST onto LOIS.

125. Wooden Leg – Answer (p. 158)

Q21. Two (times executing NOTE WOODEN)

The first street you come to along SLOAN is WOODEN; you should execute NOTE WOODEN there. You then turn right onto RUPP for the first part of RI 49. At the next intersection RUPP goes to the right but not straight ahead. You should turn right to stay on RUPP by name. Rule 9 applies. The last RI you turned for (RI 49) ends with “by name” and contains the name of the roadway on which you are traveling (RUPP). You must stay on RUPP until you can execute another RI or NOTE.

Soon you come to RILEY and want to do the second part of RI 49, but you still can’t leave RUPP by name because RI 49 is not ‘*another RI.*’ You have to stay on RUPP until you can execute another RI or NOTE. Continue straight into the cul-de-sac and then back out again. You still can’t do the second part of RI 49 as you pass RILEY again. At the TEE you must turn left to stay on RUPP. Finally, you come to WOODEN where you execute NOTE WOODEN to leave RUPP by name. Two intersections later you complete RI 49 by turning left onto RILEY. The answer to Q21 is two.

Q22. RUPP [Partial Credit for PITINO or WOODEN]

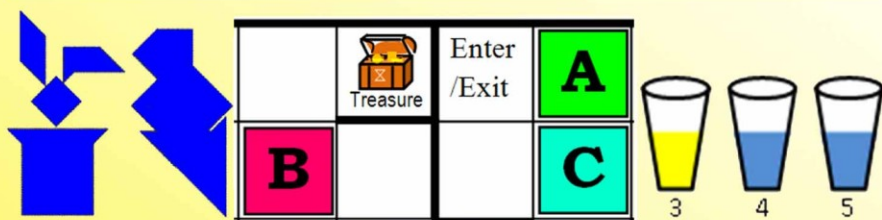
If you do all of the maneuvers explained for Q21, the first RDWY you come to is RUPP. Partial credit is due if you answer PITINO or WOODEN because you stayed on RUPP by name at least once.

Q23. KNIGHT and AUERBACH (roadways at first intersection) [Partial Credit for KNIGHT and PITINO]

When you come to the end of RILEY (at KNIGHT), you can’t execute RI 50 because you would be doing a Forced Turn (see Rule 11) and a route instruction at the same intersection. You can’t make the forced turn, either. You are on RILEY by name and must execute another RI or NOTE to leave it. You need to make a U-turn and stay on RILEY until you get to WOODEN where NOTE WOODEN takes you off of RILEY by name.

When WOODEN merges into KNIGHT, you can go straight ahead (not a forced turn) onto KNIGHT and complete RI 50. The roadways that meet at the first intersection are KNIGHT and AUERBACH. Give yourself partial credit if you made the forced turn onto KNIGHT and did RI 50 at SMITH (after the forced turn); this gives an answer of KNIGHT and PITINO.

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