6-9 Problem-Solving Strategy: Work Backward

Read Plan Solve Check

Name _____ Date _____

Work backward to solve.

1. A snail is at the bottom of a 15-foot well. Each day it climbs 7 inches up the well. Each night it slips down 4 inches. How many days will it take for the snail to climb out of the well?

2. The Smiths did some baking this week. On Monday, Sally added 12 cookies to the cookie jar. Later, Meg took 6 cookies out. On Tuesday, Lynn added 14 cookies. Later, Sally took 8. Ruth then took twice the number of cookies that were in the jar before Sally added hers. Now the jar holds 8 cookies. How many cookies did Ruth take?

3. Lin, Manuel, and Bea are playing a game. The player who wins each round gets half of the losing players' play money. In Round 1, Lin wins; she gets half of each of the other players' money. In round 2, Bea wins; she gets half of each of the other players' money. In round 3, Lin wins again; she gets half of each of each of the other players' money. After round 3, they find Lin has $112.50, Manuel has $12.50 and Bea has $50. How much money did they have at the start?

4. Kelly has a 6-L can and a 10-L can. How can she measure out exactly 8 L?

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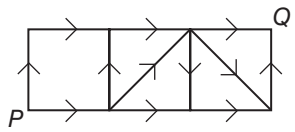
5. Find the number of different paths an ant can use to advance from point P to point Q if (a) it must stay on the line segments;
(b) it must never backtrack; and
(c) it must only travel on a segment in the direction indicated.



6. Gordon has a 10-min timer and a 7-minute timer. Using both timers, how can Gordon be sure that he leaves his soufflé in the oven for exactly 16 minutes?

7. Jerry accidentally spilled the entire jar of 46 toothpicks he brought for a school project. "Hey," said his friend, Jane, "Let's play a game. We can take 1, 2, 3, or 4 toothpicks at a time. The last one to pick up a toothpick loses. We'll alternate turns. You go first." If Jane wants to win, what should be her strategy?

8. A boy visits the amusement park on Park Island for three days. The island ferry costs \$2 each way. Each day before taking the ferry to the park, he counts his money and decides he will use exactly half of it at the park itself. If after his third trip to the park he has spent all his money, how much did he have at the start of the three days?

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