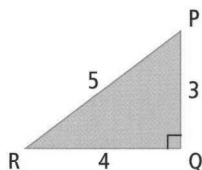


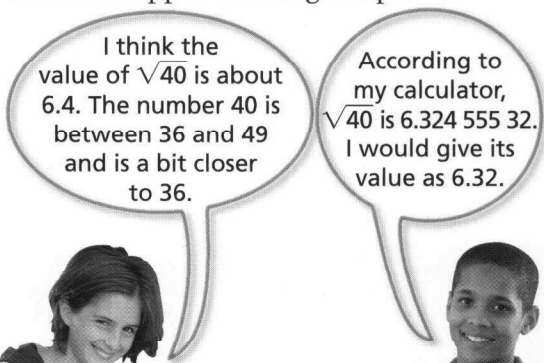
**Key Words**

1. A right triangle is shown.

- a) Which side is the hypotenuse?
- b) Name one leg of the triangle.
- c) How are the sides related by the Pythagorean relationship?
- d) Which side length is a perfect square? Explain.

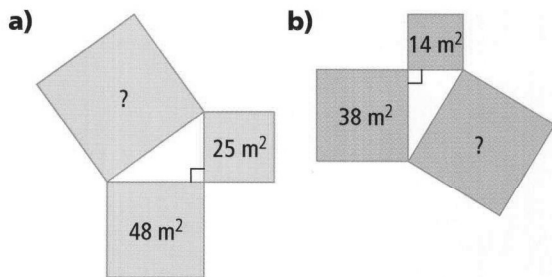


2. Which student is estimating? Which student is approximating? Explain.

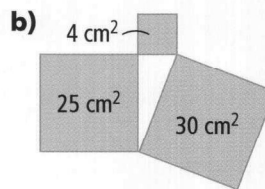
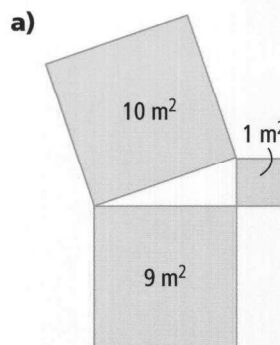


**2.1 Discover the Pythagorean Relationship, pages 50–55**

- 3. State the Pythagorean relationship. Explain why it is useful.
- 4. Find the area of the square on the hypotenuse of each right triangle.



5. Three squares are placed together to form a triangle. Determine whether each triangle is a right triangle.



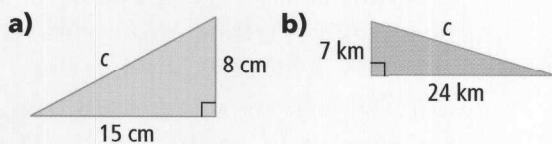
**2.2 Find Approximate Values of Square Roots, pages 58–61**

- 6. Give the value of each square root.
  - a)  $\sqrt{0.01}$
  - b)  $\sqrt{196}$
  - c)  $\sqrt{400}$
  - d)  $\sqrt{0.49}$
- 7. Estimate each value to one decimal place. Then, use a calculator to find the approximate value, to two decimal places.
  - a)  $\sqrt{5}$
  - b)  $\sqrt{41}$
  - c)  $\sqrt{75}$
- 8. A can of spray paint says it will cover an area of  $12 \text{ m}^2$ . Answer the following to the nearest tenth.
  - a) If the can is empty after spraying a square area, what is the length of each side of the square?
  - b) If three cans are needed to paint a square area, what is the length of each side of this square?

### 2.3 Apply the Pythagorean Relationship, pages 62–67

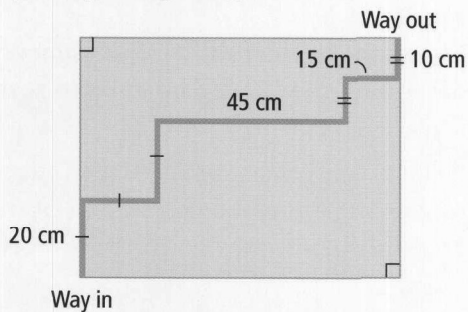
9. Draw a diagram of a right triangle and label its sides  $x$ ,  $y$ , and  $z$ . Write the Pythagorean equation for this triangle.

10. Find the length of the hypotenuse in each.



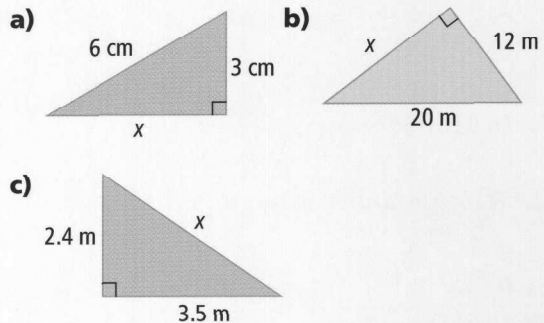
11. Ria used a large cardboard box to build a maze for her pet mouse to run around in. There are only two openings located across the diagonal from each other. The route travelled by the mouse is shown in the diagram.

- Find the length and the width of the box.
- Find the length of the diagonal of the box.
- How much farther did the mouse run compared to a straight path from opening to opening?

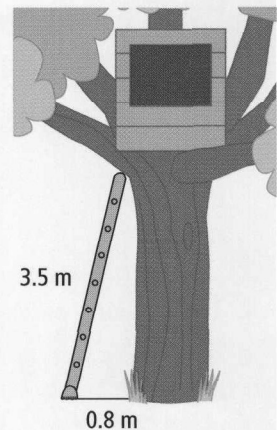


### 2.4 Use the Pythagorean Relationship, pages 68–71

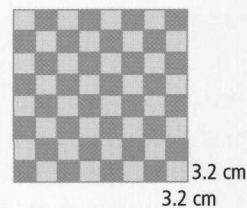
12. Find the missing side length. Round to the nearest tenth, if necessary.



13. Avi uses a 3.5-m ladder to climb up to his tree house. The foot of the ladder is 0.8 m from the tree. How far up the tree does the ladder reach?



14. On a chessboard, each of the 64 small squares measures 3.2 cm by 3.2 cm.



- What is the length of the diagonal across the chessboard?
- Solve part a) in another way.