

## Key Words

For #1 to #5, write in your notebook the terms from the list that complete the sentences below.

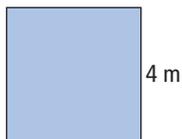
*hypotenuse*                      *perfect square*  
*prime factorization*        *Pythagorean relationship*  
*square root*

- The   of 36 is 6.
- The number 25 is a   because it is the product of the same two factors,  $5 \times 5 = 25$ .
- In a right triangle, the longest side is known as the .
- If the sides of a right triangle are  $a$ ,  $b$ , and  $c$ , and  $c$  is the longest side, the equation  $c^2 = a^2 + b^2$  is known as the  .
- The   of 18 is  $2 \times 3 \times 3$ .

### 3.1 Squares and Square Roots, pages 80–87

- Determine the square of each number.
  - 6
  - 11
  - 25
- Determine each square root.
  - $\sqrt{49}$
  - $\sqrt{256}$
  - $\sqrt{100\,000\,000}$

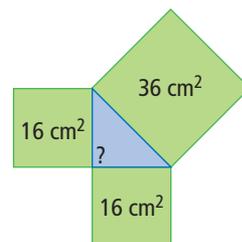
- Lisa needs at least  $17 \text{ m}^2$  of fabric to make curtains. Is this square piece of fabric large enough? Show your work.



### 3.2 Exploring the Pythagorean Relationship, pages 88–94

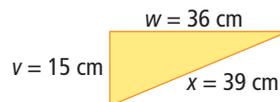
- A triangle has squares on each of its sides.

- Is the triangle a right triangle? Explain.



- What is the length of each of the three sides?

- Is the triangle a right triangle? Explain.



- The table shows the side lengths of four triangles. Which triangles are right angled?

Triangle	Side $x$	Side $y$	Side $z$
A	9	12	15
B	5	6	7
C	12	35	37
D	30 000	40 000	50 000

### 3.3 Estimating Square Roots, pages 95–100

- Cliffmount School is creating invitations for its 50th anniversary celebration. There are three possible designs.



$25 \text{ cm}^2$



$\text{cm}^2$

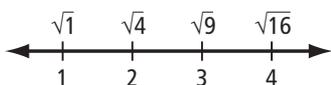


$36 \text{ cm}^2$

- What is a possible whole number area for the middle invitation?

- b) What is the side length of the smallest one? the largest one?
- c) What is an estimate for the side length of the middle invitation? Express your answer to one decimal place.
- d) With a calculator, use the area in part a) to check the side length in part c). Give your answer to the nearest tenth of a centimetre.

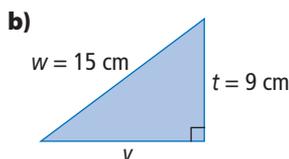
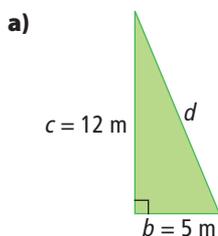
13. Use the number line to answer the following questions.



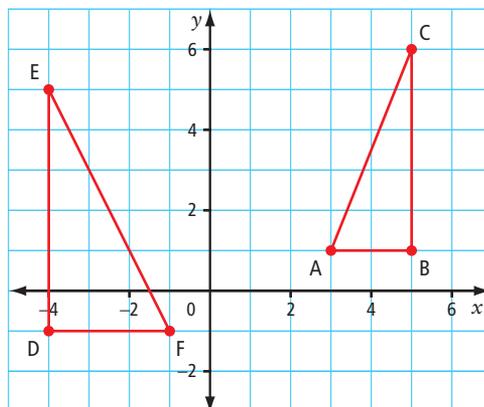
- a) What is an estimate for  $\sqrt{10}$ ? Give your answer to one decimal place.
- b) Is  $\sqrt{6}$  closer to 2 or 3? Explain.
- c) A calculator shows that the approximate square root of a certain whole number is 3.61. What is a reasonable value for this whole number? Explain.

### 3.4 Using the Pythagorean Relationship, pages 101–105

14. Find the missing side length of each triangle.



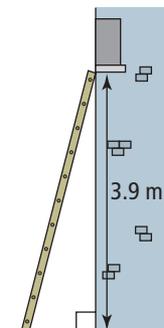
15. The coordinate grid shown was drawn on centimetre grid paper. Answer the following questions to the nearest tenth of a centimetre where appropriate.



- a) What is the length of the hypotenuse in  $\triangle ABC$ ? in  $\triangle DEF$ ?
- b) What is the perimeter of  $\triangle DEF$ ?

### 3.5 Applying the Pythagorean Relationship, pages 106–111

16. A 4-m ladder is being used for a production of *Romeo and Juliet*. The bottom of the ladder will be placed 1 m from the base of Juliet's house. Will the ladder reach the window? Show your work.



17. Yosef wants to buy a hutch. It must fit in the  $90^\circ$  corner of his dining room. Yosef measures as shown. What should his measurement be? Give your answer to the nearest tenth of a centimetre.

