



## Using the Pythagorean Relationship

MathLinks 8, pages 101–105

### Key Ideas Review

Choose from the following terms to complete #1.

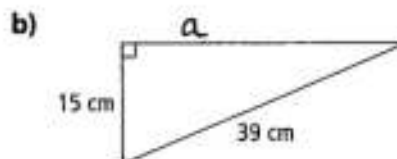
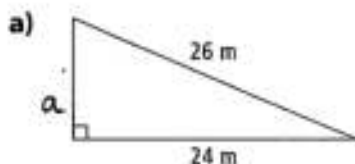
hypotenuse

legs

length

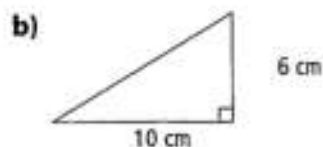
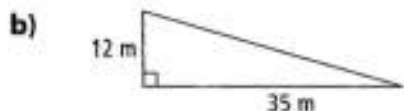
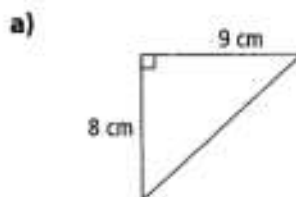
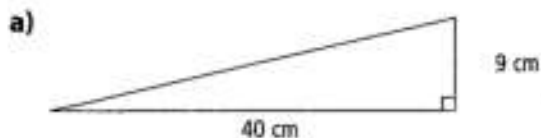
Pythagorean

- The \_\_\_\_\_ relationship can be used to determine the \_\_\_\_\_ of the \_\_\_\_\_ of a right triangle when the lengths of the two \_\_\_\_\_ are known.
- Use the relationship to determine the length of  $a$  in each triangle, to the nearest whole number. Show your work.



### Practise and Apply

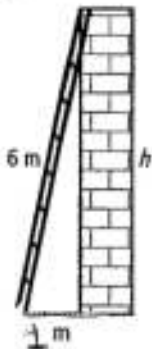
- Determine the length of each hypotenuse. Show your work.
- What is the length of each hypotenuse, to the nearest centimetre? Show your work.



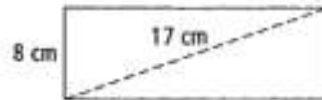
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4. The foot of a ladder is 1 m from a wall. If the ladder is 6 m long, how far up the wall does the ladder reach? Give the answer to the nearest tenth of a metre. Show your work.



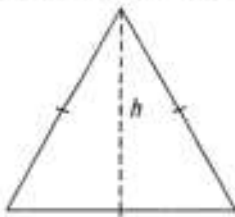
6. The width of a rectangle is 8 cm, and its diagonal is 17 cm.



- a) Calculate the length of the rectangle. Show your work.

- b) Calculate the area of the rectangle. Show your work.

5. The perimeter of an equilateral triangle is 24 cm.



Calculate the height of the triangle to the nearest tenth of a centimetre. Show your work.

7. A quadrilateral has a width of 17 cm and a length of 26 cm. A diagonal is 31 cm. Is the quadrilateral a rectangle? Justify your answer.

8. A ship leaves port heading due west. After travelling at a speed of 20 km/h for 10 h, the ship makes a 90° turn and heads south, travelling at the same speed. After travelling south for  $7\frac{1}{2}$  h, how far is the ship from the port? Show your work.

