

3.4

Using the Pythagorean Relationship

MathLinks 8, pages 101–105

Key Ideas Review

Choose from the following terms to complete #1.

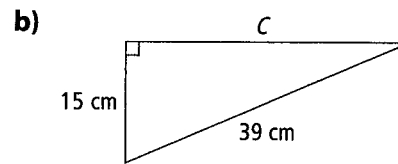
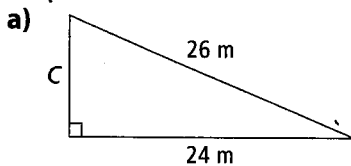
hypotenuse

legs

length

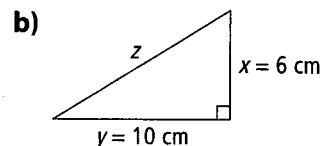
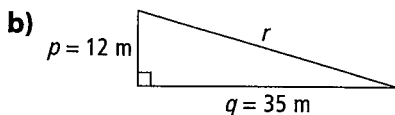
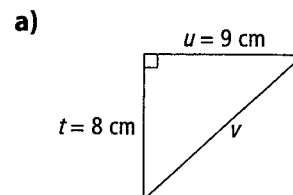
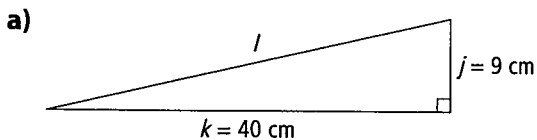
Pythagorean

1. The _____ relationship can be used to determine the _____ of the _____ of a right triangle when the lengths of the two _____ are known.
2. Use the relationship to determine the length of C in each triangle, to the nearest whole number. Show your work.

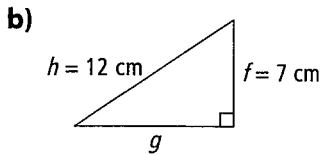
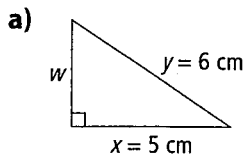


Practise and Apply

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

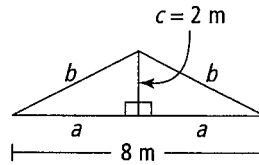


5. Calculate the missing side length for each right triangle, to the nearest tenth of a centimetre. Show your work.



6. Find the height of a triangle with a base of 4 cm and a hypotenuse of 11 cm. Round to the nearest tenth of a centimetre. Show your work.

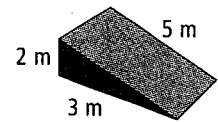
7. A triangle is made up of two smaller congruent right triangles.



- a) Find the length of the hypotenuse for the right triangles, to the nearest tenth of a metre. Show your work.

- b) Calculate the perimeter of the large triangle, to the nearest tenth of a metre. Show your work.

8. Ellie and Lucas are going to the skateboard park to try out the new ramp.



Is the new ramp a right triangle? Explain your thinking.

3.5

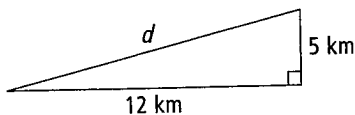
Applying the Pythagorean Relationship

MathLinks 8, pages 106-111

Key Ideas Review

Use the diagrams provided to complete the equations for #1.

1. a)



$$d^2 = 12^2 + \underline{\hspace{2cm}}$$

$$d^2 = \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

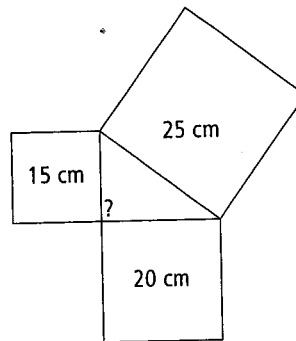
$$d^2 = \underline{\hspace{2cm}}$$

$$d = \sqrt{\underline{\hspace{2cm}}}$$

$$d = \underline{\hspace{2cm}}$$

The hypotenuse is _____ km long.

b)



$$\underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Left side: _____ + _____

$$= \underline{\hspace{2cm}} + \underline{\hspace{2cm}}$$

$$= \underline{\hspace{2cm}}$$

Right side: _____ = _____

Are both sides equal?

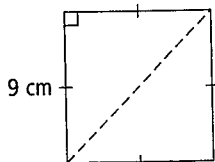
YES _____ NO _____

Is this a right triangle?

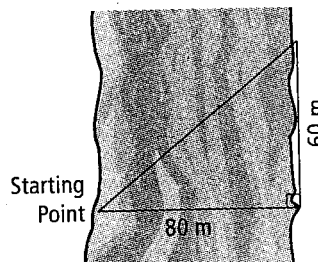
YES _____ NO _____

Practise and Apply

2. What is the length of the diagonal of a square whose sides measure 9 cm? Give the answer to the nearest tenth of a centimetre. Show your work.



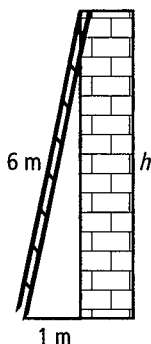
3. Aden decides to swim across a river that is 80 m wide. As he begins to swim the current carries him 60 m downstream. How far did he actually swim?



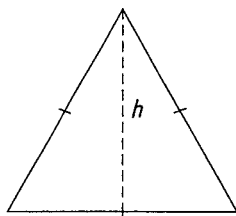
Name: _____

Date: _____

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.

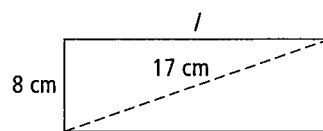


5. The perimeter of an equilateral triangle is 24 cm.



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

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.

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.

