

**LESSON**

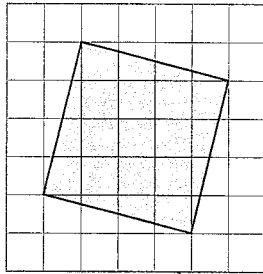
- 3.** I am a square number.  
The sum of my digits is 7.  
What square number might I be?  
How many different numbers can you find?

**12**

- 4.** Find the square of each number.  
a) 5      b) 7      c) 9      d) 13
- 5.** Find a square root.  
a)  $7^2$       b)  $\sqrt{289}$       c)  $\sqrt{400}$
- 6. a)** List the factors of each number in ascending order.  
i) 108      ii) 361      iii) 150  
iv) 286      v) 324      vi) 56
- b)** Which numbers in part a are square numbers? How can you tell?
- 7.** The area of a square is  $121 \text{ cm}^2$ .  
What is the perimeter of the square?  
How did you find out?

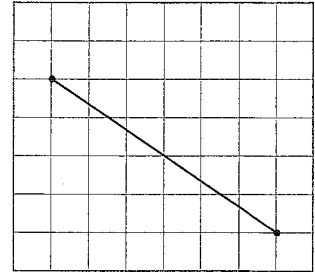
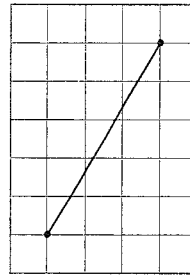
**13**

- 8.** Copy this square onto grid paper. Find its area. Then write the side length of the square.



- 9.** The area of each square is given. Find its side length. Which side lengths are whole numbers?  
a)  $75 \text{ cm}^2$       b)  $96 \text{ cm}^2$       c)  $81 \text{ cm}^2$

- 10.** Without measuring, which line segment is longer? How can you tell?  
a)      b)



- 11.** Find.  
a)  $\sqrt{26 \times 26}$   
b)  $\sqrt{5 \times 5}$   
c)  $\sqrt{50 \times 50}$   
d)  $\sqrt{13 \times 13}$

- 12.** Between which two consecutive whole numbers is each square root? How did you find out?  
a)  $\sqrt{46}$       b)  $\sqrt{84}$   
c)  $\sqrt{120}$       d)  $\sqrt{1200}$

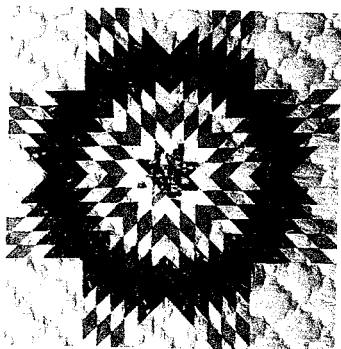
**14**

- 13.** Without using a calculator, estimate each square root to the nearest whole number.  
a)  $\sqrt{6}$       b)  $\sqrt{11}$   
c)  $\sqrt{26}$       d)  $\sqrt{35}$   
e)  $\sqrt{66}$       f)  $\sqrt{86}$
- 14.** Estimate each square root to one decimal place. Show your work.  
a)  $\sqrt{55}$       b)  $\sqrt{75}$   
c)  $\sqrt{95}$       d)  $\sqrt{105}$   
e)  $\sqrt{46}$       f)  $\sqrt{114}$

LESSON

- 15.** Which is the better estimate of  $\sqrt{72}$ : 8.48 or 8.49? How do you know?

- 16.** This First Nations quilt is a square, with area  $16\,900\text{ cm}^2$ . How long is each side of the quilt?



- 17.** Is each statement true or false?

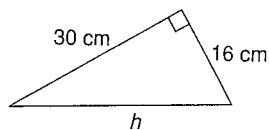
Justify your answers.

- a)  $\sqrt{2} + \sqrt{2} = 2$   
 b)  $\sqrt{29}$  is between 5 and 6.  
 c)  $\sqrt{9} + \sqrt{25} = \sqrt{64}$

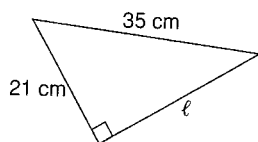
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- 18.** Find the length of each side labelled with a variable. Give your answers to one decimal place where needed.

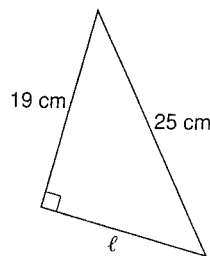
a)



b)

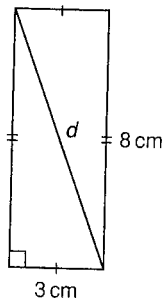


c)

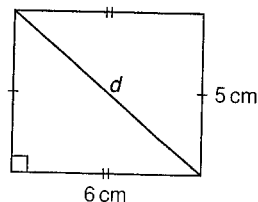


- 19.** Find the length of the diagonal,  $d$ , in each rectangle. Give your answers to one decimal place where needed.

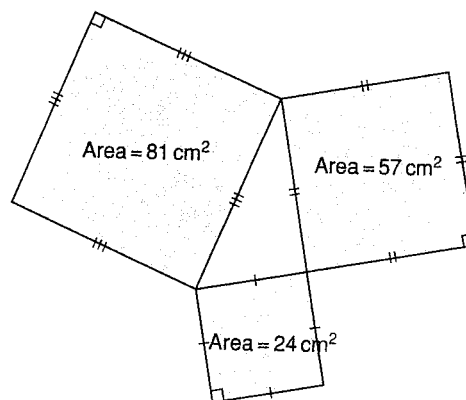
a)



b)



- 20.** The area of the square on each side of a triangle is given. Is the triangle a right triangle? How do you know?



1.6

- 21.** A triangle has side lengths 7 cm, 12 cm, and 15 cm. Is the triangle a right triangle? Justify your answer.

LESSON

22. Identify the sets of numbers that are Pythagorean triples.

How did you decide?

- a) 24, 32, 40      b) 11, 15, 24  
c) 25, 60, 65      d) 5, 8, 9

23. Two numbers in a Pythagorean triple are 20 and 29.

Find the third number.

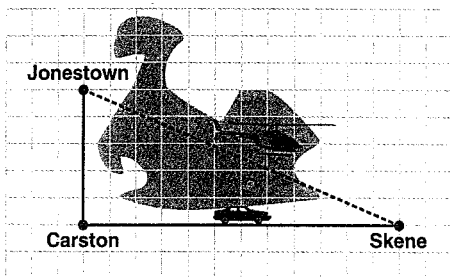
How many solutions are possible?

Justify your answer.

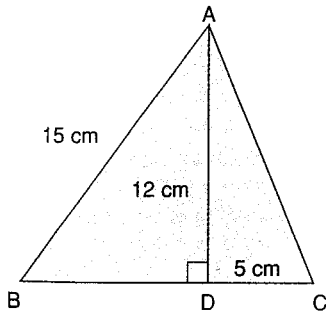
24.

Look at the map below. The side length of each grid square is 10 km.

How much farther is it to travel from Jonestown to Skene by car than by helicopter?

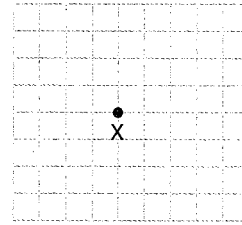


25. Find the perimeter of  $\triangle ABC$ .



26. There is a buried treasure at one of the points of intersection of the grid lines below.

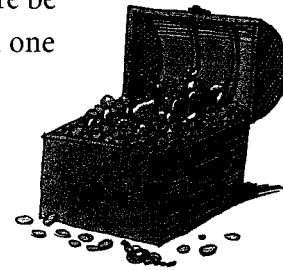
Copy the grid.



The treasure is  $\sqrt{13}$  units from the point marked X.

a) Where might the treasure be? Explain how you located it.

b) Could there be more than one position? Explain.



27. Two boats started at the same point.

After 2 h, one boat had travelled 20 km due east. The other boat had travelled 24 km due north.

How far apart are the boats?

Explain your thinking.

Give your answer to one decimal place.

