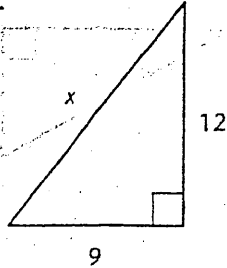


Name \_\_\_\_\_

### Pythagorean relationship

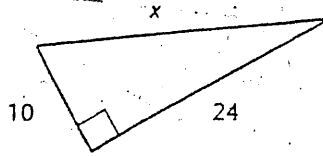
Calculate the measure of  $x$  in each.  
Where necessary, round your answer correct to one decimal place.

1.



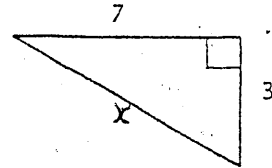
$x$  \_\_\_\_\_

2.



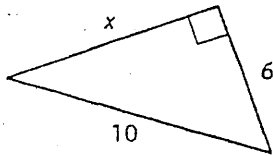
$x$  \_\_\_\_\_

3.



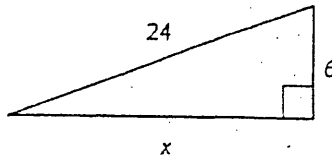
$x$  \_\_\_\_\_

4.



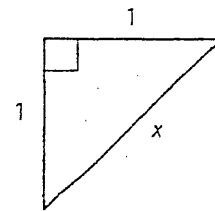
$x$  \_\_\_\_\_

5.



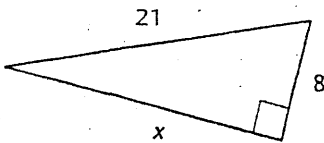
$x$  \_\_\_\_\_

6.



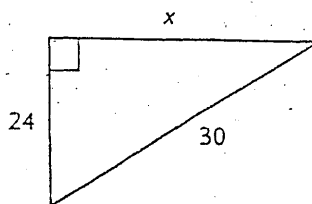
$x$  \_\_\_\_\_

7.



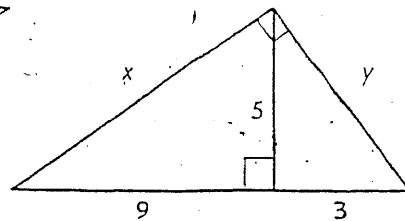
$x$  \_\_\_\_\_

8.



$x$  \_\_\_\_\_

9.



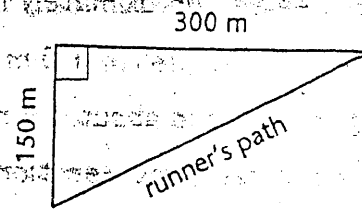
$x$  \_\_\_\_\_

$y$  \_\_\_\_\_

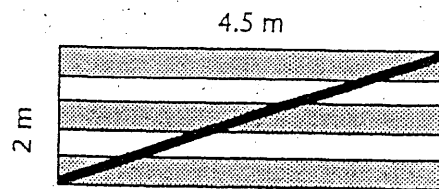
Name \_\_\_\_\_

## Applications of the Pythagorean relationship

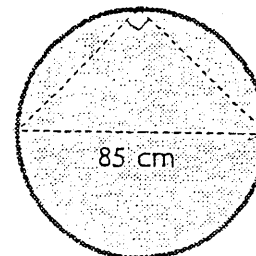
1. A cross-country runner takes a short cut across a field as shown. What distance (to the nearest metre) does the runner save?



2. A 6 m ladder is leaning against a wall. The base of the ladder is 3.2 m from the wall. How far up the wall does the ladder reach?
3. A fence gate is 4.5 m wide and 2 m high. Find the length of a diagonal support brace, correct to one decimal place.



4. A pine log has a circular cross-section with a diameter of 85 cm. What are the face dimensions of the largest square beam that can be cut from the log? Write your answer correct to the nearest centimetre.



5. A carpenter has to cut rafters for a house. The width of the house is 14 m and the height of the roof is 3 m higher in the centre than on the sides. The overhang is 0.4 m. Find the length of each rafter, correct to the nearest metre.

