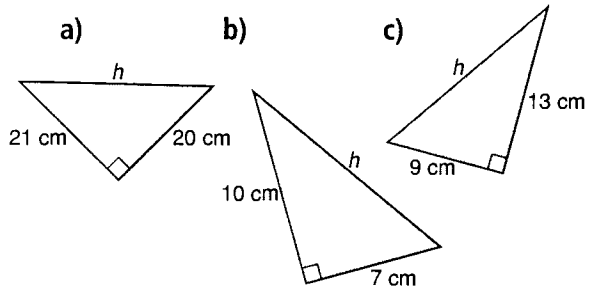
Practice

Check

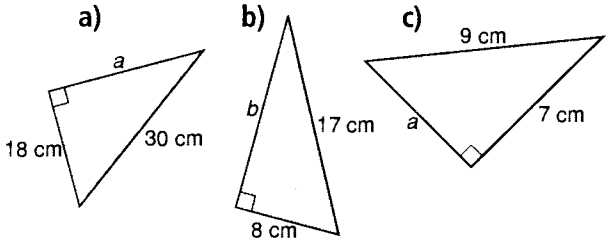
4. Find the length of each hypotenuse. Give your answers to one decimal place where needed.

a) b) c)

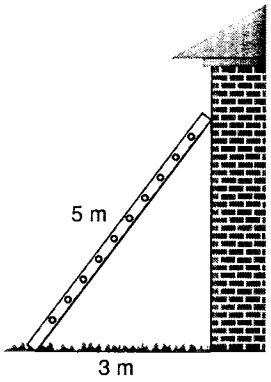


5. Find the length of each leg labelled with a variable. Give your answers to one decimal place where needed.

a) b) c)



6. A 5-m ladder leans against a house. It is 3 m from the base of the wall. How high does the ladder reach?



Apply

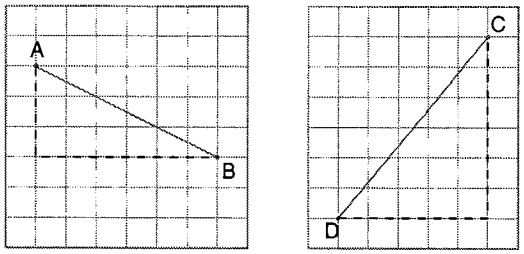
7. As part of a design for a book cover, Brandon constructed a right triangle with sides 10 cm and 24 cm.

a) How long is the third side?

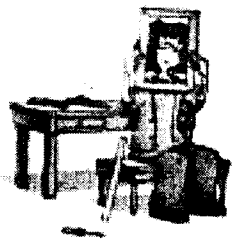
b) Why are two answers possible to part a?

8. Find the length of each line segment. Give your answers to one decimal place.

a) b)

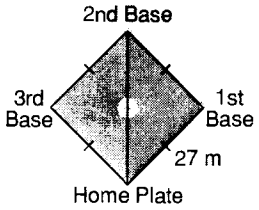


9. Alyssa has made a picture frame for the painting she just finished. The frame is 60 cm long and 25 cm wide. To check that the frame has square corners, Alyssa measures a diagonal. How long should the diagonal be? Sketch a diagram to illustrate your answer.



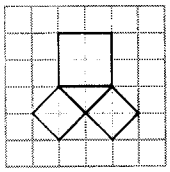
10. A boat is 35 m due south of a dock. Another boat is 84 m due east of the dock. How far apart are the boats?

11. A baseball diamond is a square with side length about 27 m. The player throws the ball from second base to home plate. How far did the player throw the ball? Give your answer to two decimal places.

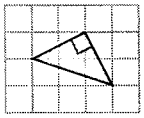


12. Copy each diagram on grid paper.
Explain how each diagram can be used to illustrate the Pythagorean Theorem.

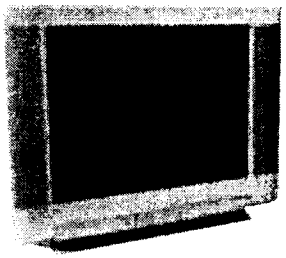
a)



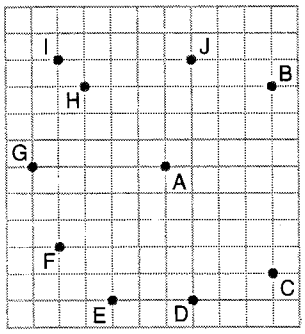
b)



13. The size of a TV set is described by the length of a diagonal of the screen.
One TV is labelled 27 inches, which is about 70 cm. The screen is 40 cm high.
What is the width of the screen?
Give your answer to one decimal place.
Draw a diagram to illustrate your answer.

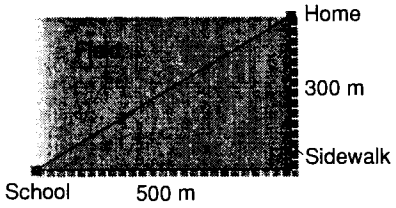


14. Assessment Focus Look at the grid.
Without measuring, find another point that is the same distance from A as B is.
Explain your strategy.
Show your work.



15. A line segment joins points P(−1, 2) and Q(4, 5).
Calculate the length of line segment PQ.
Give your answer to one decimal place.

16. Joanna usually uses the sidewalk to walk home from school.
Today she is late, so she cuts through the field. How much shorter is Joanna's shortcut?



17. Felix and Travis started at the same point in the campground.
They walked in different directions.
Felix walked 650 m and Travis walked 720 m.
They were then 970 m apart.
Were they travelling along paths that were at right angles to each other?
Explain your thinking.

18. A plane takes off from a local airport.
It travels due north at a speed of 400 km/h. The wind blows the plane due east at a speed of 50 km/h. How far is the plane from the airport after 1 h?
Give your answer to one decimal place.

Pythagorean Problem Solving

4.a) 29 cm **b)** 12.2 cm **c)** 15.8 cm
5.a) 24 cm **b)** 15 cm **c)** 5.7 cm
6. 4 m
7.a) 26 cm or 21.8 cm
b) The unknown side could be a leg or the hypotenuse of the right triangle.
8.a) 6.7 units **b)** 7.8 units
9. 65 cm
10. 91 m
11. 38.18 m
12.a) The area of the square on the hypotenuse is equal to the sum of the areas of the squares on the legs.
b) The square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.
13. 57.4 cm
14. F; I drew two right triangles with hypotenuses AB and AF. The legs of both triangles were 4 units and 3 units.
15. 5.8 units **16.** 216.9 m
17. Yes: $650^2 + 720^2 = 970^2$
18. 403.1 km **19.** 7.6 cm **20.** 17 cm