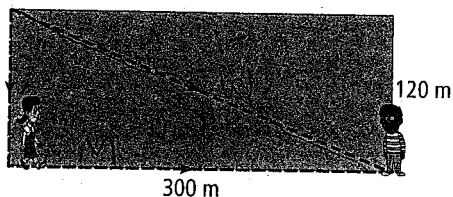


## Check Your Understanding

### Practise

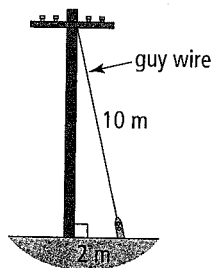
For help with #3 and #4, refer to Example 1 on page 107.

3. Walter walks across a rectangular field in a diagonal line. Maria walks around two sides of the field. They meet at the opposite corner.



- How far did Maria walk?
- How far did Walter walk?  
Express your answer to the nearest metre.
- Who walked farther? By how much?

4. Find the height of the pole where the guy wire is attached, to the nearest tenth of a metre.



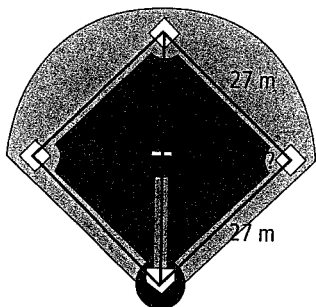
For help with #5 and #6, refer to Example 2 on page 108

5. Martin measured a rectangle and wrote:

Width: 9 cm Length: 22 cm Diagonal: 23.8 cm

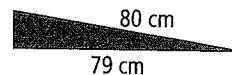
Could these measurements form a rectangle? Justify your answer.

6. You are asked to check the design plans for a baseball diamond. Is the triangle a right triangle? Explain.

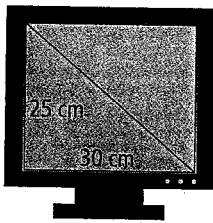


### Apply

7. What is the height of the wheelchair ramp?  
Give your answer to the nearest tenth of a centimetre.



8. Shahriar knows that the size of a computer monitor is based on the length of the diagonal of the screen. He thinks that the diagonal is not as large as the ad says. Is he correct? Explain.



**GREAT DEAL**  
42-cm monitor  
on sale!

9. A checkerboard is made of 64 small squares that each have a dimension of 3 cm  $\times$  3 cm. The 64 small squares are arranged in eight rows of eight.
- What is the length of the diagonal of a small square? Give your answer to the nearest tenth of a centimetre.
  - What is the total length of the diagonal of the board? Give your answer to the nearest centimetre.

10. A gymnast requires a distance of 16 m for her tumbling routine. If the gymnast is competing on a 12 m  $\times$  12 m square mat, does she have enough room to do her routine safely? Explain your answer.



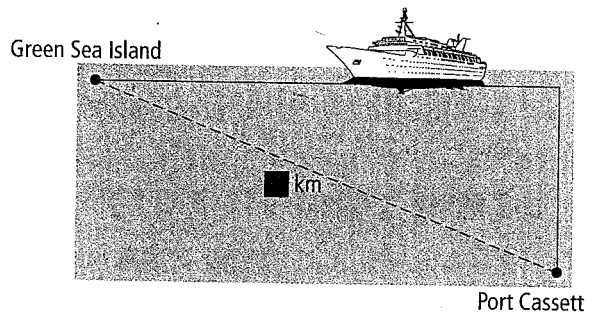
11. Johan has a 300-cm ladder that he leans up against a wall. The safety sticker on the side of the ladder shows that the bottom must be placed between 70 cm and 110 cm away from the wall. What are the minimum distance and maximum distance up the wall that the ladder can reach? Give your answers to the nearest tenth of a centimetre.

### Extend

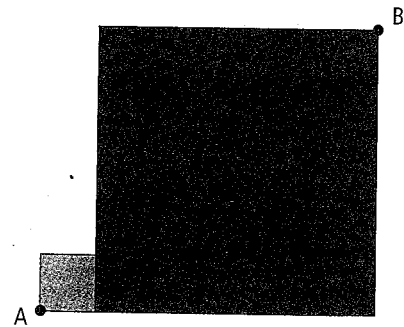
12. Sarah has a vegetable garden in the shape of a right triangle. She wants to put fencing all around it to keep the rabbits away.
- What total length of fencing does she need? Give your answer to the nearest hundredth of a metre.
  - If fencing costs \$2/m, what will be the total cost of the fencing?



13. A cruise ship travels from Port Cassett north at a speed of 34 km/h for 2.5 h. Then it turns  $90^\circ$  and travels west at 30 km/h for 7.3 h. When it reaches Green Sea Island, how far is the ship from Port Cassett? Express your answer to the nearest kilometre.



14. The red square has a perimeter of 40 mm and the green square has an area of  $4 \text{ mm}^2$ . What is the shortest distance between A and B? Give your answer to the nearest tenth of a millimetre.



### MATH LINK

The diagram shows the rough plans for a board game designed for a toy manufacturer. The board is composed of a square and four identical right triangles. Complete the plans by answering the following questions. Give your answers to the nearest tenth of a centimetre where appropriate.

- If the central square has an area of  $225 \text{ cm}^2$ , what is the perimeter of the game board? Show how you know.
- The game will be packaged in a box with a square base. Determine the minimum diagonal length of the base of the box.

