Metric Relations
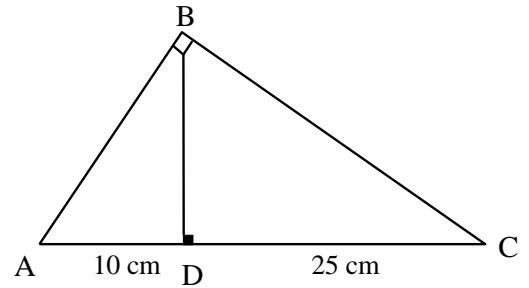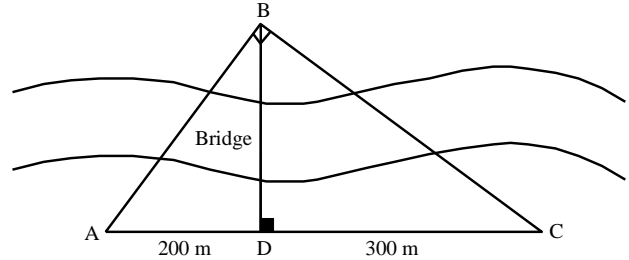
1 ABC is a right triangle in which segment AD measures 10 cm and segment DC, 25 cm. **What is the measure of segment AB?**

2 A land surveyor wants to know the length of the bridge that is to be built across a river. The measures are shown in the diagram. **What is the length BD of the bridge?**

3 The mast of a sail is secured with two guy wires as shown in the adjacent figure. The angle formed at the point where the 2 guy wires are attached to the top of the mast is 90°. The 1st guy wire is attached to the deck 26 m from the foot of the mast. The 2nd guy wire is attached 19 m from the foot of the mast at the opposite end of the deck. During a storm, the 1st guy wire broke.
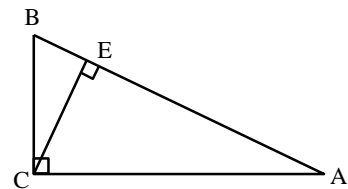**What length of cable is needed to replace it?**
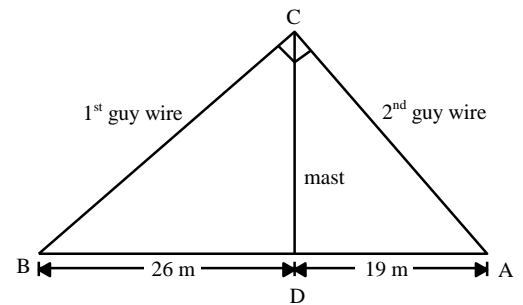
4 In the figure to the right, triangle ABC is right-angled at C and $\overline{CE}$ is an altitude.
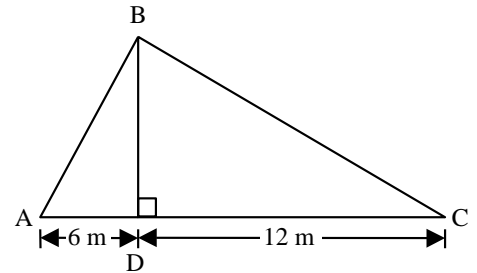
m $\overline{AB}$ = 15 cm and m $\overline{AC}$ = 12 cm.
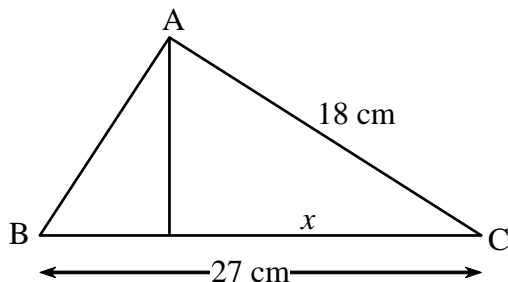**What is the length of the altitude CE?**

5 Right triangle ABC represents the framework of the roof of a sugar shack.
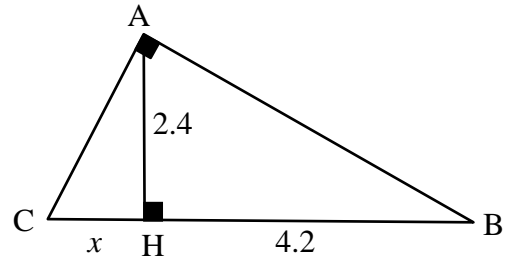**What are the lengths of the sides AB and BC?**

**6** Given triangle ABC, right angled at A, with an altitude drawn to the hypotenuse. **Determine the value of x.**

7 Given the adjacent triangle BAC. **Determine the value of x.**

A

2.4

C

x H 4.2 B

8 Given triangle ABC with a right angle at A. AD is drawn perpendicular to BC at D and DE is drawn perpendicular to AC at E. The height AD measures 12 cm, hypotenuse BC measures 25 cm and side AC measures 20 cm.
Find the measure of DE.

A

E

B D C
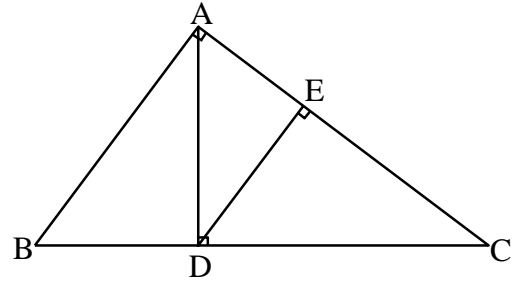
9 Guy wires AB and BC, measuring 13 m and 9 m respectively, anchor the base of a flagpole to the ground. The angle formed by the guy wires is 90°.
What is the total height of the flagpole if the portion above the wires is 2.5m?

B

A D C