We know that the side opposite to the right angle is the hypotenuse.

By Pythagoras theorem:
$BC^2 = AB^2 + AC^2$

Hence, (iii) is true.

Q9

Answer :

By Pythagoras theorem in ∆ABC:
AB2 = AC2 + BC2
152 = x2 +122⇒x2 = 225 - 144 ⇒x2= 81⇒x2=92⇒x=9
∴ x = 9 cm

Hence, the distance of the foot of the ladder from the wall is 9 cm.

Q10

Answer :

Suppose the foot of the ladder is *x* m far from the wall.

Let the ladder is represented by AB, the height at which it reaches the wall be AC and the distance between the foot of ladder and wall be BC.

Then, by Pythagoras theorem:
$$AB^2 = AC^2 + BC^2$$
$$\Rightarrow 5^2 = 4.8^2 + x^2$$
$$\Rightarrow x^2 = 25 - 23.04$$
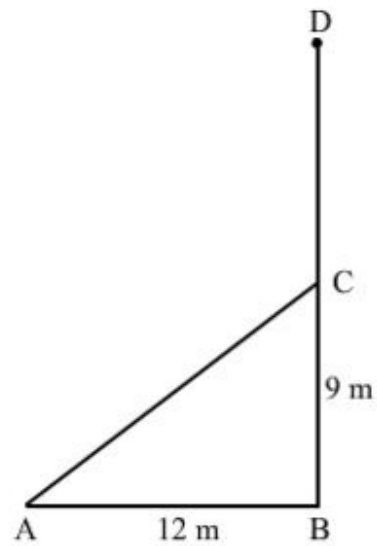$$\Rightarrow x^2 = 1.96$$
$$\Rightarrow x^2 = \left(1.4\right)^2$$
$$\Rightarrow x = 1.4$$

Hence, the foot of the ladder is 1.4 m far from the wall.

Q11

Answer :

Let BD be the height of the tree broken at point C and suppose CD take the position CA

Now as per given conditions we have AB = 9 m , BC = 12 m

By Pythagoras theorem:
$$AC^2 = AB^2 + BC^2$$

$$\Rightarrow AC^2 = 12^2 + 9^2$$
$$\Rightarrow AC^2 = 144 + 81$$
$$\Rightarrow AC^2 = 225$$
$$\Rightarrow AC^2 = 15^2$$
$$\Rightarrow AC = 15$$

Length of the tree before it broke = AC + AB
$$= 15 + 9$$
$$= 24 \text{ m}$$

Q12

Answer :

Suppose, the two poles are AB and CD, having the length of 18 m and 13 m, respectively.
Distance between them, BD, is equal to 12 m.
We need to find AC.

********** END *********