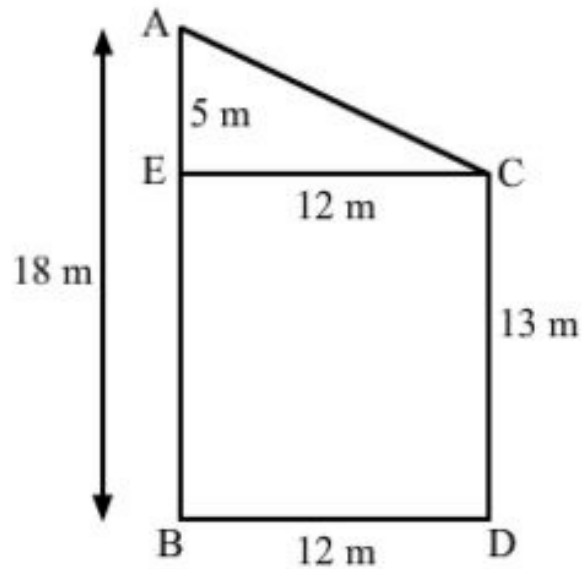




### Exercise 5D



From C, draw  $CE \perp AB$ .

$$\begin{aligned}
 AE &= AB - EB \\
 &= AB - CD \quad (CD = EB) \\
 &= 18 - 13 \\
 &= 5 \text{ m} \\
 EC &= BD = 12 \text{ m}
 \end{aligned}$$

Now, by Pythagoras theorem in  $\triangle AEC$ :

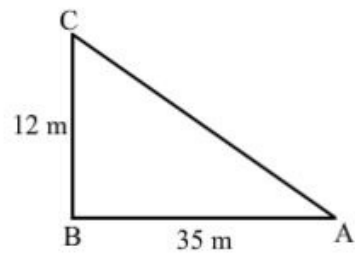
$$\begin{aligned}
 AC^2 &= AE^2 + EC^2 \\
 \Rightarrow AC^2 &= 5^2 + 12^2 \\
 \Rightarrow AC^2 &= 25 + 144 \\
 \Rightarrow AC^2 &= 169 \\
 \Rightarrow AC^2 &= 13^2 \\
 \Rightarrow AC &= 13
 \end{aligned}$$

Hence, the distance between their tops is 13 m.

Q13

Answer :

Suppose the man starts at point A and goes 35 m towards west, say AB. He then goes 12 m north, say BC.



We need to find AC.

By Pythagoras theorem:

$$AC^2 = BC^2 + AB^2$$

$$\Rightarrow AC^2 = 35^2 + 12^2$$

$$\Rightarrow AC^2 = 1225 + 144$$

$$\Rightarrow AC^2 = 1369$$

$$\Rightarrow AC^2 = 37^2$$

$$\Rightarrow AC = 37 \text{ m}$$

Hence, the man is 37 m far from the starting point.

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Q14

**Answer :**

Suppose the man starts from A and goes 3 km north and reaches B.  
He then goes 4 km towards east and reaches C.

$$\therefore AB = 3 \text{ km}$$

$$BC = 4 \text{ km}$$

We have to find AC.

By Pythagoras theorem:

$$\Rightarrow AC^2 = AB^2 + BC^2$$

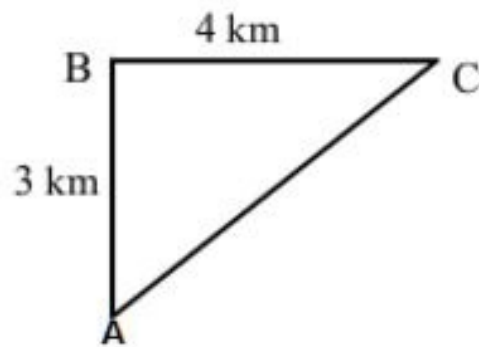
$$\Rightarrow AC^2 = 3^2 + 4^2$$

$$\Rightarrow AC^2 = 25$$

$$\Rightarrow AC^2 = 5^2$$

$$\Rightarrow AC = 5 \text{ km}$$

Hence, he is 5 km far from the initial position.



\*\*\*\*\* END \*\*\*\*\*