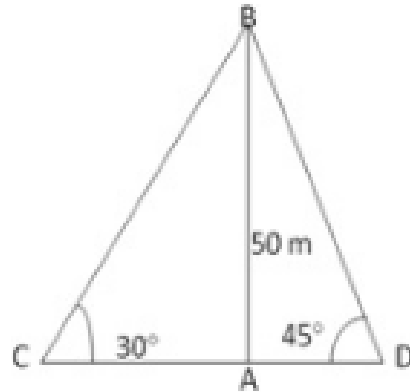




Question 27:

Let AB be the tower. Let C and D be the positions of the two men.
Then, $\angle ACB = 30^\circ$, $\angle ADB = 45^\circ$ and $AB = 50$ m



$$\frac{AC}{AB} = \cot 30^\circ = \sqrt{3}$$

$$\Rightarrow \frac{AC}{50} = \sqrt{3}$$

$$\Rightarrow AC = 50\sqrt{3} \text{ m}$$

$$\frac{AD}{AB} = \cot 45^\circ = 1$$

$$\Rightarrow \frac{AD}{50} = 1 \text{ or } AD = 50$$

Distance between the two man = $CD = (AC + AD)$

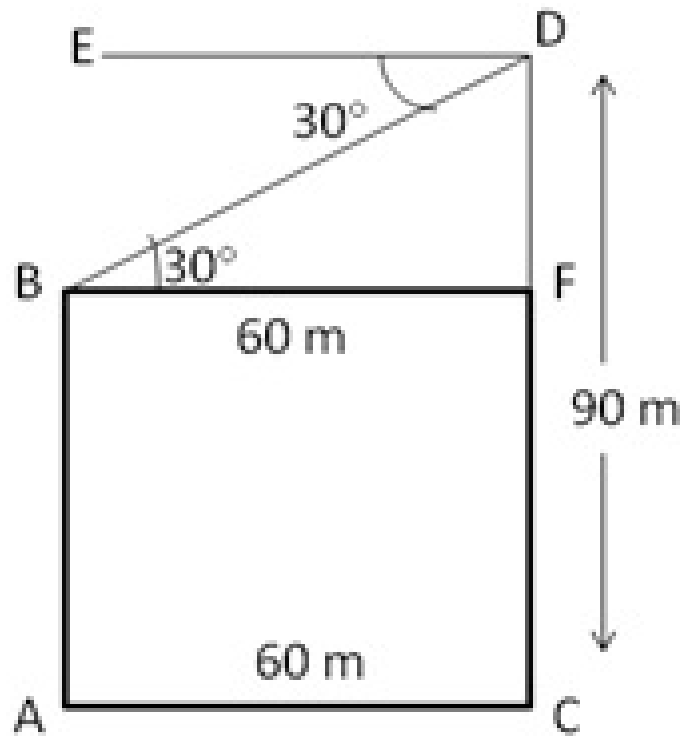
$$= 50(\sqrt{3} + 1) = 136.6 \text{ m}$$

Question 28:

Let AB and CD be the first and second towers respectively.

Then, $CD = 90$ m and $AC = 60$ m.

Let DE be the horizontal line through D.



Draw $BF \perp CD$,
 Then, $BF = AC = 60$ m
 $\angle FBD = \angle EDB = 30^\circ$

$$\text{Now, } \frac{FD}{BF} = \tan 30^\circ = \frac{FD}{60} = \frac{1}{\sqrt{3}}$$

$$\Rightarrow FD = \left(60 \times \frac{1}{\sqrt{3}} \right) \text{ m} = 20\sqrt{3} \text{ m}$$

$$\begin{aligned} \therefore AB = FC &= (CD - FD) \\ &= (90 - 20\sqrt{3}) \text{ m} = 55.36 \text{ m} \end{aligned}$$

***** END *****