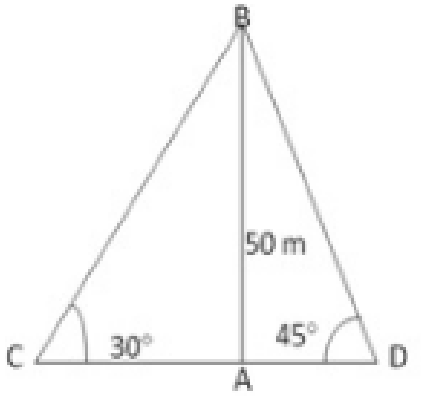
Question 27:
Let AB be the tower. Let C and D be the positions of the two men.
Then, ∠ACB = 30°, ∠ADB = 45° and AB = 50 m



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

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

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

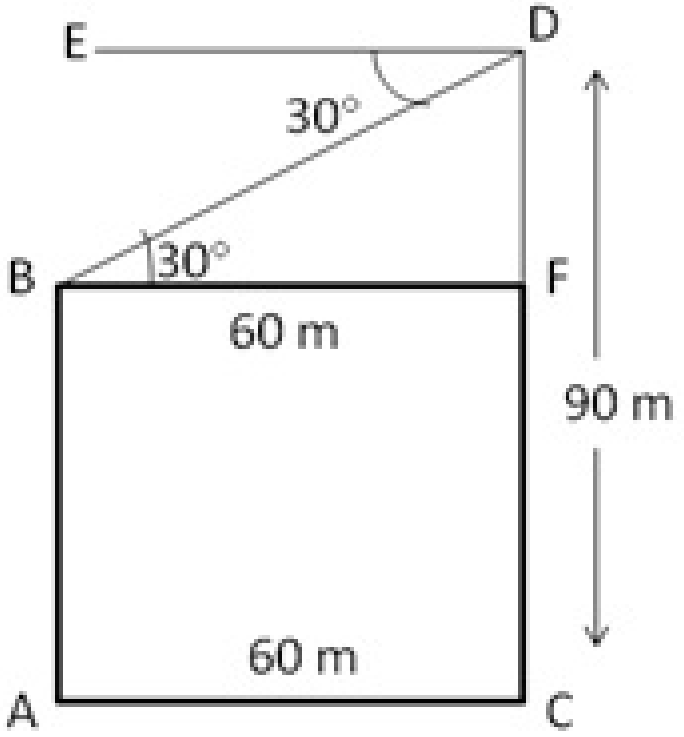
$$\frac{AD}{AB} = \cot 45^\circ = 1$$

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

$$\text{Distance between the two man} = CD = (AC + AD)$$

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

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 ⊥ CD,
Then, BF = AC = 60 m
∠FBD = ∠EDB = 30°

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

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

$$\therefore AB = FC = (CD - FD)$$

$$= \left(90 - 20\sqrt{3}\right) m = 55.36\, m$$

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