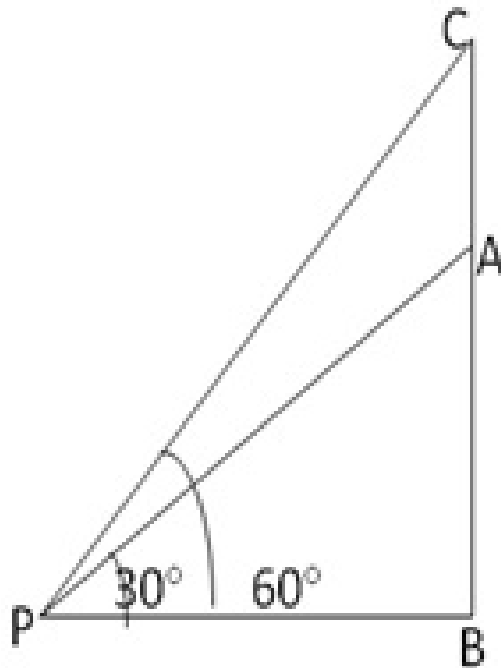




Question 11:

Let AB be the tower h metre high. CA is the flag staff 5 meter high.

Let PB = x meter



In ΔPBC ,
 $\angle CPB = 60^\circ$, $\angle PBC = 90^\circ$

$$\frac{BC}{PB} = \tan 60^\circ$$

$$\frac{5+h}{x} = \sqrt{3}$$

$$\therefore 5+h = \sqrt{3}x \text{ --- (1)}$$

In ΔAPB ,
 $\angle APB = 30^\circ$ and $\angle ABP = 90^\circ$

$$\frac{AB}{PB} = \tan 30^\circ$$

$$\frac{h}{x} = \frac{1}{\sqrt{3}}$$

$$\therefore \sqrt{3}h = x$$

Putting value of x in (1), we get

$$5 + h = \sqrt{3} \times \sqrt{3}h = 3h \quad \therefore 2h = 5$$

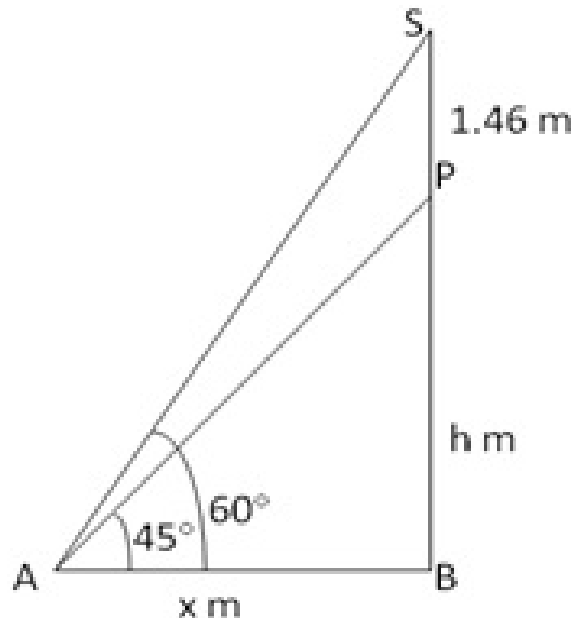
$$\text{or } h = \frac{5}{2} \text{ m} = 2.5 \text{ m}$$

Thus, height of tower = 2.5m

Question 12:

Let SP be the statue and PB be the pedestal. Angles of elevation of S and P are 60° and 45° respectively.

Further suppose AB = x m, PB = h m



In right Δ ABS,

$$\frac{SB}{AB} = \tan 60^\circ = \sqrt{3}$$

$$\Rightarrow \frac{h + 1.46}{x} = \sqrt{3} \text{ --- (1)}$$

In right Δ PAB,

$$\frac{PB}{AB} = \tan 45^\circ = 1$$

$$\therefore h = x \text{ --- (2)}$$

Putting $x = h$ in (1)

$$\frac{h + 1.46}{h} = \sqrt{3} \Rightarrow h + 1.46 = \sqrt{3}h$$

$$\text{or } h(\sqrt{3} - 1) = 1.46 \quad \therefore h = \frac{1.46}{\sqrt{3} - 1} \times \frac{\sqrt{3} + 1}{\sqrt{3} + 1}$$

$$\therefore h = \frac{1.46}{2} \times (\sqrt{3} + 1) = 0.73 \times 2.732 \\ = 2 \text{ m (nearly)}$$

Thus, height of the pedestal = 2m

*****END*****