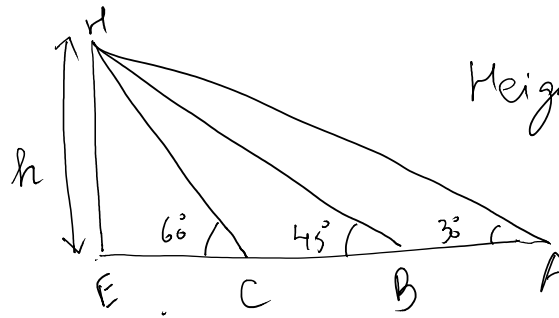


If the angles of elevation of the top of a tower from three collinear points A, B and C, on a line leading to the foot of the tower, are 30° , 45° and 60° respectively, then the ratio, AB : BC, is :

- (1) $1 : \sqrt{3}$
- (2) $2 : 3$
- ✓ (3) $\sqrt{3} : 1$
- (4) $\sqrt{3} : \sqrt{2}$



Height of the tower = h

$$\tan 60^\circ = \frac{h}{EC}$$

$$\Rightarrow EC = h/\sqrt{3}$$

Similarly

$$EB = h; \quad EA = \sqrt{3}h$$

$$\therefore AB = AE - BE = (\sqrt{3} - 1)h$$

$$BC = BE - CE = h \left(1 - \frac{1}{\sqrt{3}}\right) = \frac{(\sqrt{3} - 1)}{\sqrt{3}}h$$

$$\therefore AB : BC = \sqrt{3} : 1 \quad \therefore \text{Correct option is (3)}$$