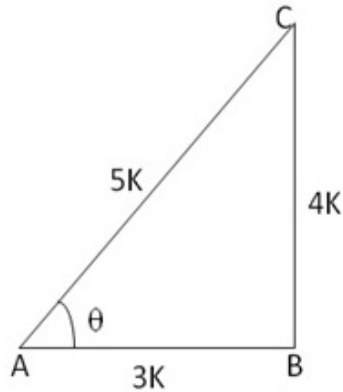




Question 11

Given: $\tan\theta = 0.6 = \frac{6}{10} = \frac{3}{5}$

Let us draw a ΔABC in which $\angle B = 90^\circ$ and $\angle BAC = \theta$



Then, $\cos\theta = \frac{AB}{AC} = \frac{3}{5}$

let $AB = 3k$

and $AC = 5k$,

where k is positive

By Pythagoras theorem, we have

$$\begin{aligned}(AC)^2 &= (AB)^2 + (BC)^2 \\ \Rightarrow (BC)^2 &= (AC)^2 - (AB)^2 \\ &= \left[(5k)^2 - (3k)^2\right] = 16k^2\end{aligned}$$

$$\Rightarrow (BC)^2 = 16k^2$$

$$\Rightarrow BC = 4k$$

$$\sin\theta = \frac{AB}{AC} = \frac{4k}{5k} = \frac{4}{5}$$

$$\cos\theta = \frac{3}{5}$$

$$\tan\theta = \frac{\sin\theta}{\cos\theta} = \left(\frac{4}{5} \times \frac{5}{3}\right) = \frac{4}{3}$$

$$\Rightarrow (5\sin\theta - 3\tan\theta) = \left(5 \times \frac{4}{5} - 3 \times \frac{4}{3}\right) = 0$$

$$\text{Hence, } (5\sin\theta - 3\tan\theta) = 0$$

***** END *****