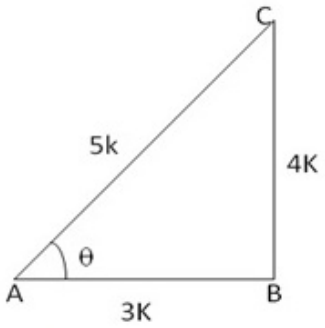
Question 7

Given: $tan\theta = \frac{BC}{AB} = \frac{4}{3}$

Let BC = 4k and AB = 3k,

Where k is positive

Let us draw a ΔABC in which ∠B = 90^0 and ∠BAC = θ



By Pythagoras theorem, we get

$(AC)^2 = (AB)^2 + (BC)^2$

$\Rightarrow (AC)^2 = \left[(3k)^2 + (4k)^2\right]$

$\Rightarrow (AC)^2 = \left(9k^2 + 16k^2\right) = 25k^2$

$\therefore AC = \sqrt{25k^2} = 5k$

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

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

$\Rightarrow (\sin\theta + \cos\theta) = \left(\frac{4}{5} + \frac{3}{5}\right) = \frac{7}{5}$

Hence, $(\sin\theta + \cos\theta) = \frac{7}{5}$

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