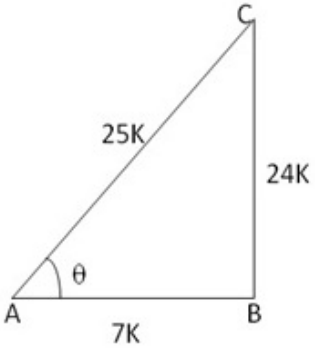
Question 2

Given: $cos\theta = \frac{\sqrt{7}}{25}$

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

Let AB = 7k and AC = 25k,

Where k is positive



By Pythagoras theorem, we have

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

$\Rightarrow BC^2 = AC^2 - AB^2$

$BC^2 = \left[(25k)^2 - (7k)^2\right]$

$= (625k^2 - 49k^2)$

$= 576k^2$

$\Rightarrow BC = \sqrt{576k^2} = 24k$

$\therefore \sin\theta = \frac{BC}{AC} = \frac{24k}{25k} = \frac{24}{25}, \cos\theta = \frac{7}{25}$ (given)

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \left(\frac{24}{25} \times \frac{25}{7}\right) = \frac{24}{7}$

$\text{cosec}\theta = \frac{1}{\sin\theta} = \frac{25}{24}$

$\sec\theta = \frac{1}{\cos\theta} = \frac{25}{7}$

$\cot\theta = \frac{1}{\tan\theta} = \frac{7}{24}$

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