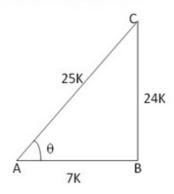


## Question 2

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

Let us draw a  $\triangle ABC$  in which  $\angle B=90^{0}$  and  $\angle BAC=\theta$ Let AB=7k and AC=25k, Where k is positive



By Pythagoras theorem, we have

AC<sup>2</sup> = AB<sup>2</sup> + BC<sup>2</sup>  
⇒ BC<sup>2</sup> = AC<sup>2</sup> - AB<sup>2</sup>  
BC<sup>2</sup> = 
$$\left[ (25k)^2 - (7k)^2 \right]$$
  
=  $\left( 625k^2 - 49k^2 \right)$   
=  $576k^2$   
⇒ BC =  $\sqrt{576k^2}$  =  $24k$   
∴  $\sin \theta = \frac{BC}{AC} = \frac{24k}{25k} = \frac{24}{25}$ ,  $\cos \theta = \frac{7}{25}$  (given)  
 $\tan \theta = \frac{\sin \theta}{\cos \theta} = \left( \frac{24}{25} \times \frac{25}{7} \right) = \frac{24}{7}$   
 $\csc \theta = \frac{1}{\sin \theta} = \frac{25}{24}$   
 $\sec \theta = \frac{1}{\cos \theta} = \frac{7}{24}$ 

\*\*\*\*\*\*\*\*\*\*\* END \*\*\*\*\*\*\*\*\*