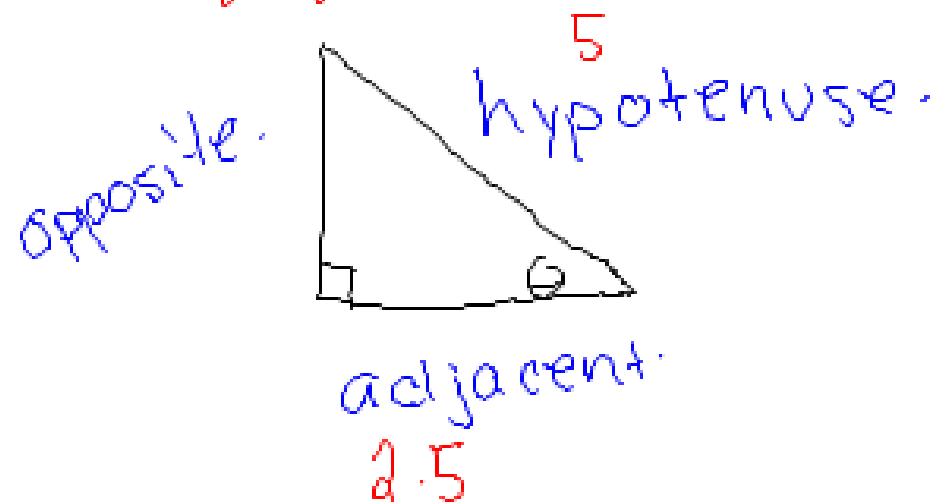


$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

SOH CAH TOA



$$\sin \theta = \frac{\text{opp}}{\text{hyp.}} = \frac{2.5}{5}$$

$$\theta = \sin^{-1}\left(\frac{2.5}{5}\right)$$

$$\theta = 30^\circ$$

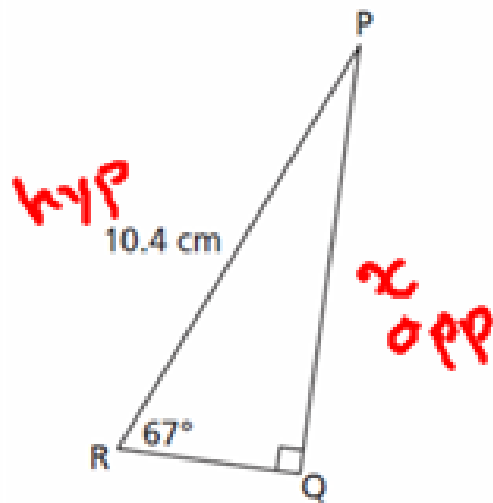
$$\cos \theta = \frac{2.5}{5}$$

$$\theta = \cos^{-1}\left(\frac{2.5}{5}\right)$$

$$\theta = 60^\circ$$

## 2.5 Using the Sine and Cosine Ratios to Calculate Lengths

1. Determine the length of PQ to the nearest tenth of a centimetre.



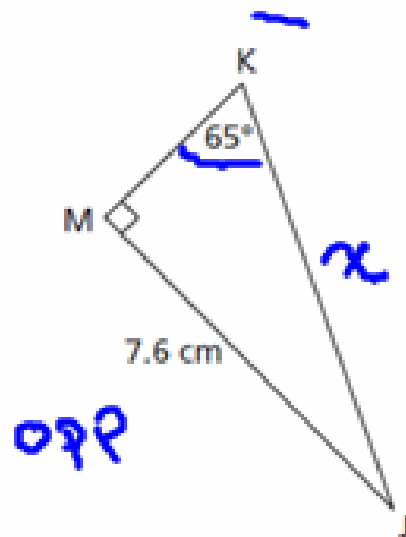
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

SOA CAH TOA

$$10.4 \cdot \sin 67 = \frac{x}{10.4} \cdot 10.4$$

$$9.6 \text{ cm.} = x$$

2. Determine the length of JK to the nearest tenth of a centimetre.



$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

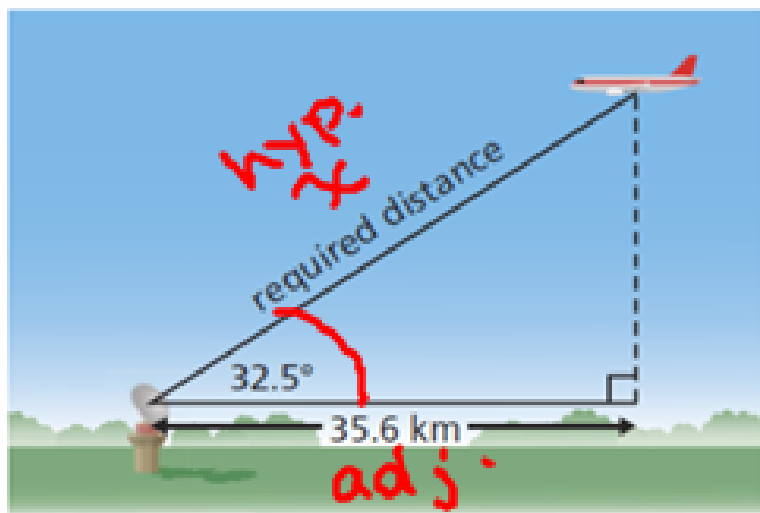
$$\text{hyp. } x \cdot \sin 65 = \frac{7.6}{x} \cdot x$$

$$\frac{x \cdot \sin 65}{\sin 65} = \frac{7.6}{\sin 65}$$

$$\rightarrow x = \frac{7.6}{\sin 65}$$

$$x = 8.4 \text{ cm.}$$

3. From a radar station, the angle of elevation of an approaching airplane is  $32.5^\circ$ . The horizontal distance between the plane and the radar station is 35.6 km. How far is the plane from the radar station to the nearest tenth of a kilometre?



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$x \cdot \cos(32.5) = \frac{35.6}{x}$$

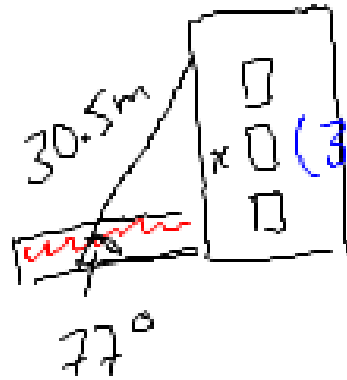
$$\frac{x \cdot \cos(32.5)}{\cos(32.5)} = \frac{35.6}{\cos(32.5)}$$

$$x = \frac{35.6}{\cos(32.5)}$$

$$x = 42.2 \text{ km}$$

p. 101

H.G.

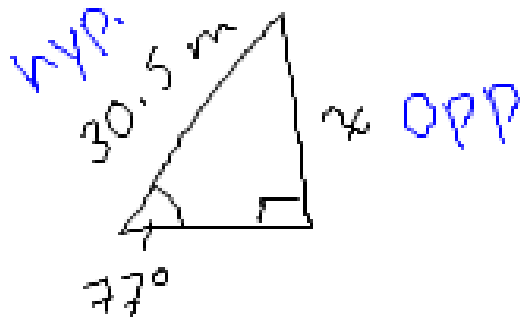


$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$(30.5) \sin 77 = \frac{x}{30.5} \cdot 30.5$$

$$(30.5) \cdot \sin 77 = x$$

$$29.7\text{cm} = x$$



ICA - all ratios - Thursday 27.<sup>th</sup> Oct.  
+ trig (SOH CAH TOA)

HW. p. 101  $\Rightarrow$  #3-11