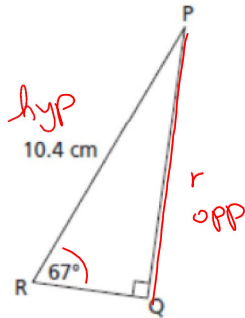


**Lesson Four – Sine and Cosine Ratio to find Length**

**Example 1**

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



$\text{SOH}$  CAH TOA

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

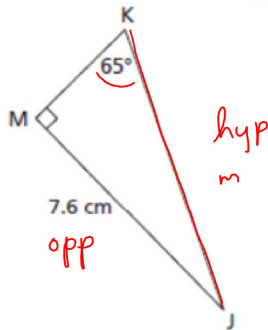
$$\sin 67^\circ = \frac{r}{10.4}$$

$$r = 10.4 \sin 67^\circ$$

$$r = 9.6 \text{ cm}$$

**Example 2**

Determine the length of JK to the nearest tenth of a centimeter.



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

$$\sin 65^\circ = \frac{7.6}{m}$$

$$\frac{m \cdot \sin 65^\circ}{\sin 65^\circ} = \frac{7.6}{\sin 65^\circ}$$

or  $\sin 65^\circ = \frac{7.6}{m}$   
switch

$$m = \frac{7.6}{\sin 65^\circ}$$

$$m = 8.4 \text{ cm}$$

$$m = \frac{7.6}{\sin 65^\circ}$$

# Sine and Cosine Ratio...again.notebook

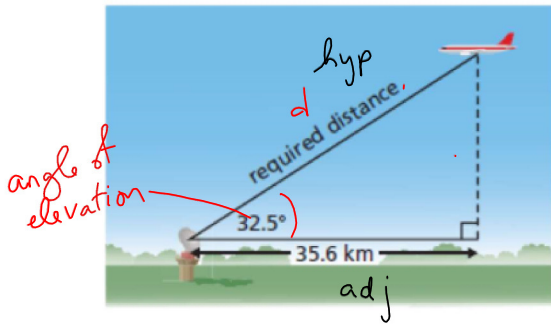
MAAPC20S

Trigonometry

Lesson 4

## Example 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 kilometer?



SOH CAH TOA

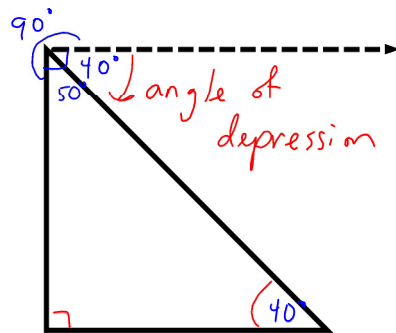
$$\cos 32.5^\circ = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 32.5^\circ = \frac{35.6}{d}$$

$$\frac{\cancel{\cos 32.5^\circ} d}{\cancel{\cos 32.5^\circ}} = \frac{35.6}{\cos 32.5^\circ}$$

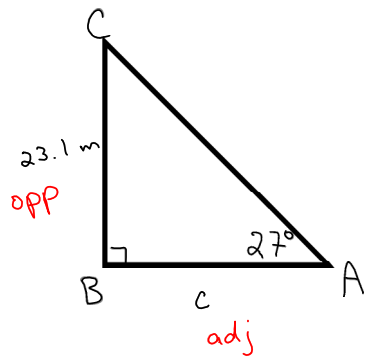
$$d = \frac{35.6}{\cos 32.5^\circ}$$

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



**Assignment:** Pg. 101; 3 (a,c), 4 (a,c), 5 (a,c), 6, 7, 10, 11

# Sine and Cosine Ratio...again.notebook



SOH CAH TOA  
          <sub>n</sub>

$$\tan 27^\circ = \frac{\text{opp}}{\text{adj}}$$

$$\tan 27^\circ = \frac{23.1}{c}$$

$$\frac{c \tan 27^\circ}{\tan 27^\circ} = \frac{23.1}{\tan 27^\circ}$$

$$c = 45.3 \text{ m}$$