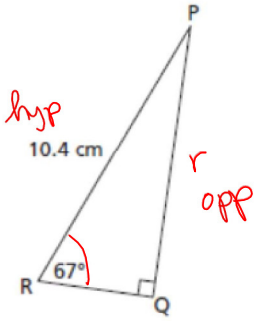
Intro Applied & Pre-Calculus 10 Enriched
Trigonometry

# Lesson 3 Sine and Cosine Ratio to Determine Length

## Example 1

Determine the length of PQ correct to 3 decimal places.




SOH CAH TOA

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

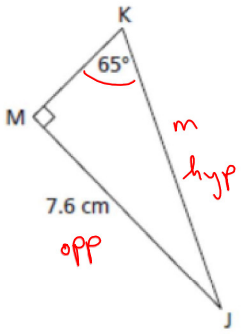
$\sin 67° = \frac{r}{10.4}$

$10.4 \sin 67° = r$

$9.573 \text{ cm} = r$

## Example 2

Determine the length of JK correct to 3 decimal places.




$\sin 65° = \frac{7.6}{m}$

$\frac{m \sin 65°}{\sin 65°} = \frac{7.6}{\sin 65°}$

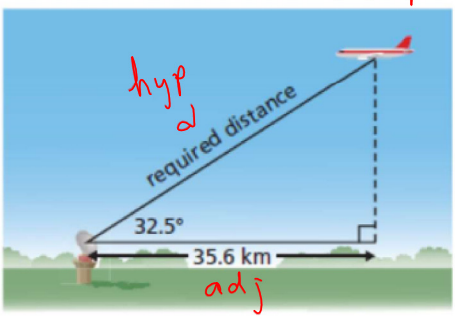
$m = \frac{7.6}{\sin 65°}$

$m = 8.386 \text{ cm}$

**Example 3**

From a radar station, the angle of elevation of an approaching airplane is 32.5°. The horizontal distance between the plane and the radar station is 35.6 km. Determine how far the plane is from the radar station to the nearest tenth of a kilometer.

1 dec place




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

$d \cos 32.5^\circ = 35.6$

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

$d = 42.2 \text{ km}$