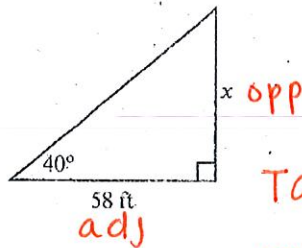


**MM2G2.c**

Solve application problems using the trigonometric ratios.

1. A photographer shines a camera light at a particular painting forming an angle of  $40^\circ$  with the camera platform. If the light is 58 feet from the wall where the painting hangs, how high above the platform is the painting?



- (A) 1.19 ft  
 (B) 48.67 ft  
 (C) 69.12 ft  
 (D) 0.84 ft

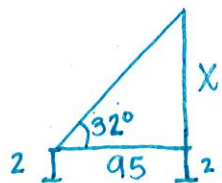
$\tan(40) = \frac{x}{58}$

$58(\tan(40)) = x$   
 $x \approx 48.67$

2. To find the height of a tower, a surveyor positions a transit that is 2 meters tall at a spot 95 meters from the base of the tower. She measures the angle of elevation to the top of the tower to be  $32^\circ$ . What is the height of the tower, to the nearest meter?

- (A) 154 m  
 (B) 59 m  
 (C) 61 m  
 (D) 152 m

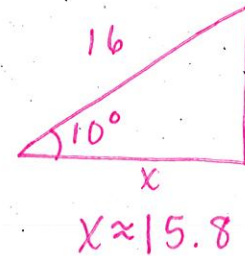
$\tan(32) = \frac{x}{95}$   
 $95(\tan(32)) = x$   
 $x \approx 59.4$



$59.4 + 2 = 61.4$

3. Liola drives 16 km up a hill that is at a grade of  $10^\circ$ . What horizontal distance, to the nearest tenth of a kilometer, has she covered?

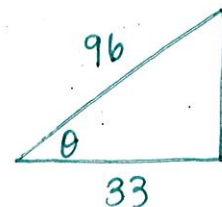
- (A) 15.8 km  
 (B) 15.3 km  
 (C) 14.7 km  
 (D) 17.1 km



$\cos(10) = \frac{x}{16}$   
 $16(\cos(10)) = x$   
 $x \approx 15.8$

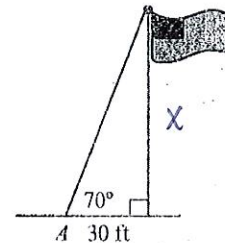
4. An 8 foot ladder is leaning against a wall. The bottom of the ladder is 33 inches from the bottom of the wall. What is the measure of the angle that the ladder forms with the ground?

- (A)  $14^\circ$   
 (B)  $20^\circ$   
 (C)  $70^\circ$   
 (D)  $76^\circ$



$\cos^{-1} \theta = \frac{33}{96}$   
 $\theta \approx 70^\circ$

5. In the diagram, a period is standing at point A. To the nearest tenth of a foot, how tall is the flagpole?



- (A) 28.2 ft  
 (B) 30 ft

$\tan(70) = \frac{x}{30}$   
 $30(\tan(70)) = x$   
 $x \approx 82.4$

- (C) 82.4 ft  
 (D) 210 ft