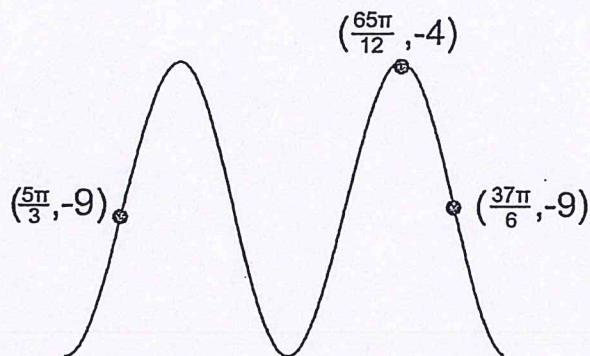


# Bellwork Alg 2 Friday, May 3, 2019

1. Write both a Sine and Cosine equation for this function:



Sin EQ:

Cos EQ:

Graph one period of each. Label the coordinates of the Max, Min, and points on the midline.

2.  $y = 6 \sin\left(\frac{8x}{9}\right)$

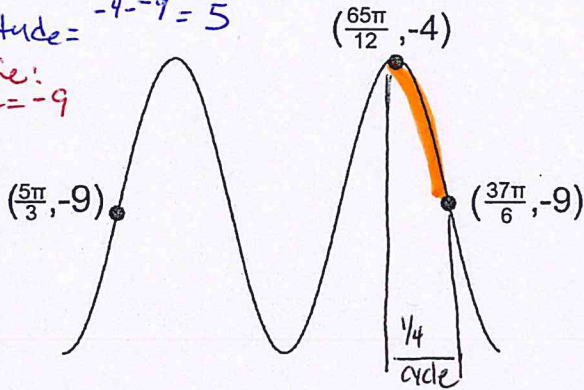
3.  $y = -13 \cos\left(10\left(x + \frac{7\pi}{4}\right)\right) - 8$

4. Given  $\tan \theta = \frac{-\sqrt{3}}{3}$  and  $\cos \theta > 0$ , find  $\theta$  such that  $0^\circ \leq \theta \leq 360^\circ$ .

5. A 70 foot long rope is attached to the bottom of a window of an apartment building. The rope is pulled tight and anchored to a stake in the ground. If the stake is 55 feet from the apartment building find the angle the rope makes with the building to nearest tenth of a degree.

1. Write both a Sine and Cosine equation for this function:

Amplitude =  $-4 - (-9) = 5$   
midline:  $y = -9$



Sin EQ:  $y = 5 \sin\left(\frac{2}{3}\left(x - \frac{5\pi}{3}\right)\right) - 9$

Cos EQ:  $y = 5 \cos\left(\frac{2}{3}\left(x - \frac{65\pi}{12}\right)\right) - 9$

Period

$$\frac{2}{3} \cdot \frac{37\pi}{6} - \frac{65\pi}{12} = \frac{1}{4}$$

$$= \left(\frac{14\pi}{12} - \frac{65\pi}{12}\right) \cdot \frac{4}{1}$$

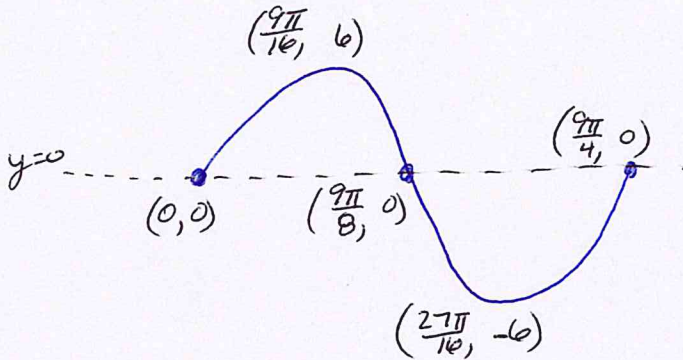
$$= \frac{9\pi}{12} \cdot \frac{4}{1} = 3\pi$$

$$b = \frac{2\pi}{3\pi} = \frac{2}{3}$$

Graph one period of each. Label the coordinates of the Max, Min, and points on the midline.

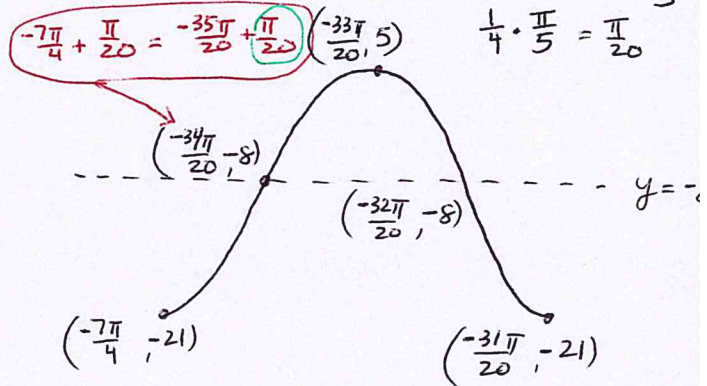
2.  $y = 6 \sin\left(\frac{8x}{9}\right)$  • Amplitude = 6

• No phase shift  
• midline:  $y = 0$   
• period =  $\frac{2\pi}{\frac{8}{9}} = 2\pi \cdot \frac{9}{8} = \frac{9\pi}{4}$



3.  $y = -13 \cos(10(x + \frac{7\pi}{4})) - 8$

• phase shift:  $\frac{7\pi}{4}$  left • Amplitude = 13  
• upside down  
• midline:  $y = -8$  • period =  $\frac{2\pi}{10} = \frac{\pi}{5}$



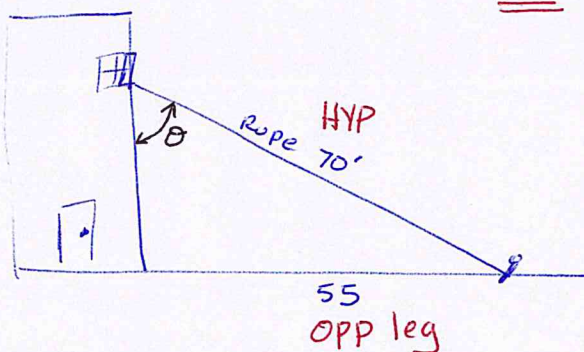
4. Given  $\tan \theta = \frac{-\sqrt{3}}{3}$  and  $\cos \theta > 0$ , find  $\theta$  such that  $0^\circ \leq \theta \leq 360^\circ$ .

NEG TAN: QUAD II & IV  
QUAD I: IV  
QUAD IV

$$\tan \theta = \frac{-\sqrt{3}}{3} \rightarrow \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} \rightarrow \theta = 330^\circ$$

5. A 70 foot long rope is attached to the bottom of a window of an apartment building. The rope is pulled tight and anchored to a stake in the ground. If the stake is 55 feet from the apartment building find the angle the rope makes with the building to nearest tenth of a degree.

SOHCAHTOA



$$\sin \theta = \frac{55}{70}$$

$$\theta = \sin^{-1}\left(\frac{55}{70}\right)$$

$$\theta = 51.8^\circ$$