1. Determine in which quadrant or on which axis the terminal side of each angle lies.

$\frac{11\pi}{12}$ (Quad II)

a) $\theta = \frac{-25\pi}{2} + 2\pi \cdot 2$

Neg y axis $4\pi \cdot \frac{1}{2} = \frac{3\pi}{2}$

b) $\theta = \frac{83\pi}{12}$

$-2\pi \cdot \frac{12}{1} \cdot \frac{24\pi}{12} = \frac{24\pi}{12}$

c) $\theta = \frac{-47\pi}{11}$ (Quad IV)

$\frac{19\pi}{11}$
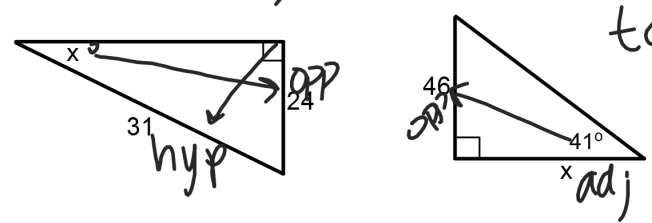
d) $\theta = -843°$

$+360$
$237°$ (Quad III)

2. Find the value of x in each. Round to the nearest hundredth.

a) $\sin^{-1}\left(\frac{24}{31}\right) = 50.73°$

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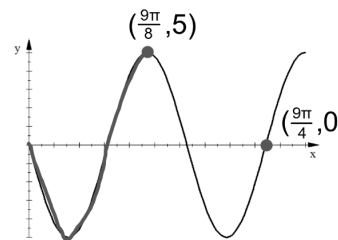b) $\tan 41 = \frac{46}{x}$

$x = \frac{46}{\tan 41}$

$= 52.92$

3. Convert each into the other unit of angle measure. Round angles measured in degrees to the nearest tenth if necessary. Give radian answers in reduced fractional form and in terms of π.

a) $\theta = \frac{-41\pi}{48} \cdot \frac{180}{\pi} = -153.8°$

b) $\theta = 552° \cdot \frac{\pi}{180}$

$= \frac{46\pi}{15}$

4. Write an equation of this function:

Amp 5
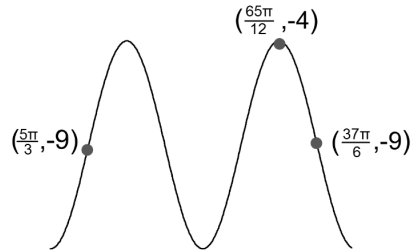mid $y = 0$
period $\frac{9\pi}{8}$ units $\frac{3\pi}{8}$
$\frac{3}{4}$ cycles 2

$\left(\frac{9\pi}{8}, 5\right)$

$\left(\frac{9\pi}{4}, 0\right)$

$y = -5\sin\left(\frac{4x}{3}\right)$

$y = 5\cos\left(\frac{4}{3}\left(x - \frac{9\pi}{8}\right)\right)$

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

1. Write an equation of this function:

$(\frac{65\pi}{12}, -4)$
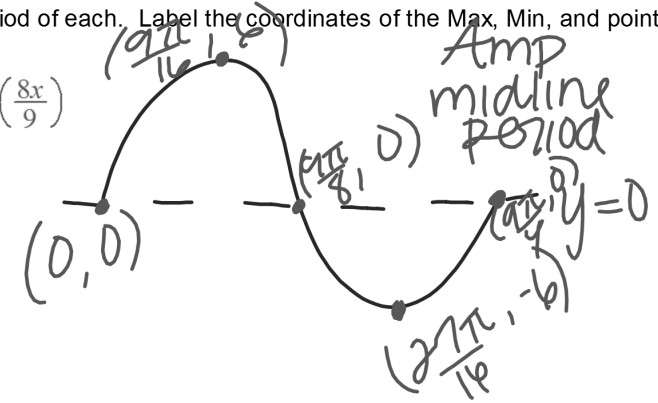
$(\frac{5\pi}{3}, -9)$ $(\frac{37\pi}{6}, -9)$

Sin EQ:

Cos EQ:

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

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

$(\frac{9\pi}{16}, 6)$

Amp
midline
Period

$(\frac{9\pi}{8}, 0)$

$(0,0)$

$(\frac{27\pi}{16}, -6)$

$y = 0$

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

4. Given $\tan = \frac{-\sqrt{3}}{3}$ and $\cos\theta > 0$, find θ such that $0° \le \theta \le 360°$

II IV   II IV

$-\frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$ 330 $-\frac{1}{2}$ $\frac{\sqrt{2}}{\sqrt{3}}$

$\frac{y}{x}$ $\tan = \frac{-\sqrt{3}}{3} = \frac{\sqrt{3}}{2}$

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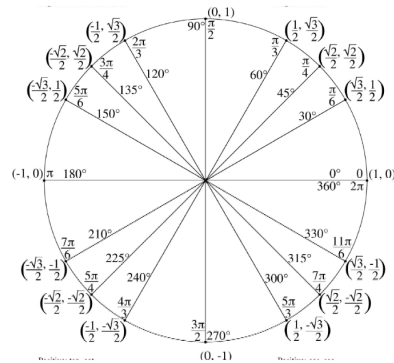
$\sin^{-1}\left(\frac{55}{70}\right)$

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70ft

$= 51.8°$
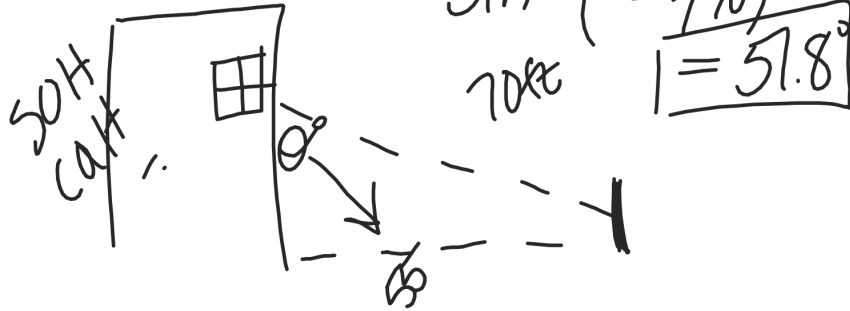
Write the equation of this graph as both a Sine and Cosine Function

Extra problem.
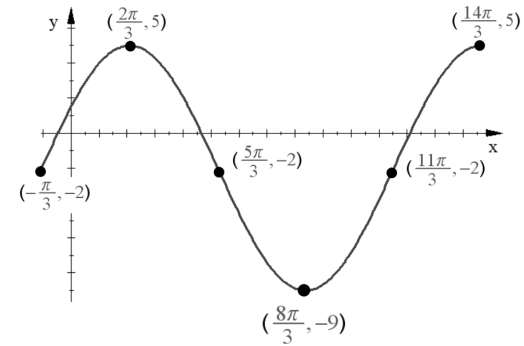
Given $\cos\theta > 0$ and $\sin\theta = \dfrac{\sqrt{2}}{2}$ find $\tan\theta$

Find the exact value of each.

a) $\tan(-1830°)$

b) $\sin\dfrac{95\pi}{6}$

c) $\cos\dfrac{-59\pi}{4}$