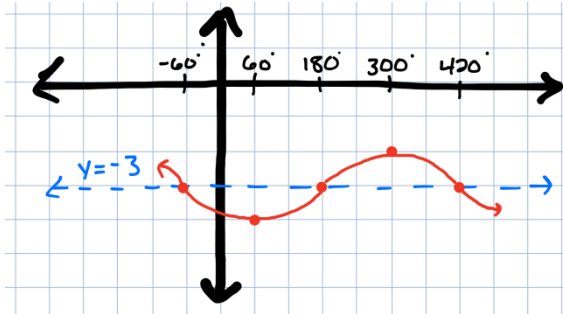


Graphs & Inverses of Trig Functions

2B – Graphing Sine & Cosine

Write an equation of the sine function with the given information

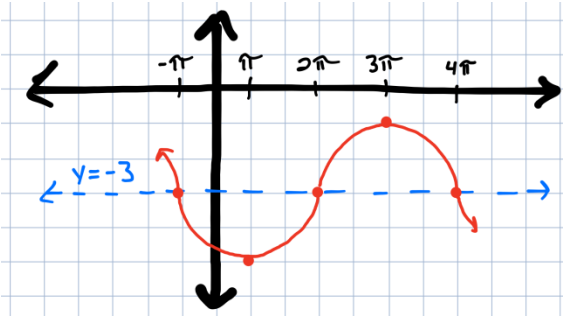
#1)



$$\begin{aligned} 480k &= 360 \\ k &= \frac{360}{48} \\ k &= \frac{3}{4} \end{aligned}$$

Equation $y = -\sin\left[\frac{3}{4}(\theta + 60^\circ)\right] - 3$

#2)

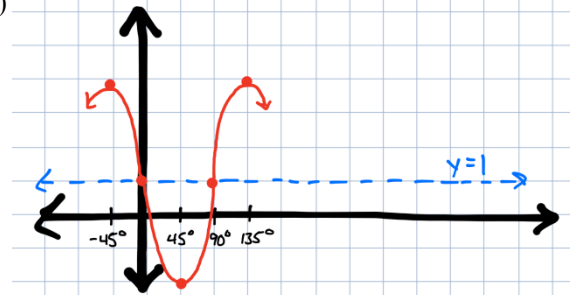


$$\begin{aligned} 5\pi k &= 2\pi \\ k &= \frac{2}{5} \end{aligned}$$

Equation $y = -2\sin\left[\frac{2}{5}(\theta + \pi)\right] - 3$

Write an equation of the cosine function with the given information

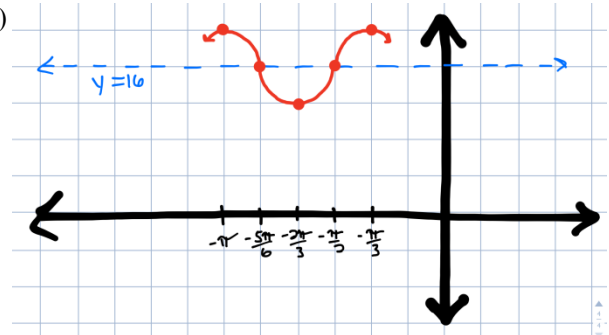
#3)



$$\begin{aligned} 180^\circ k &= 360^\circ \\ k &= 2 \end{aligned}$$

Equation $y = 3\cos[2(\theta + 45^\circ)] + 1$

#4)



$$y = 4\cos[3(\theta + \pi)] + 16$$

$$\begin{aligned} \frac{2\pi}{3} k &= 2\pi \\ k &= 2\pi \cdot \frac{3}{2\pi} \\ k &= 3 \end{aligned}$$

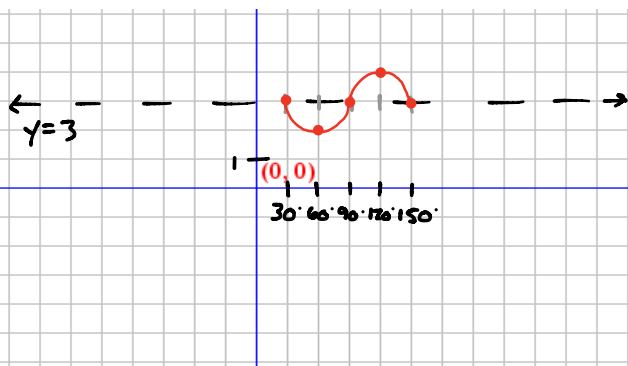
Equation $y = 4\cos[3(\theta + \pi)] + 16$

Graphs & Inverses of Trig Functions

2B – Graphing Sine & Cosine

Graph each function for at least one period.

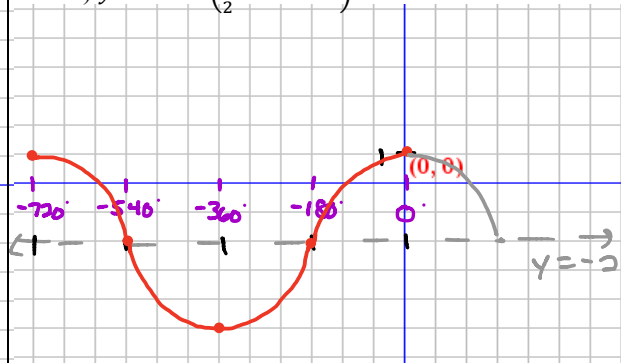
$y = -\sin[3(\theta - 30^\circ)] + 3$
 #5) $y = -\sin(3\theta - 90^\circ) + 3$



A: -1
 Amplitude: $|-1| = 1$
 Reflected over midline? **Yes**
 Vertical Displacement: 3
 Midline: $y = 3$
 Phase Shift: 30°
 Period: $120^\circ = \frac{360^\circ}{3}$

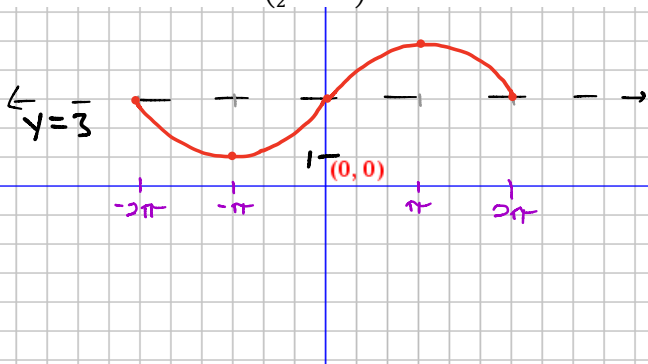
$y = 3 \cos[\frac{1}{2}(\theta + 720^\circ)] - 2$

#7) $y = 3 \cos(\frac{1}{2}\theta + 360^\circ) - 2$



A: 3
 Amplitude: $|3| = 3$
 Reflected over midline? **NO**
 Vertical Displacement: -2
 Midline: $y = -2$
 Phase Shift: -720°
 Period: $720^\circ = \frac{360^\circ}{\frac{1}{2}}$

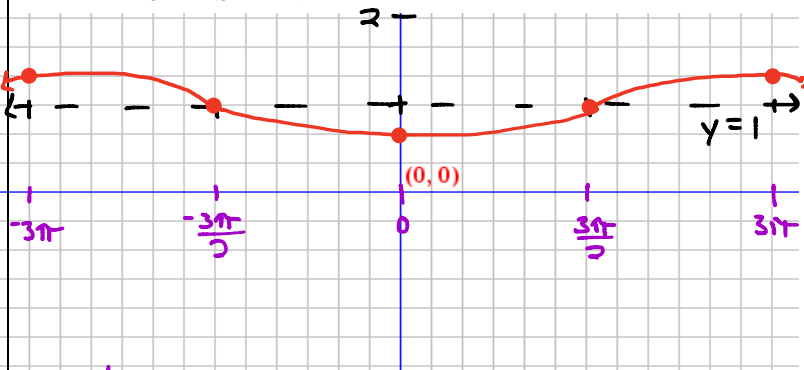
$y = -2 \sin[\frac{1}{2}(\theta + 2\pi)] + 3$
 #6) $y = -2 \sin(\frac{1}{2}\theta + \pi) + 3$



A: -2
 Amplitude: $|-2| = 2$
 Reflected over midline? **Yes**
 Vertical Displacement: 3
 Midline: $y = 3$
 Phase Shift: -2π
 Period: $4\pi = \frac{2\pi}{\frac{1}{2}}$

$y = \frac{1}{3} \cos[\frac{1}{3}(\theta + 3\pi)] + 1$

#8) $y = \frac{1}{3} \cos(\frac{1}{3}\theta + \pi) + 1$



A: $\frac{1}{3}$
 Amplitude: $|\frac{1}{3}| = \frac{1}{3}$
 Reflected over midline? **NO**
 Vertical Displacement: 1
 Midline: $y = 1$
 Phase Shift: -3π
 Period: $6\pi = \frac{2\pi}{\frac{1}{3}}$