

2.04 Practice Problems: Graphing Sine & Cosine Functions with Amplitude & Period

Practice #2

For #1 & 2, state the amplitude and period of each function. Then graph at least two periods of the function.

1. ~~$y = -3 \cos 6\theta$~~ $y = -2 \sin 2\theta$

Table/Chart:

Amplitude: _____

Period: _____

Graph:

2. ~~$y = 5 \sin \frac{2\theta}{3}$~~ $y = \frac{1}{2} \cos \left(\frac{\theta}{5} \right)$

Table/Chart:

Amplitude: _____

Period: _____

Graph:

3. Write the equation of a cosine function with amplitude of ~~$\frac{6}{11}$~~ $\frac{4}{3}$ and period of ~~$\frac{7\pi}{4}$~~ $\frac{11\pi}{5}$.

Graphing Sine & Cosine Functions (Amplitude, Period)

Practice #2

Key

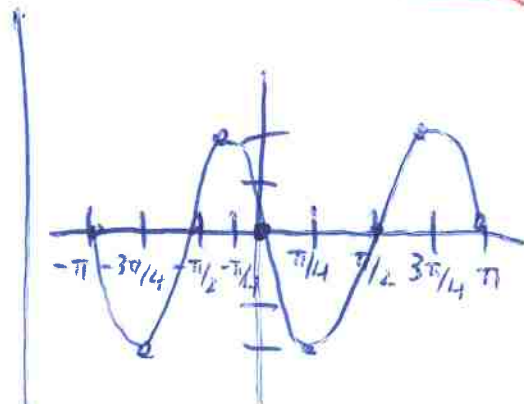
1) $y = -2 \sin 2\theta$

$a = -2$ $b = 2$

period = $\frac{2\pi}{b} \rightarrow \frac{2\pi}{2} \rightarrow \pi$

$I = \frac{P}{4} \rightarrow \frac{\pi}{4}$

θ	0	$\frac{\pi}{4}$	$\frac{\pi}{2}$	$\frac{3\pi}{4}$	π
$\sin 2\theta$	0	1	0	-1	0
$-2 \sin 2\theta$	0	-2	0	2	0



Amplitude: 2

period: π

2) $y = \frac{1}{2} \cos\left(\frac{\theta}{5}\right)$

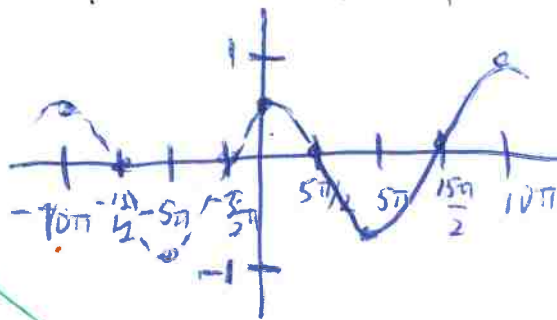
$a = \frac{1}{2}$ $b = \frac{1}{5}$

period = $\frac{2\pi}{b} \rightarrow \frac{2\pi}{1/5} \rightarrow 2\pi \cdot 5 = 10\pi$

$I = \frac{P}{4} \rightarrow \frac{10\pi}{4} \rightarrow \frac{5\pi}{2}$

Amplitude: $\frac{1}{2}$ period: 10π

θ	0	$\frac{5\pi}{2}$	$\frac{10\pi}{2}$	$\frac{15\pi}{2}$	$\frac{20\pi}{2}$
$\cos \theta$	1	0	-1	0	1
$\frac{1}{2} \cos \theta$	$\frac{1}{2}$	0	$-\frac{1}{2}$	0	$\frac{1}{2}$



3) Write equation of cosine function:
Amplitude of $\frac{4}{3}$ and
period of $\frac{11\pi}{5}$

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

$11\pi b = 10\pi$

$b = \frac{10\pi}{11\pi}$

$b = \frac{10}{11}$

$a = \pm \frac{4}{3}$

$y = a \cos(b\theta)$

$y = \pm \frac{4}{3} \cos\left(\frac{10}{11}\theta\right)$

~~$\frac{11\pi}{5} = \frac{2\pi}{b}$~~