

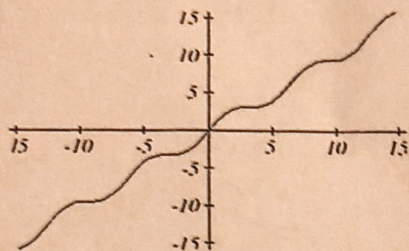
Name: Key

Hour: 2 Date: _____

Graphs of Periodic Functions Review

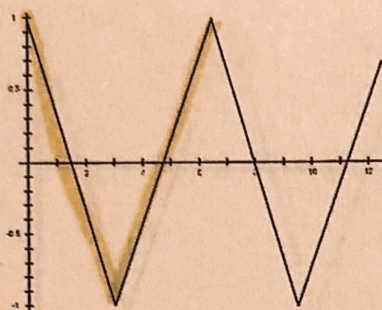
DIRECTIONS: Determine if the following graphs represent periodic functions. If not, explain why. If the graph is periodic find the period.

1)



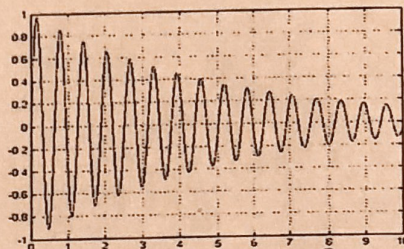
No! The function is increasing.

2)



Yes!
Period = 6

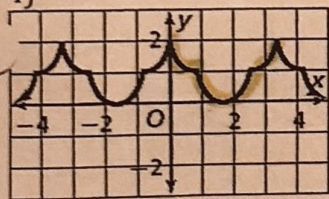
3)



No! The function is decreasing.

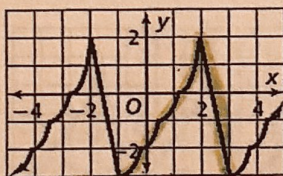
DIRECTIONS: (a) Highlight one cycle of each of the following periodic graphs. (b) Find the period. (c) Find the amplitude.

4)



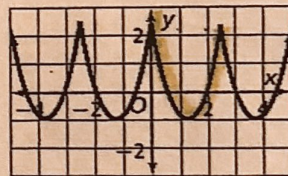
b) Period = 3.5
c) Amplitude = $\frac{1}{2}(2-0) = 1$

5)



b) Period = 4
c) Amplitude = $\frac{1}{2}(2-(-3)) = \frac{1}{2}(5) = 2.5$

6)



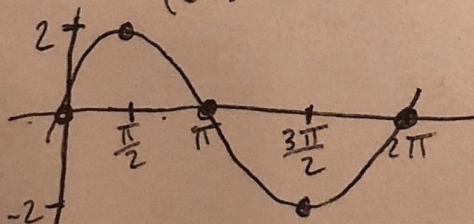
b) Period = 2.5
c) Amplitude = $\frac{1}{2}(2-(-1)) = \frac{1}{2}(3) = 1.5$

DIRECTIONS: Graph one cycle of each of the following trig functions. YOU MUST INCLUDE A TABLE.

7) $y = 2\sin\theta$

$a=2$
 $b=1$
Period = 2π

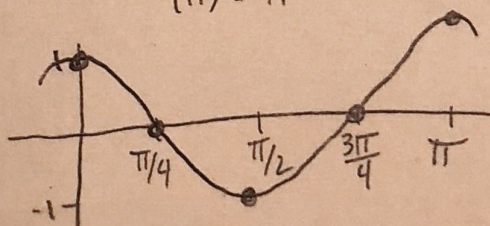
θ	y
$0(2\pi) = 0$	0
$\frac{1}{4}(2\pi) = \frac{2\pi}{4} = \frac{\pi}{2}$	2
$\frac{1}{2}(2\pi) = \frac{2\pi}{2} = \pi$	0
$\frac{3}{4}(2\pi) = \frac{6\pi}{4} = \frac{3\pi}{2}$	-2
$1(2\pi) = 2\pi$	0



8) $y = \cos(2\theta)$

$a=1$
 $b=2$
Period: π

θ	y
$0(\pi) = 0$	1
$\frac{1}{4}(\pi) = \frac{\pi}{4}$	0
$\frac{1}{2}(\pi) = \frac{\pi}{2}$	-1
$\frac{3}{4}(\pi) = \frac{3\pi}{4}$	0
$1(\pi) = \pi$	1



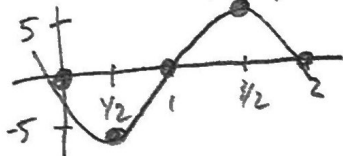
9) $y = -5\sin(\pi\theta)$

$a = -5$

$b = \pi$

Period = 2

θ	y
0(2) = 0	0
$\frac{1}{4}(2) = \frac{1}{2}$	-5
$\frac{1}{2}(2) = 1$	0
$\frac{3}{4}(2) = \frac{3}{2}$	5
$1(2) = 2$	0



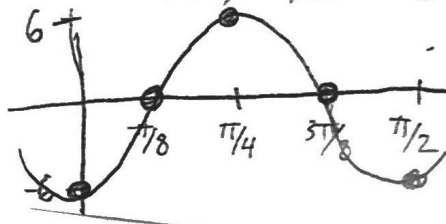
10) $y = -6\cos(4\theta)$

$a = -6$

$b = 4$

Period = $\frac{\pi}{2}$

θ	y
0 ($\pi/2$) = 0	-6
$\frac{1}{4}(\pi/2) = \pi/8$	0
$\frac{1}{2}(\pi/2) = \pi/4$	6
$\frac{3}{4}(\pi/2) = 3\pi/8$	0
$1(\pi/2) = \pi/2$	-6



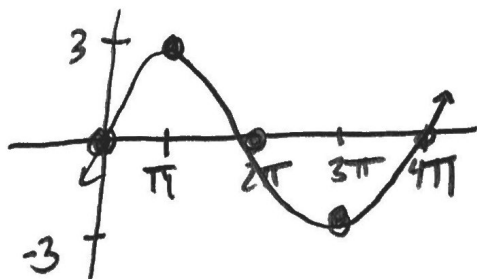
11) $y = 3\sin\frac{\theta}{2}$

$a = 3$

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

Period = $\frac{2\pi}{1/2} = 4\pi$

θ	y
0	0
π	3
2π	0
3π	-3
4π	0



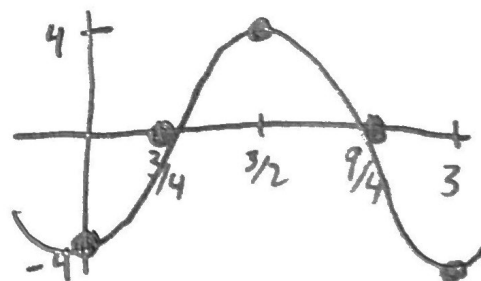
12) $y = -4\cos\frac{2\pi\theta}{3}$

$a = -4$

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

Period = $\frac{2\pi}{2\pi/3} = 3$

θ	y
0	-4
$\frac{3}{4}$	0
$\frac{3}{2}$	4
$\frac{9}{4}$	0
3	-4



DIRECTIONS: Write an equation that matches the given description.

13) A positive cosine function with amplitude of 3 and period of 4π .

$y = a\cos b\theta$

$a = 3$

$b = \frac{2\pi}{4\pi} = \frac{1}{2}$

$y = 3\cos\frac{1}{2}\theta$

14) A negative sine function with amplitude of 4 and period of 3.

$y = -a\sin b\theta$

$a = -1$

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

$y = -\sin\frac{2\pi}{3}\theta$

15) A positive sine function with amplitude of 10 and period of π .

$y = a\sin b\theta$

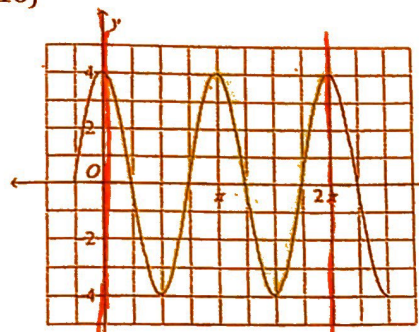
$a = 10$

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

$y = 10\sin 2\theta$

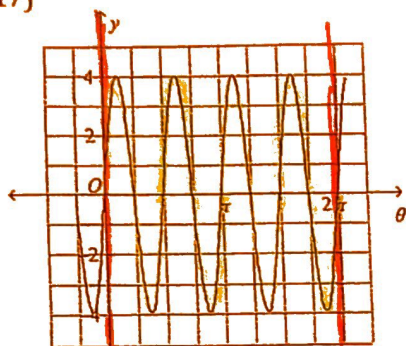
DIRECTIONS: Write an equation that satisfies the given periodic graph.

16)



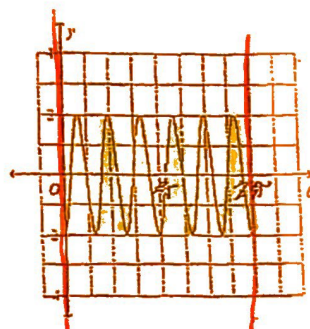
$$y = 4 \cos 2\theta$$

17)



$$y = 4 \sin 4\theta$$

18)



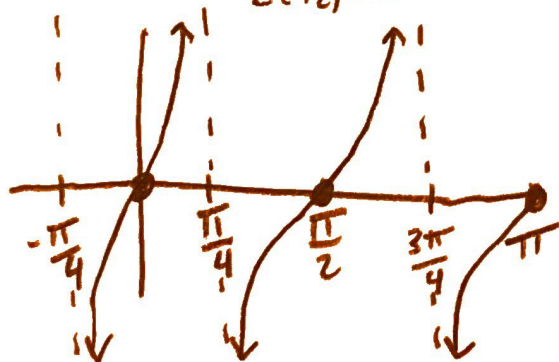
$$y = -2 \cos 6\theta$$

Graph two cycles of the following tangent functions. YOU MUST INCLUDE A TABLE.

19) $y = \tan 2\theta$

$a = 1$
 $b = 2$
 Period = $\frac{\pi}{2}$

θ	y
$0(\frac{\pi}{2}) = 0$	0
$\frac{1}{2}(\frac{\pi}{2}) = \frac{\pi}{4}$	und.
$1(\frac{\pi}{2}) = \frac{\pi}{2}$	0
$\frac{3}{2}(\frac{\pi}{2}) = \frac{3\pi}{4}$	und.
$2(\frac{\pi}{2}) = \pi$	0



20) $y = -2 \tan \frac{\theta}{4}$

$a = -2$
 $b = \frac{1}{4}$
 Period = $\frac{\pi}{1} \cdot \frac{4}{1} = 4\pi$

θ	y
$0(4\pi) = 0$	0
$\frac{1}{2}(4\pi) = 2\pi$	und.
$1(4\pi) = 4\pi$	0
$\frac{3}{2}(4\pi) = 6\pi$	und.
$2(4\pi) = 8\pi$	0

