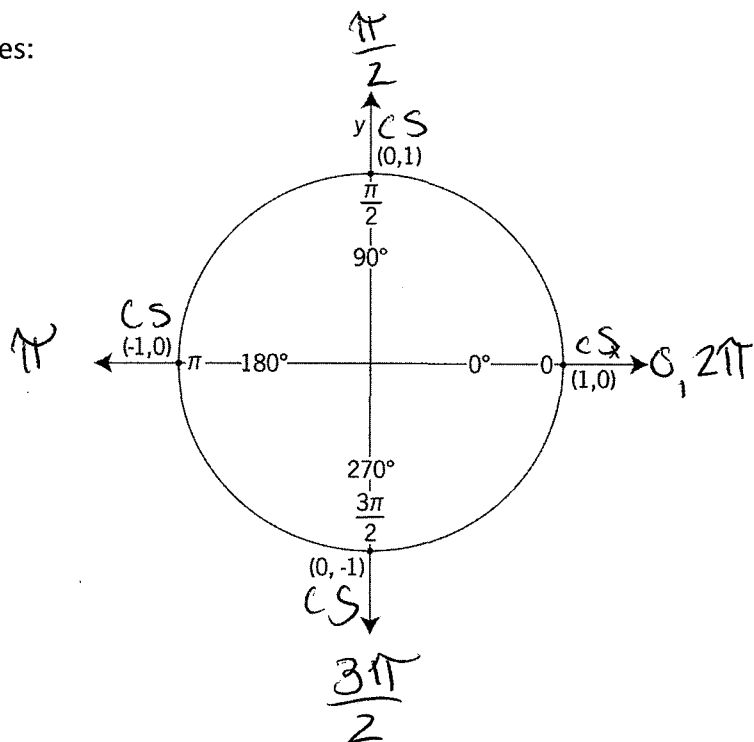


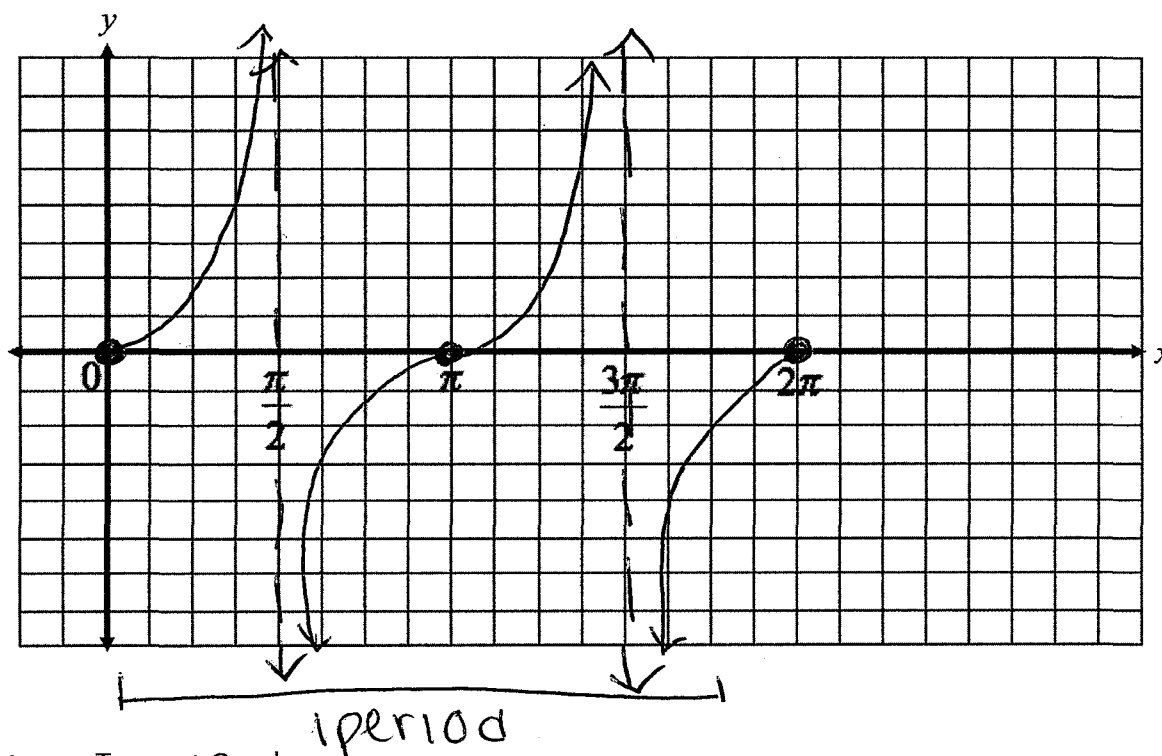
LESSON #4: GRAPHING TANGENT

Do Now: Using the Unit Circle to fill in the table of values:

θ	$\tan \theta = \frac{\sin \theta}{\cos \theta}$
$\frac{\pi}{2}$	$\frac{1}{0} = \text{und.}$
π	$\frac{0}{-1} = 0$
$\frac{3\pi}{2}$	$\frac{-1}{0} = \text{und.}$
2π	$\frac{0}{1} = 0$



Graph $y = \tan x$ from 0 to 2π

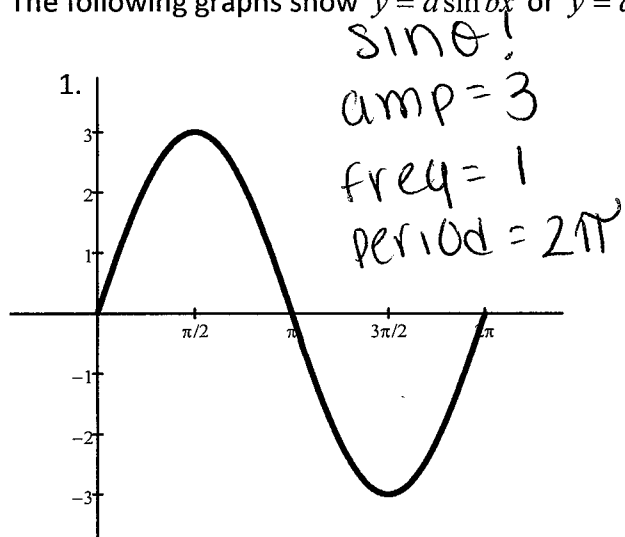


Notes on Tangent Graph

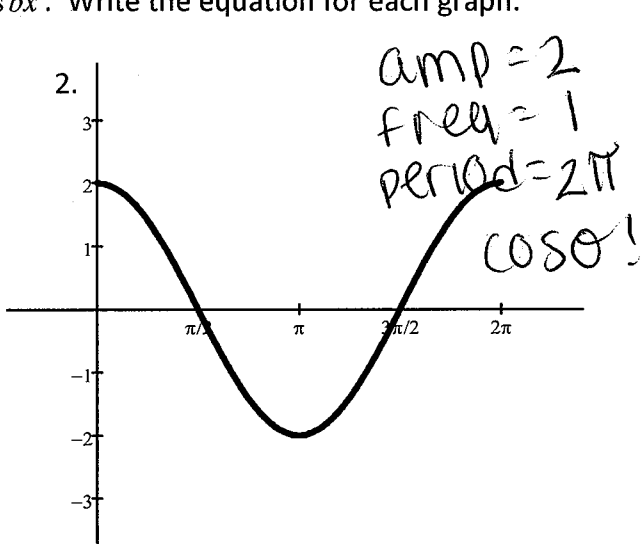
- positive in QI and QIII
- asymptotes every $\frac{\pi}{2}$ radians (when $\cos \theta = 0$)
- NO max or min points

Graphs of Trig Equations: More Practice

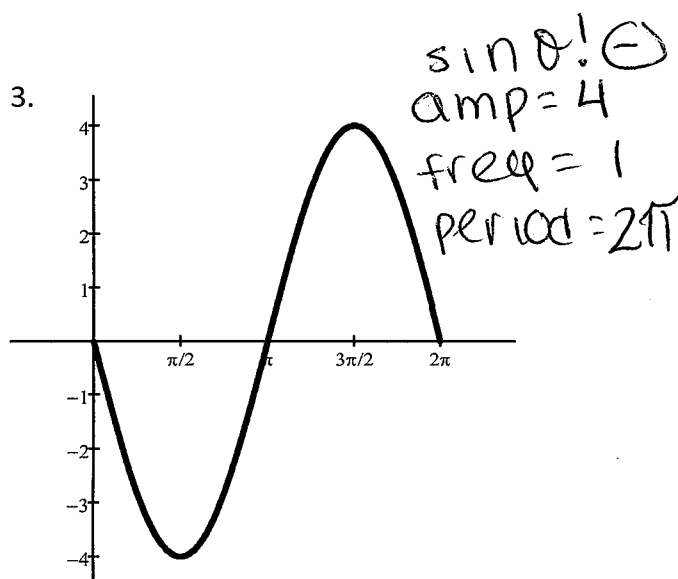
The following graphs show $y = a \sin bx$ or $y = a \cos bx$. Write the equation for each graph.



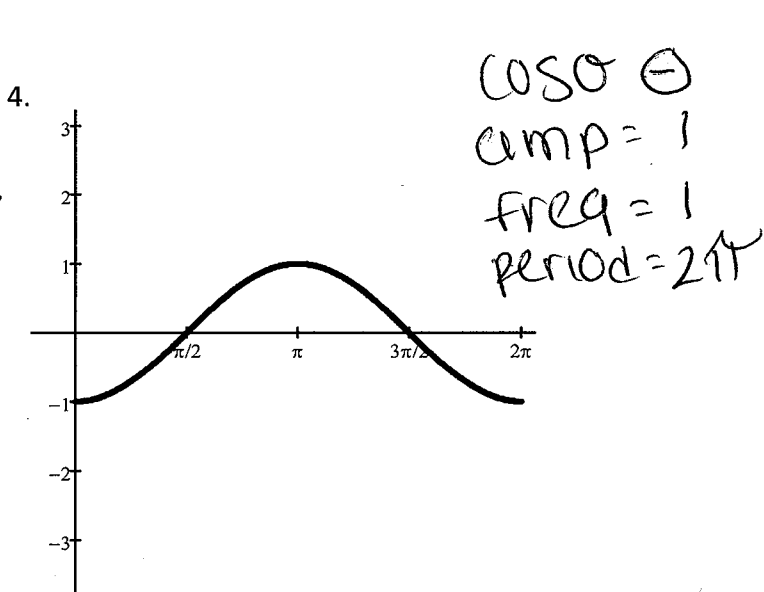
Equation $y = 3 \sin x$



Equation $y = 2 \cos \theta$



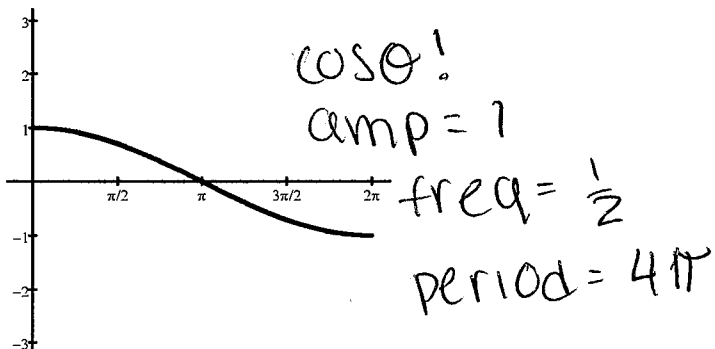
Equation $y = 4 \sin x$



Equation $y = -\cos x$

5. Which is an equation of the graph shown?

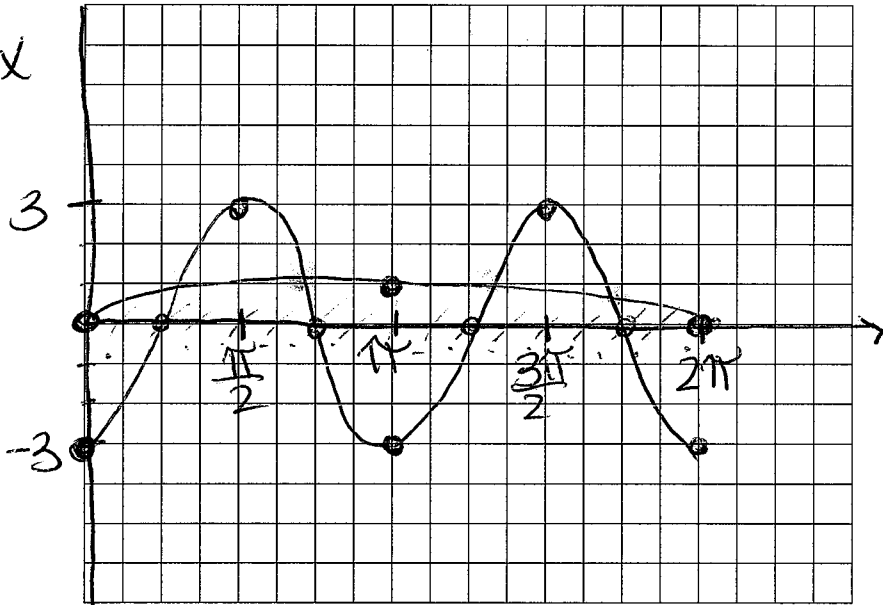
- (1) $y = \frac{1}{2} \cos x$ (3) $y = \cos \frac{1}{2} x$
 (2) $y = \frac{1}{2} \sin x$ (4) $y = \cos 2x$



Partner Practice:

6. On the same set of axes from 0 to 2π , graph $y = -3 \cos 2x$ and $y = \sin \frac{1}{2}x$.

$y = -3 \cos 2x$
 amp = 3
 freq = 2
 period = π



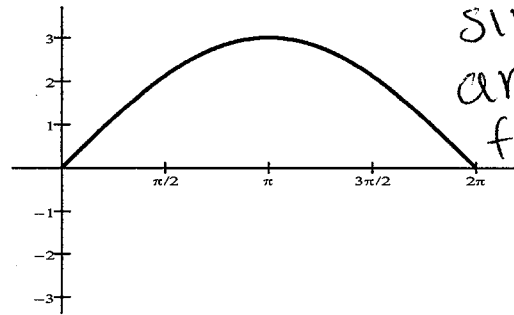
$y = \sin \frac{1}{2}x$
 amp = 1
 freq = $\frac{1}{2}$
 period = 4π

How many points satisfy the equation $-3 \cos 2x = \sin \frac{1}{2}x$?

4

7. What is the equation of the graph shown?

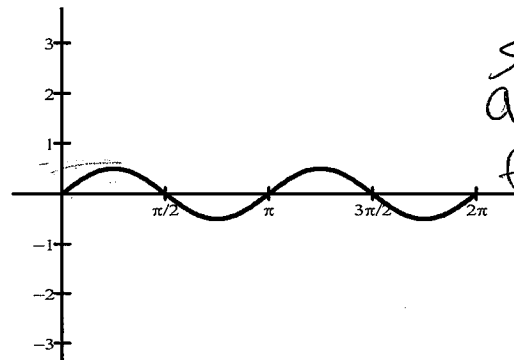
- (1) $y = 3 \sin x$ (3) $y = 3 \cos x$
 (2) $y = 3 \sin \left(\frac{1}{2}x\right)$ (4) $y = 3 \cos \left(\frac{1}{2}x\right)$



$\sin \theta$
 amp = 3
 freq = $\frac{1}{2}$

8. What is the equation of the graph shown?

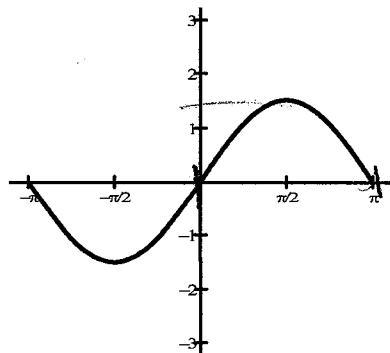
- (1) $y = 2 \sin \frac{1}{2}x$ (3) $y = \frac{1}{2} \sin 2x$
 (2) $y = \frac{1}{2} \cos x$ (4) $y = \frac{1}{2} \sin \frac{1}{2}x$



$\sin \theta$
 amp = $\frac{1}{2}$
 freq = 2

9. What is the equation of the graph shown?

- (1) $y = \sin x$ (3) $y = \sin 1.5x$
 (2) $y = 1.5 \sin x$ (4) $y = 2 \sin x$



* $\sin \theta$
 amp = 1.5
 freq = 1

LAB#2

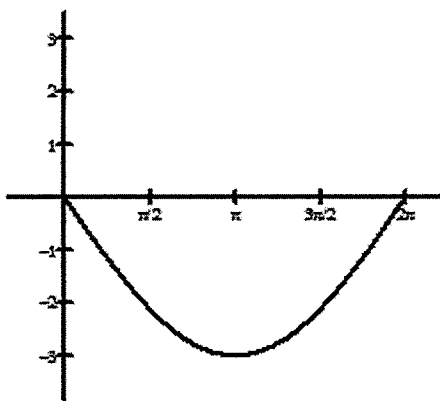
1. As angle x increases from 90° to 180° , which of the following is true?

- (1) $\sin x$ decreases from 0 to -1
- (2) $\sin x$ increases from 0 to 1
- (3) $\sin x$ increases from -1 to 0
- (4) $\sin x$ decreases from 1 to 0

2. As x increases from 0 to $\frac{\pi}{2}$, the graph of the equation $y = 2 \tan x$ will

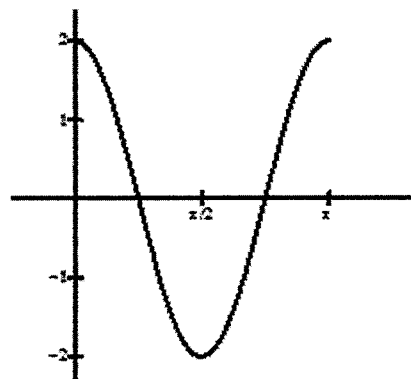
- (1) increase from 0 to 2
- (2) decrease from 0 to -2
- (3) increase without limit
- (4) decrease without limit

3. Write an equation for the graph shown:



Equation _____

4. Write an equation for the graph shown:



Equation _____

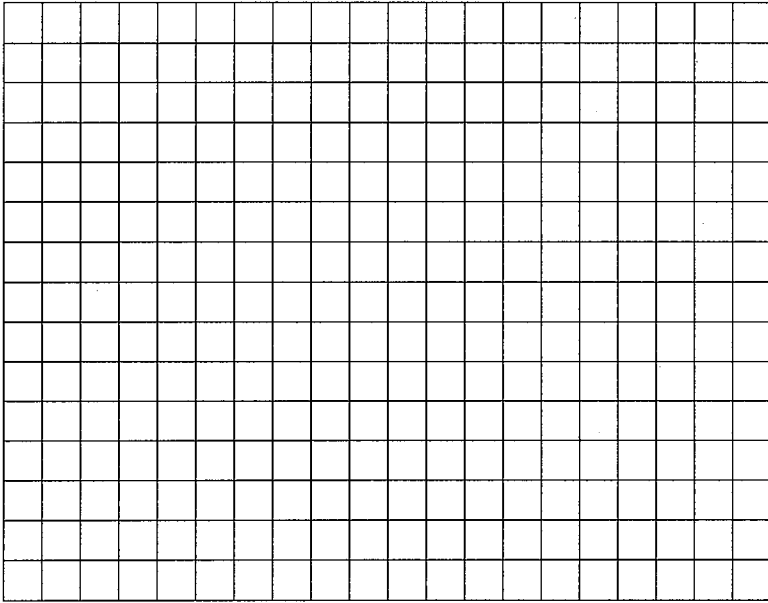
5. For the graph $y = -3 \sin 2x$, find the:

- a. Amplitude _____
- b. Frequency _____
- c. Period. _____

6. Which equation represents an odd function?

- (1) $y = \sin x$
- (2) $y = \cos x$
- (3) $y = (x + 1)^3$
- (4) $y = e^{5x}$

7. Graph $y = 4\sin 2x$ from $0 \leq x \leq 2\pi$



Window

Xmin	
Xmax	
Xscl	
Ymin	
Ymax	
Yscl	

8. Find the value k so that $(x^2 + kx - 10) \div (x + 3)$ has a remainder of 5.

9. Simplify: (Hint: Multiply by the LCD!)

$$\frac{\left(2 + \frac{m}{n}\right)}{\left(\frac{m}{n} - \frac{4n}{m}\right)}$$

