

* No Calculators!

Pre-Calculus
1.5 Graphs of Sine and Cosine Functions
Assignment #44

Name Key
Period _____ Group # _____

Determine the amplitude and period of each function.

1. $y = \sin 4x$
Amplitude = 1
Period = $\pi/2$

2. $y = \cos 5x$
Amplitude = 1
Period = $2\pi/5$

3. $y = \sin x$
Amplitude = 1
Period = 2π

4. $y = 4 \cos x$
Amplitude = 4
Period = 2π

5. $y = -2 \sin x$
Amplitude = 2
Period = 2π

6. $y = 2 \sin(-4x)$
Amplitude = 2
Period = $\pi/2$

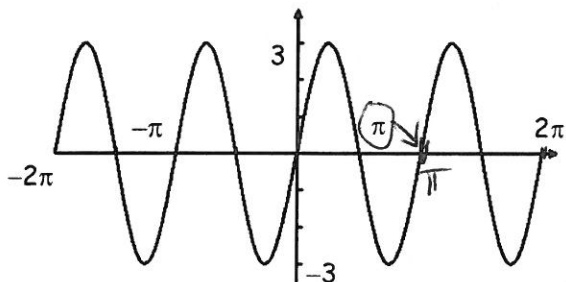
7. $y = 3 \sin \frac{2}{3}x$
Amplitude = 3
Period = 3π

8. $y = -4 \cos 5x$
Amplitude = 4
Period = $2\pi/5$

9. $y = 3 \cos(-2x)$
Amplitude = 3
Period = π

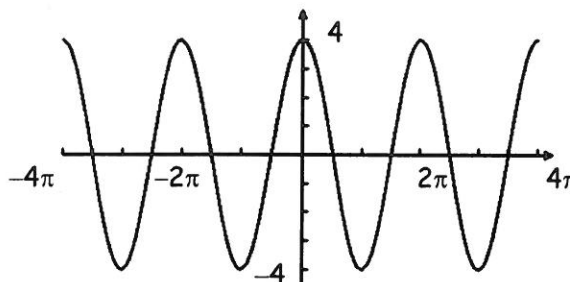
Give the amplitude and period of each function graphed below. Then write an equation of each graph.

10.



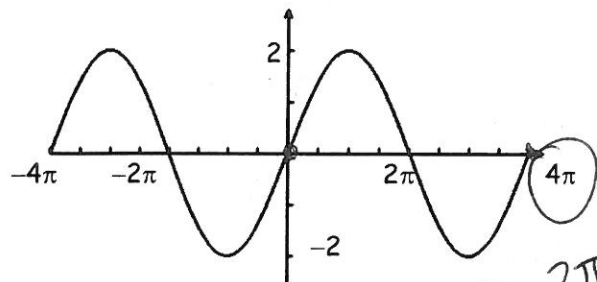
Amplitude = 3
Period = π $\Rightarrow B = 2$
Equation: $y = 3 \sin 2x$

11.



Amplitude = 4
Period = 2π $\Rightarrow B = 1$
Equation: $y = 4 \cos x$

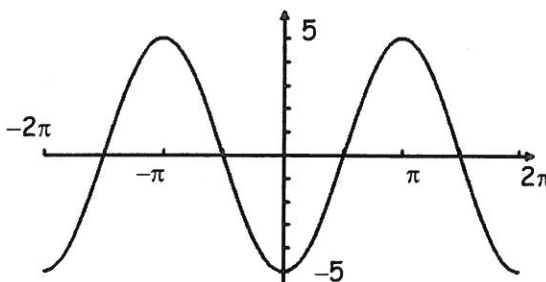
12.



Amplitude = 2
Period = 4π $\Rightarrow B = 1/2$
Equation: $y = 2 \sin \frac{1}{2}x$

$\frac{2\pi}{B} = 4\pi$
 $\frac{2\pi}{4\pi} = B$

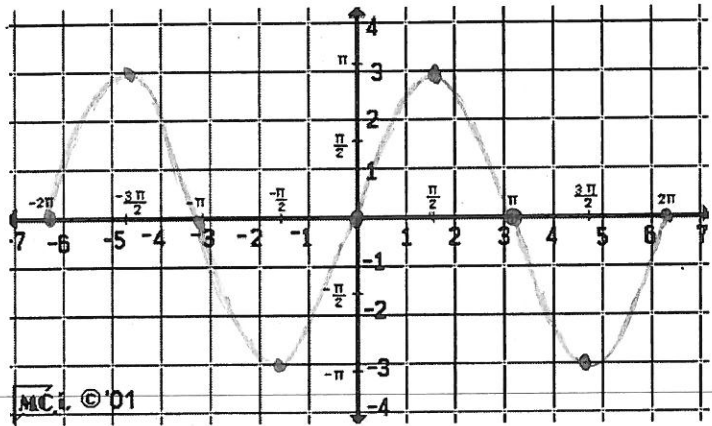
13.



Amplitude = 5
Period = 2π $\Rightarrow B = 1$
Equation: $y = -5 \cos x$

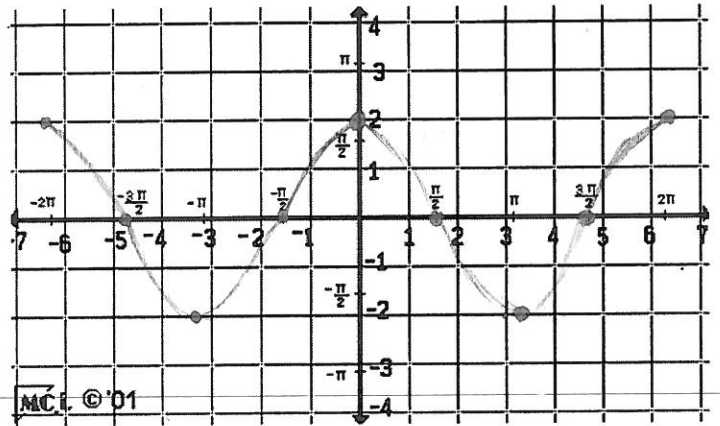
Give the amplitude and period of each function. Then sketch the graph of the function over the interval $-2\pi \leq x \leq 2\pi$ using the key points for each function.

14. $y = 3 \sin x$



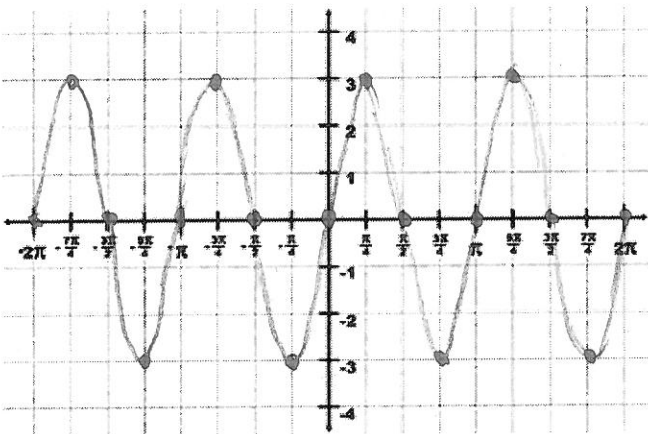
Amplitude = 3
 Period = 2π

15. $y = 2 \cos x$



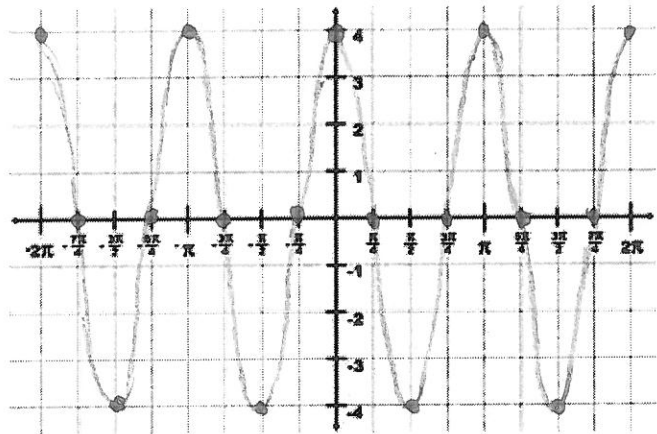
Amplitude = 2
 Period = 2π

16. $y = 3 \sin 2x$



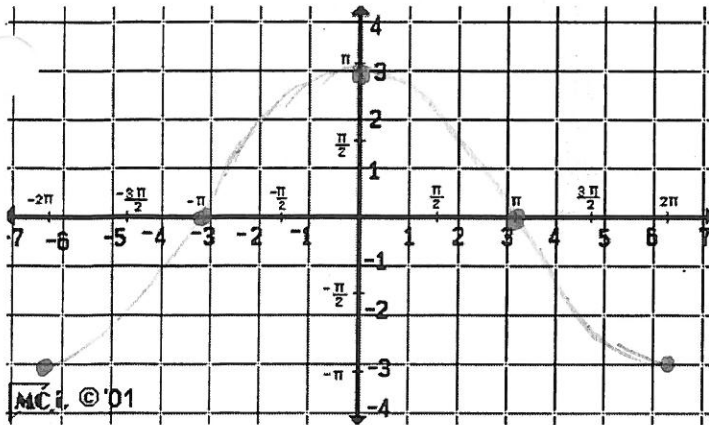
Amplitude = 3
 Period = π

17. $y = 4 \cos 2x$



Amplitude = 4
 Period = π

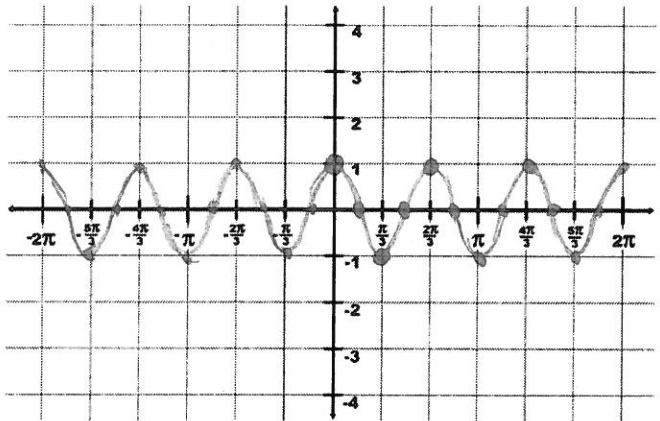
18. $y = 3 \cos \frac{1}{2} x$



Amplitude = 3
 Period = 4π

19. $y = \cos(-3x)$

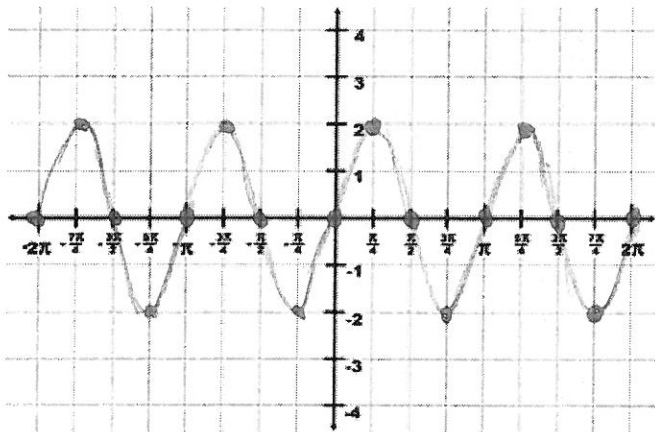
reflects over y-axis
 can't see change here



Amplitude = 1
 Period = 2π/3

20. $y = -2 \sin(-2x)$

reflects over x
 reflects over y
 so looks normal!



Amplitude = 2
 Period = π

21. Find an equation for a sine function that has amplitude of 4, a period of π.

→ B = 2

$y = 4 \sin 2x$

22. Find an equation for a cosine function that has an amplitude of $\frac{3}{5}$, a period of $\frac{3}{2}\pi$.

$y = \frac{3}{5} \cos \frac{4}{3}x$

B = 4/3

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

$\frac{4\pi}{3\pi} = \frac{B(3\pi)}{3\pi}$

23. Find an equation for a sine function that has amplitude of 5, a period of 3π .

$y = 5 \sin \frac{2}{3}x$

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

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

No calculators!

HOW OFTEN DID THE STUDENT WHO GOT "C" ON HIS TRIG FUNCTIONS TEST DO HIS HOMEWORK?

$$f(x) = A\sin(Bx) \quad f(x) = A\cos(Bx)$$

|A| = Amplitude

B represents the number of complete waves in an interval of 2π , therefore $\frac{2\pi}{B} = \text{Period}$

1) $f(x) = 2\sin x$	2) $f(x) = \sin(2x)$ <i>E</i>	3) $f(x) = \sin \frac{x}{4}$ <i>I</i>	4) $f(x) = \cos\left(\frac{1}{2}x\right)$ <i>C</i>
5) $f(x) = \cos(3x)$ <i>O</i>	6) $f(x) = \frac{1}{2}\sin(3x)$ <i>L</i>	9) $f(x) = \frac{3}{2}\sin\left(\frac{1}{2}x\right)$ <i>K</i>	10) $f(x) = 4\cos(\pi x)$
7) $f(x) = 3\sin(2x)$	8) $f(x) = 4\sin x$	11) $f(x) = 3\sin \frac{x}{3}$	12) $f(x) = 2\cos(3x)$ <i>P</i>

Match each function from above with a graph below.

<p>A. </p>	<p>C. </p>	<p>D. </p>
<p>E. </p>	<p>I. </p>	<p>I. </p>
<p>L. </p>	<p>L. </p>	<p></p>
<p>P. </p>	<p>R. </p>	<p></p>

This is messed up & didn't realize until making key - DON'T DO

	<i>E</i>		<i>I</i>	<i>O</i>			<i>C</i>	<i>I</i>	<i>P</i>	<i>L</i>	
8	2	11	3	5	1	7	4	9	12	6	10