NAME ______________________

Packet 1 Homework

Complete the following AFTER completing Packet #1. Use concepts from the Unit Circle AND the new graphs we are not confident in.

Find each value by referring to the graph of the sine or cosine function.

1. $\cos 8\pi$

2. $\sin 11\pi$

3. $\cos \frac{\pi}{2}$

4. $\sin\left(-\frac{3\pi}{2}\right)$

5. $\sin\left(\frac{7\pi}{2}\right)$

6. $\cos(-3\pi)$

7. What is the value of $\sin \pi + \cos \pi$?

8. Find the value of $\sin 2\pi - \cos 2\pi$.

Find the values of θ for which each equation is true.

9. $\cos\theta = -1$

10. $\sin\theta = 1$

11. $\cos\theta = 0$

Find each value by referring to the graphs of the trigonometric functions.

12. $\cot\left(\frac{5\pi}{2}\right)$

13. $\tan(-8\pi)$

14. $\sec\left(\frac{9\pi}{2}\right)$

15. $\csc\left(-\frac{5\pi}{2}\right)$

16. $\sec(7\pi)$

17. $\cot(-5\pi)$

18. What is the value of $\csc(-6\pi)$?

19. Find the value of $\tan(10\pi)$.

Find the values of θ for which each equation is true.

20. $\tan\theta = 0$

21. $\sec\theta = 1$

22. $\csc\theta = -1$

23. $\tan\theta = 1$

24. $\tan\theta = -1$

25. $\cot\theta = -1$

26. What are the values of θ for which $\sec\theta$ is undefined?

27. Find the values of θ for which $\cot\theta$ is undefined.

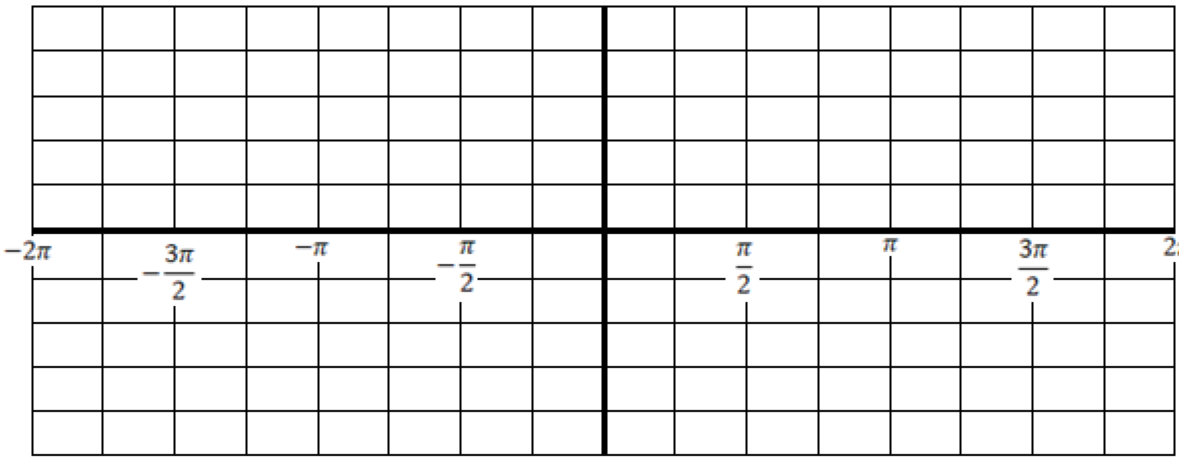
<u>Packet 2 Homework</u>

Day 1

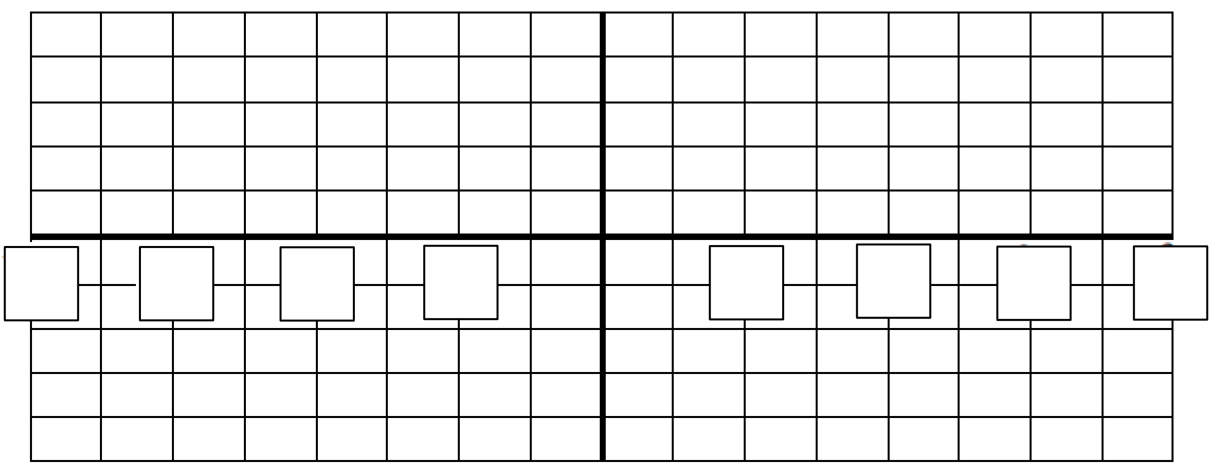
Complete the following AFTER completing Packet #2 Day 1

Graph the following.

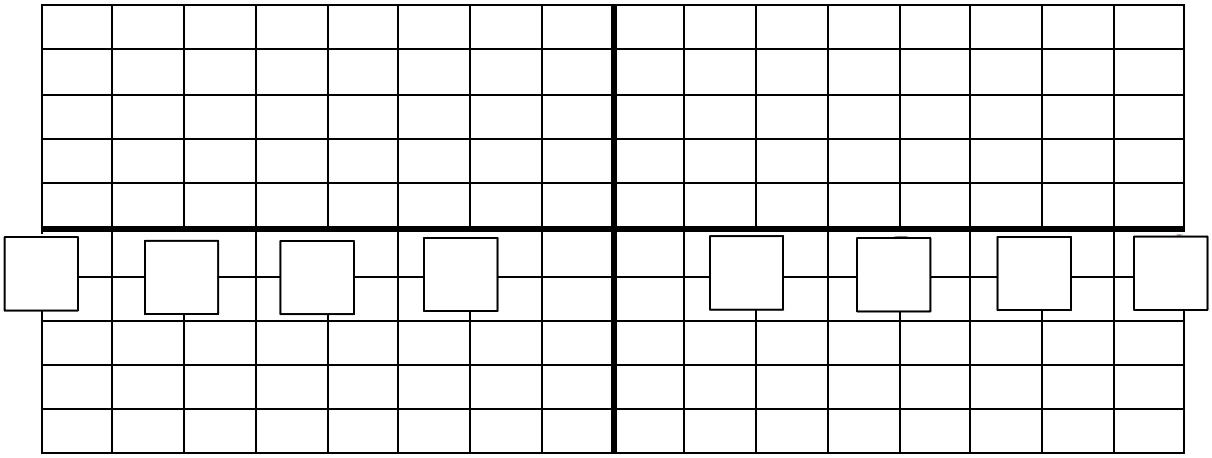
1. $y = 5\cos\theta$



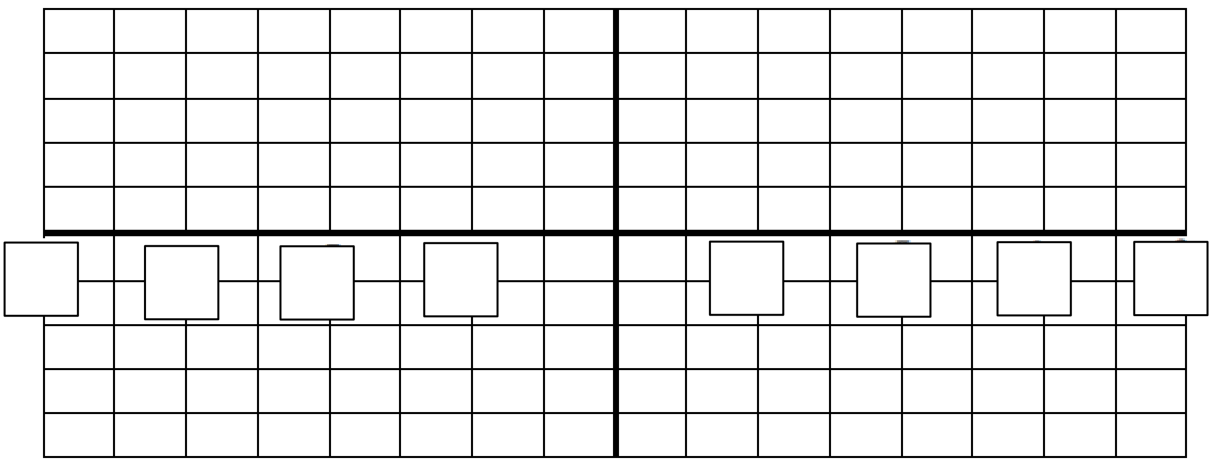
2. $y = -\frac{2}{5}\sin(4\theta)$



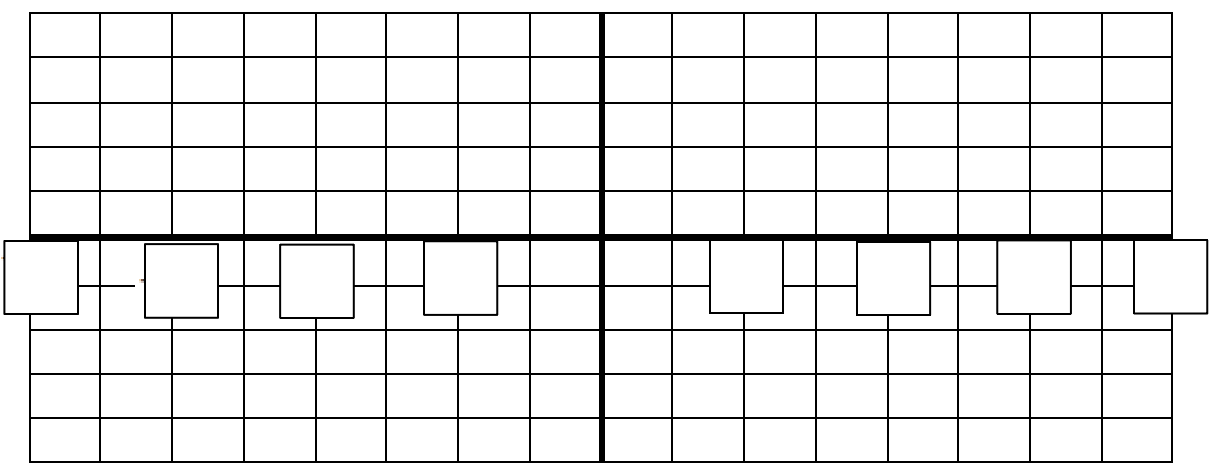
3. $y = -3\sin(\frac{\pi}{2}\theta)$



4. $y = -3\sin(2\theta)$



5. Y = cos ($3\pi\theta$)



Write an equation of the function with each amplitude and period.

6. Sine function with Amplitude .4 period: 10π

7. Cosine function with Amplitude 35.7 period: $\frac{\pi}{4}$

8. Cosine function with Amplitude 1/4 period: $\frac{\pi}{3}$

9. Sine function with Amplitude 4.5 period: $\frac{5\pi}{4}$

10. Cosine function with Amplitude $\frac{2}{5}$ period: 6π

Packet 2 Day 2

Complete the following AFTER completing Packet #2 Day 2

State the phase shift for each function.

1. $y = \sin(\theta - 2\pi)$

2. $y = \sin(2\theta + \pi)$

3. $y = 2\cos\left(\frac{\theta}{4} + \frac{\pi}{2}\right)$

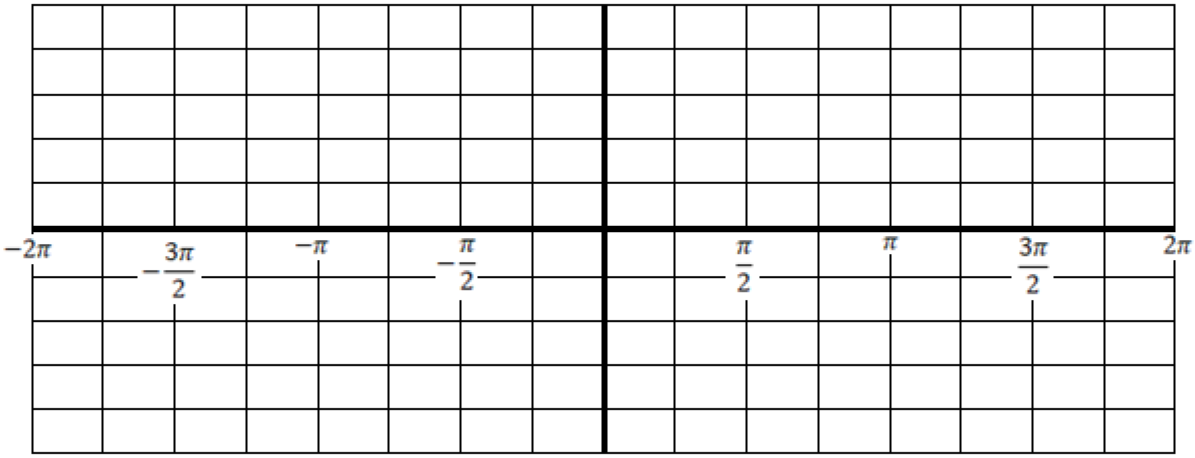
4. **State the vertical shift for each function.**
5. $y = \sin\frac{\theta}{4} + \frac{1}{2}$

6. $y = 5\cos\theta - 4$

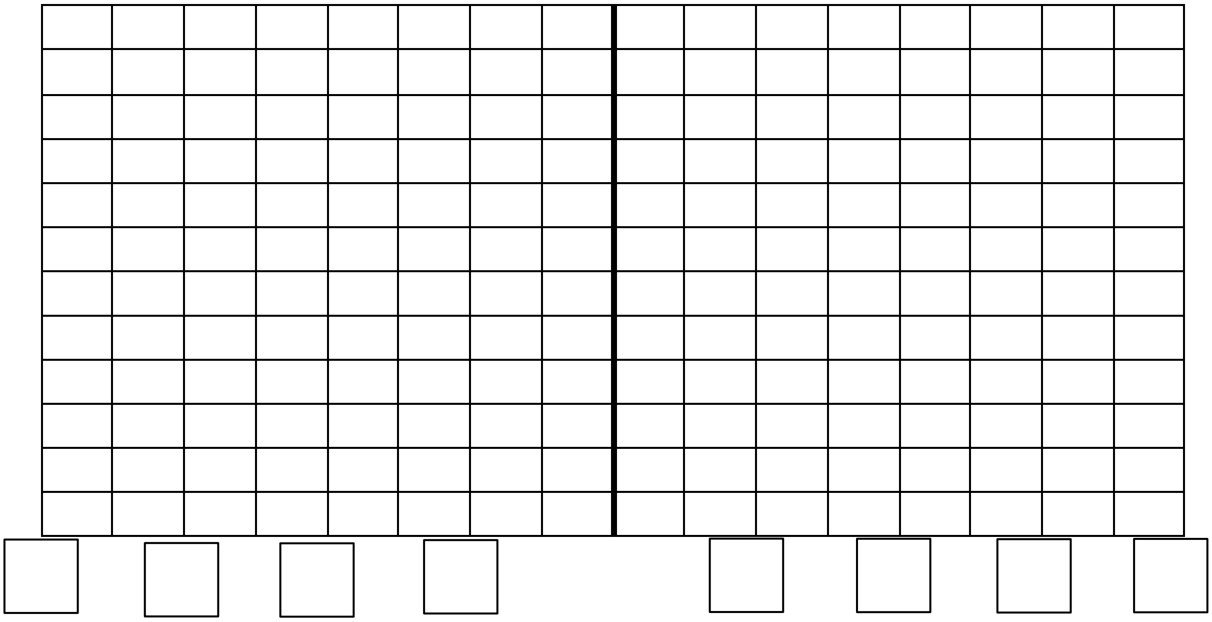
7. $y = 7 + \sin\theta$

State the amplitude, period, vertical shift and phase shift of each function, and then graph the function

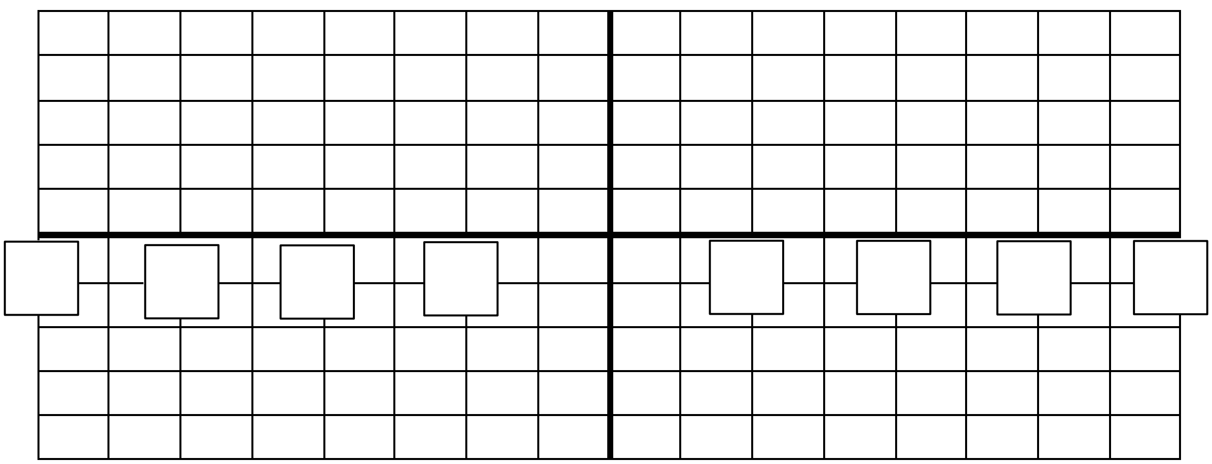
8. $y = 3\cos(\theta - \frac{\pi}{2})$



10. $y = 20 + 5\cos(3\theta + \pi)$



11. $y = 10\sin(\frac{\theta}{4} - 4\pi)$



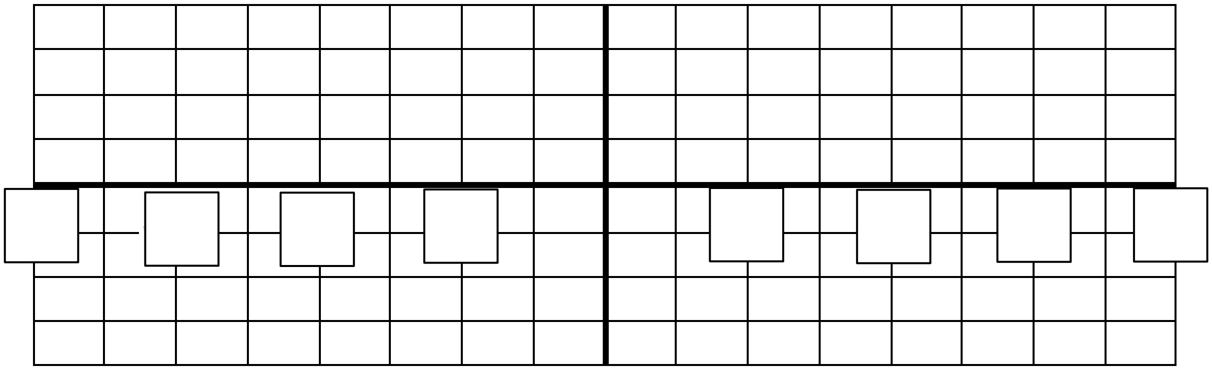
Packet 2 Day 3

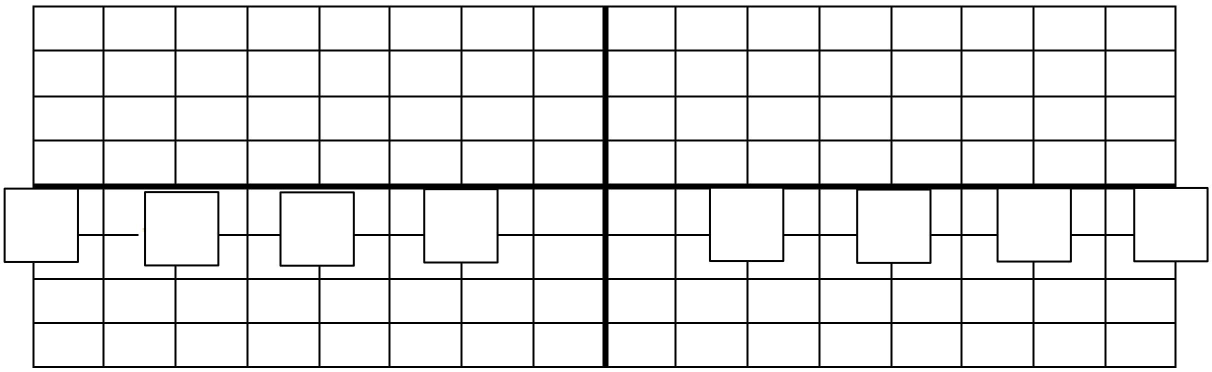
Graphing Translations of Trig Functions Homework

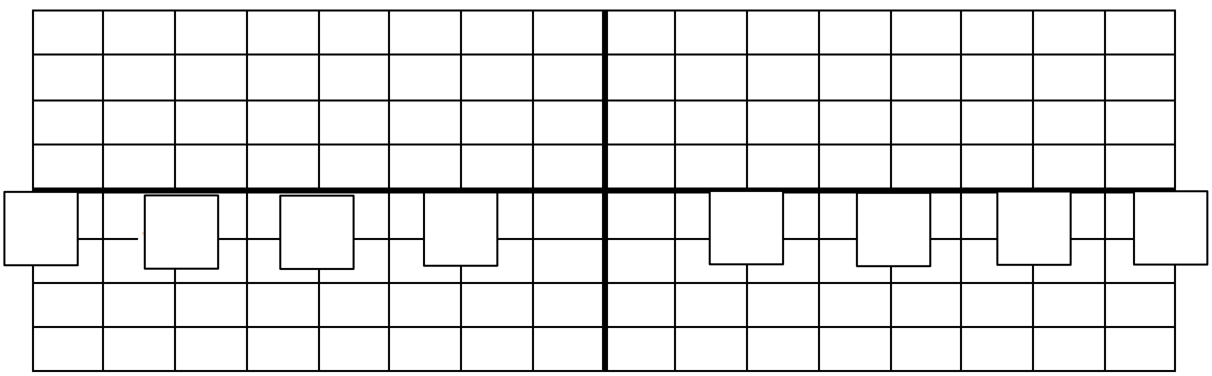
Using graph paper, graph each function using the table to make appropriate changes. Then, once you have completed each graph, enter the function in your graphing calculator (in radian mode) and adjust the window to $\{-2\pi \le x \le 2\pi\}$ by $\frac{\pi}{2}$'s, and $\{-3 \le y \le 3\}$ by 1's. Check your calculator graph with your sketch for accuracy. *SHOW ALL WORK!*

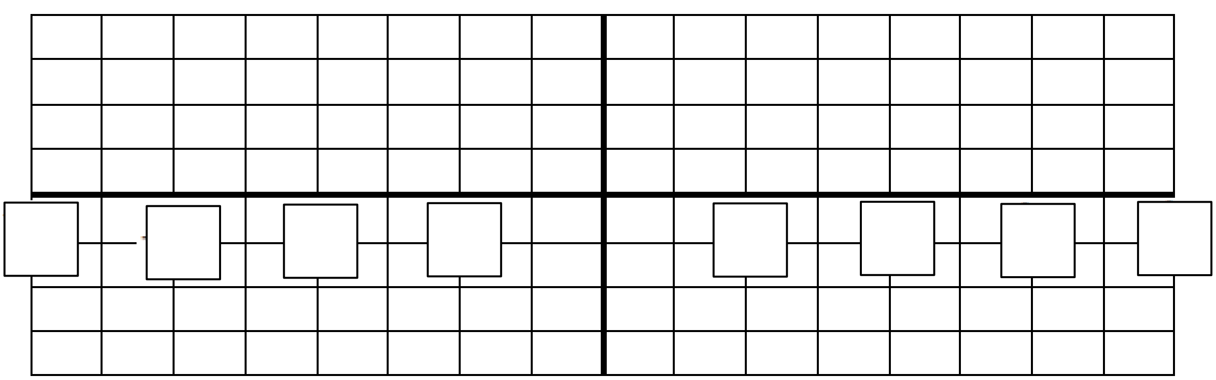
No.	Function	Amplitude	Flipped	Period	Phase Shift	Up / Down
1	$y = \sin(x + \frac{\pi}{4})$					
2	$y = 2 + 3\sin(x)$					
3	$y = 2\sin(\frac{1}{3}x)$					
4	$y = 2\cos(3x - \pi)$					
5	$y = \cos(\pi x - \frac{\pi}{4})$					
6	$y = -4\cos(2x - \frac{\pi}{2})$					
7	$y = \tan(2x)$					
8	$y = -csc\left(x + \frac{\pi}{4}\right)$					
9	$y = 2\tan(x) + 1$					
10	$y = \csc(2x - 3\pi)$					

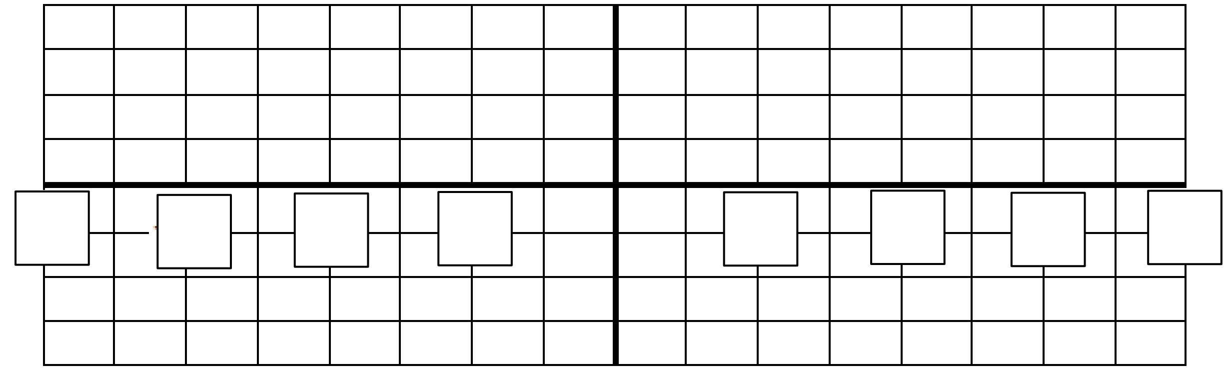
Still need help? Visit: http://www.youtube.com/watch?v=s_NI50p-pcg

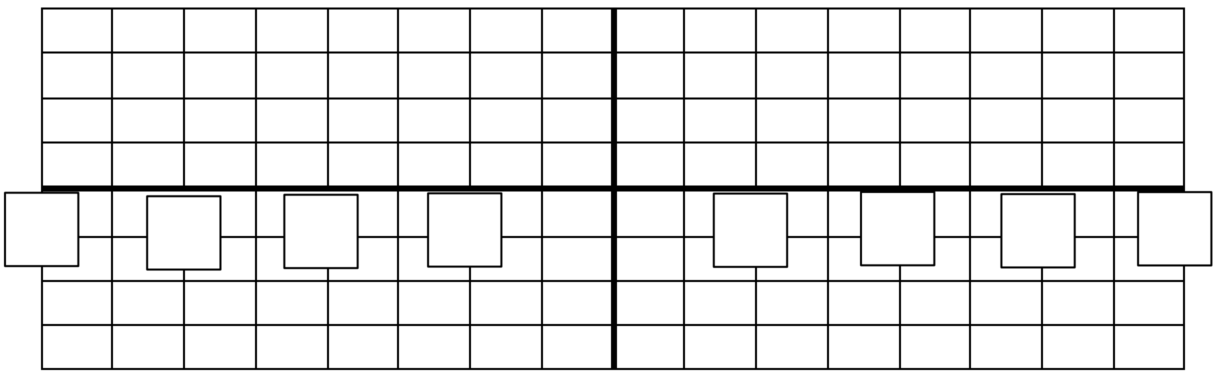


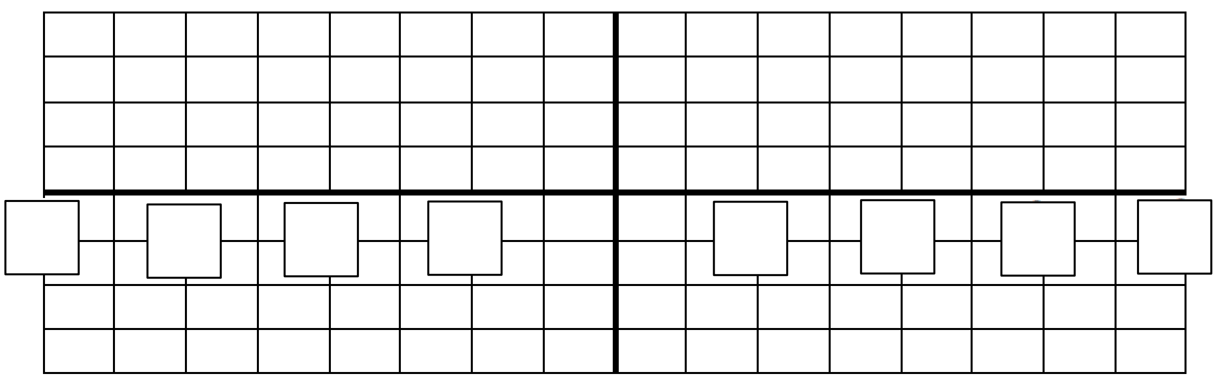


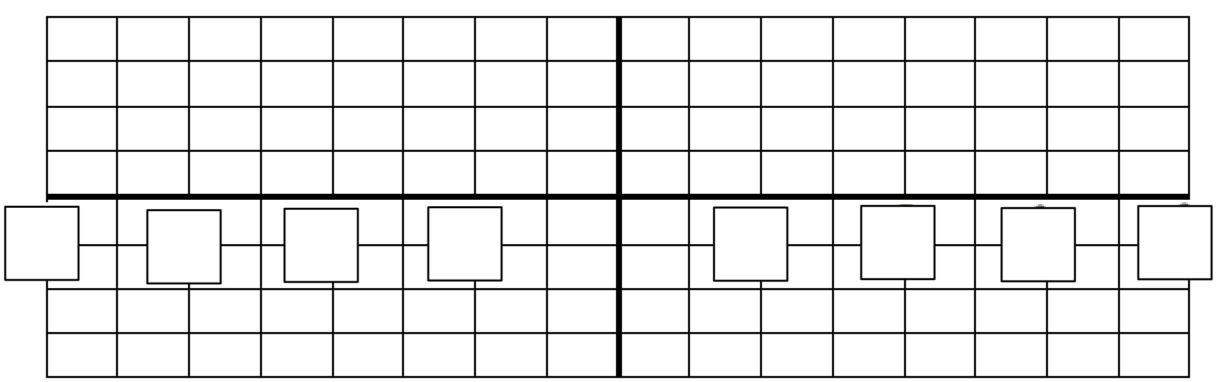


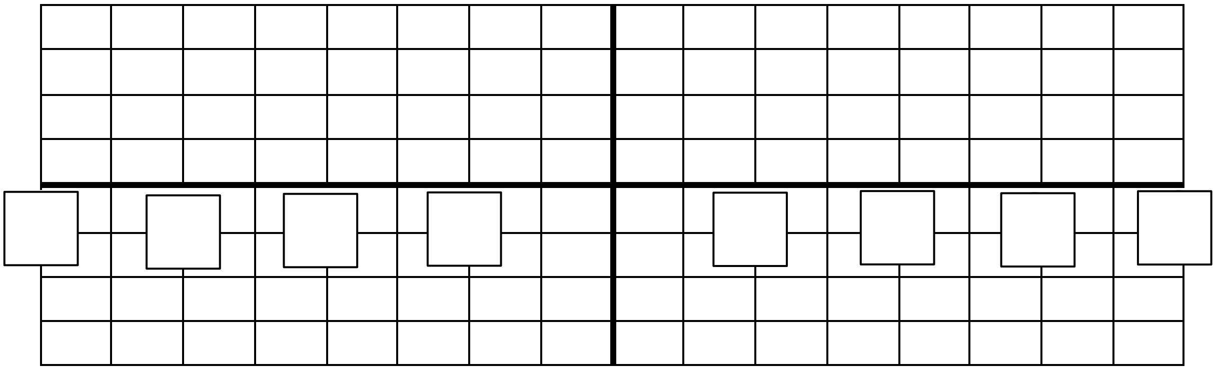


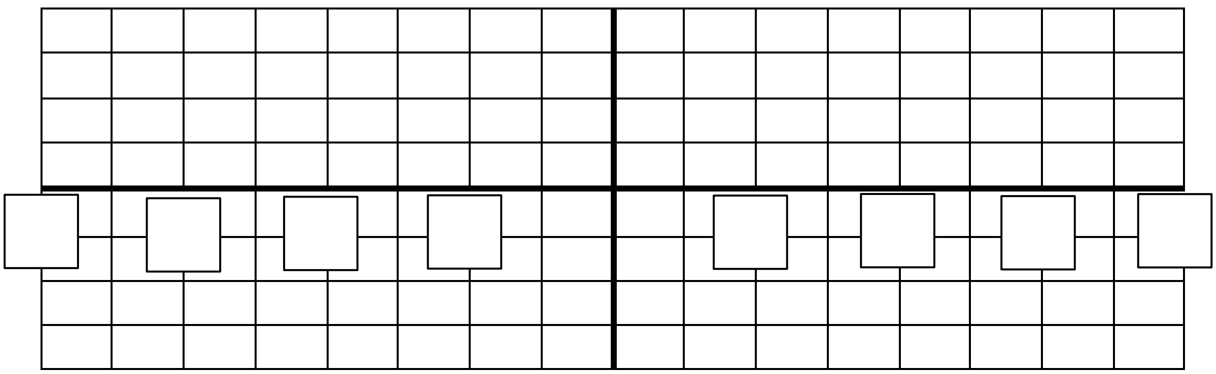












<u>Packet 3 Homework</u>

Write an equation for the inverse of the function.

1. $y = \arccos x$

2. $y = \sin x$

3. $y = \arctan x$

4. $y = \arccos 2x$

5. $y = \frac{\pi}{2} + \arcsin x$

6. $y = \tan \frac{x}{2}$

Find each value

7. $\sin^{-1} 0$

8. $\tan^{-1} \frac{\sqrt{3}}{3}$

9. $\arccos 0$

10. $\sin^{-1} (\tan \frac{\pi}{4})$

11. $\cos (\tan^{-1} \sqrt{3})$

12. $\cos (\cos^{-1} 0 + \sin^{-1} \frac{1}{2})$

13. $\sin (\sin^{-1} 1 - \cos^{-1} \frac{1}{2})$

Packet 4 Homework

1. A buoy, bobbing up and down in the water as waves move past it, moves from its highest point to its lowest point and back to its highest point every 10 seconds. The distance between its highest and lowest points is 3 feet.

    a. Write the trigonometric function that can model the bobbing buoy, using $t = 0$ as its highest point.

    b. According to your model, what is the height of the buoy at $t = 2$ seconds?

    c. According to your model, what is the height of the buoy at $t = 6$ seconds?

2. The mean temperature in a town is 64ºF. The temperature fluctuates 11.5ºF above and below the mean. If $t = 1$ represents January, the phase shift of the sine function is 3.

    a. Write a model for the average monthly temperature in the town.

    b. According to your model, what is the average temperature in April?

    c. According your model, what is the average temperature in July?

Adv Math Ch 6 Review **Name___________________ Hr ___**

No Calculator!

I can graph sin and cos functions and identify transformations.

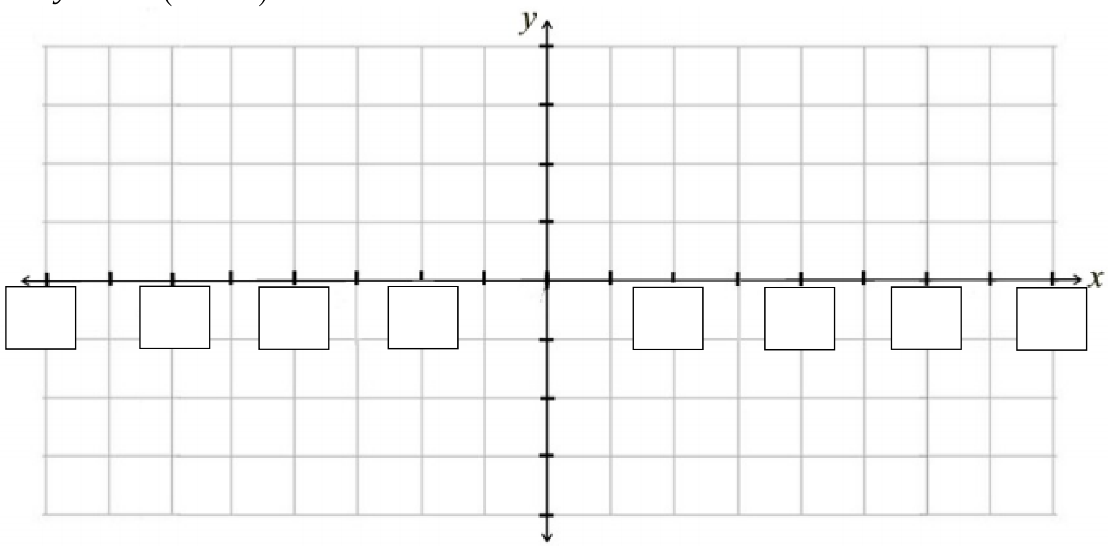
1. a. Graph the function $y = 4\sin(2\theta - \pi) + 4$

amplitude

period

phase shift

vertical shift.



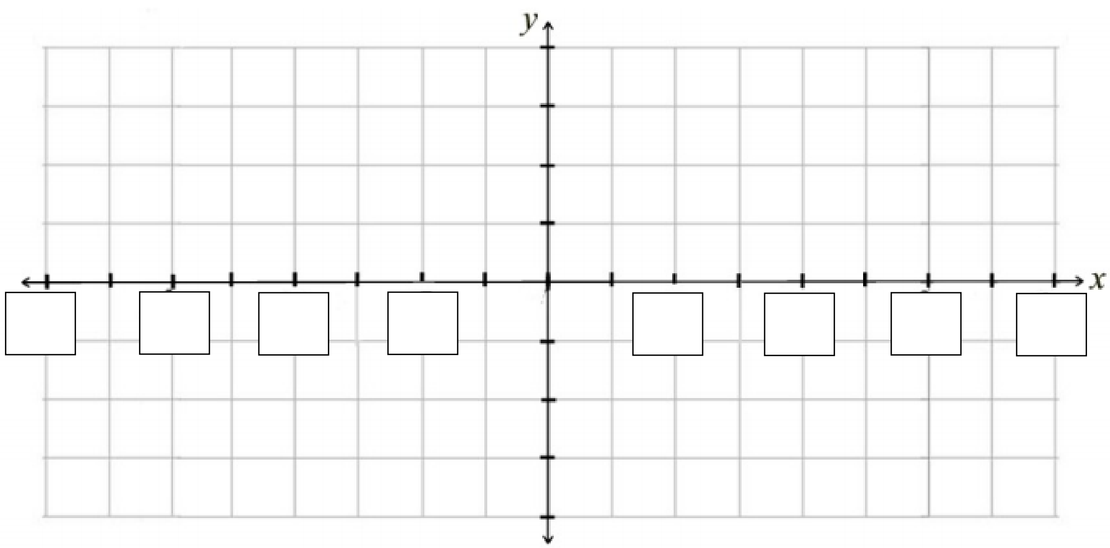
2. Graph y = -3cos x -1

amplitude

period

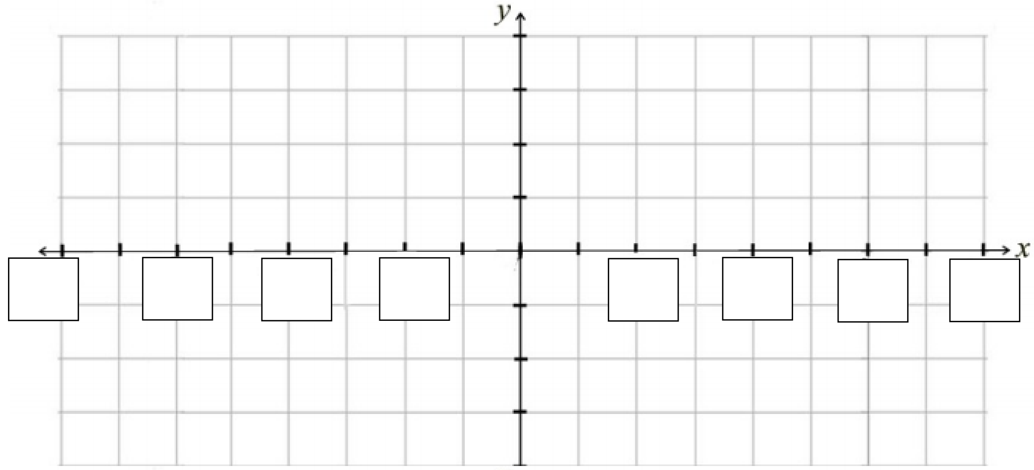
phase shift

vertical shift.

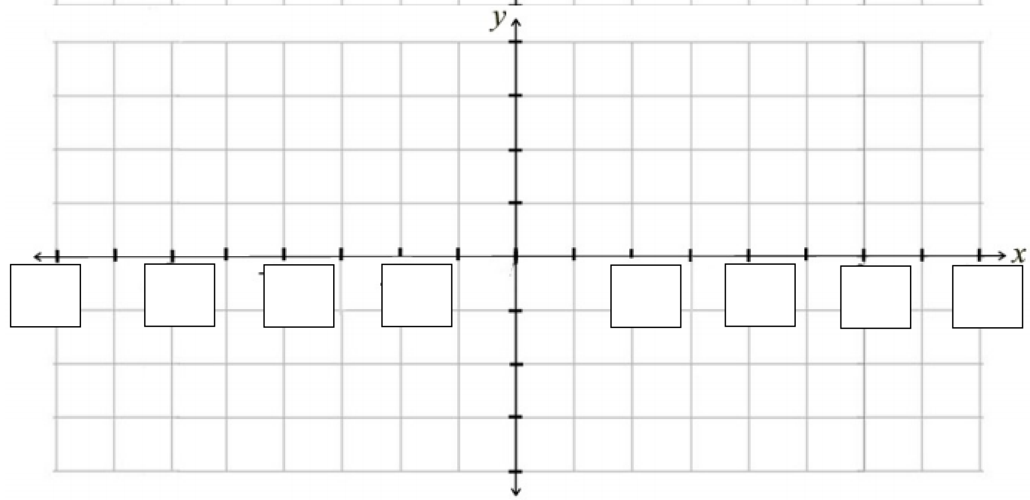


3. I can graph basic secant and cosecant functions.

y = sec(x)

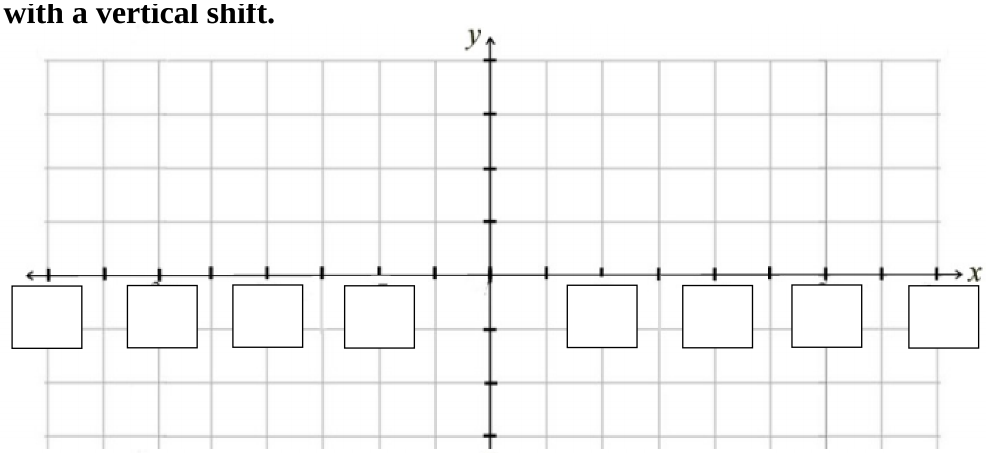


y = csc(x)

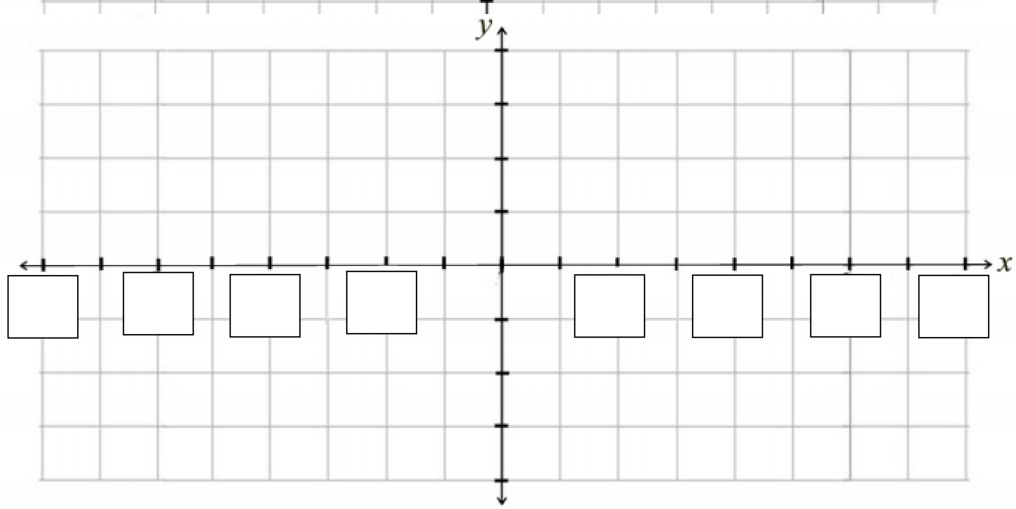


4. I can graph tan and cot with a vertical shift.

Graph $y = \cot x + 1$.



Graph $y = \tan x - 2$



I can write equations of sin or cos given, P, PS, A, VS.

5. Write an equation for the **sine** function with amp. 3, period=6π , phase shift = $\pi/2$, and vertical shift = -8.

6. Write an equation for the **cosine** function with amp. 2, period = $\pi/2$, phase shift= $\pi/4$, and vert. shift =1.

I can find values on the unit circle. I can apply the rules for restricted domain.

7. $\sin\left[\mathrm{Cos}^{-1}\left(-\frac{\sqrt{2}}{2}\right)-\frac{\pi}{4}\right]$.

8. $\sin\left(2\,\mathrm{Tan}^{-1}\sqrt{3}\right)$.

9. $\tan\left[\mathrm{Sin}^{-1}\left(-\frac{\sqrt{3}}{2}\right)+\mathrm{Cos}^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right]$.

Think about your original graphs of Packet 1 variety. Think about domain and range values. Write an equation that accurately finds **all values** for each:

10a) $\sin\,\theta = 1$

10b) $\tan\,\theta = -1$

10c) $\sec\,\theta = 2$

I can find inverse functions. Write the equation for the inverse of the following.

11. $y = \arcsin(x/2)$

12. $y = \cos^{-1}(x - 5)$

I can solve a word problem with buoys.

13. Filbert observes a buoy bobbing up and down through an amplitude of 7 feet.

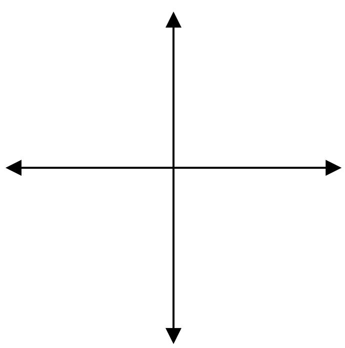
a) Beginning at its equilibrium point, if the buoy completes a full cycle every 10 seconds (goes from equilibrium to 7 feet up, back to equilibrium, then 7 feet down, then back to equilibrium), write a trigonometric equation that represents the motion of the buoy.

Answer:

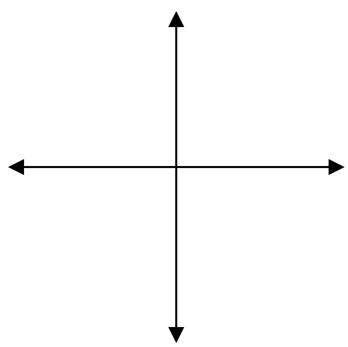
b) Find the height of the buoy after 1.5 seconds. 11b.____________________

14. I can graph inverse sin, inverse cos, and inverse tan.

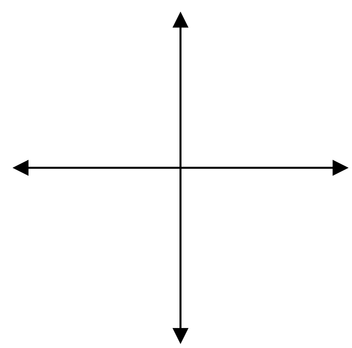
sin(x)



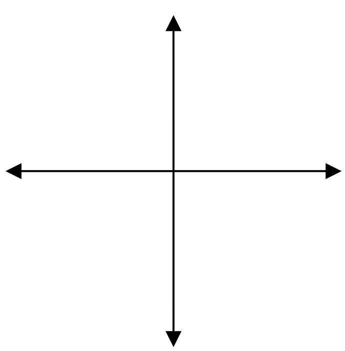
cos(x)



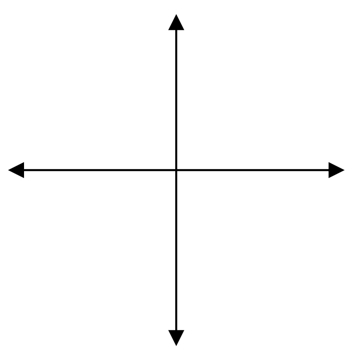
tan(x)



$\sin^{-1}(x)$



$\cos^{-1}(x)$



$\tan^{-1}(x)$