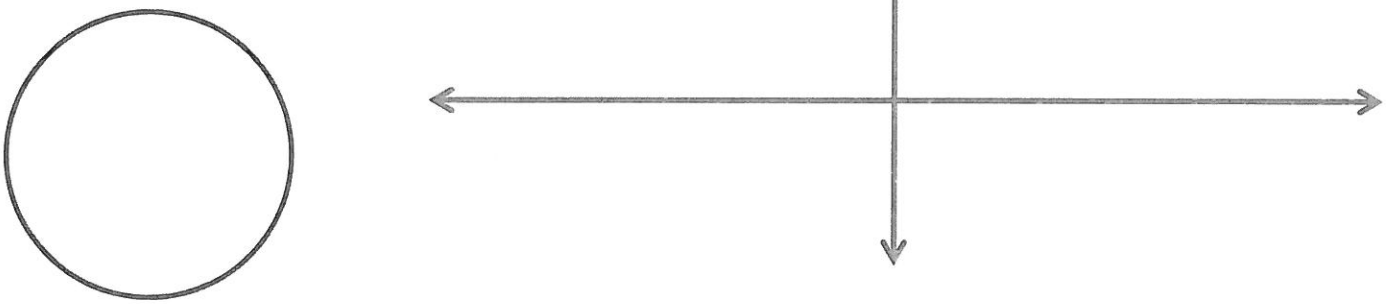
Name: _____ Per: _____ Date: _____

Serafino ▪ Algebra 2E

9B1 Graphing Sinusoids – Packet 1 (AD)

SA = Sinusoidal Axis	The horizontal "average" of the function. Also called a "midline"
A = Amplitude	How many units above/below the function goes (from the SA or midline)
NP = Natural Period	The "natural period" of the parent function; how long it takes to complete one cycle
B = Frequency	How many cycles the trig function completes in its natural period
P = Period	The period of THIS function; how long to repeat the cycle? P = NP / B
I = Increment	The critical values of input (hits average, max or min) I = P/4.

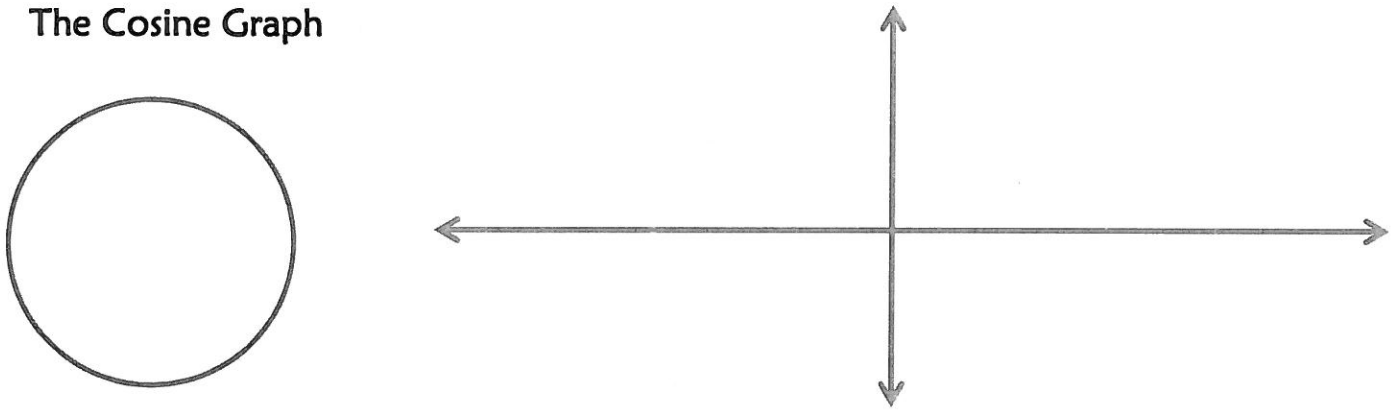
The Sine Graph



Domain: Natural Period Amplitude:

Range: Increment: Sinusoidal Axis:

The Cosine Graph



Domain: Natural Period Amplitude:

Range: Increment: Sinusoidal Axis:

$f(x) = \pm A \sin(Bx \pm C) \pm D$

Your mission:
Make sure your settings are in degress, the domain is –700 to 700, and your range is –10 to 10.
Set up a parent function in the first spot: (sin x or cos x)
Set up a second function in second spot, with different numbers.

f(x) = A sin (x) What affect(s) does A have on the graph?

Enter: First function: y = sin x
Second function: y = 2 sin x

Play with second function: 3 sin x, 5 sin x, ½ sin x, ⅓ sin x, ...
See what happens when you make A negative. 3sinx, 5sinx, ½sin x, –4sinx, ⅓ sin x,

f(x)= sin (Bx) What affect does B have on the graph?

Enter: First function: y = sin x
Second function: y = sin 2x

Play with second function: sin 3x, sin 5x, sin ½ x, sin ⅓ x, ...

f(x) = sin (x) ± D What affect does D have on the graph?

Enter: First function: y = sin (x)
Second function: y = sin (x) + 2

Play with second function: sin (x) + 3, sin (x) – 1, sin (x) – ½

f(x) = sin (x + c) What affect does C have on the graph?

Enter: First function: y = sin (x)
Second function: y = sin (x + 30)

Play with second function: sin (x + 45), sin (x – 90), sin (x +360), sin (x – 20), ...

We will ONLY focus on A & D transformations on this packet.

Recall Even/Odd Functions:

As we graph these, keep in mind
Even/Odd – ness.

EVEN:
Opposite input = same output

ODD
Opposite input = opposite output

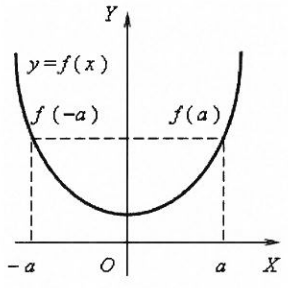


Fig. 5

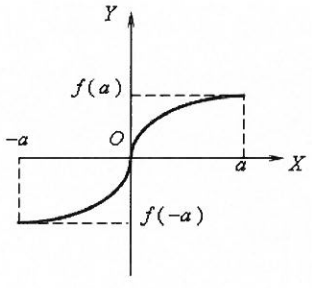
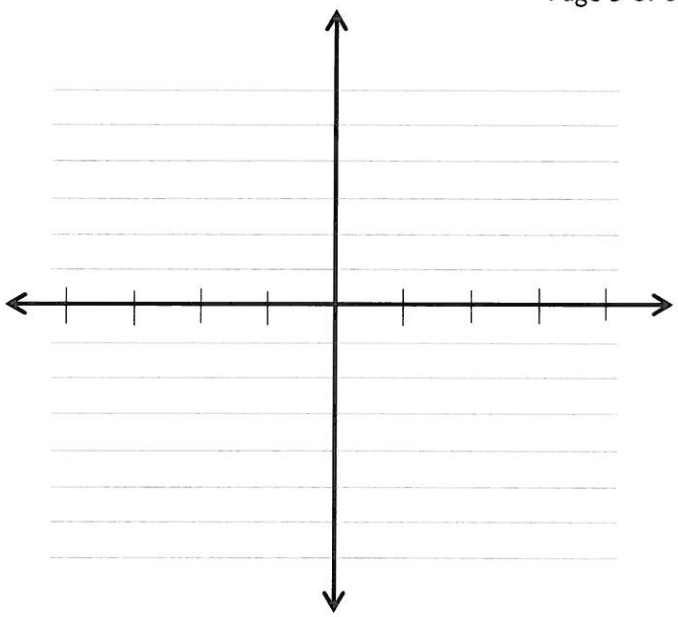


Fig. 6

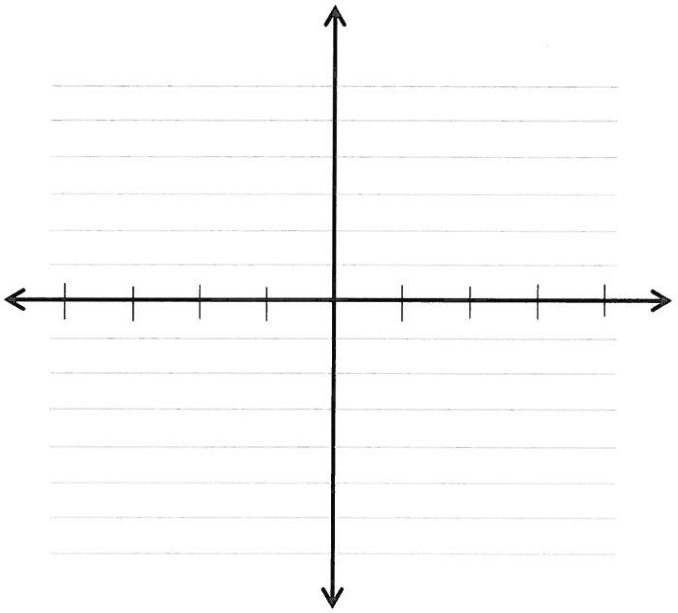
1. $y = 4\sin(x)$

A		SA	
D			
R			
P			
I			



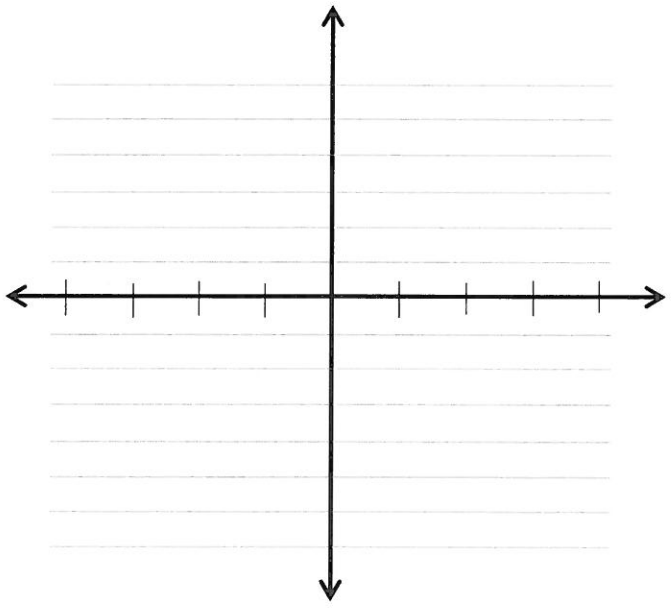
2. $y = \cos(x) + 3$

A		SA	
D			
R			
P			
I			



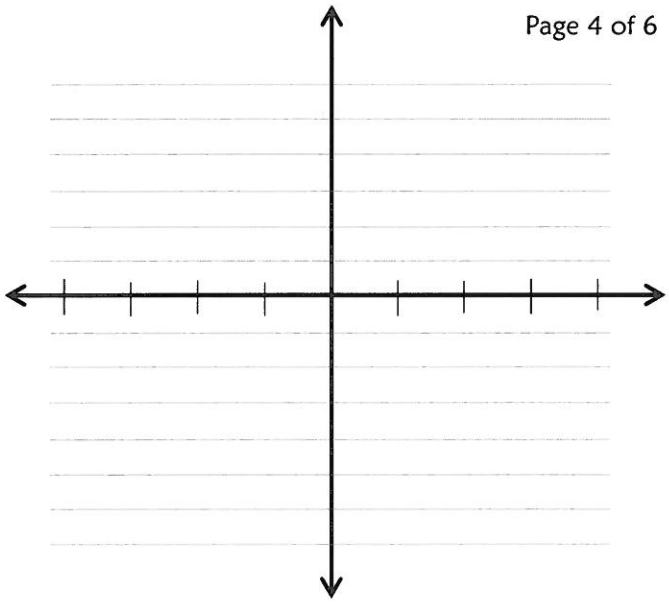
3. $y = -2\sin(x)$

A		SA	
D			
R			
P			
I			



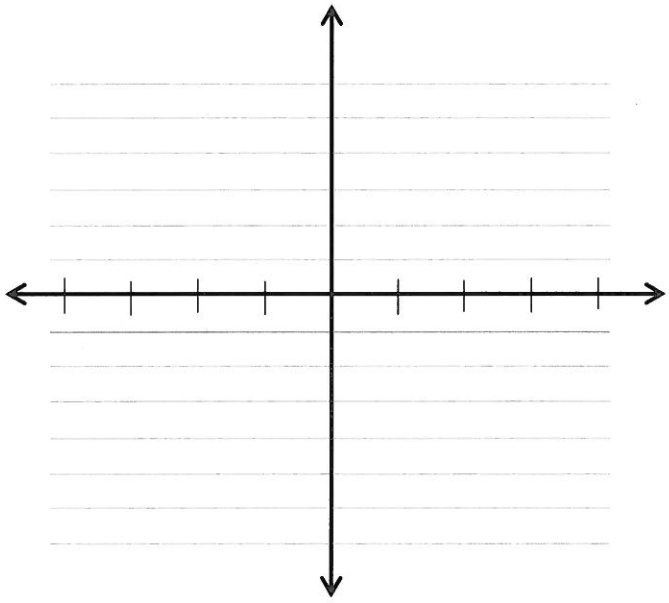
4. $y = -\cos(x) - 3$

A		SA	
D			
R			
P			
I			



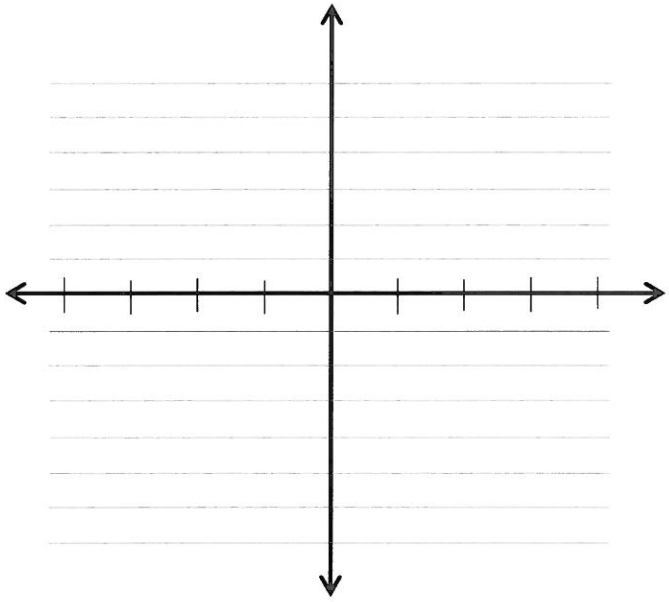
5. $y = 3\cos(x)$

A		SA	
D			
R			
P			
I			



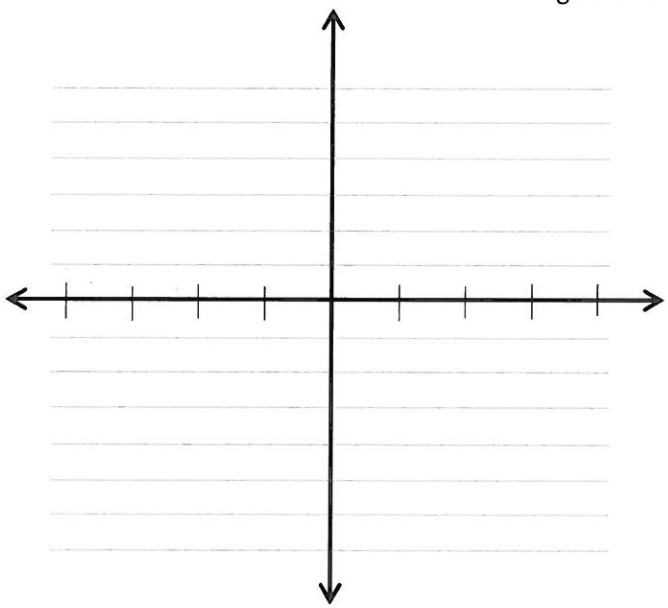
6. $y = 2\sin(x) - 4$

A		SA	
D			
R			
P			
I			



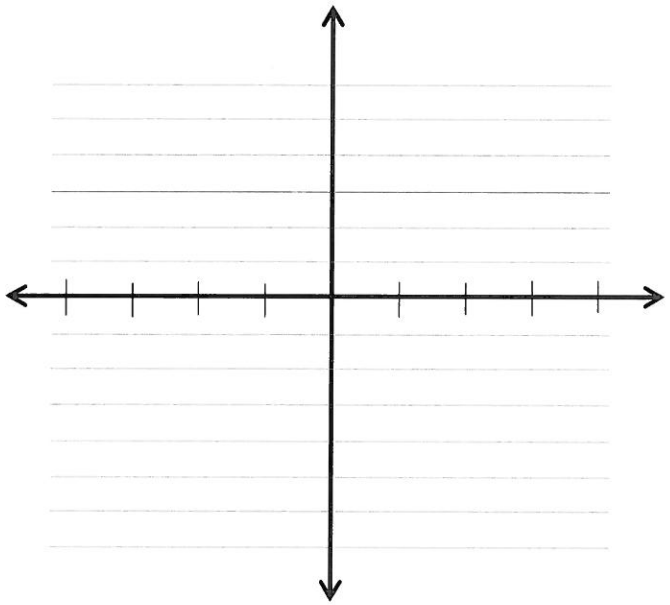
7. $y = \frac{1}{2}\sin(x) + 5$

A		SA	
D			
R			
P			
I			



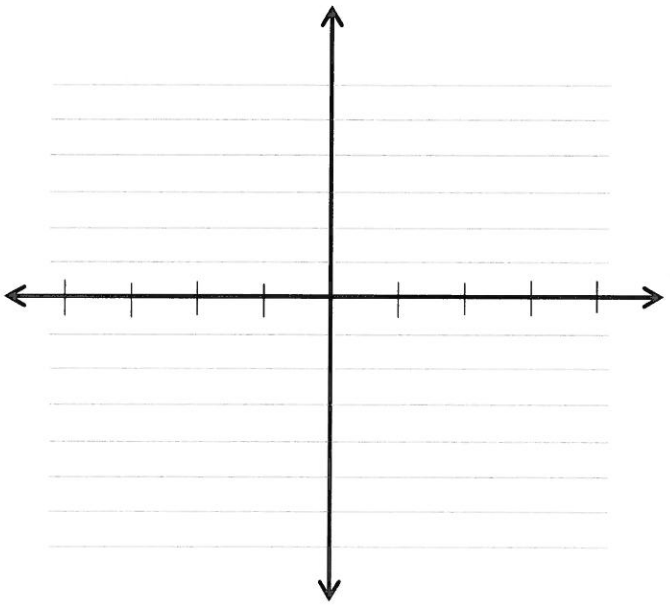
8. $y = \frac{3}{2}\cos(x) - 2$

A		SA	
D			
R			
P			
I			



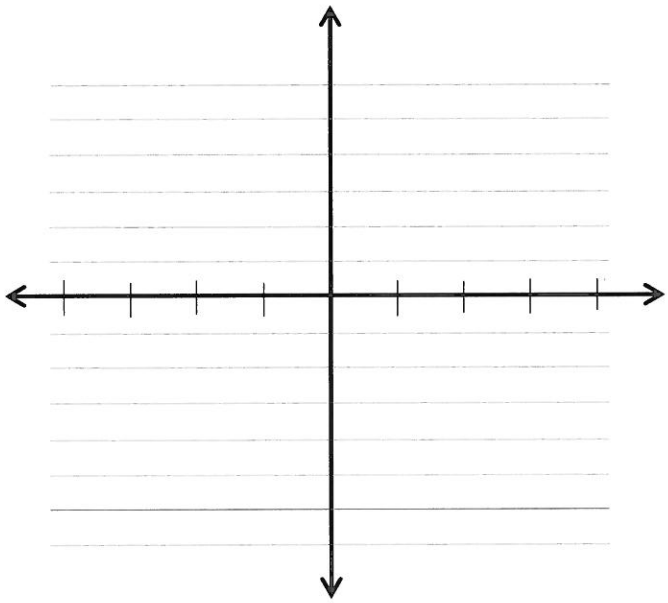
9. $y = -\frac{3}{2}\cos(x)$

A		SA	
D			
R			
B			
P			
I			



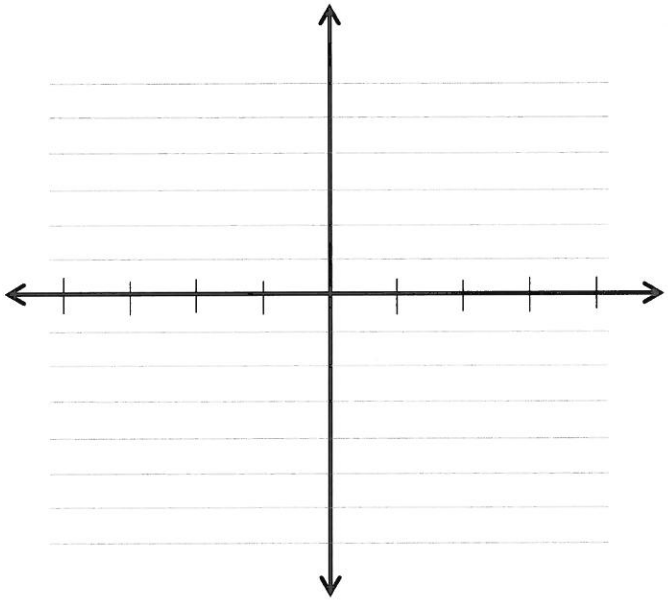
10. $y = \frac{7}{2}\sin(x) - 2$

A		SA	
D			
R			
P			
I			



11. $y = 3\sec(x)$

A		SA	
D			
R			
P			
I			



12. $y = -\csc(x) + 2$

A		SA	
D			
R			
P			
I