What's Going On?

Checking In

Minds on   Key Features

Action!   Graphing Transformations

Consolidation   Transformation Practice

Learning Goal - I will be able to apply transformations to the graphs of sinusoidal functions.

Minds on

L.G.L.

Given the equation

$$g(x) = -0.5\sin\big(2(x-90)\big) - 1$$

(annotations above equation: k, c)

identify the period of the graph, the equation of the axis, the amplitude, and the phase shift that must be applied to **sin x** to obtain the graph.

Period: $\dfrac{360}{2} = 180°$

Equation of the Axis: $y = -1$

Amplitude: $0.5 \quad |a|$

Phase Shift: $90°$ to the right

Action!

Graphing Transformations

To graph transformations you can *k and d*

1. Apply all horizontal transformations, *a and c*
   followed by all vertical transformations. (Be
   sure to apply stretches, compressions and
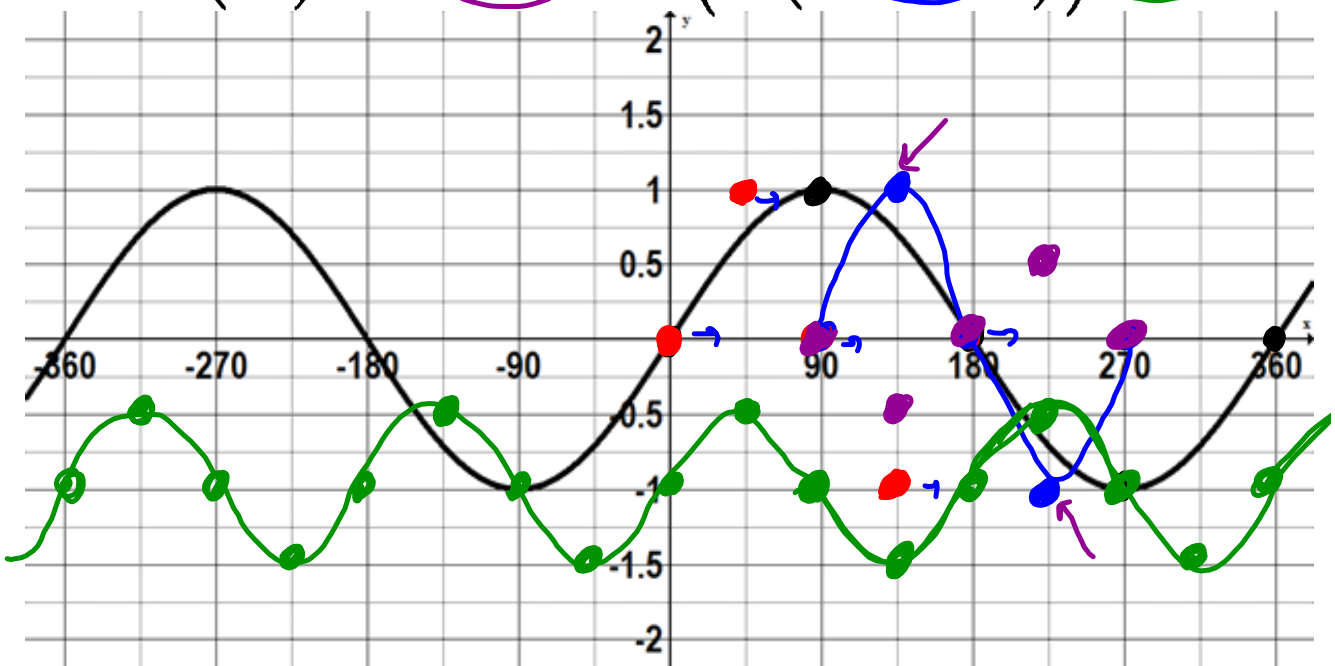   reflections before translations)

2. Apply all stretches, compressions and *k and a*
   reflections, followed by translations. *d and c*

*You only need to apply transformations to the
<u>key points</u> on **f(x) = sin x** or **f(x) = cos x**. The
key points are the zeroes, peaks and troughs.

Action!
Graphing Transformations
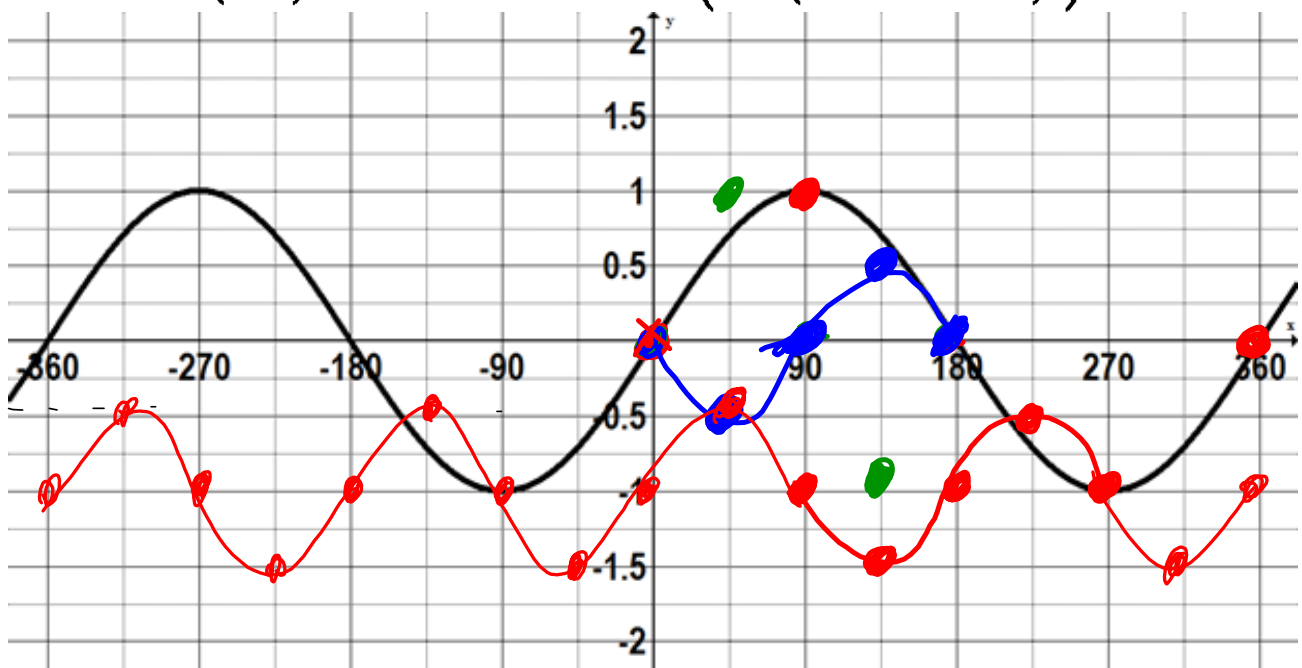
$$g(x) = -0.5 \sin\left(2\left(x - 90\right)\right) - 1$$

Applying horizontal transformations, followed by vertical transformations.

Action!

Graphing Transformations

$$g(x) = -0.5\sin\left(2(x-90)\right) - 1$$
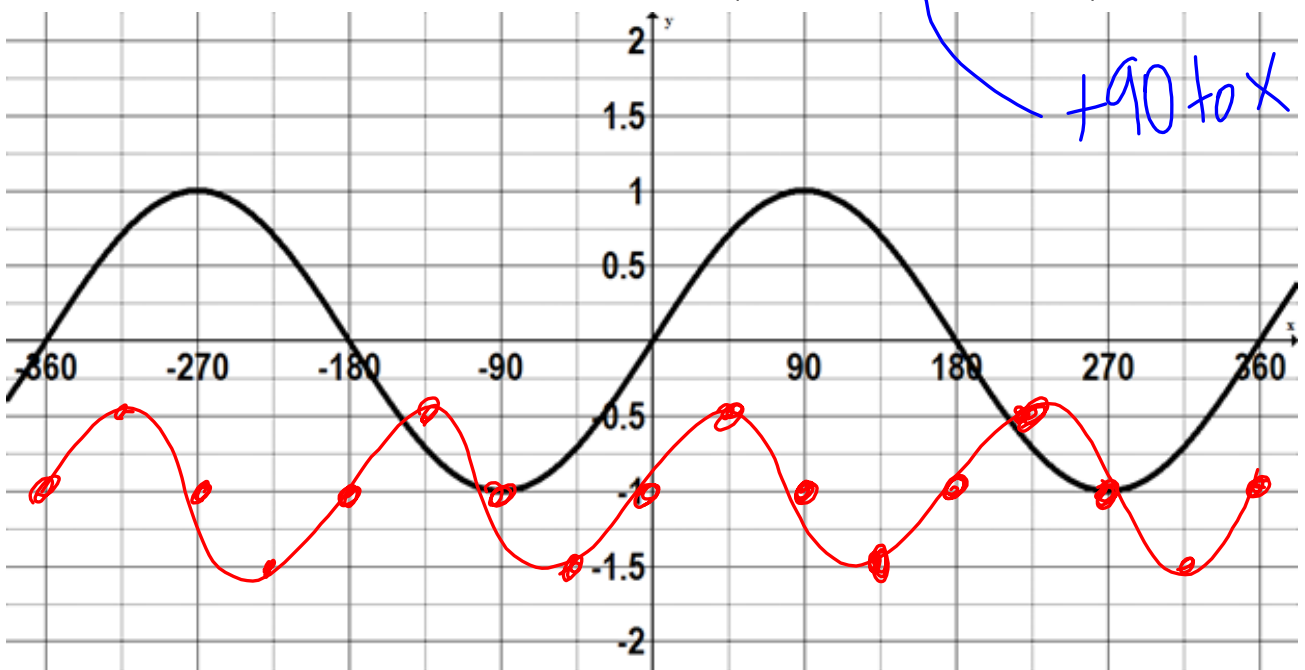

Applying stretches, compressions and reflections, followed by translations.

Graphing Transformations

$$g(x) = -0.5\sin\left(2(x - 90)\right) - 1$$

÷x by 2

+90 to x

X	sin X
0	0
90	1
180	0
270	-1
360	0

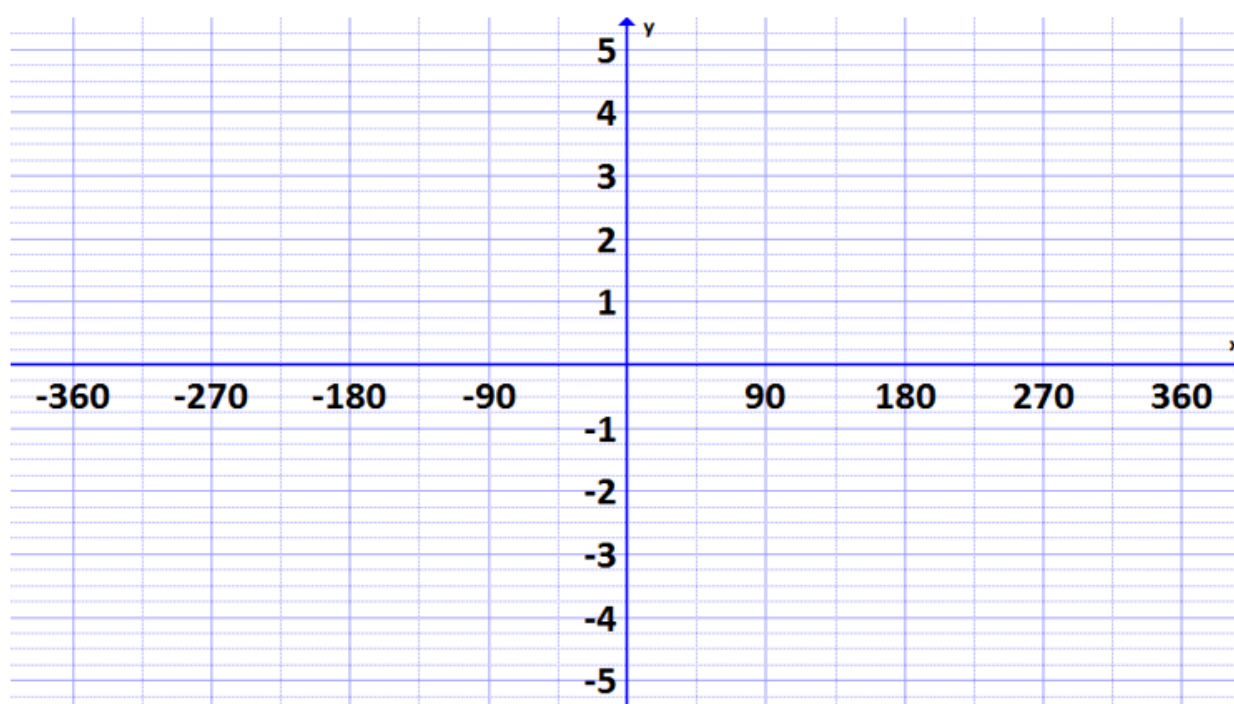| $\frac{x}{2} + 90$	$-0.5y - 1$
90	-1
135	-1.5
180	-1
225	-0.5
270	-1

Consolidation

Transformation Practice

Graph $f(x) = 2\sin\big(4(x-60)\big) + 3$
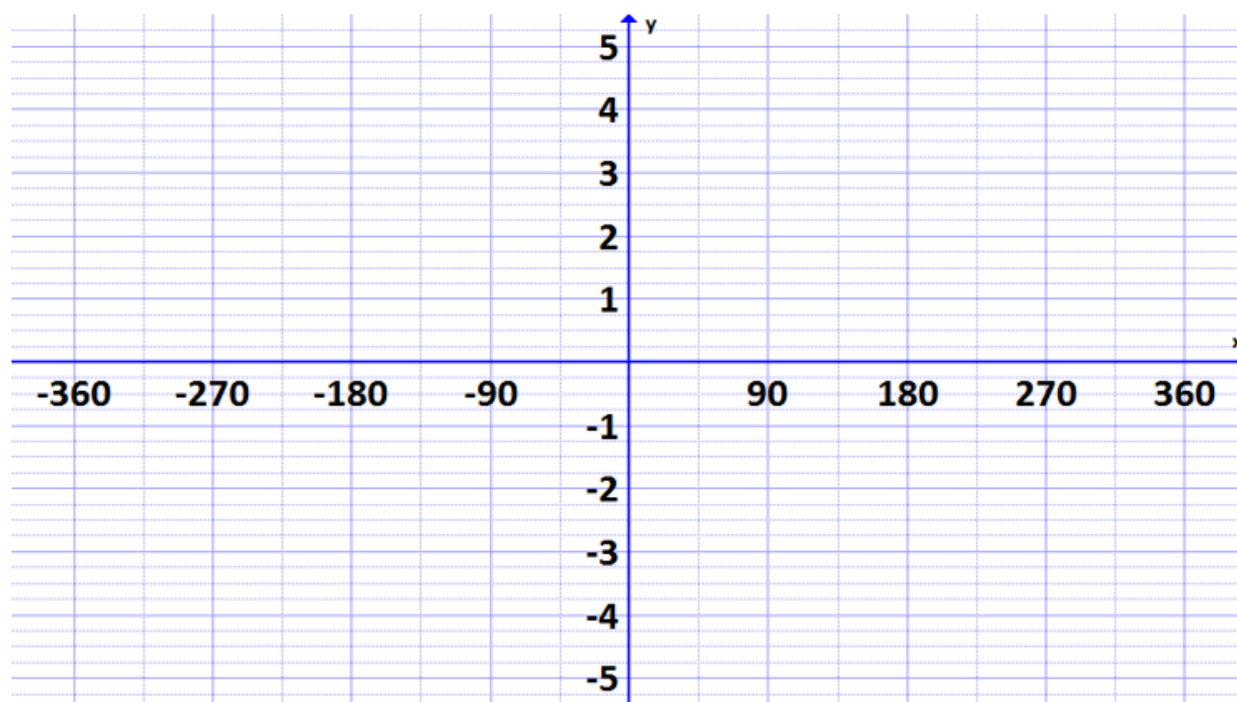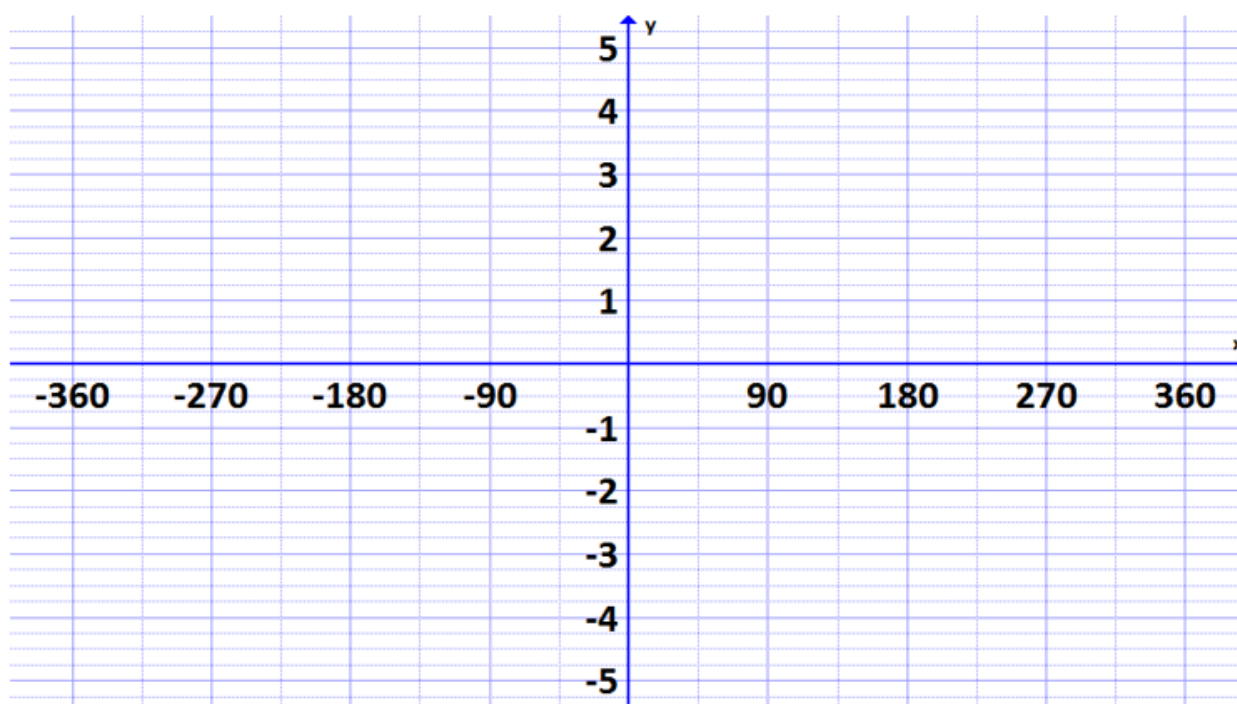
Consolidation

Transformation Practice

Graph $f(x) = 3 \sin\left(-\frac{1}{2}(x + 180)\right) - 1.5$

Consolidation

Transformation Practice

Graph $f(x) = -4\cos\left(\frac{2}{3}(x + 270)\right) - 1$

Consolidation

Transformation Practice

Graph $f(x) = 0.5\cos(-2(x - 360)) + 4$