

## Today's Learning Goal(s):

Date: \_\_\_\_\_

By the end of the class, I will be able to:

- a) sketch sinusoidal functions using transformations.

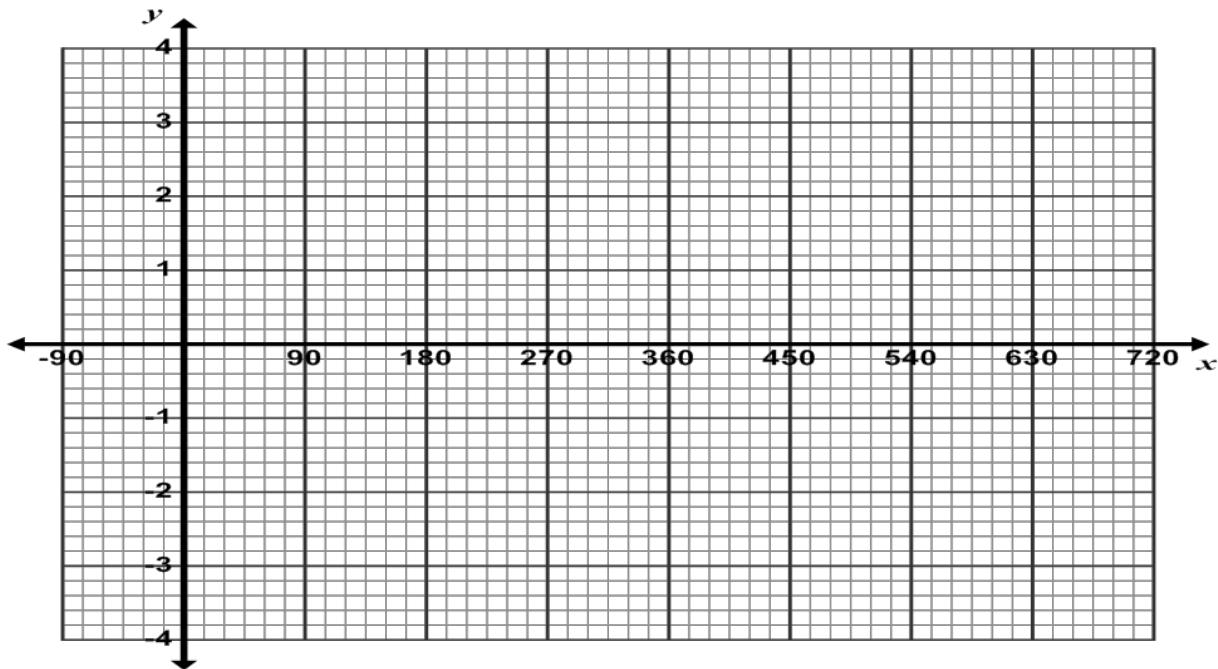
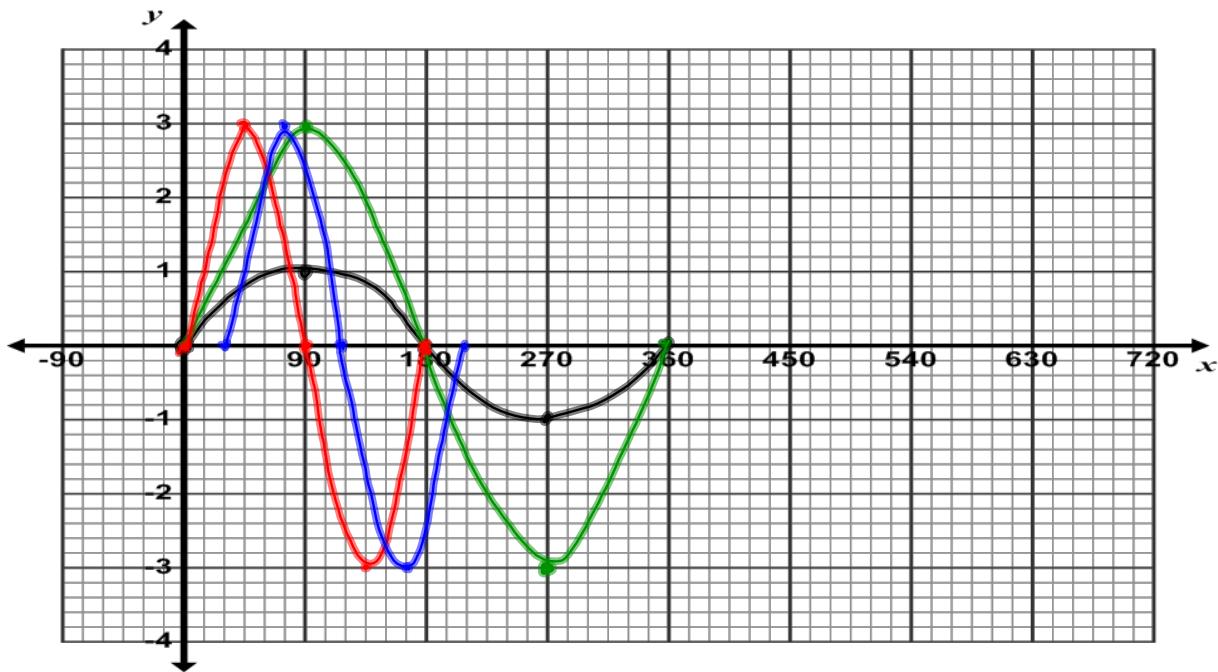
Last day's work: pp. 377-378 A – U  
p. 379 #1 – 3

## 6.5 Using Transformations to Sketch Sinusoidal Functions Day1

Date: Dec-7/15

Ex. 1 Sketch (one cycle) for:

a)  $y = \sin x$       b)  $y = 3\sin x$       c)  $y = 3\sin(2x)$       d)  $y = 3\sin(2(x - 30^\circ))$



## 6.5\_1 Using Transformations To Sketch Sinusoidal Functions (Day1\_Fall 2015)

Ex. 2 Graph  $y = 2\cos(3(x - 15^\circ)) - 2$

amplitude: 2

period:  $\frac{360^\circ}{3}$

$$= 120^\circ$$

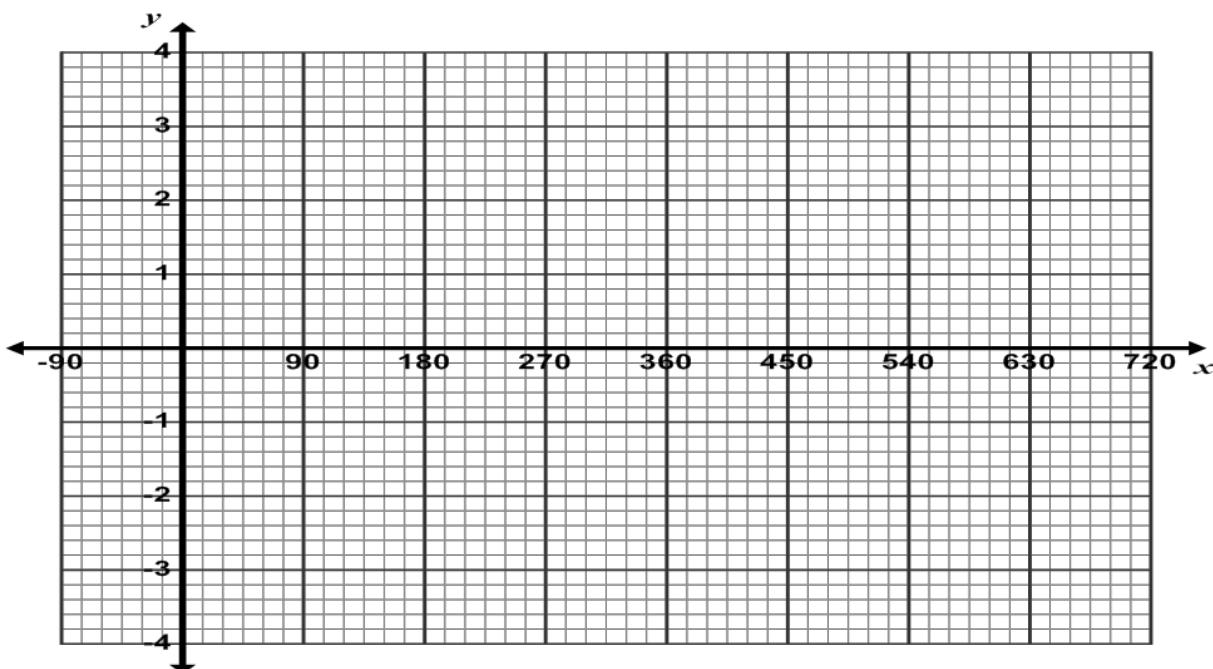
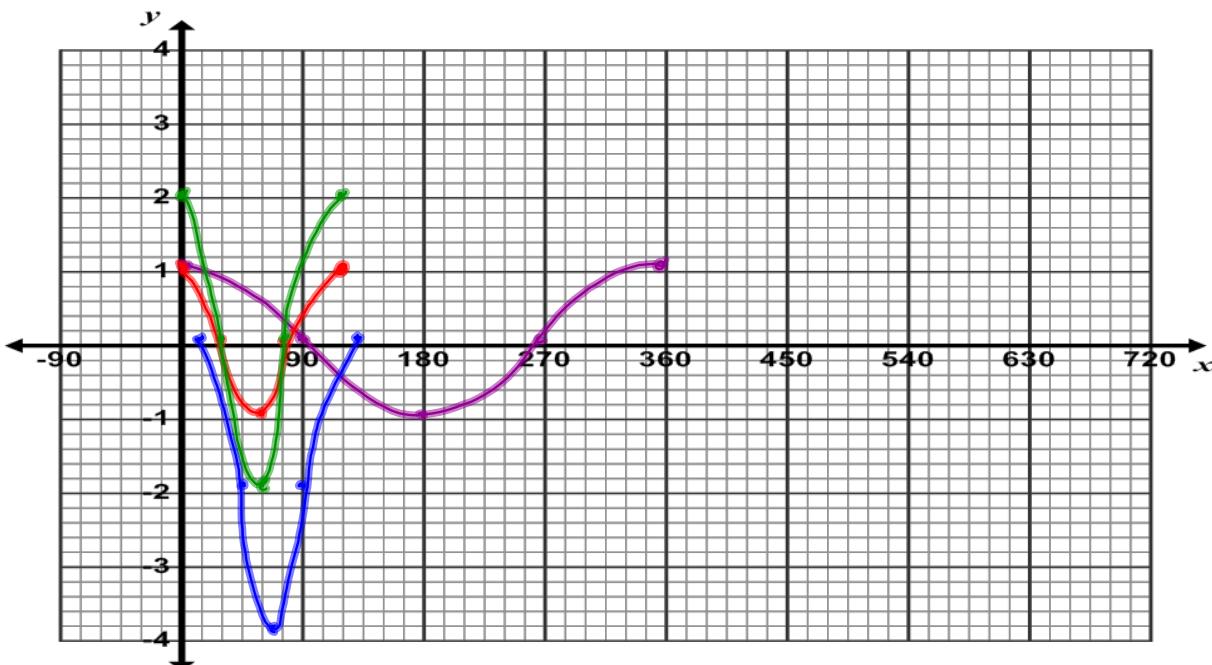
phase shift:  $15^\circ$  right  
p.381

vertical shift: down 2

equation of the axis:  $y = -2$

$$y = 2\cos(3(x - 15^\circ)) - 2$$

$\boxed{\text{Range: } -4 \leq y \leq 0}$



## 6.5\_1 Using Transformations To Sketch Sinusoidal Functions (Day1\_Fall 2015)

Ex. 3 Graph  $y = -\cos(\frac{1}{2}x + 30^\circ) + 2$

*reflection in x-axis*

amplitude: 1

period:  $\frac{360}{\frac{1}{2}}$

$$= \frac{360}{\frac{1}{2}}$$

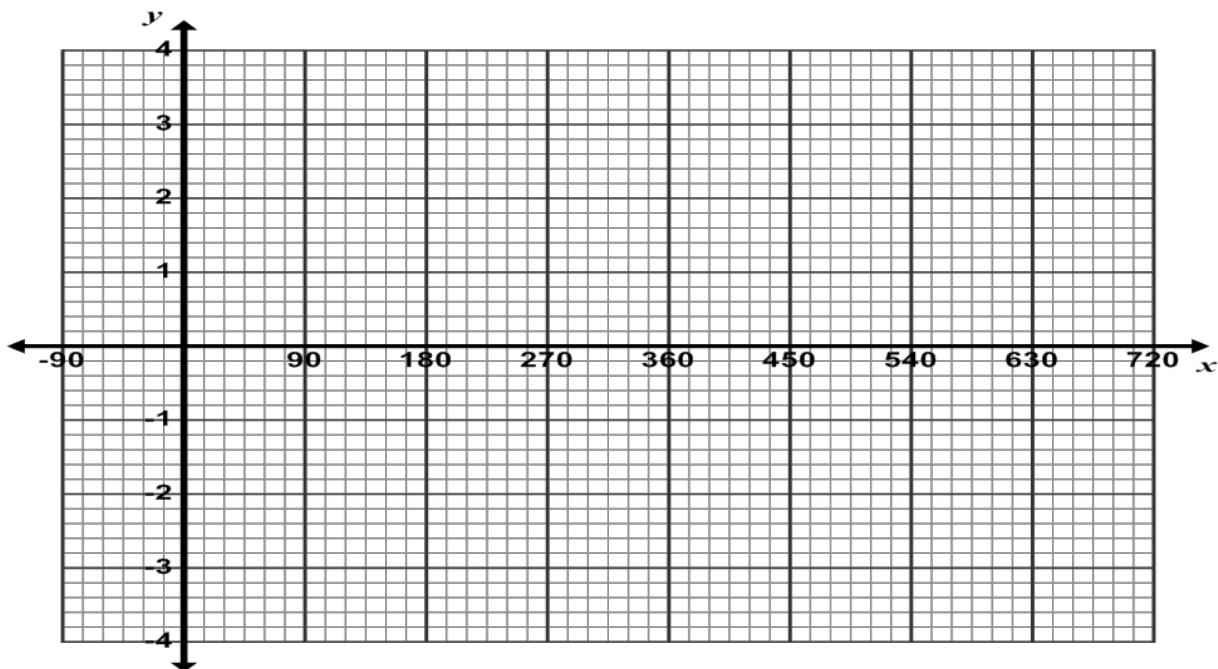
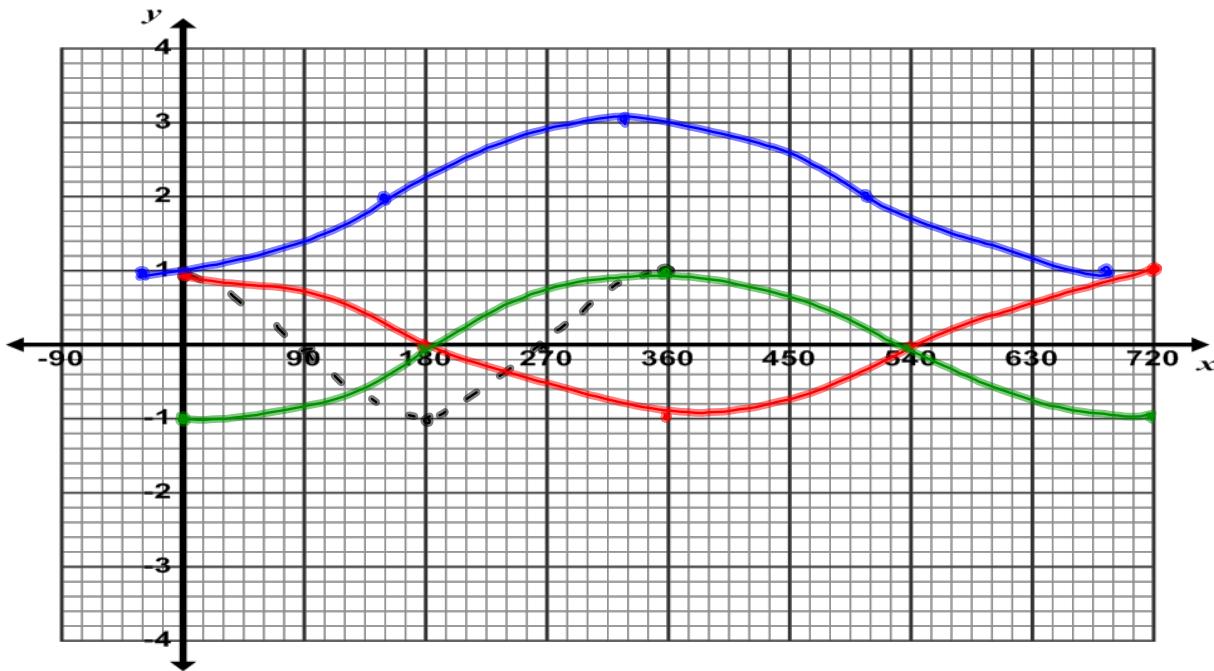
$$= 720^\circ$$

phase shift:

$30^\circ$  left

vertical shift:

2 up



### General Sinusoidal Functions

$$y = a \sin(k(x - d)) + c \text{ and } y = a \cos(k(x - d)) + c, \text{ where}$$

- the amplitude is  $a$
- the horizontal stretch/compression is  $\frac{1}{|k|}$   
resulting in a period of  $\frac{360^\circ}{|k|}$
- the vertical shift is  $c$  units.
- the phase shift is  $d$  units.

Note: If period =  $\frac{360^\circ}{|k|}$ , then  $k = \frac{360^\circ}{\text{period}}$

## 6.5\_1 Using Transformations To Sketch Sinusoidal Functions (Day1\_Fall 2015) 07/20/2015

**Are there any Homework Questions you would like to see on the board?**

Last day's work: pp. 377-378 A – U  
p. 379 #1 – 3

Today's Homework Practice includes:

pp. 383-385 #1 – 4 [12]  
Sketch #3 by hand  
Work Ahead p. 384 #7abc

## Attachments

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6.2 SineTracer.gsp