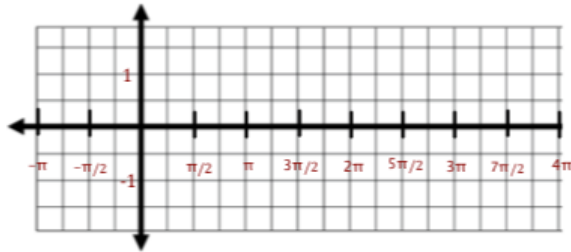
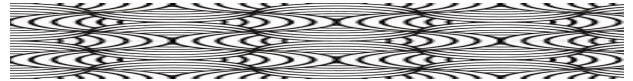


Lesson 3.9: Graphing Sine and Cosine Functions with Transformations

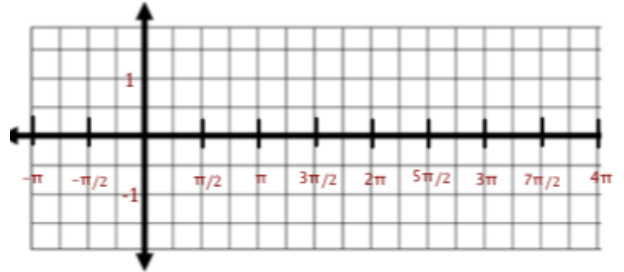
f(θ) = sin(θ)



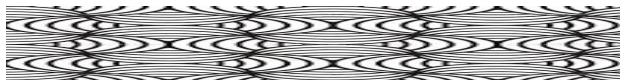
Domain: Range:
Amplitude: Period:
x- intercepts:



f(θ) = cos(θ)



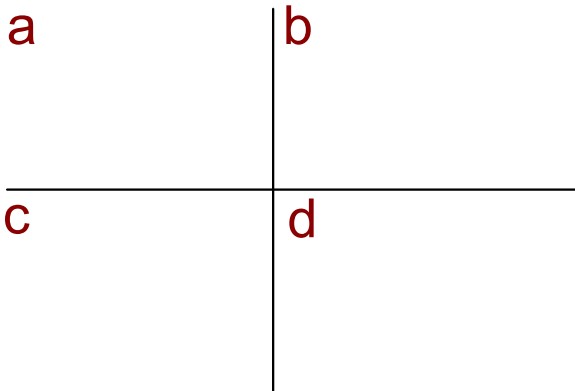
Domain: Range:
Amplitude: Period:
x- intercepts:

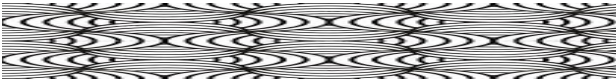


Transformations:

$$y = a \sin(b(x - c)) + d$$

$$y = a \cos(b(x - c)) + d$$

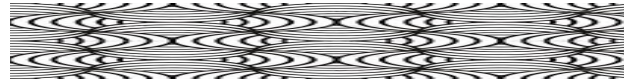
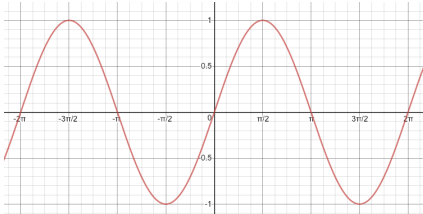




Using what you know about transformations of function how do you think the following functions are related to their parent functions?

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

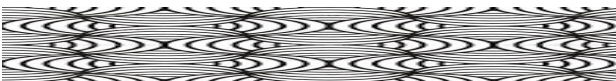
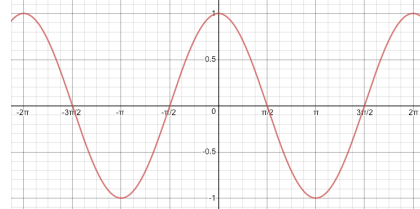
2. $y = \sin(-x)$



Using what you know about transformations of function how do you think the following functions are related to their parent functions?

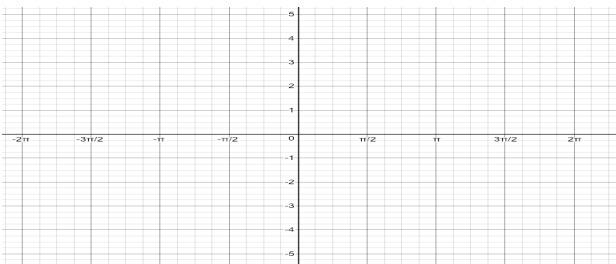
1. $y = -\cos(x)$

2. $y = \cos(-x)$



Example 1) Graph the function.

$f(\theta) = 3\sin(\theta) - 2$



Domain:

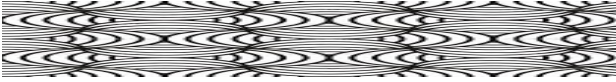
Range:

PS:

Amplitude:

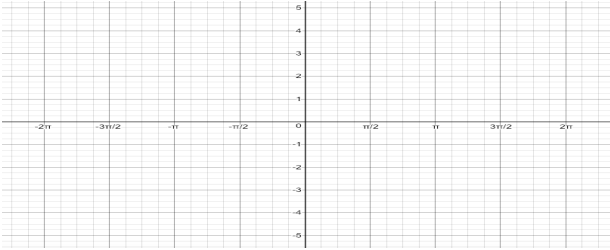
Period:

VD:



Example 2) Graph the function.

$$g(\theta) = -2\cos\left(\theta + \frac{3\pi}{2}\right)$$



Domain:

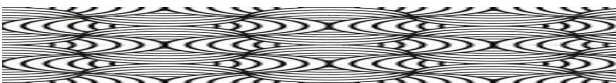
Range:

PS:

Amplitude:

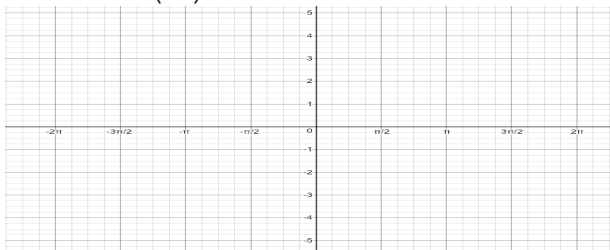
Period:

VD:



Example 3) Graph the function.

$$f(\theta) = \sin(2\theta)$$



Domain:

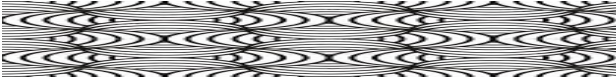
Range:

PS:

Amplitude:

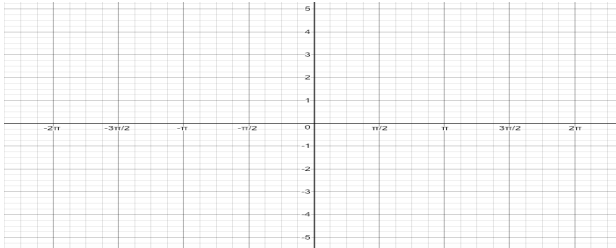
Period:

VD:



Example 4) Graph the function.

$$g(\theta) = 4 \cos(\theta + \pi) + 2$$



Domain:

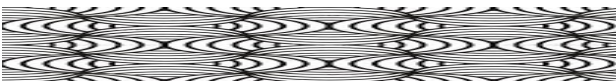
Range:

PS:

Amplitude:

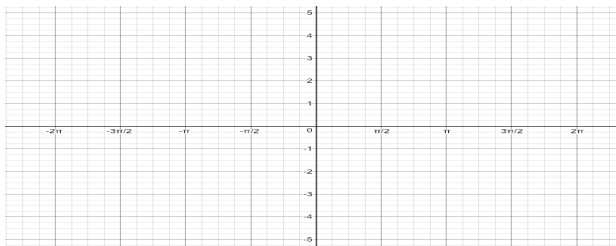
Period:

VD:



Example 4) Graph the function.

$$f(\theta) = -2 \cos(2\theta + \pi)$$



Domain:

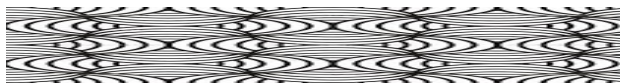
Range:

PS:

Amplitude:

Period:

VD:



Classwork/Homework

Assignment

Problem Set 3.9