

10.3

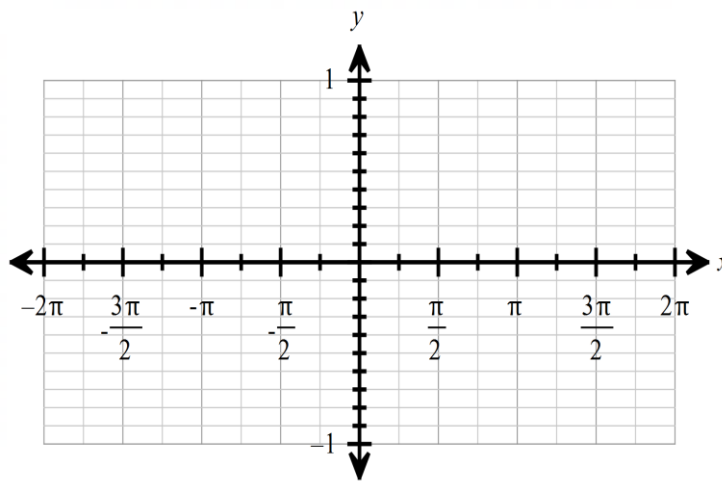
Date: 4/11/24

Objective: I can graph sine and cosine.

A. Graph Sine and Cosine

Parent sine graph $f(\theta) = \sin \theta$

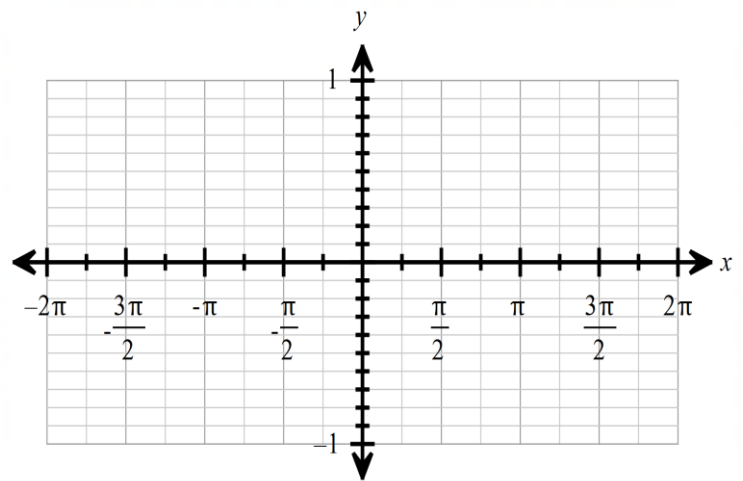
Draw the graph and make a table.



θ					
$y = \sin \theta$					

Parent cosine graph $f(\theta) = \cos \theta$

Draw the graph and make a table.



θ					
$y = \cos \theta$					

For the parent graph of $f(\theta) = \sin \theta$

Vertical shift (d):

Amplitude (a):

b:

Period:

Phase shift (c):

Frequency:

For the parent graph of $f(\theta) = \cos \theta$

Vertical shift (d):

Amplitude (a):

b:

Period:

Phase shift (c):

Frequency:

Steps for when you do all 4 transformations in one function

1. find a, b, c, d , period
2. make parent table
3. write eq for x & y at top of table
4. do math for table
5. graph

B. Examples

EX. 1 $f(\theta) = 3\sin\left(\theta + \frac{\pi}{2}\right)$

Vertical Shift (d): _____

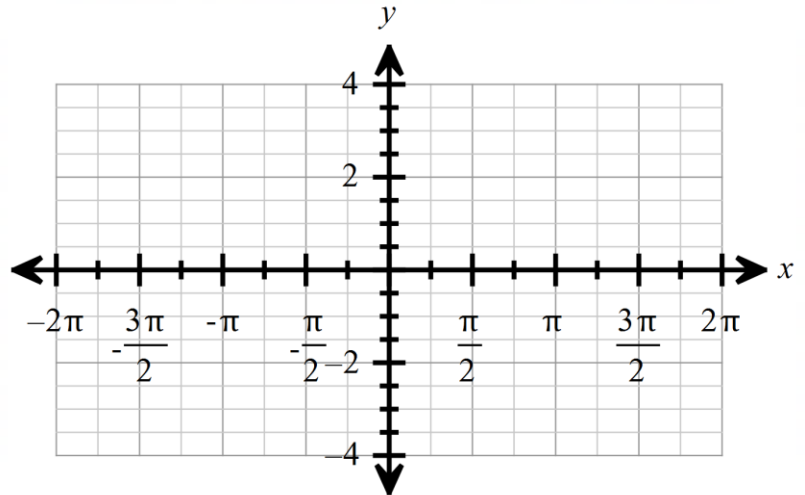
Amplitude (a): _____

Phase Shift (c): _____

b: _____

Period: _____

Transformations:



θ					
$y = \sin \theta$					

EX. 2 $f(\theta) = -\cos\left(4\left(\theta - \frac{\pi}{4}\right)\right)$

Vertical Shift (d): _____

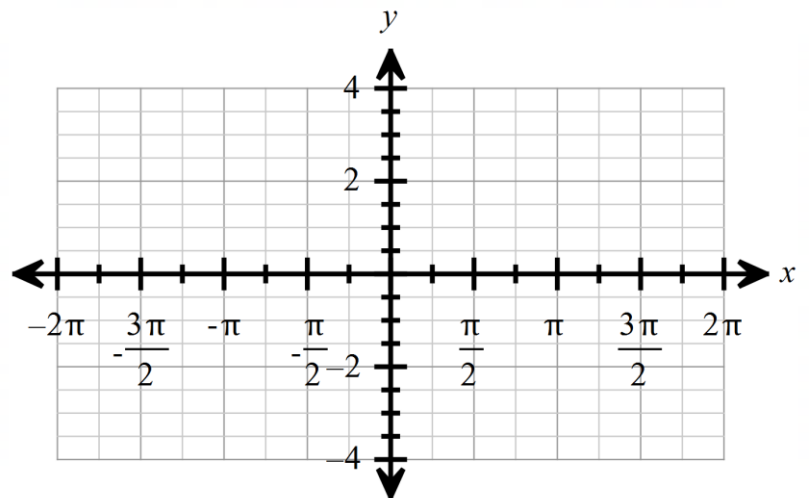
Amplitude (a): _____

Phase Shift (c): _____

b: _____

Period: _____

Transformations:



θ					
$y = \cos \theta$					

EX. 3 $f(\theta) = -4\cos 2\theta - 3$

Vertical Shift (d): _____

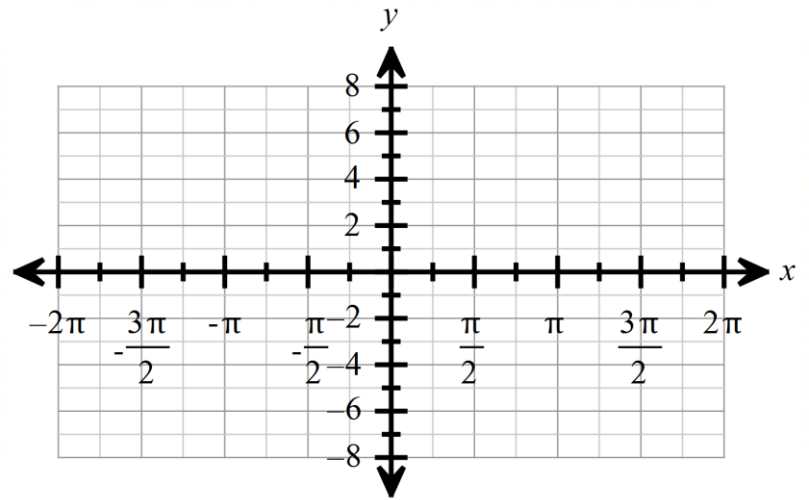
Amplitude (a): _____

Phase Shift (c): _____

b: _____

Period: _____

Transformations:



θ					
$y = \cos \theta$					

EX. 4 $f(\theta) = 1 + 2\sin \frac{1}{2}(\theta - \pi)$

+/- Vertical Shift (d): _____

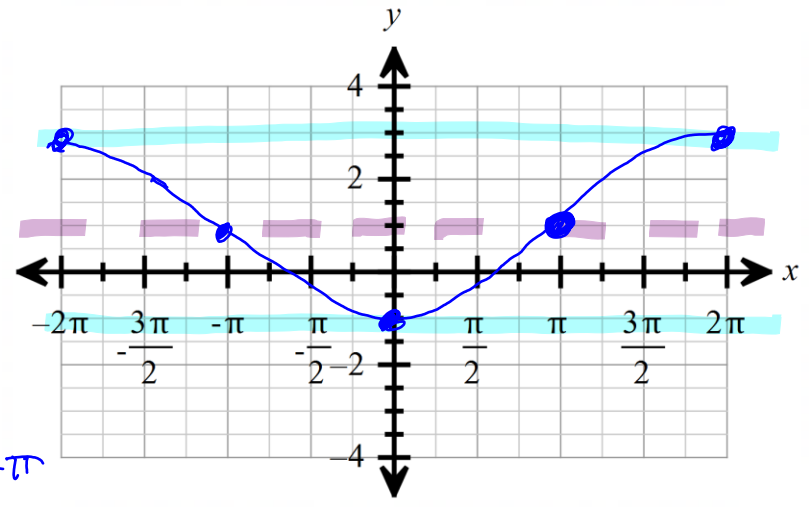
mult Amplitude (a): _____ **2**

+/- Phase Shift (c): _____ **π**

mult b: _____ **$\frac{1}{2}$**

Period: _____ **$2 \cdot 2\pi = 4\pi$**

Transformations: *vert stretch of 2, hor stretch of 2, translate right π and up 1*



$2x + \pi$	π	2π	3π	4π	5π
θ	0	π	π	$\frac{3\pi}{2}$	2π
$y = \sin \theta$	0	1	0	-1	0
$2y + 1$	1	3	1	-1	1