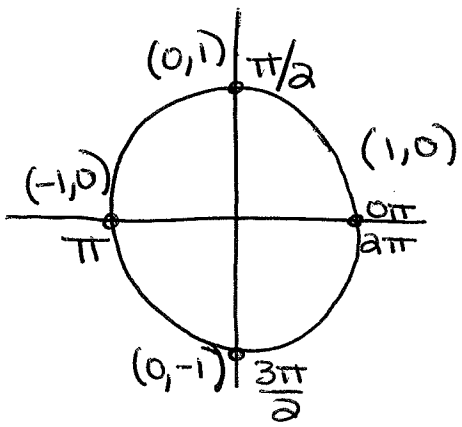
* Sinusoidal function: repeats and looks like waves

Graphing Day 1

Graphing Trig Functions: Amplitude



Objectives:

- Be able to graph basic sine and cosine functions
- Be able to graph sin and cosine functions with amplitude changes

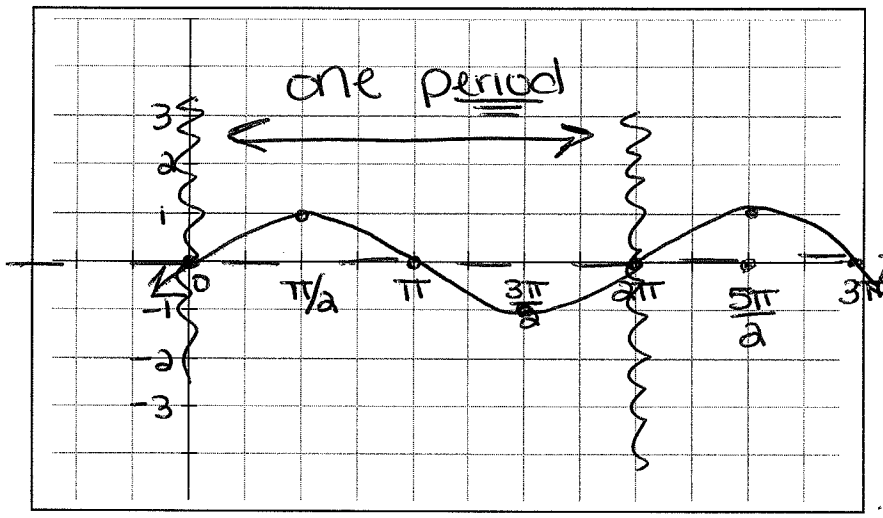
1. $y = \sin x$

one cycle

Sketch the graph of one period, be sure to label both axes:

* starts on the sinusoidal axis

x	y
0	0
π/2	1
π	0
3π/2	-1
2π	0



D: $(-\infty, \infty)$ R: $[-1, 1]$

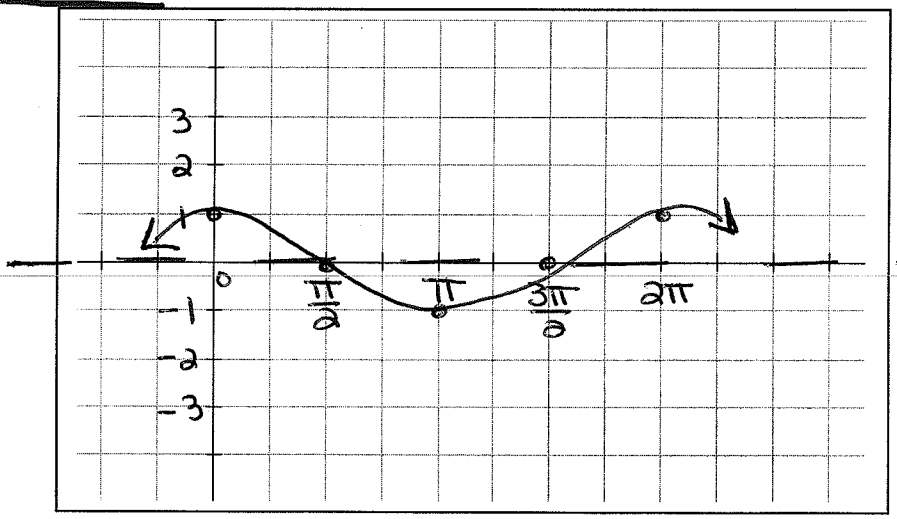
Sinusoidal axis → horizontal line halfway between the local max and local min

2. $y = \cos x$

Sketch the graph of one period, be sure to label both axes:

* starts at a maximum

x	y
0	1
π/2	0
π	-1
3π/2	0
2π	1



D: $(-\infty, \infty)$ R: $[-1, 1]$

Sinusoidal axis

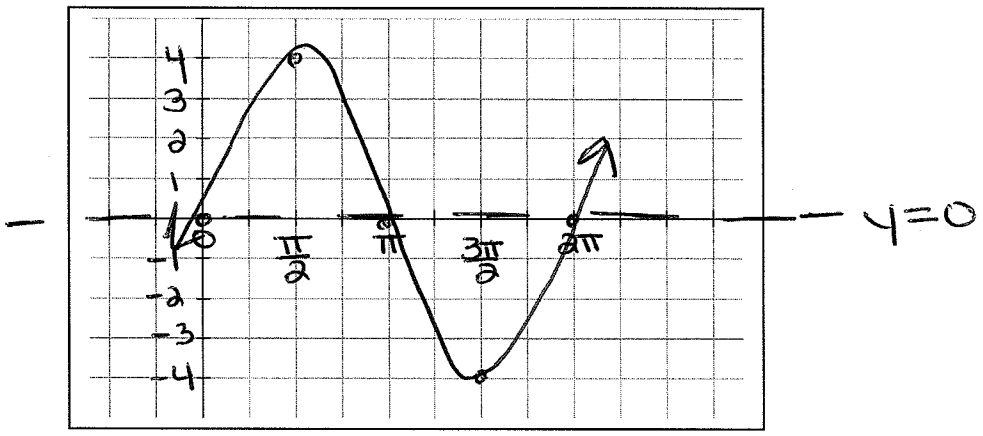
Amplitude: the vertical distance from the sinusoidal axis to a local max or local min (always positive)

3. $y = 4\sin x$

Sketch the graph of one period, be sure to label both axes:

Amplitude: 4

x	y
0	0
$\pi/2$	1
π	0
$3\pi/2$	-1
2π	0

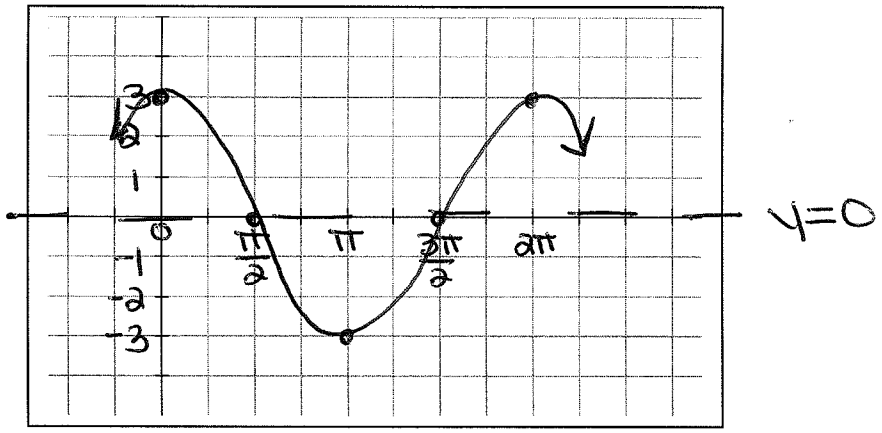


4. $y = 3\cos x$

Sketch the graph of one period, be sure to label both axes:

Amplitude: 3

x	y
0	1
$\pi/2$	0
π	-1
$3\pi/2$	0
2π	1



5. $y = -2\sin x$ reflection over x-axis

Sketch the graph of one period, be sure to label both axes:

Amplitude: 2

x	y
0	0
$\pi/2$	1
π	0
$3\pi/2$	-1
2π	0