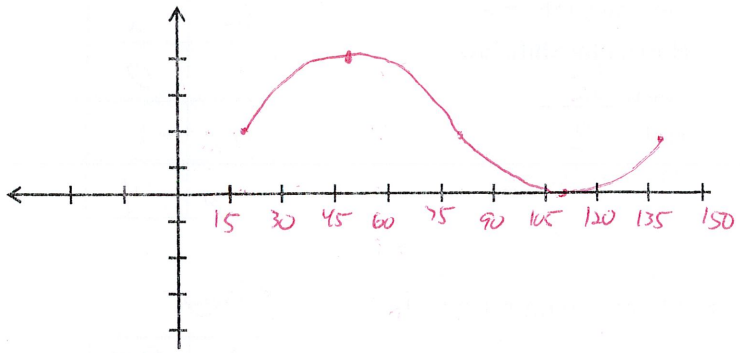
GPS PreCalculus: Unit 4: Graphing Trig Functions
Quiz Review: Graphing Trig Functions/Writing Equations

Name Key
Date _____ Day ____

1. $f(x) = 2\sin(3x - 60^\circ) + 2$

Amplitude: 2
Period: 120
Vertical Shift: 2
Horizontal Shift 20
Start: 20
End: 140
Increments: 30

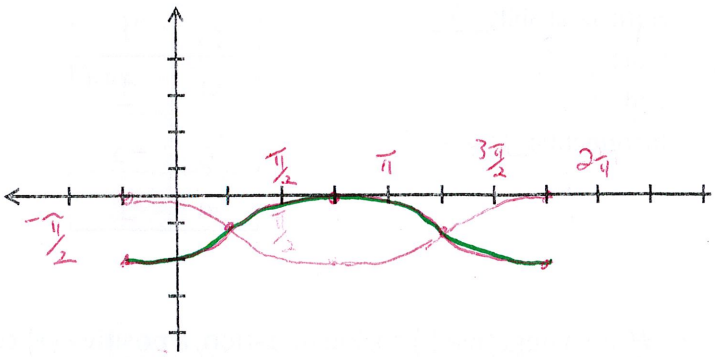
x	$f(x)$
20	2
50	4
80	2
110	0
140	2



2. $f(x) = -\cos(x + \frac{\pi}{4}) - 1$

Amplitude: 1
Period: 2π
Vertical Shift: -1
Horizontal Shift $-\pi/4$
Start: $-\pi/4$
End: $7\pi/4$
Increments: $\pi/2$

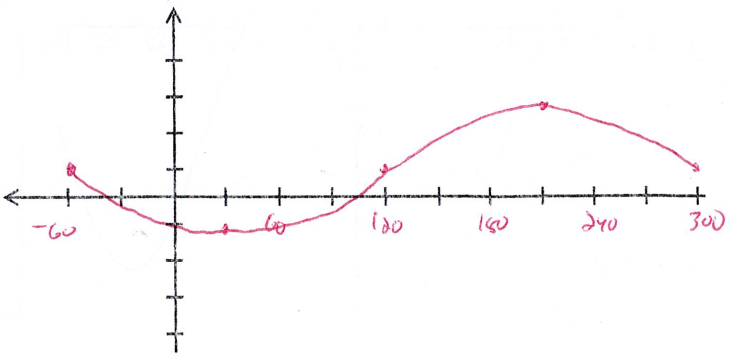
x	$f(x)$
$-\pi/4$	-2
$\pi/4$	-1
$3\pi/4$	0
$5\pi/4$	-1
$7\pi/4$	-2



3. $f(x) = -2\sin(x + 60^\circ) + 1$

Amplitude: 2
Period: 360
Vertical Shift: 1
Horizontal Shift -60
Start: -60
End: 300
Increments: 90

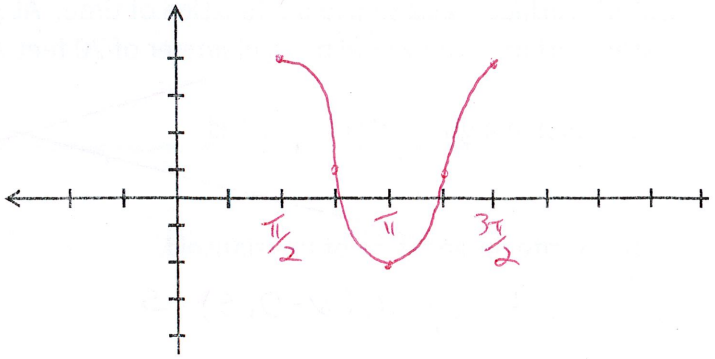
x	$f(x)$
-60	1
30	-1
120	1
210	3
300	1



4. $f(x) = 3\cos(2x - \pi) + 1$

Amplitude: 3
Period: π
Vertical Shift: 1
Horizontal Shift $\pi/2$
Start: $\pi/2$
End: $3\pi/2$
Increments: $\pi/4$

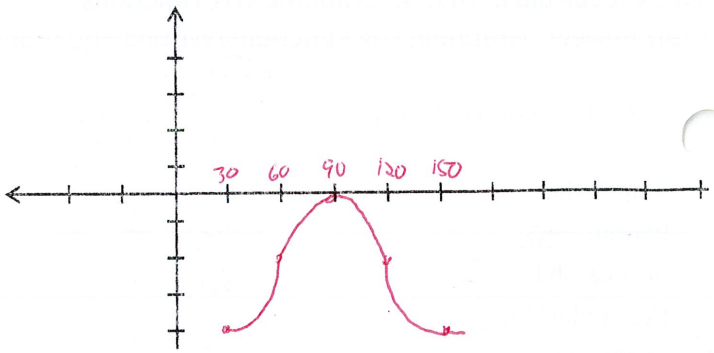
x	$f(x)$
$\pi/2$	4
$3\pi/4$	1
π	-2
$5\pi/4$	1
$3\pi/2$	4



5. $f(x) = -2\cos(3x - 90°) - 2$

Amplitude: 2
Period: 120
Vertical Shift: -2
Horizontal Shift 30
Start: 30
End: 150
Increments: 30

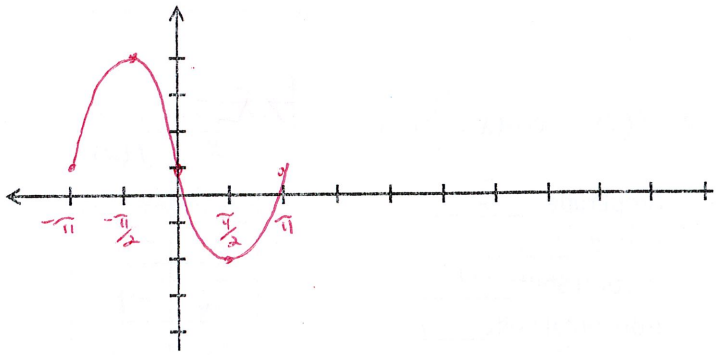
x	$f(x)$
30	-4
60	-2
90	0
120	-2
150	-4



6. $f(x) = 3\sin(x + \pi) + 1$

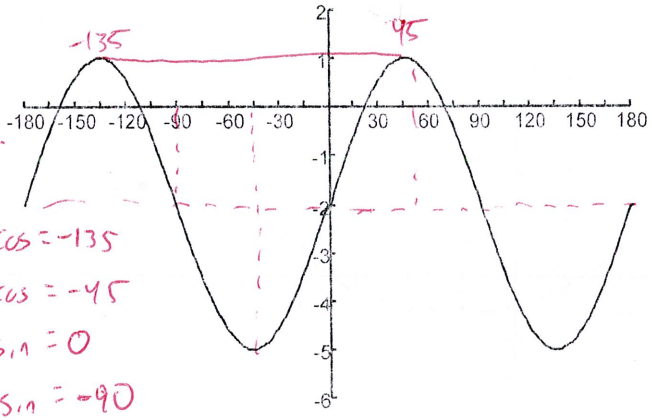
Amplitude: 3
Period: 2π
Vertical Shift: 1
Horizontal Shift $-\pi$
Start: $-\pi$
End: π
Increments: $\pi/2$

x	$f(x)$
$-\pi$	1
$-\pi/2$	4
0	1
$\pi/2$	-2
π	1



7. Write a negative (-) cosine equation, a positive (+) cosine equation, a negative (-) sine equation, and a positive (+) sine equation for the following trig graph

a=3
b=2
c= cos=-135
-cos=-45
sin=0
-sin=-90
d=-2



(-) cos x = $-3\cos(2x + 90) - 2$ or $(2x - 90)$

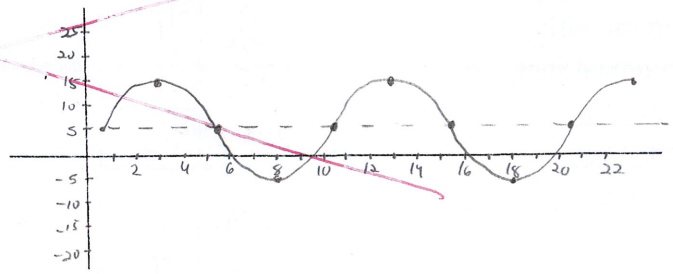
(+) cos x = $3\cos(2x + 270) - 2$

(-) sin x = $-3\sin(2x + 180) - 2$

(+) sin x = $3\sin(2x) - 2$

8. **Steamboat Problem:** A point on a paddlewheel of a boat turns in such a way that its distance, d, from the water's surface was a sinusoidal function of time. At 3 seconds, the point was at its highest, 15 feet above the waters surface. The wheel has a diameter of 20 feet and it completes a revolution once every 10 seconds.

a. Sketch a graph of this sinusoid.



b. Write an equation of the sinusoid.

$F(x) = 10\sin 36(x - 0.5) + 5$

$f(x) = 10\cos 36(x - 3) + 5$ $F(x) = -10\sin 36(x - 5.5) + 5$ $f(x) = -10\cos 36(x - 8) + 5$