Graphing Day 2

Graphing Trig Functions: Vertical Shifts

Objective:

- Be able to graph sine and cosine functions with changes in amplitude and vertical shifts

1. $y = 1 + 3\sin x$

Sinusoidal axis − amplitude

Vertical shift: up 1 Sinusoidal axis: $y = 1$

Amplitude: 3 Domain: $(-\infty, \infty)$ Range: $[-2, 4]$

Sinusoidal axis + amp

2. $y = -2 + \sin x$

Vertical shift: down 2 Sinusoidal axis: $y = -2$

Amplitude: 1 Domain: $(-\infty, \infty)$ Range: $[-3, -1]$

3. $y = -1 + 4\cos x$

Vertical shift: down 1 Sinusoidal axis: $y = -1$

Amplitude: 4 Domain: $(-\infty, \infty)$ Range: $[-5, 3]$

4. $y = 1 - 2\cos x$

Vertical shift: up 1 Sinusoidal axis: $y = 1$

Amplitude: 2 Domain: $(-\infty, \infty)$ Range: $[-1, 3]$

How does the negative affect the graph? reflection over x-axis

5. $y = 5 - 3\sin x$

Vertical shift: up 5 Sinusoidal axis: $y = 5$

Amplitude: 3 Domain: $(-\infty, \infty)$ Range: $[2, 8]$

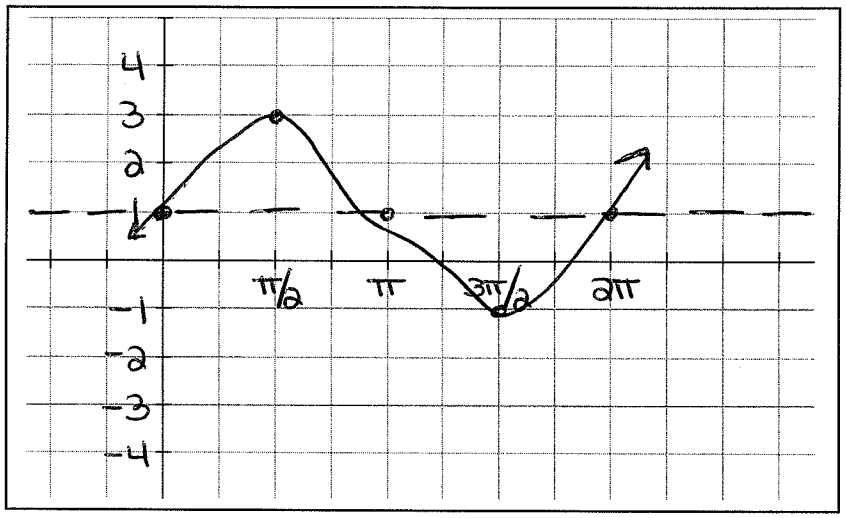
How does the negative affect the graph? reflection over x-axis

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

6. $y = 1 + 2\sin$

Vertical shift: up 1 Sinusoidal axis: $y = 1$

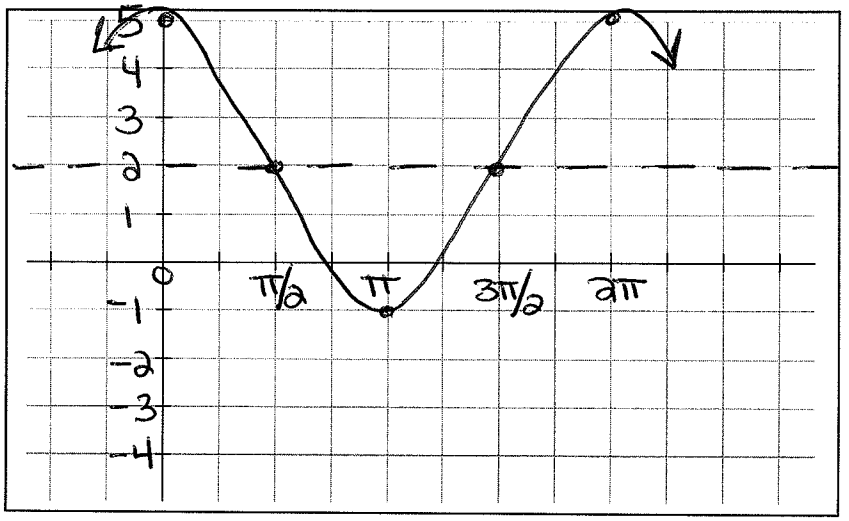
Amplitude: 2 Domain: $(-\infty, \infty)$ Range: $[-1, 3]$



7. $y = 2 + 3\cos x$

Vertical shift: up 2 Sinusoidal axis: $y = 2$

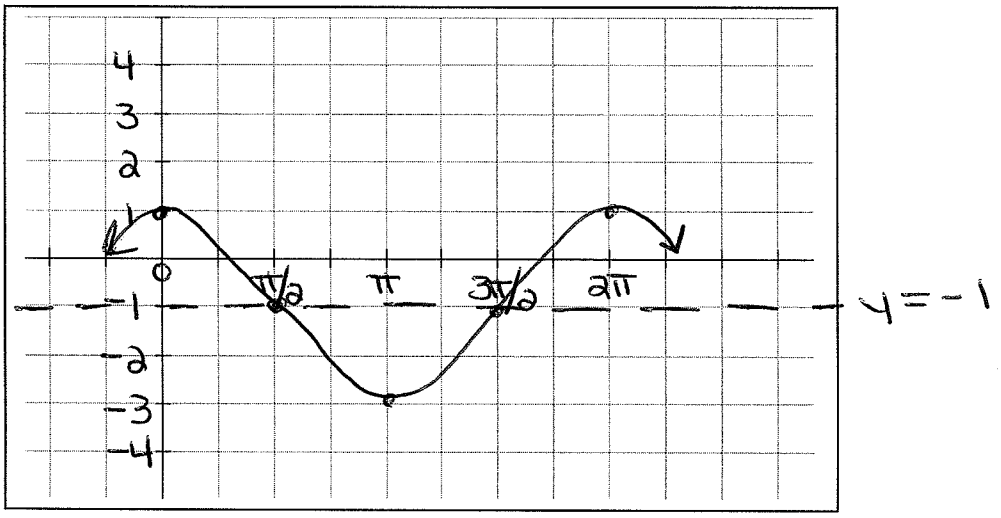
Amplitude: 3 Domain: $(-\infty, \infty)$ Range: $[-1, 5]$



8. $y = -1 + 2\cos x$

Vertical shift: down 1 Sinusoidal axis: $y = -1$

Amplitude: 2 Domain: $(-\infty, \infty)$ Range: $[-3, 1]$



9. $y = 3 - 2\sin x$

Vertical shift: up 3 Sinusoidal axis: $y = 3$

Amplitude: 2 Domain: $(-\infty, \infty)$ Range: $[1, 5]$