

Warm-up

Standard: Graphing trigonometric functions using transformations.

I. Graph each of the functions. Identify the amplitude, period, phase shift, and vertical shift for each.

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

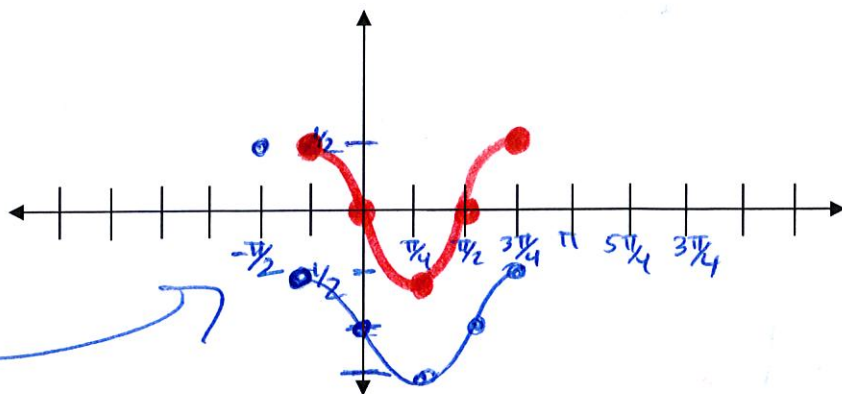
$y = a \cos(bx)$
 $y = a \sin(bx)$

A = $\frac{1}{2}$ Period = $\frac{2\pi}{2} = \pi$

Increment $\frac{\pi}{4}$ Scale $\frac{\pi}{4}$

Phase Shift = left $\frac{\pi}{4}$

Vertical Shift = down 1



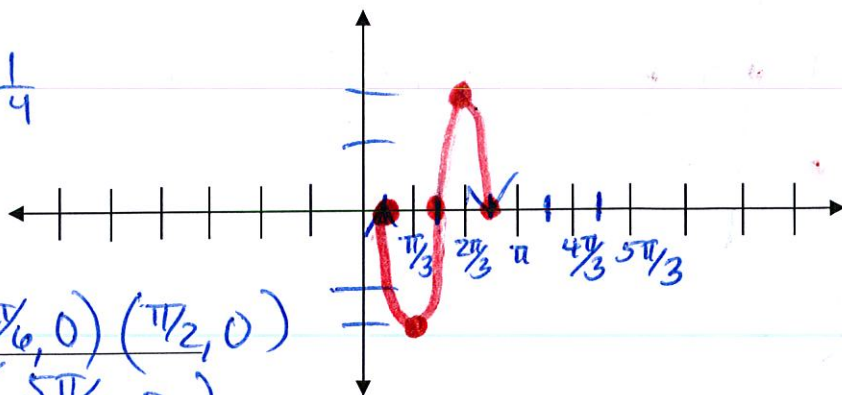
2. $y = -2 \sin 3\left(x - \frac{\pi}{6}\right)$

A = 2 Period = $\frac{2\pi}{3} \cdot \frac{1}{4}$

Increment $\frac{2\pi}{12} = \frac{\pi}{6}$ Scale $\frac{\pi}{6}$

Phase Shift = right $\frac{\pi}{6}$

Vertical Shift = N/A Zeros $(\frac{\pi}{6}, 0)$ $(\frac{\pi}{2}, 0)$ $(\frac{5\pi}{6}, 0)$



$y = 3 \cos 2\left(x - \frac{\pi}{3}\right)$

amp = 3

v.s. = none

period = $\frac{2\pi}{2} = \pi$

Phase shift right $\frac{\pi}{3}$ increment $\frac{\pi}{4}$

Scale $\frac{\pi}{12}$

$15 \cdot \frac{\pi}{180} = \frac{\pi}{12}$

