$y = A \sin B(x-c)+D$

Write the equation of a sine function that has the given characteristics.

5. Amplitude: 3 $A=3$

Period: π $P=\frac{2\pi}{B}$

$y = 3\sin 2x$ $B=\frac{2\pi}{P}$

$B=2$

6. Amplitude: 4 $A=4$

Period: $\frac{\pi}{6}$ $B=\frac{2\pi}{\frac{\pi}{6}}$

$y = 4\sin 12x$ $2\pi \cdot \frac{6}{\pi}$

7. Amp: 2 $A=2$

Period $\frac{3\pi}{4}$ $B=\frac{2\pi}{P}$

$y = 2\sin\frac{8}{3}x$ $\frac{2\pi}{\frac{3\pi}{4}}$

$2\pi \cdot \frac{4}{3\pi}$

8. Amp: 5

Period: 4π

Phase Shift π right

$A=5$ $B=\frac{2\pi}{P}$

$=\frac{2\pi}{4\pi}=\frac{1}{2}$

$y = 5\sin\frac{1}{2}(x-\pi)$

9. Amp 6

Period 4

Phase Shift 3 left

Vertical Shift Down 4

$y = 6\sin\frac{\pi}{2}(x+3)-4$

10. Amp 1.5

Period 8π

P.S $\frac{5\pi}{4}$ right

V.S up 2

Reflect over x-axis

$y = -1.5\sin\frac{1}{4}\left(x-\frac{5\pi}{4}\right)+2$

Determine the formula for the cosine function in Figure 15.

$Per = 2\pi$

$y = A\cos B(x-c)+D$

$B = \frac{2\pi}{P} = \frac{2\pi}{2\pi} = 1 = B$

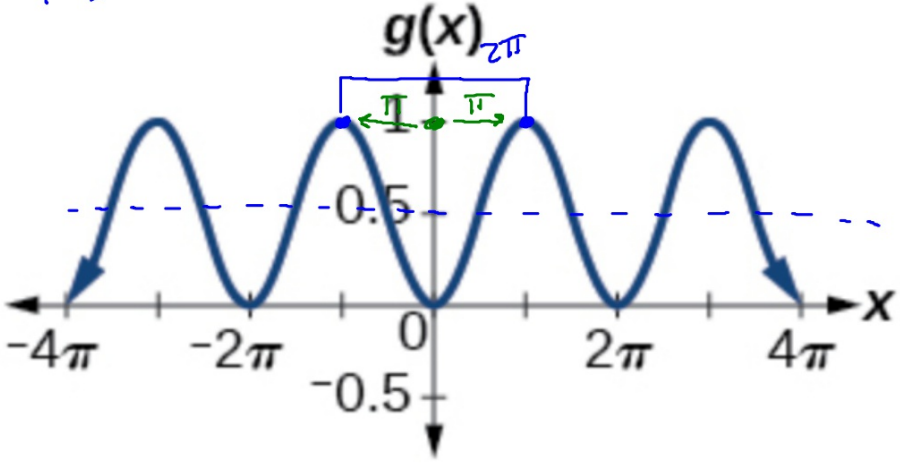
$y = \frac{1}{2}\cos(x-\pi)+\frac{1}{2}$

$Amp = \frac{max-min}{2}$

$= \frac{1-0}{2} = \frac{1}{2} = A$

V.S. $\frac{max+min}{2}$

$\frac{1+0}{2} = \frac{1}{2} = D$



Determine the formula for the sine function in Figure 16.

$P = 2\pi$

$y = \sin x + 2$

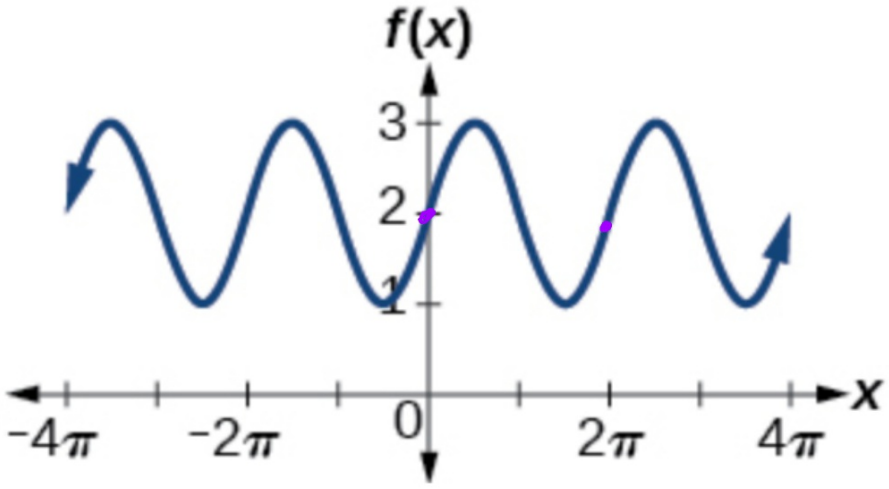
$B = 1$

$\text{Amp} = \frac{\max - \min}{2}$

$\frac{3-1}{2} = 1$

V.S. $\frac{\max + \min}{2}$

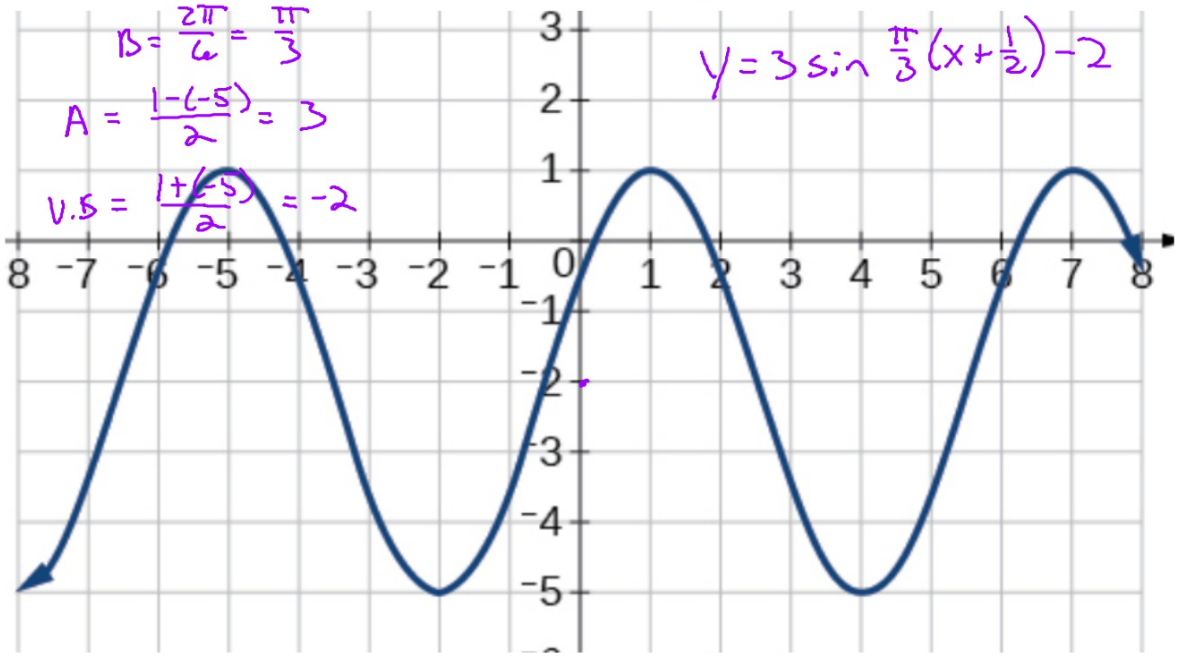
$\frac{3+1}{2} = 2$



Determine the equation for the sinusoidal function

$P_{cr} = 6$

$y = 3\cos\frac{\pi}{3}(x-1) - 2$



Determine the equation for the sinusoidal function