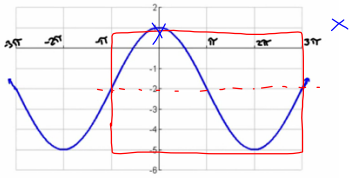
Write the equation of the sin/cos functions given the graph.

1.) Sine : OTOBO



$d = -2$ Period $= 4\pi$

$a = 3$ Period $= \frac{2\pi}{b}$

Phase Shift: $4\pi = \frac{2\pi}{b}$

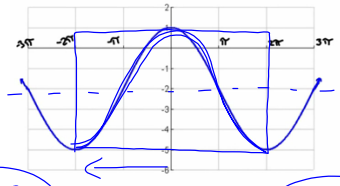
$\boxed{x = -\pi}$ $b = 1/2$

$y = a\sin(b(x-c)) + d$

$y = 3\sin\left(\frac{1}{2}(x+\pi)\right) - 2$

$\boxed{y = 3\sin\left(\frac{1}{2}x + \frac{\pi}{2}\right) - 2}$

cos : TOBOT



$d = -2$

$a = 3$

$p = 4\pi$

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

$b = 1/2$

Phase Shift: $-2\pi = x$

$-\cos$

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

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

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$y = a \cos/\sin(b(x-c)) + d$ v. s. midline?

a: Amplitude

b: Period $= \frac{2\pi}{b}$

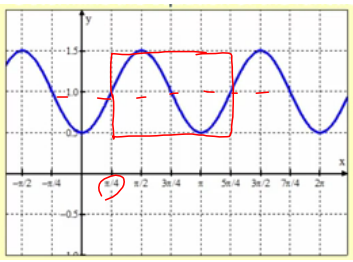
$x - c$: Phase Shift

Dec 5-9:30 AM

Write the equation of the sin/cos functions given the graph.

2.)

sin : OTOBO



$d = 1$

$a = \frac{1}{2}$

Period $= \pi$

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

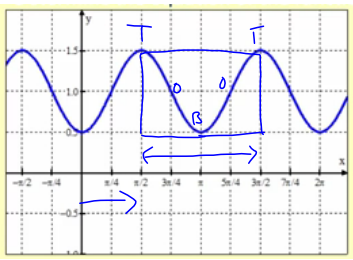
$b = 2$

Phase Shift: $\frac{\pi}{4}$

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

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

cos : TOBOT



$\frac{1}{2} \rightarrow \frac{3}{2}$

$d = 1$

$a = 1/2$

$b = 2$

cos

P.S. $= \frac{\pi}{2}$

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

$b = 2$

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

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

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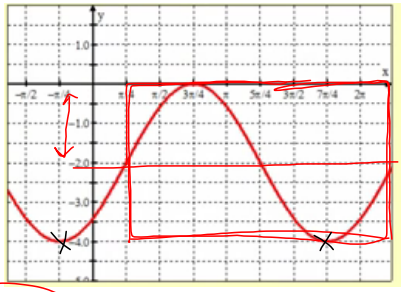
Write the equation of the sin/cos functions given the graph.

3.)

sin : OTOBO



$d = -2$

$a = 2$

P.S. $x = \frac{\pi}{4}$

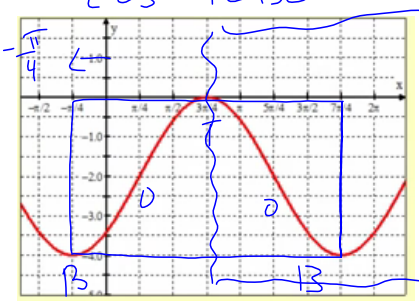
Period $= \frac{2\pi}{b}$

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

$b = 1$

$y = 2\sin(x - \pi/4) - 2$

cos : TOBOT



P.S. $x = -\frac{\pi}{4}$

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

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4.) Create a cosine function with the given information:

Amplitude: 2

Period: 4π

Phase Shift: $-\frac{\pi}{3}$

Vertical translation: Down 2

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

$$y = 2\cos\left(\frac{1}{2}x + \frac{\pi}{6}\right) - 2$$

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

$$b = \frac{1}{2}$$

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