Finding the Rule

Examples

$A = \frac{\max - \min}{2} = \frac{3-(-5)}{2} = 8/2 = 4$

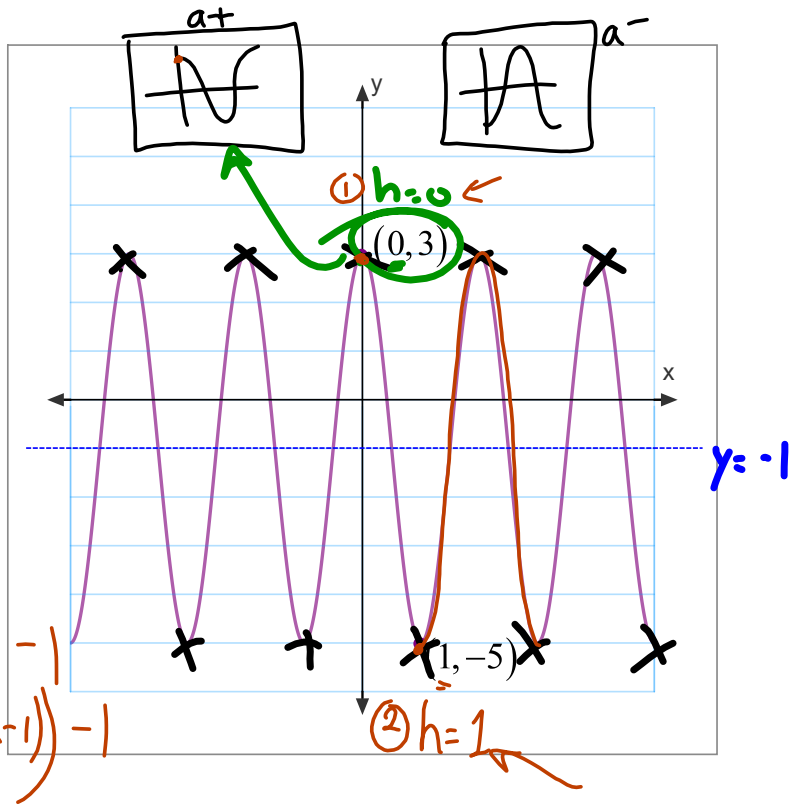
$a = \pm 4$

$k = 3 - 4 = -1$

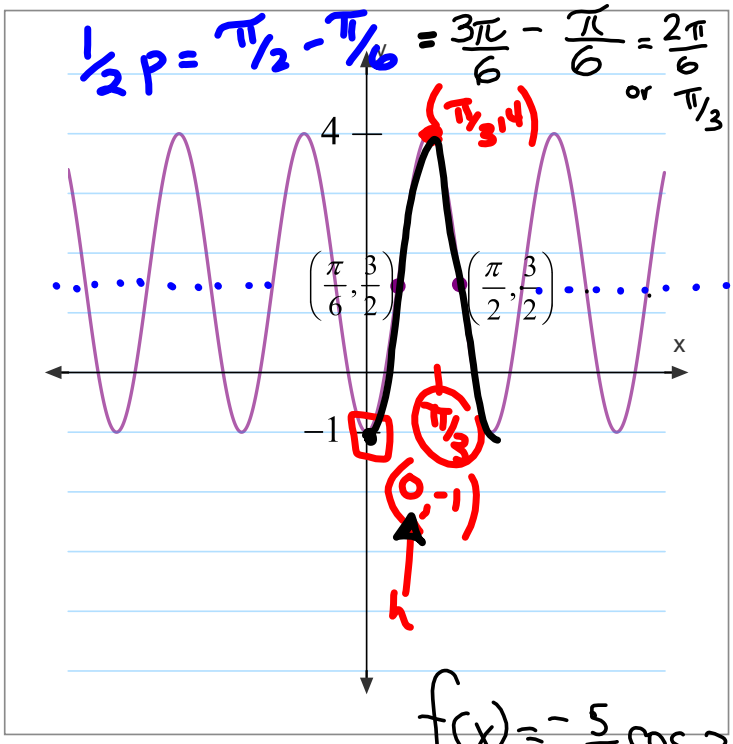
$p = 2 \Rightarrow b = \frac{2\pi}{2} = \pi$

① $h = 0 \Rightarrow f(x) = 4\cos \pi x - 1$

② $h = 1 \Rightarrow f(x) = -4\cos(\pi(x-1)) - 1$



Determine an equation that represents the function below.



$\frac{1}{2}p = \frac{\pi}{2} - \frac{\pi}{6} = \frac{3\pi}{6} - \frac{\pi}{6} = \frac{2\pi}{6}$ or $\pi/3$

$A = \frac{4 - (-1)}{2} = \frac{5}{2}$

$a = \pm 5/2$

$k = 1.5$ or $3/2$

$p = \frac{2\pi}{3} \Rightarrow b = 2\pi \div \frac{2\pi}{3}$

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

$= 3$

$h = 0 \Rightarrow a$

$f(x) = -\frac{5}{2}\cos 3x + \frac{3}{2}$

Finding the Zeros

Examples

1) $f(x) = 2\cos(x-5) - 1$

let $y = 0$

$0 = 2\cos(x-5) - 1$

$1 = 2\cos(x-5)$

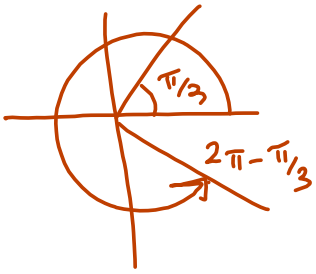
$\frac{1}{2} = \cos(x-5)$

$\cos^{-1}\left(\frac{1}{2}\right) = x-5$

$\left\{\frac{\pi}{3}, \frac{5\pi}{3}\right\} = x-5$

$\left\{5+\frac{\pi}{3}, 5+\frac{5\pi}{3}\right\} = x$

$\left\{5+\frac{\pi}{3}+2\pi n, 5+\frac{5\pi}{3}+2\pi n\right\}$ $n \in \mathbb{Z}$



$b = 1$

$p = 2\pi$

$2\pi = \frac{6\pi}{3}$

$2\pi - \theta$