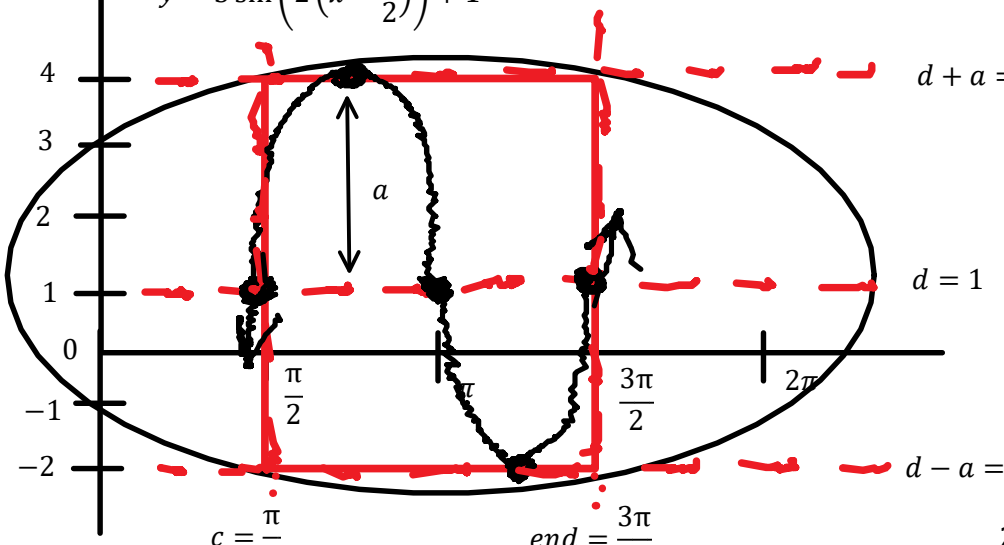
C12 - 5.4 - Trig Graphing Notes

$y = \text{asin}(b(x-c)) + d$

1) d
2) a
3) c
4) b

Graph a b c d

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

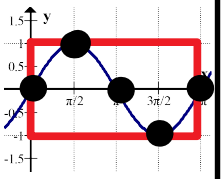


$d + a = 4$

$d = 1$

$d - a = -2$

Sine Graph



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

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

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

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

$p = \pi$

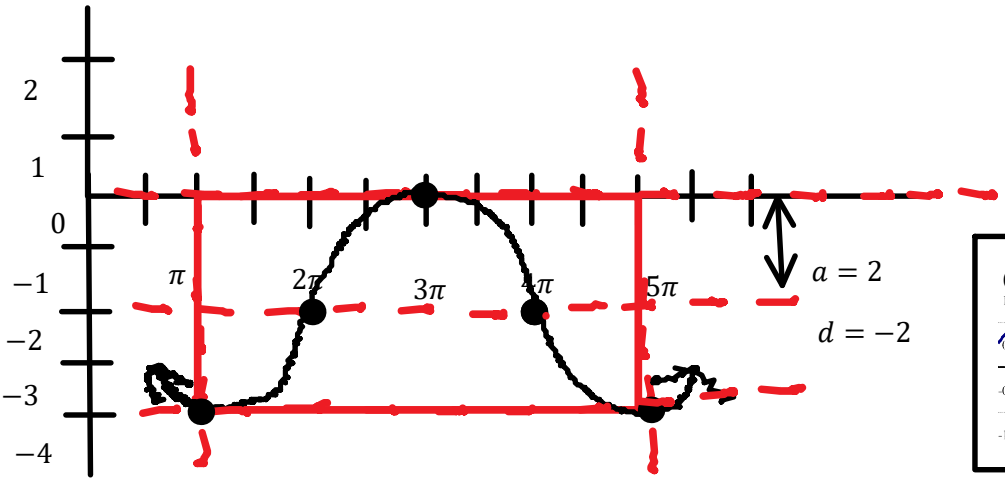
$end = c + p$

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

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

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

Find Equation

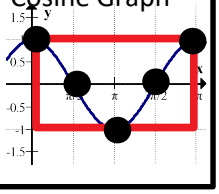


$a = 2$

$d = -2$

1) d
2) a
3) c
4) b

Cosine Graph



$c = \pi$

$p = 2nd - c$

$= 5\pi - \pi$

$= 4\pi$

$end = 5\pi$

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

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

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

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

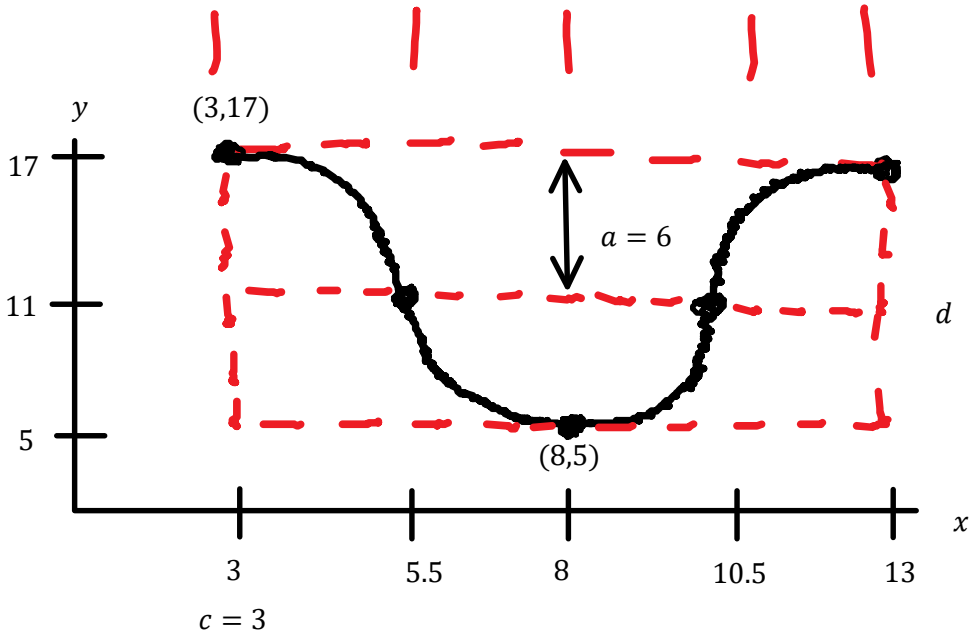
Equation a b c d

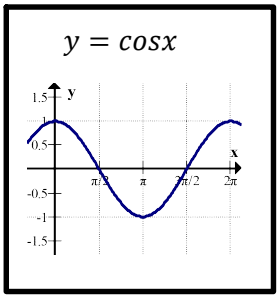
$y = -2\cos\left(\frac{1}{2}(x - \pi)\right) - 2$

$y = \text{acos}(b(x-c)) + d$

C12 - 5.4 - Max Min Points Notes

A sinusoidal function has a maximum at $(3,17)$ and a minimum at $(8,5)$. Find the equation.





$\frac{17+5}{2} = 11$ $\quad \frac{17-5}{2} = 6$ $\quad 8-3=5$ $\quad 5\times 2 = 10$ $\quad p = 10$

$17-6=11$
$5+6=11$

$\frac{5}{2} = 2.5$ $\quad 3+2.5=5.5$

$y = \text{a}\cos(b(x-c))+d$

$$y = 6\cos\left(\frac{\pi}{5}(x-3)\right)+11$$

$$p = \frac{2\pi}{b}$$
$$b = \frac{2\pi}{p}$$
$$b = \frac{2\pi}{10}$$
$$b = \frac{\pi}{5}$$

$$y = 6\sin\left(\frac{\pi}{5}(x-10.5)\right)+11$$

$$y = -6\sin\left(\frac{\pi}{5}(x-5.5)\right)+11$$

$$y = -6\cos\left(\frac{\pi}{5}(x-8)\right)+11$$

$\pm sin/\cos$ and "c"