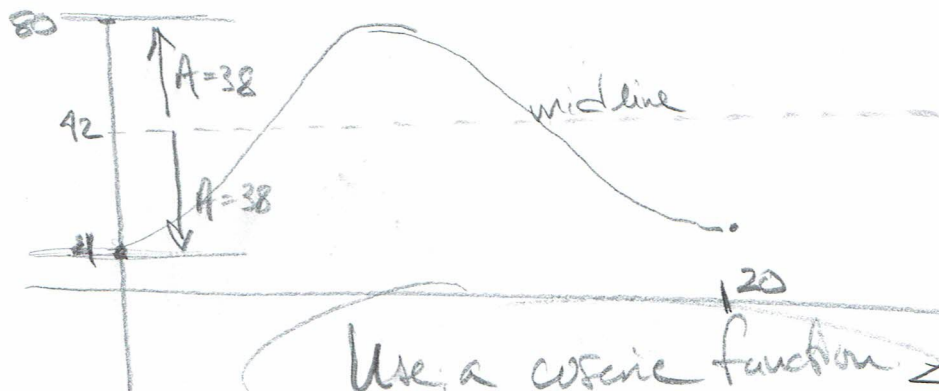


min height = 4  
max height = 80

1 cycle takes 20 secs  
period = 20

diameter = 76 (80-4)

$$\frac{76}{2} = \text{Amp} = 38$$



Use a cosine function

but it's upside down

$$h = A \cos(Bx - C) + D$$

$\begin{matrix} \uparrow \\ -38 \end{matrix}$   
(upside down cosine)

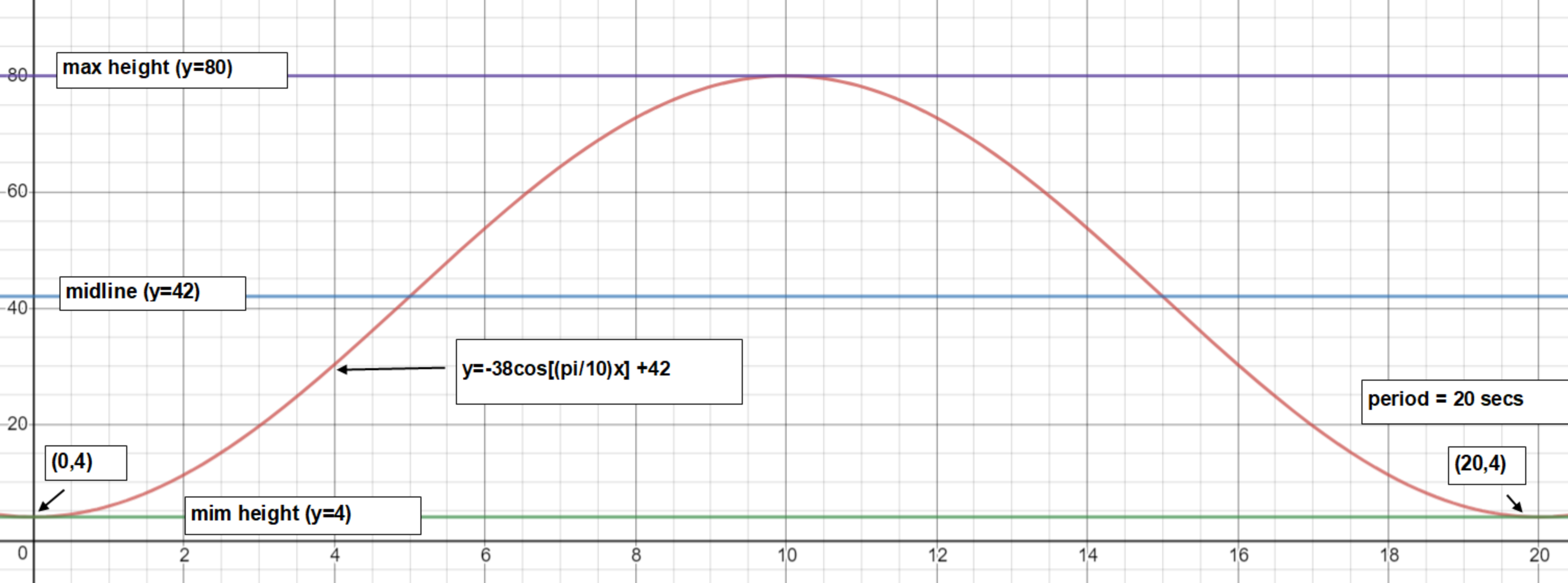
$$\frac{2\pi}{B} = \text{period} = 20$$

$$\frac{2\pi}{B} = 20 \Rightarrow 20B = 2\pi \Rightarrow B = \boxed{\frac{\pi}{10}}$$

$$\begin{aligned} \text{vert shift} &= \text{Amp} + \text{min height} \\ &= 38 + 4 = \boxed{42} \end{aligned}$$

No horiz shift  $\Rightarrow C = 0$

$$y = -38 \cos\left(\frac{\pi}{10}t\right) + 42$$



max height (y=80)

midline (y=42)

$y = -38\cos\left[\left(\frac{\pi}{10}\right)x\right] + 42$

period = 20 secs

(0,4)

min height (y=4)

(20,4)