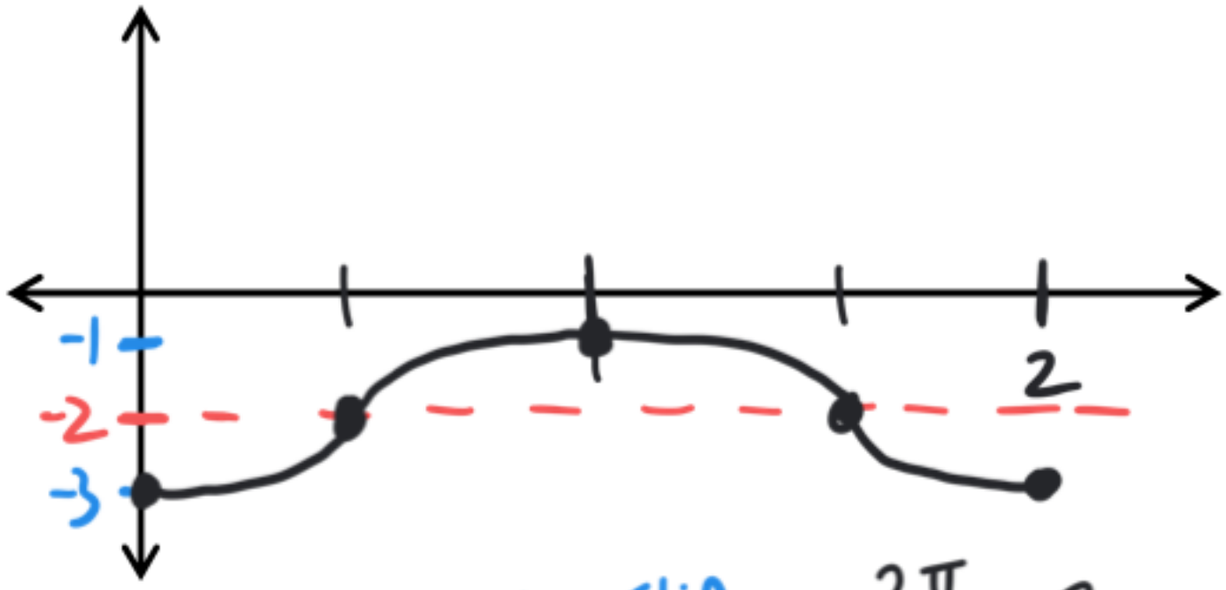
1) Find the midline, amplitude and period and then sketch one cycle of $f(x) = -\cos(\pi x) - 2$.



M: $y = -2$ A: 1 Flip P: $\frac{2\pi}{\pi} = 2$

2) Sketch one cycle of $g(x) = 4\tan\left(\frac{1}{3}x\right)$.

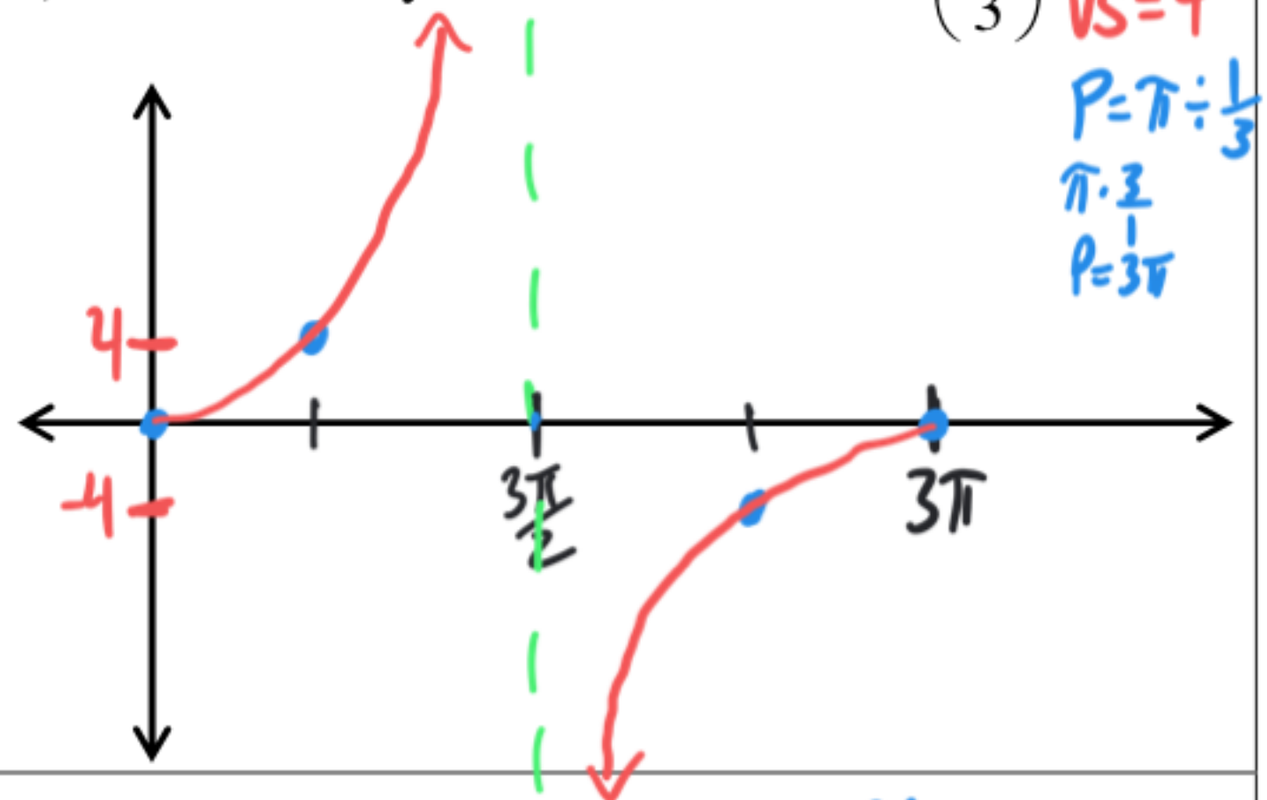
M: $y = 0$

VS = 4

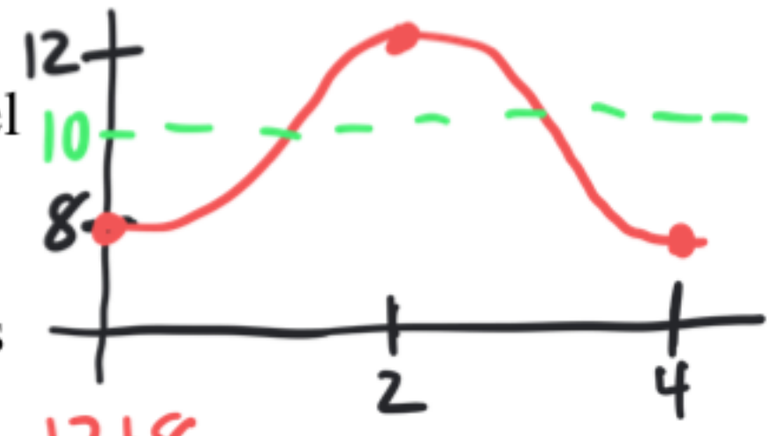
$P = \pi \div \frac{1}{3}$

$\pi \cdot 3$

$P = 3\pi$



3) Imagine you are playing in the ocean. The waves make the water level go up and down at a constant rate. Assume at time zero, the water is at its lowest point of 8 ft, and then 2 seconds later the wave reaches its highest point of 12 ft. If the waves make a sinusoid function, then write the equation for it.



$\frac{12+8}{2} = \frac{20}{2} = 10$

M: $y = 10$ ft

A = 2 ft Flip

P = 4 sec

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

$y = -2\cos\left(\frac{\pi x}{2}\right) + 10$