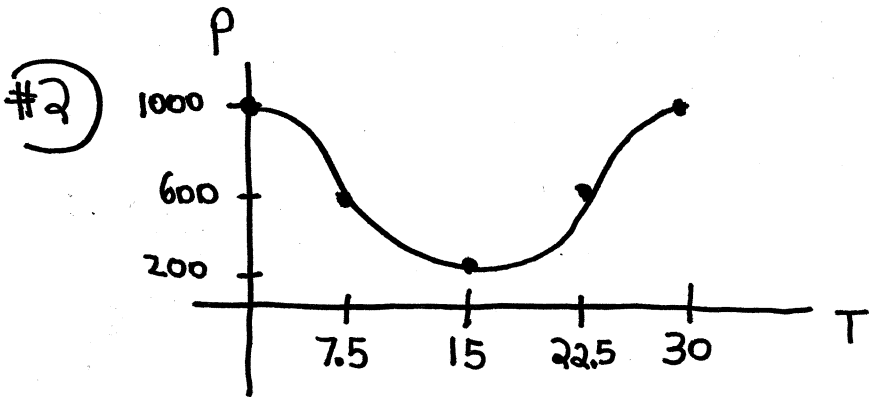


MODELING WITH sin AND cos

#1) PERIOD = 1, so $k = \frac{2\pi}{1} = 2\pi$

CAN USE

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



HERE $k = \frac{2\pi}{30} = \frac{\pi}{15}$

$$y = 400 \cos\left(\frac{\pi}{15}T\right) + 600$$

IN 1977, $T = 15$

AND $y = 400 \cos\left(\frac{\pi}{15} \cdot 15\right) + 600$
 $= -400 + 600 = 200$

#3

$$P = -20 \cos\left(\frac{8\pi}{3}T\right) + 100$$

$$\text{Amplitude} = 20$$

$$\text{Period} = \frac{2\pi}{k} = \frac{2\pi}{\left(\frac{8\pi}{3}\right)} = \frac{3}{4}$$

