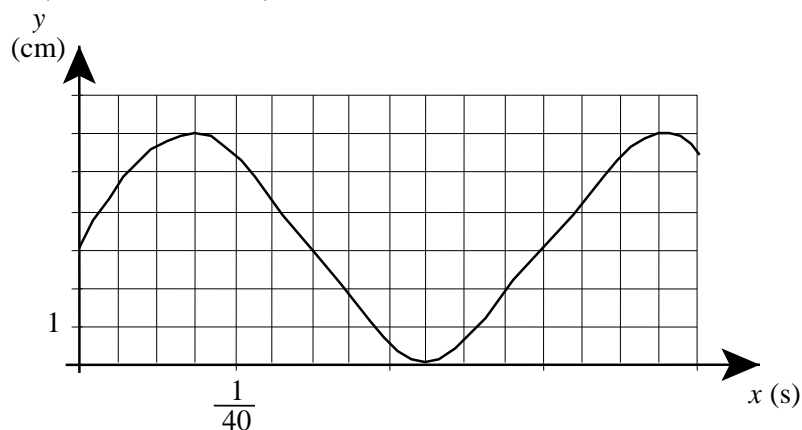




4. The piston in the motor of a lawn mower moves within a cylinder. The following graph represents the height of the piston, in centimetres, as a function of time in seconds.



Which expression should be used to determine the height of the piston in the cylinder?

(4 pts)

A)  $f(x) = 3 \sin\left(\frac{3}{40}x\right) + 3$

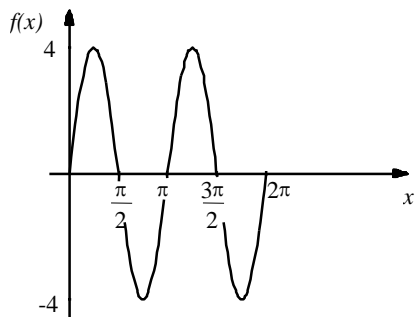
C)  $f(x) = 3 \cos\left(\frac{3}{40}x\right) + 3$

B)  $f(x) = 3 \sin\left(\frac{80\pi}{3}\left(x - \frac{3}{80}\right)\right) + 3$

D)  $f(x) = -3 \cos\left(\frac{80\pi}{3}\left(x - \frac{9}{160}\right)\right) + 3$

5. Given the cosine function below, if the  $h$  parameter is  $\frac{\pi}{4}$ , state the rule of the function.

(4 pts)



6. Determine the zeros of the following function:

$$f(x) = 3 \cos\left(2\left(x + \frac{\pi}{4}\right)\right) - 3$$

7. Given  $f(x) = -0.5 \cos\left(\frac{\pi}{2}(x + 2)\right) + 1$ , determine when the  $f(x) \geq 1$  over  $x \in [0,5]$