

9. [14 points]

- a. [7 points] A mass is attached to the top of a ceiling by a spring. The height of the mass above the ground oscillates from a minimum of 1.2 meters to a maximum of 2.5 meters. Let $f(t)$ be the height of the mass above the ground, in meters, at time t measured in seconds. Some of the values of the function $f(t)$ are shown below

t	0	1	2	3	4
$f(t)$	1.65	2.38	2.38	1.65	1.2

Note: All the values in the table are rounded to the nearest 0.01.

Suppose $f(t)$ is a sinusoidal function.

- i) Find the period, amplitude and midline of $y = f(t)$.

Period=_____ Amplitude=_____ Midline: _____

- ii) Find a formula for $f(t)$.

$f(t)$ =_____

- b. [7 points] Find all solutions to $4 - 5 \sin\left(\frac{\pi}{2}x - \frac{\pi}{6}\right) = 2$ for $0 \leq x \leq 5$. Your answers must be found algebraically and in **exact** form.

Answers:_____