

HW3-2 Soln)

Calculate

$$x_{\text{MAX}} = NL$$

$$x_{\text{RMS}} = \sqrt{N}L$$

$$x_{\text{AVE}} = 0$$

where L is the step size of  $\frac{1}{2}$  m each and N the number of time intervals (1 second each).

t = 0 or zero steps

$$x_{\text{MAX}} = 0L = 0$$

$$x_{\text{RMS}} = \sqrt{0}L = 0$$

$$x_{\text{AVE}} = 0$$

t = 60 seconds (or 60 steps)

$$x_{\text{MAX}} = (60)(0.5) = 30 \text{ m}$$

$$x_{\text{RMS}} = \sqrt{60}(0.5) = 3.87 \simeq 4 \text{ m}$$

$$x_{\text{AVE}} = 0$$

t = 600 seconds (or 600 steps)

$$x_{\text{MAX}} = (600)(0.5) = 300 \text{ m}$$

$$x_{\text{RMS}} = \sqrt{600}(0.5) = 12.25 \simeq 12 \text{ m}$$

$$x_{\text{AVE}} = 0$$