Matt miller Debolt Monday 3 PM

9) $\frac{1}{2}kx^2 = \frac{1}{2}mv^2$

$\Delta d_1 = 2.2 - .27\ m = v_1 \Delta t$

$d_2 = 2.2\ m = v_2 \Delta t$

$\frac{1}{2}kx_1^2 = \frac{1}{2}mv_1^2$

$x_1 = 0.011$

$\frac{1}{2}kx_2^2 = \frac{1}{2}mv_2^2$

$k = \frac{mv_2^2}{x_2^2}$

$k = \frac{mv_1^2}{x_1^2}$

$\frac{mv_2^2}{x_2^2} = \frac{mv_1^2}{x_1^2}$

$x_2^2 = \frac{mv_2^2 x_1^2}{mv_1^2}$

$x_2 = \sqrt{\frac{v_2^2 x_1^2}{v_1^2}}$

$v_1 = \frac{1.93}{\Delta t}$

$v_2 = \frac{2.2}{\Delta t}$

$x_1 = 0.011$

$x_2 = \sqrt{\frac{0.011^2 \cdot \left(\frac{2.2}{\Delta t}\right)^2}{\left(\frac{1.93}{\Delta t}\right)^2}}$

$x_2 = \sqrt{0.011^2 \cdot \frac{(2.2)^2}{(1.93)}} = 0.0125\ M$

$= 1.25\ cm$