

# Unit 5 Chapter 13 Homework #1

2)  $m = 4.25 \text{ kg}$

$\Delta x = -.0262 \text{ m}$

$F = ?$



$\Sigma F_y = 0 = F_s + W$

$0 = -kx + W$

$0 = -k(-.0262) - 42.5$

$k = 1622.14 \text{ N/m}$

\* Pay close \*  
attention to  
the + or - of  
numbers

4)  $W = 50 \text{ N}$

$\Delta x_1 = -.05 \text{ m}$

$\Delta x_2 = .11 \text{ m}$

A)  $\Sigma F_y = 0 = F_s + W$

$0 = -kx + W$

$0 = -k(-.05) - 50$

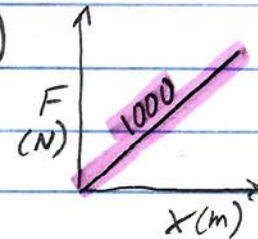
$k = 1000 \text{ N/m}$

$F = -kx$

$F = -1000(.11)$

$F = -110 \text{ N}$

B)



8)  $m = .003 \text{ kg}$

$v_{oy} = 0 \text{ m/s}$

$v_{ox} = 45 \text{ m/s}$

$\Delta x = -.08 \text{ m}$

$k = ?$

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

$\frac{1}{2} k(.08)^2 = \frac{1}{2} (.003)(45)^2$

$.0032 k = 3.0375$

$k = 949.22 \text{ N/m}$

B)  $F_s = -kx$

$F_s = -949.22(-.08)$

$F_s = 75.94 \text{ N}$

$F_{\text{rod}} = -75.94 \text{ N}$