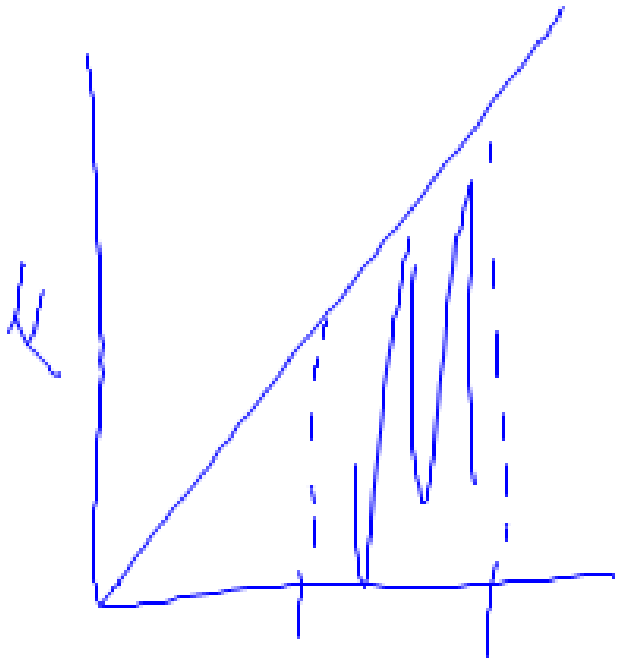
2. –/1 points Notes Question: Giancoli8 6.P.013.

A spring has k = 88 N/m. Use a graph to determine the work needed to stretch it from x = 4.3 cm to x = 5.3 cm, where x is the displacement from its unstretched length.

J

$$PE_{spring} = \frac{1}{2}kx^2$$



$$\Delta PE = PE_f - PE_i$$

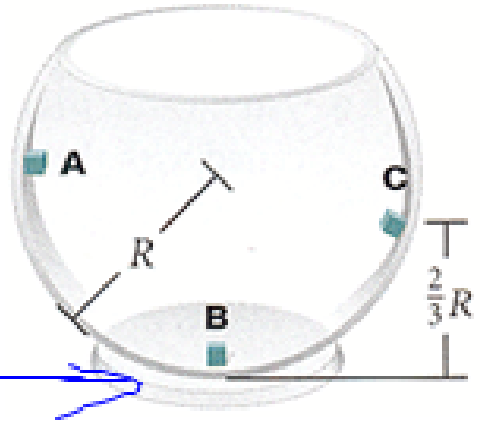
$$\Delta PE = \frac{1}{2}kx_f^2 - \frac{1}{2}kx_i^2$$

$$= \frac{1}{2}k\left(x_f^2 - x_i^2\right)$$

$$= \frac{1}{2}\left(88\,N/m\right)\left((.053m)^2 - (.043m)^2\right)$$

28. –2.5 points Notes Question: HoltPhys06 5.P.037.

A 376 g particle is released from rest at point **A** inside an smooth hemispherical bowl of radius 37.5 cm, as shown below.



$PE_B = 0$

$E_A = E_B = E_C = PE_C + KE_C$

$PE_A + KE_A = PE_B + KE_B$

(a) Calculate the gravitational potential energy at **A** relative to **B**.

_____ J

(b) Calculate the particle's kinetic energy at **B**.

_____ J

(c) Calculate the particle's speed at **B**.

_____ m/s

(d) Calculate the potential energy and kinetic energy at **C**.

PE = _____ J

KE = _____ J

$PE_{grav} = mgh$

$= (.376\,kg)(9.8\,m/s^2)(.375\,m)$

$KE = \frac{1}{2}mV^2$

$J = \frac{1}{2}(.376\,kg)V^2$

$$E_A = E_B = E_c = KE_c + PE_c$$

$$= \frac{1}{2}mv_c^2 + mgh$$

$h = 3R$