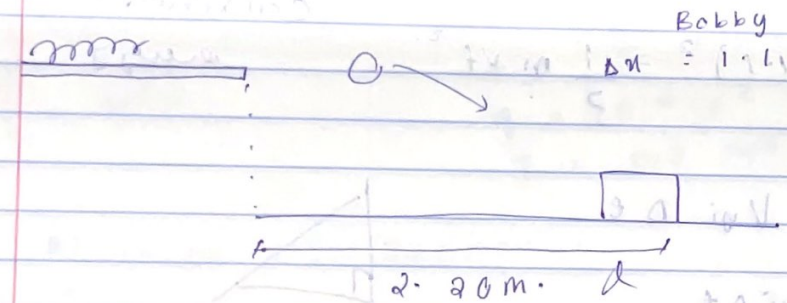
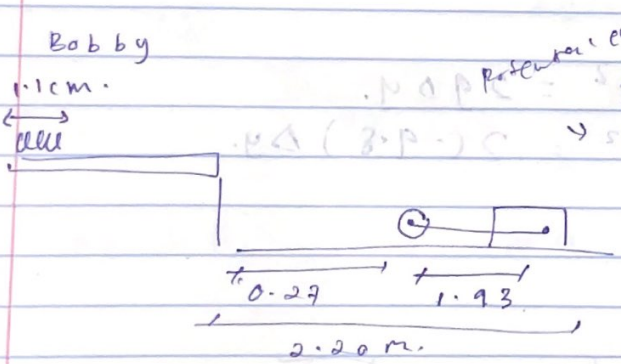
Question 9

If $\Delta x = 2.2\,m$.





Potential energy. spring force.

$F_s = -k\Delta x$

$\rightarrow U_s = \frac{1}{2} k x^2$

Rhoda my f:

$x = \beta l = 2.2m$.

Initial K.E $= \frac{1}{2} m v_i^2$

$v_i = 0$

$K.E = 0$.

$P.E = \frac{1}{2} k x^2$.

$= \frac{1}{2} k (1.1)^2$

$P.E. = 0.605k$

Final K.E $= \frac{1}{2} m v_f^2$.

$P.E = \frac{1}{2} k (0)^2$ (equilibrium)

conserved $= 0$

$\frac{1}{2} m v_f^2 = 0.605k$.

x.

$v_{ix} = v_{xi}$.

$a = 0$

y.

$v_{yi} = 0$

$v_{yf} = ?$

$a = -9.8$

$\Delta y = ?$

$v_f^2 - v_i^2$

$\Delta x = v_0 \Delta t + \frac{1}{2} a \Delta t^2$

$\Delta V = a \Delta t$

$v_f^2 - v_i^2 = 2a\Delta x.$

~~Rhoda:~~

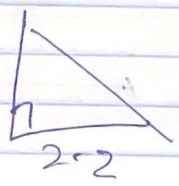
Rhoda: $\Delta x = ?$

conservation of energy

$\frac{1}{2} k (1.1)^2 = \frac{1}{2} m v_f^2.$

3

$\Delta y = V_{yi} \Delta t.$



$\Delta x = V_{xi} \Delta t$

$2.2 = v_i \Delta t.$

$V_f^2 - v_i^2 = 2g\Delta y.$

$0 - v_i^2 = 2(-9.8)\Delta y.$

~~$\sin\theta = \frac{II}{H}$~~

~~$mgh = \frac{1}{2} m v_i^2$~~ $v_i = \sqrt{2gh}$

$mgh_2 = \frac{1}{2} m v_2^2$

$s_2 = 5m \sqrt{\frac{h_2}{h_i}}$

$\frac{S_1}{S_2} = \frac{V_1}{V_2}$

4