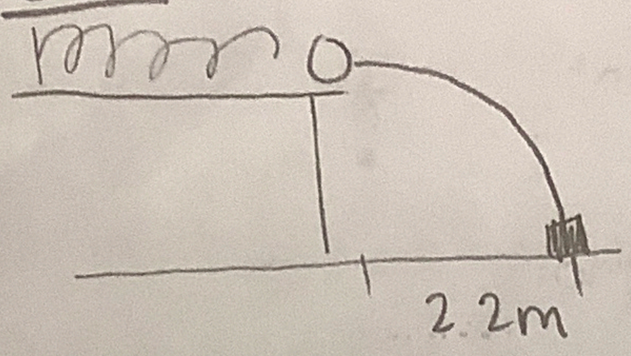
Q9



1.1cm = 0.011m $k = ?$

27cm = 0.27m

$KE = \frac{1}{2}k\Delta x^2 = \frac{1}{2}k(0.011)^2$

$V_{xi} = 6.05 \times 10^{-5} k$

$\Delta x = 1.93$ $\Delta y = ?$

$a_x = 0$ $a_y = -10\ m/s^2$

$V_{xf} = V_{xi}$ $V_{yi} = 0$ $V_{yf} = ?$

$$\Delta x = \frac{(V_{xi} + V_{xf})t}{2}$$

$$2(1.93) = 2(6.05 \times 10^{-5} k)t$$

$$t = \frac{31900}{k}$$

$$2.2 = \frac{2V(\frac{31900}{k})}{2}$$

$$2.2k = V(31900)$$

$V_i = 6.896 \times 10^{-5} k = KE$

$6.896 \times 10^{-5} k = \frac{1}{2}k\Delta x^2$

$\Delta x = 0.0117m = \boxed{1.17\ cm}$