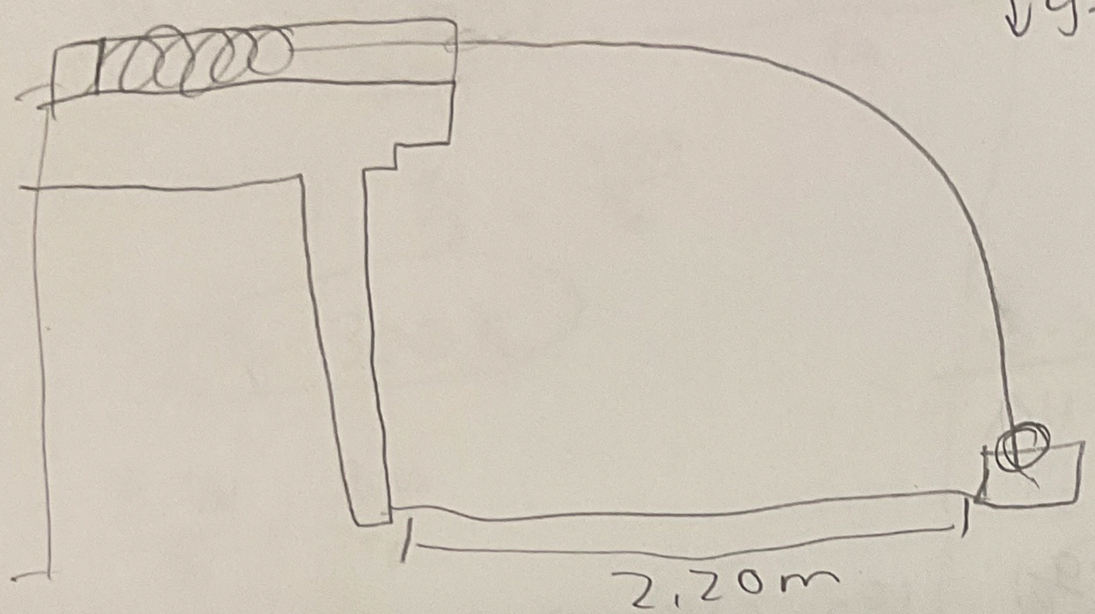
Show Work

a.



$\downarrow g = 10 m/s^2$

$2.2m - .27m = 1.93m$

$d = 1.93m$

$a = 10 m/s^2$

$t = .5s$

$v_{fy} = 5 m/s$

$U_g + U_s = K_E$

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

$mgh + \frac{1}{2} k x^2 = \frac{1}{2} m v^2$

$gh + \frac{1}{2} k x^2 = \frac{1}{2} v_x^2$ 3

$25 = 2(10) d_y$

$d_y = 1.25m$

$90(1.25) + \frac{1}{2} k (1.011)^2 = \frac{1}{2} (3.86)^2$

$k = 5 \frac{N}{m}$

$112.5 + \frac{1}{2}(5) x^2 = 7.45$

$x = 2.02 cm$