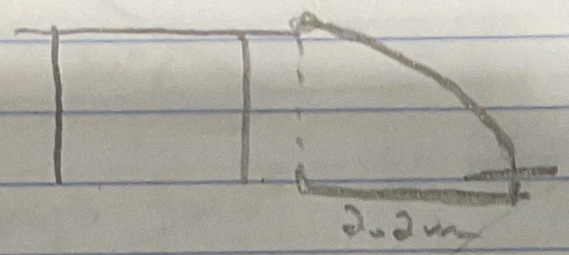
Question 9:

$\Delta x = 2.2m$ 0.011 / 1.93

$v_i = ? = v_f$

$a = 0$

$\Delta t = ?$



Bobby Attempt:

$x_{spring} = 0.011\,m$

$R = ?$

$\Delta x = 1.93$

$v_i = v_f = ?$

$a = 0$

$\Delta y = 2.2$

$v_{yi} = 0$

$a_y = 10$

$t = ?$

$\Delta y = \cancel{v_i t}^{0} + \frac{1}{2} a t^2$

$\Delta y = \frac{1}{2} a t^2$

$\frac{2\Delta y}{a} = t^2$

$\sqrt{\frac{2\Delta y}{a}} = t = 0.66\,sec$

$\Delta x = v_i t + \cancel{\frac{1}{2} a t}^{0}$

$\frac{\Delta x}{t} = \frac{v_i t}{t}$

$v_i = \frac{\Delta x}{t} = 2.92\,m/s$

$\left(\frac{1}{2} R x^2 = \frac{1}{2} m v^2\right) 2$

$\frac{R x^2}{x^2} = \frac{m v^2}{x^2}$

$R = \frac{m v^2}{x^2}$

Rhonda Attempt

$R_s = ?$

$R = ?$

$\Delta x = 2.2$

$v_i = v_f$

$a = 0$

$\Delta y = 2.2$

$v_{yi} = 0$

$a_y = 10$

$t = 0.66$

$\Delta x = \cancel{v_i t}^{0} + \cancel{\frac{1}{2} g t^2}^{0}$

$\frac{\Delta x}{t} = \frac{v_i t}{t}$

$v_i = \frac{\Delta x}{t}$

$v_i = 3.33$

$\frac{1}{2} R x^2 = \frac{1}{2} m v^2$

$R x^2 = m v^2$

$x^2 = \sqrt{\frac{m v^2}{R}}$

$x = \sqrt{\frac{m v^2}{R}}$

$x = \sqrt{\frac{m v_2^2}{\frac{m v_1^2}{x^2}}}$

$x_2 = \sqrt{\frac{m v_2^2}{m v_1^2} \cdot x_1^2}$ final answer

$x_2 = \sqrt{\frac{v_2^2}{v_1^2} \cdot x^2}$

$x_2 = \frac{v_2}{v_1} x$ = 0.013m or 1.3cm