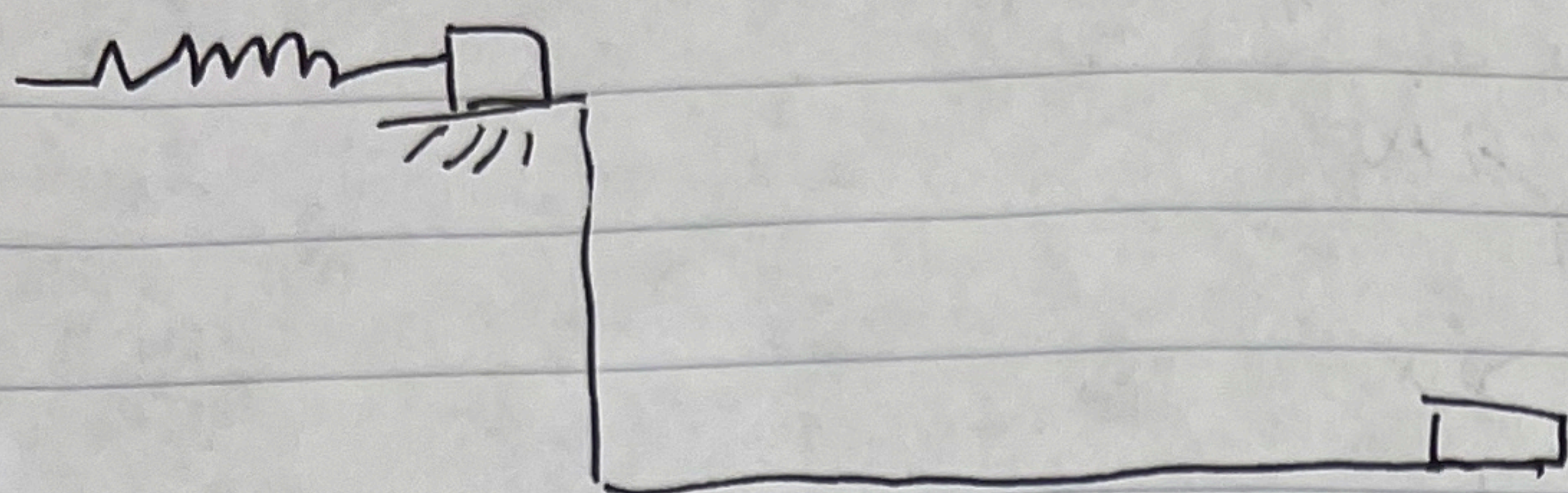


Yitong Wu

Q9



For Bobby:

$$\frac{1}{2}k\Delta x_1^2 = \frac{1}{2}mv_1^2 \quad (1)$$

$$v_1 t = 2.2 - 0.27 \quad (2)$$

For Rhoda:  $\frac{1}{2}k\Delta x_2^2 = \frac{1}{2}mv_2^2 \quad (3)$

$$v_2 t = 2.2 \quad (4)$$

Because (2) and (4)

$$\frac{(2)}{(4)} = \frac{v_1}{v_2} = \frac{1.93}{2.2} \quad (5)$$

$$\Rightarrow \cancel{v_1 = \frac{1.93}{2.2} v_2} \quad (6)$$

Then

$$\frac{(1)}{(2)} \Rightarrow \frac{\Delta x_1^2}{\Delta x_2^2} = \frac{v_1^2}{v_2^2} \quad (6)$$

$$\Delta x_1 = 0.011 \text{ m}$$

Put real number into (6)

$$\frac{(0.011)^2}{(\Delta x_2)^2} = \left(\frac{1.93}{2.2}\right)^2$$

$$\Delta x_2 = 0.0125 \text{ m}$$