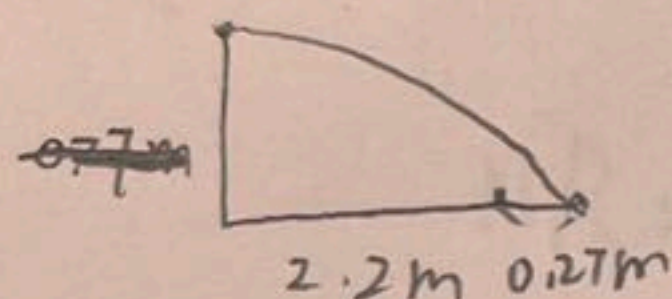


Yang Shen.

9)



$$E = \frac{1}{2} k^2 x = \frac{1}{2} m v_1^2$$

$$\frac{1}{2} \cdot (1.1 \times 10^{-2}) \cdot k^2 = \frac{1}{2} m v_1^2$$

$$2.2 - 0.27 = 1.93 \text{ m} \quad \Delta x = 1.1 \text{ cm} = 1.1 \times 10^{-2} \text{ m}$$

$$v_1 \cdot t = 1.93 \text{ m} = L'$$

$$v_2 = \frac{2.2}{t}$$

$$L = v x' \cdot dt = \int \frac{\sqrt{2hk}}{mg} dx'$$

$$h = \frac{1}{2} g t^2 \Rightarrow t = \sqrt{\frac{2h}{g}}$$

$$L' = v x t = \sqrt{\frac{2hk}{mg}} \Delta x$$

$$\frac{L'}{L} = \frac{2.2 \text{ cm}}{1.93 \text{ cm}} \cdot 1.1 \text{ cm}$$

$$\approx 1.254 \text{ cm}$$

$$2) E = \frac{1}{2} m v^2 = \frac{1}{2} \cdot 0.04 \cdot \left(\frac{2\sqrt{10}}{2.2} \right)^2$$