



$$x_i = 1.1 \text{ cm} = 0.011 \text{ m}$$

$$d1 = 1.93 \text{ m}$$

$$d2 = 2.2 \text{ m}$$

$$\frac{1}{2} k x_i^2 = \frac{1}{2} m v_i^2$$

$$v_i = \sqrt{\frac{k x_i^2}{m}} \quad y = v_i t + \frac{1}{2} g t^2 \quad t = \sqrt{\frac{2y}{g}}$$

$$d1 = \sqrt{\frac{k x_i^2}{m}} \cdot \sqrt{\frac{2y}{g}} = 1.93$$

$$k = \frac{m g \cdot (1.93)^2}{2y \cdot x_i^2}$$

$$(d1)^2 = \frac{k x_i^2}{m} \cdot \frac{2y}{g}$$

$$\frac{g \cdot (d1)^2}{2y} = \frac{k x_i^2}{m}$$

$$d2 = \sqrt{\frac{k \cdot x_2^2}{m} \cdot \frac{2y}{g} \cdot x_i^2}$$

$$d2 = \sqrt{\frac{1.93^2 \cdot x_2^2}{x_i^2}} = 2.2$$

$$2.2 = \frac{1.93 \cdot x_2}{x_i} \quad x_2 = \frac{2.2}{1.93} \cdot 0.011 \text{ m} = 0.0125 \text{ m} = 1.25 \text{ cm}$$