

$$x_1 = 1.2 \text{ cm} = 0.012 \text{ m} \quad \text{Bobby compress spring}$$

$$\frac{1}{2} k x_1^2 = \frac{1}{2} m v_1^2$$

$$\frac{k}{m} (0.012)^2 = v_1^2$$

$$D_1 = \text{horizontal distance of landing spot} = 2.13 \text{ m}$$

$$D_2 = \text{horizontal distance between landing point and box} = 0.272 \text{ m}$$

$$d = D_1 - D_2 = 2.13 - 0.272 = 1.858 \text{ m}$$

$$v_1 t = 1.858 \text{ m}$$

$$\text{Rhoda compress spring}$$

$$\frac{1}{2} k x_2^2 = \frac{1}{2} m v_2^2$$

$$\frac{k}{m} (x_2)^2 = v_2^2$$

$$v_2 t = 2.13$$

$$\frac{v_1}{v_2} = 0.872 \text{ m/s}$$

$$\frac{(0.012)^2}{(x_2)^2} = \frac{v_1}{v_2}$$

$$\frac{(0.012)^2}{x_2^2} = 0.872$$

$$x_2 = 0.0137 \text{ m}$$