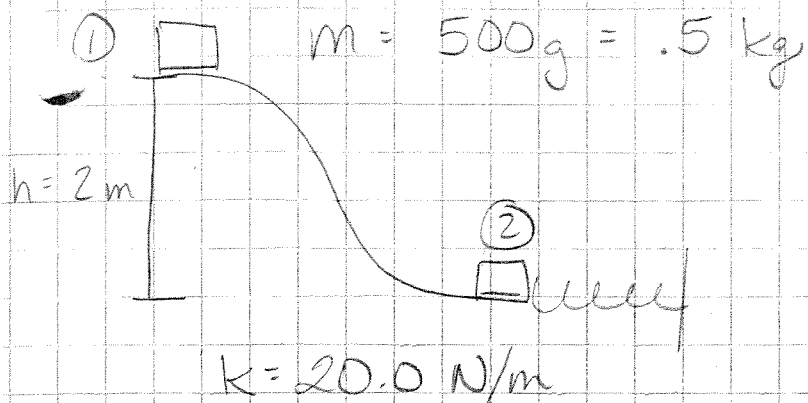




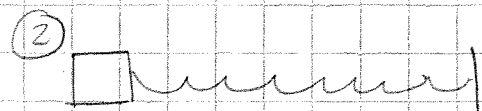
Find velocity when block strikes spring

$$PE_1 + KE_1 = PE_2 + KE_2$$

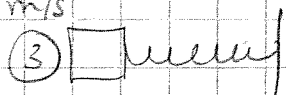
$$m \cdot g \cdot h_1 + 0 = 0 + \frac{1}{2} \cdot m \cdot v_2^2$$

$$(.5\text{ kg})(9.8\text{ m/s}^2)(2\text{m}) = \frac{1}{2}(.5\text{ kg}) \cdot v_2^2$$

$$v_2 = 6.26\text{ m/s}$$



$$v_2 = 6.26\text{ m/s}$$



$$v_3 = 0\text{ m/s}$$

Mass compresses the spring

$$PE_2 + KE_2 = PE_3 + KE_3$$

$$\frac{1}{2} \cdot k \cdot x_2^2 + \frac{1}{2} \cdot m \cdot v_2^2 = \frac{1}{2} \cdot k \cdot x_3^2 + \frac{1}{2} \cdot m \cdot v_3^2$$

$$\frac{1}{2} \cdot k \cdot (0) + \frac{1}{2} \cdot (.5\text{ kg})(6.26\text{ m/s})^2 = \frac{1}{2}(20\text{ N/m})(x_3)^2 + \frac{1}{2} \cdot m \cdot 0$$

$$x_3 = .99\text{ m}$$