

a) $v_0 = 25 \text{ m/s}$ $v_f = 0 \text{ m/s}$
 $m = .15 \text{ kg}$

$$d = 2.0 \text{ cm} = .02 \text{ m}$$

$$KE_0 + W = KE_f$$

$$\frac{1}{2} m v_0^2 + F \cdot d = 0$$

$$\frac{1}{2} (.15 \text{ kg})(25 \text{ m/s})^2 + F \cdot (.02 \text{ m}) = 0$$

$$F = -2340 \text{ N}$$

b) Repeat for $d = 10.0 \text{ cm} = .10 \text{ m}$

$$\frac{1}{2} (.15 \text{ kg})(25 \text{ m/s})^2 + F \cdot (.10 \text{ m}) = 0$$

$$F = -470 \text{ N}$$