

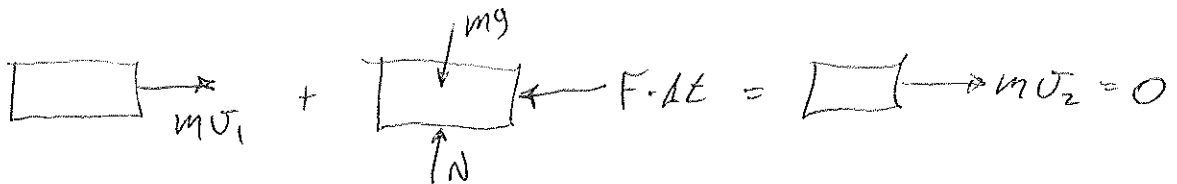
PROB. 13-119

$$v_1 = \left(90 \frac{\text{km}}{\text{hr}}\right) \left(\frac{\text{hr}}{3600 \text{ s}}\right) \left(\frac{1000 \text{ m}}{\text{km}}\right) = 25 \frac{\text{m}}{\text{s}}, \quad v_2 = 0$$

FIND TIME TO STOP FOR $\mu_k = 0.75$ AND $\mu_k = 0.10$

$$m\vec{v}_1 + \sum \vec{I} \Delta p_{i2} = m\vec{v}_2$$

ASSUME FORCE IS CONSTANT: $\vec{I} \Delta p = \vec{F} \cdot \Delta t$



$$m v_1 - \mu m g \Delta t = 0$$

$$\Delta t = \frac{v_1}{\mu g}$$

$$a) \quad \Delta t = \frac{\left(25 \frac{\text{m}}{\text{s}}\right)}{\left(0.75\right) \left(9.81 \frac{\text{m}}{\text{s}^2}\right)} = \boxed{3.398 \text{ s}}$$

$$b) \quad \Delta t = \frac{\left(25 \frac{\text{m}}{\text{s}}\right)}{\left(0.1\right) \left(9.81 \frac{\text{m}}{\text{s}^2}\right)} = \boxed{25.48 \text{ s}}$$