

Ch6 Momentum p

$$p = mv$$

$$= \text{kg} \cdot \frac{\text{m}}{\text{s}}$$

Impulse F · t

$$* F \cdot t = \Delta p = p_f - p_i$$

$$F \cdot t = m v_f - m v_i$$

$$\underline{F t} = m(v_f - v_i)$$

Ex 6.2 p 158

$$m = 1.5 \times 10^3 \text{ kg}$$

$$v_i = -15 \frac{\text{m}}{\text{s}}$$

$$v_f = 2.6 \frac{\text{m}}{\text{s}}$$

$$t = .15 \text{ s}$$

$$\boxed{F t} = m(v_f - v_i)$$

$$= 1.5 \times 10^3 (2.6 - (-15))$$

$$= \boxed{2.64 \times 10^4 \text{ kg} \frac{\text{m}}{\text{s}}}$$

$$\text{find } F t = 26400$$

$$t = .15$$

$$F = \frac{26400}{.15} = 1.76 \times 10^5 \text{ N}$$

p 159

$$m = .15 \text{ kg}$$

$$40 \frac{\text{m}}{\text{s}} \text{ rt}$$

$$- 50 \frac{\text{m}}{\text{s}}$$



$$a) F t = m(v_f - v_i)$$

$$= .15 (-50 - 40)$$

$$= -13.5 \text{ kg} \frac{\text{m}}{\text{s}}$$

$$t = 2 \times 10^{-3} \text{ s}$$

$$F = ma$$

$$= \text{kg} \frac{\text{m}}{\text{s}^2}$$

$$F = \frac{-13.5 \text{ kg} \frac{\text{m}}{\text{s}}}{2 \times 10^{-3} \frac{\text{s}}{1}} = -6.75 \times 10^3 \text{ kg} \frac{\text{m}}{\text{s}} \cdot \frac{1}{\text{s}} = \text{N}$$