

## Example: Impulse

A force of  $200. \text{ N}$  is applied to a  $100. \text{ g}$  ball. If the initial velocity of the ball was  $-10. \text{ m/s}$  and the final velocity of the ball is  $10. \text{ m/s}$  determine the time of contact.

$$J = F \Delta t = \Delta p = p_f - p_i$$

$$\Delta t = \frac{p_f - p_i}{F} = \frac{(0.100 \text{ kg}) 10. \text{ m/s} - (0.100 \text{ kg}) (-10. \text{ m/s})}{200. \text{ N}}$$

$$\boxed{= 0.001 \text{ s}}$$