

Q #7

- $m_1 = 2 \text{ kg}$
- $v_1 = 3 \text{ m/s}$
- $m_2 = 3 \text{ kg}$
- $v_2 = ?$

$p = mv$

$(2 \text{ kg}) 3 \text{ m/s} = 6 \text{ kg} \cdot \text{m/s}$

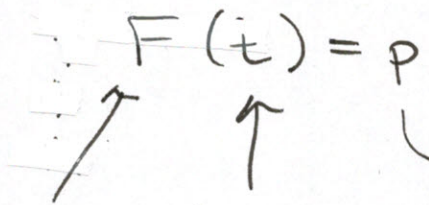
$\frac{6 \text{ kg} \cdot \text{m/s}}{3} = \frac{3v_2}{3}$

$\cancel{*} 2 \text{ m/s} = v_2$

$2 \text{ m/s} = v_2$

absolute value

Q #9



force decreased when time increased

Q #11

a)  $p = F(t)$

same for both skaters (impulse)

b)  $F = ma$

same /  
 megar 1/2 size /  
 megar 2x

P # 7

$$a) (P_x)_t = (P_x)_i + J_x$$

$$J_x = \text{area under force curve} = (V_x)_f$$

$$(1.0 \text{ m/s}) + \frac{1}{2.0 \text{ kg}} (1.0 \text{ N}\cdot\text{s})$$

$$(1.0 \text{ m/s}) + (0.5)(1.0 \text{ N}\cdot\text{s})$$

$$\boxed{1.5 \text{ m/s}}$$

$$b) (V_x)_f = 1.0 \text{ m/s} + \left(\frac{1}{2.0 \text{ kg}}\right) (\text{area under force curve})$$

$$1.0 \text{ m/s} + \left(\frac{1}{2.0 \text{ kg}}\right) (-1.0 \text{ N}\cdot\text{s})$$

$$1.0 \text{ m/s} + (0.5)(-1.0 \text{ N}\cdot\text{s})$$

$$\boxed{0.5 \text{ m/s}}$$

P # 9

$$v_i = -1.5 \text{ m/s}$$

$$t = -0.50 \text{ s}$$

$$m = 35 \text{ kg}$$

$$F = ?$$

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

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

$$\frac{35 \text{ kg} (0 \text{ m/s} - 1.5 \text{ m/s})}{0.5 \text{ s}}$$

$$0.5 \text{ s}$$

$$\frac{35(-1.5)}{0.5}$$

$$0.5$$

$$\boxed{F = -105 \text{ N}}$$

$$\boxed{-110 \text{ N}}$$