1.2 - 1.3 Q 7, 9, 11 P 7, 9

Q #7

m_1 - 2 kg

v_1 - 3 m/s

m_2 - 3 kg

v_2 - ?

$p = mv$

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

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

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

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

Q #9

$F(t) = p$

↑ decreased ↑ increases ↑ n/a (doesn't change)

force decreased when time increased

Q #11

a) $p = F(t)$

└ same for both skaters (impulse)

b) $F = ma$

same / megan ½ size / megan 2x

P#7

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

J_x = area under force curve $= (V_x)_f$

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

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

1.5 m/s

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

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

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

0.5 m/s

P#9

v_i - 1.5 m/s

t - -0.50 s

m - 35 kg

F - ?

v_f - 0 m/s

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

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

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

$F = -105 N$ $\sim$ $-110 N$