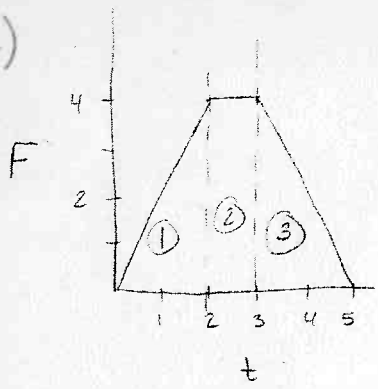
P # 12

Ch 6 - pg 177

a)



$\Delta p = F \cdot t$ or area under F-T graph

For Section 1: $\Delta p = A = \frac{1}{2} \cdot b \cdot h$ or $\frac{1}{2} \cdot t \cdot F$

$A = \frac{1}{2}(2\ sec)(4\ N)$

$\Delta p = 4\ N \cdot s$

For Section 2: $\Delta p = A = b \cdot h = t \cdot F$

$A = (1\ sec)(4\ N)$

$\Delta p = 4\ N \cdot s$

For Section 3: Same area as section 1

$\Delta p = 4\ N \cdot s$

Total $\Delta p = 12\ N \cdot s$

b) $V_1 = 0\ m/s$
$m = 2.00\ kg$
$\Delta p = 12\ N \cdot s$ (from part a)
$V_2 = ?$

$p_1 + \Delta p = p_2$

$m \cdot V_1 + \Delta p = m \cdot V_2$

$(2.00\ kg)(0\ m/s) + 12\ N \cdot s = (2.0\ kg) \cdot V_2$

$0\ kg\ m/s + 12\ N \cdot s = (2.\ kg) \cdot V_2$

$V_2 = 6\ m/s$

c) $V_1 = -2\ m/s$
$m = 2.00\ kg$
$\Delta p = 12\ N \cdot s$ (from part a)
$V_2 = ?$

$m \cdot V_1 + \Delta p = m \cdot V_2$

$(2.0\ kg)(-2\ m/s) + 12\ N \cdot s = (2.0\ kg) \cdot V_2$

$V_2 = 4\ m/s$