

Given $a = 0$

Find a) F_n

Solve a) $\sum F_y = ma$

$$F_n - mg = 0$$

$$F_n = mg$$

Given $a = 1.2 \text{ m/s}^2$

Find a) F_n

Solve a) $\sum F_y = ma$

$$F_n - mg = ma$$

$$F_n = m(g + a)$$

$$= 65(9.8 + 1.2)$$

$$= \underline{715 \text{ N}}$$

Given $a = 1.2 \text{ m/s}^2$

Find a) F_n

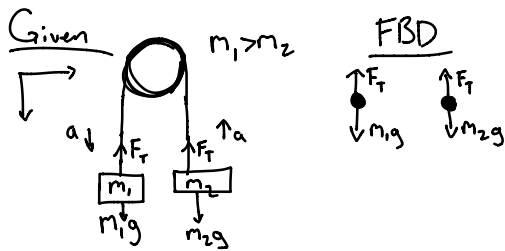
Solve a) $\sum F_y = ma$

$$mg - F_n = ma$$

$$F_n = m(g - a)$$

$$F_n = 65(9.8 - 1.2)$$

$$= \underline{559 \text{ N}}$$



Find a) a b) F_T

Solve a) $\sum F_1 = m_1 a$

$$m_1 g - F_T = m_1 a$$

$$m_1 g - m_2 g = a(m_1 + m_2)$$

$$g(m_1 - m_2) = a(m_1 + m_2)$$

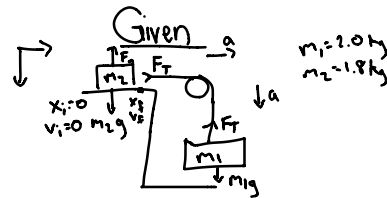
$$a = g \frac{(m_1 - m_2)}{(m_1 + m_2)}$$

$\sum F_2 = m_2 a$

$$m_2 g - F_T = m_2 a$$

b) $m_1 g - F_T = m_1 \left(\frac{g(m_1 - m_2)}{(m_1 + m_2)} \right)$

$$F_T = \frac{2m_1 m_2 g}{m_1 + m_2}$$



Find a) a b) $V_f, t = 0.5 \text{ s}$

Solve a) $\sum F_2 = m_2 a$

$$\sum F_1 = m_1 a$$

$$F_T = m_2 a$$

$$m_2 g - F_T = m_2 a$$

$$m_1 g - m_2 a = m_1 a$$

$$m_1 g = a(m_1 + m_2)$$

$$a = \frac{m_1 g}{m_1 + m_2} = \frac{2 \cdot 9.8}{(2 + 1.8)}$$

$$= 5.16 \text{ m/s}^2$$

b) $x_i = 0$

$$x_f = \square$$

$$v_i = 0$$

$$V_f = \square$$

$$a = 5.16$$

$$t = 0.5$$

$$V_f = v_i + at$$

$$V_f = 0 + 5.16(0.5)$$

$$V_f = \underline{2.58 \text{ m/s}}$$

$$x_f = x_i + v_i t + \frac{1}{2} a t^2$$

$$x_f = 0 + 0 + \frac{1}{2} (5.16)(0.5)^2$$

$$x_f = \underline{0.65 \text{ m}}$$