~~$a_m = \frac{T - m_m g}{m_m} = \frac{m_p g - m_m g}{m_m}$~~

$$T - m_m g = m_m a_m$$

$$(m_p - m_m) g = m_m a_m$$

$$\boxed{a_m = \frac{m_p - m_m}{m_m} g} = +4.9 \text{ m/s}^2 \quad (\underline{\underline{up}})$$

Reality check:

dimensions ☑

$m_m = m_p \Rightarrow a_m = 0$ ☑

$m_m < m_p \Rightarrow a_m > 0$ ☑

~~$m_m > m_p \Rightarrow a_m < 0$ (monkey accel down...)~~ ☑

~~$m_p = 0 \Rightarrow a_m = -g$...~~

⋮

(b) Atwood machine again

$$a = \frac{m_p - m_m}{m_p + m_m} g = +1.96 \text{ m/s}^2$$

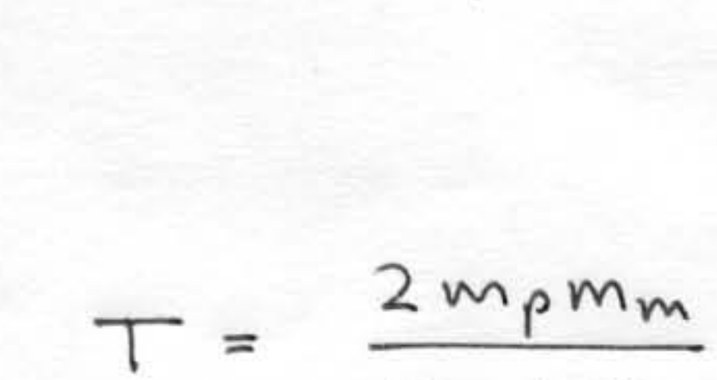
↑

(b) up since $m_m < m_p$

(d) $T = \frac{2 m_p m_m}{m_p + m_m} g$ ← from 1b

$= 118 \text{ N}$

5(a) sys = man + chair



$a = 0 \Rightarrow$

$2T = (m_m + m_c) g$

$T = \frac{1}{2} (m_m + m_c) g$