

Find  
Coefficient  
of friction  
between  
hands + rope

$$F_g = -785 \text{ N}$$

$$F_g = -9.8 \cdot m$$

$$a = 1.34 \text{ m/s}^2$$

$$m = \frac{F_g}{-9.8} = \frac{-785}{-9.8}$$

$$m = 80.1 \text{ kg}$$

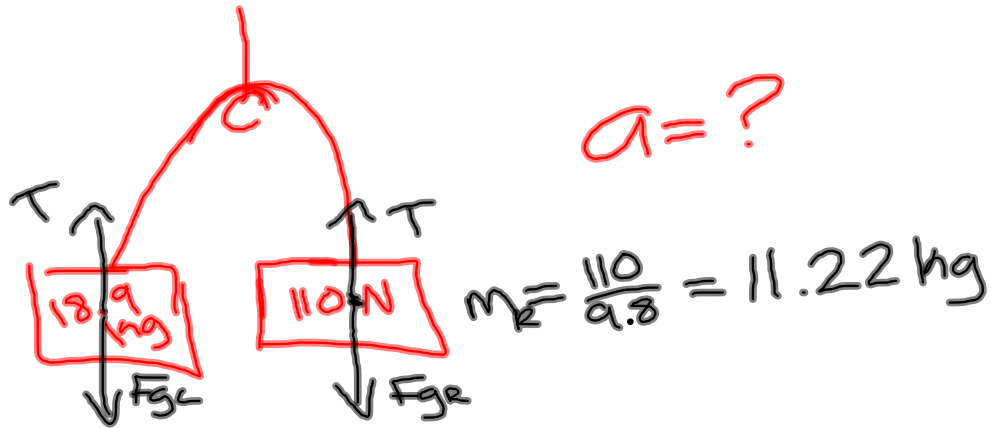
$$F_g + F_f = ma$$

$$-785 + F_f = m(1.34)$$

$$-785 + F_f = 80.1(1.34)$$

$$-785 + F_f = 107.34$$

$$F_f = 892.34 \text{ N}$$



$$\sum F_L = m_L a$$

$$F_{gL} + T = m_L (-a)$$

$$18.9(-9.8) + T = -18.9a$$

$$-185.22 + T = -18.9a$$

$$T = -18.9a + 185.22$$

$$\sum F_R = m_R a$$

$$T + F_{gR} = m_R a$$

$$T - 110 = 11.22a$$

$$-18.9a + 185.22 - 110 = 11.22a$$

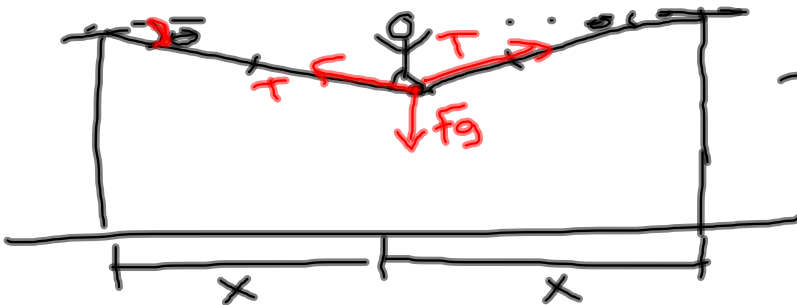
$$75.22 = 30.12a$$

$$a = 2.50 \text{ m/s}^2$$

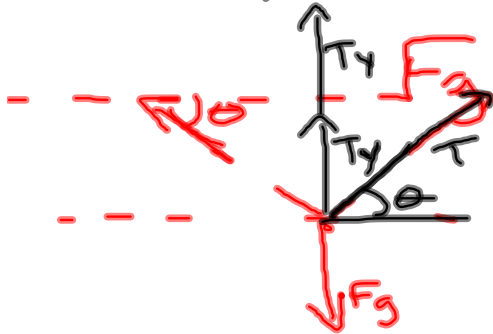
$$T = -18.9(2.5) + 185.22$$

$$T = 137.97 \text{ N}$$

$a = 0 \therefore F_{net} = 0$



$T = 3000 \text{ N}$   
 $m = 48 \text{ kg}$



$F_g = 48(-9.8) = -470.4 \text{ N}$

$2T_y = F_g$

$2T_y = 470.4 \text{ N}$

$T_y = 235.2 \text{ N}$

$\theta = 90 - \alpha$



$\cos \alpha = \frac{235.2}{3000}$

$\alpha = \cos^{-1}\left(\frac{235.2}{3000}\right) =$

$\alpha = 85.5^\circ$

$\theta = 4.49^\circ$