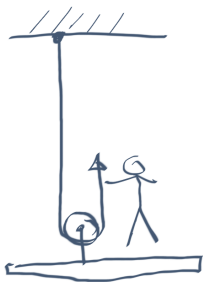


Pulley on platform



Platform free
body diagram



$$m_p = 100 \text{ kg}$$

Man free
body diagram



$$m_m = 150 \text{ kg}$$

If platform accelerating then

$$2T - m_p g = m_p a$$

$$T = \frac{m_p (a + g)}{2}$$

$$= \frac{(100)(1 + 10)}{2}$$

$$\boxed{T = 505 \text{ N}}$$

$$2T - m_p g = m_p a \quad (\text{if platform not accelerating})$$

$$T = \frac{1}{2} (100)(10) = \boxed{500 \text{ N}}$$

This is regardless of whether it is stationary or moving at constant velocity.