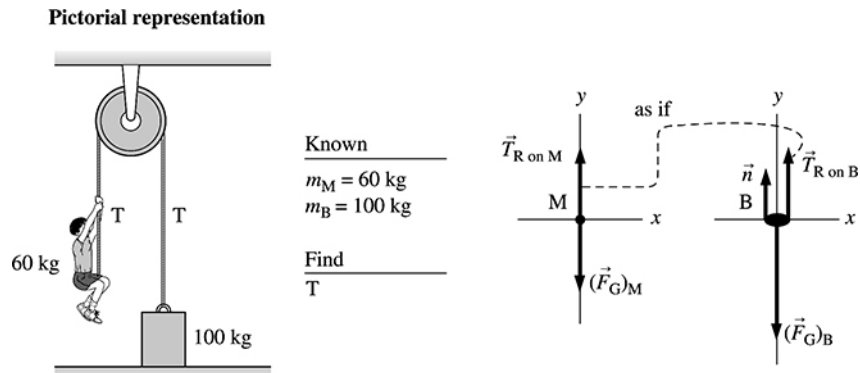


7.12. Model: The man (M) and the block (B) are interacting with each other through a rope. We will assume the pulley to be frictionless. This assumption implies that the tension in the rope is the same on both sides of the pulley. The system is the man and the block.

Visualize:



Solve: Clearly the entire system remains in equilibrium since $m_B > m_M$. The block would move downward but it is already on the ground. From the free-body diagrams, we can write down Newton's second law in the vertical direction as

$$\sum (F_{\text{on } M})_y = T_{R \text{ on } M} - (F_G)_M = 0 \text{ N} \Rightarrow T_{R \text{ on } M} = (F_G)_M = (60 \text{ kg})(9.8 \text{ m/s}^2) = 588 \text{ N}$$

Since the tension is the same on both sides, $T_{B \text{ on } R} = T_{M \text{ on } R} = T = 588 \text{ N}$.