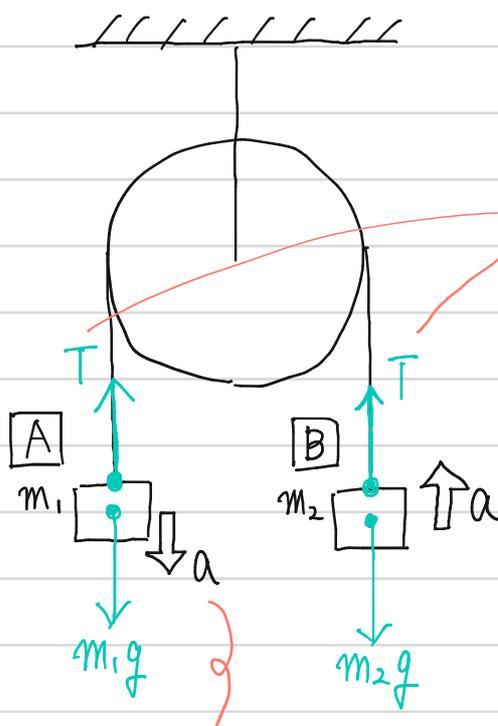


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同じ糸なので  
T は同じ大きさ

$$\begin{aligned} \text{[A]} \quad m a &= F \uparrow \\ m_1 a &= m_1 g - T \quad \dots \text{①} \end{aligned}$$

$$\begin{aligned} \text{[B]} \quad m a &= F \uparrow \\ m_2 a &= T - m_2 g \quad \dots \text{②} \end{aligned}$$

( $m_1 > m_2$  なのぞ'  
 $m_1$  が下に加速)

① + ② で T を消去

$$\begin{aligned} m_1 a &= m_1 g - T \\ +) \quad m_2 a &= T - m_2 g \\ \hline (m_1 + m_2) a &= m_1 g - m_2 g \\ a &= \frac{m_1 - m_2}{m_1 + m_2} g \quad \# \end{aligned}$$

① に a を代入して

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

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

$$= m_1 g \left( 1 - \frac{m_1 - m_2}{m_1 + m_2} \right) = m_1 g \left( \frac{m_1 + m_2}{m_1 + m_2} - \frac{m_1 - m_2}{m_1 + m_2} \right)$$

$$= m_1 g \left( \frac{2 m_2}{m_1 + m_2} \right) = \frac{2 m_1 m_2}{m_1 + m_2} g \quad \#$$