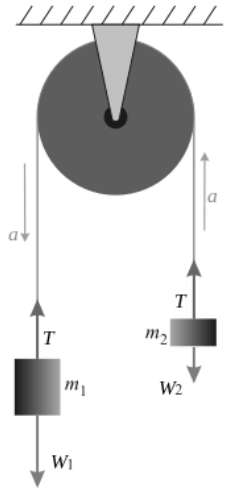
Answer on Question #61862-Physics-Mechanics

7 The system shown is an example of the Atwood's machine. m1 and m2 are connected by a light inextensible string over a light and smooth pulley with m1>m2. What is the acceleration of the masses?

Solution



$$W_1 = m_1 g$$

$$W_2 = m_2 g$$

$$m_1 a = m_1 g - T$$

$$m_2 a = T - m_2 g$$

$$a = \frac{m_1 - m_2}{m_1 + m_2} g$$