

$$M_1 = 15 \text{ Kg}$$

$$m_2 = 20 \text{ Kg}$$

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

$$R = 0,250 \text{ m}$$

$$\phi = 37^\circ$$

$$T_1 = ?$$

$$T_2 = ?$$

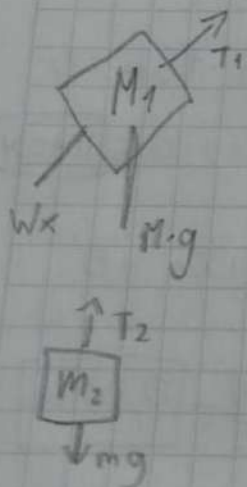
$$\sum F_y = m_2 a = m_2 g - T_2$$

$$T_2 = m_2 g - m_2 a$$

$$T_2 = m_2 (g - a)$$

$$T_2 = 20 \text{ Kg} (9,8 \text{ m/s}^2 - 2 \text{ m/s}^2)$$

$$T_2 = \boxed{156 \text{ N}}$$



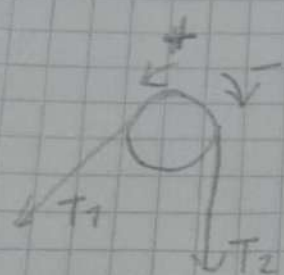
$$\sum F_x = M_1 a = T_1 - W_x$$

$$T_1 - M_1 g \sin \theta = M_1 a$$

$$T_1 = M_1 a + M_1 g \sin \theta$$

$$T_1 = 15 \text{ Kg} \cdot 2 \text{ m/s}^2 + 15 \text{ Kg} \cdot 9,8 \text{ m/s}^2 \cdot \sin 37^\circ$$

$$T_1 = \boxed{177,60 \text{ N}}$$



$$\sum \tau = I \alpha = T_2 R - T_1 R$$

$$I = \frac{T_2 R^2 - T_1 R^2}{\alpha}$$

$$I = \frac{R^2 (T_2 - T_1)}{\alpha}$$

$$I = \frac{(0,250\text{ m})^2 (456\text{ N} + 177,60\text{ N})}{2\text{ m/s}^2}$$

$$I = -0,675 \text{ Kg}\cdot\text{m}^2$$