



$$m_1 = 3 \text{ kg}$$

$$m_2 = 2 \text{ kg}$$

$$m_1 \bar{a} = \bar{T} + m_1 \bar{g}$$

$$m_2 \bar{a} = \bar{T} + m_2 \bar{g}$$

where:

T – tension on the cord

a – acceleration

In projection on X :

$$-m_1 a = T + (-m_1 g \sin(\alpha))$$

$$-m_2 a = -T + (-m_2 g \sin(\alpha))$$

Add the first and the second one string:

$$-m_1 a - m_2 a = g \sin(\alpha) (-m_1 - m_2)$$

$$a = g \sin(\alpha)$$

$$a = 10 \cdot 0.5 = 5 \frac{\text{m}}{\text{s}^2}$$

$$T = -m_1 a + m_1 g \sin(\alpha)$$

$$T = 0 \text{ N}$$

ANSWER:

$$T = 0 \text{ N}; a = 5 \frac{\text{m}}{\text{s}^2}$$