M.1 / LAMPADÁRIO

$P = 60\,N$

$\alpha = 60°$

$T = ?$

(B) EQUILÍBRIO essay

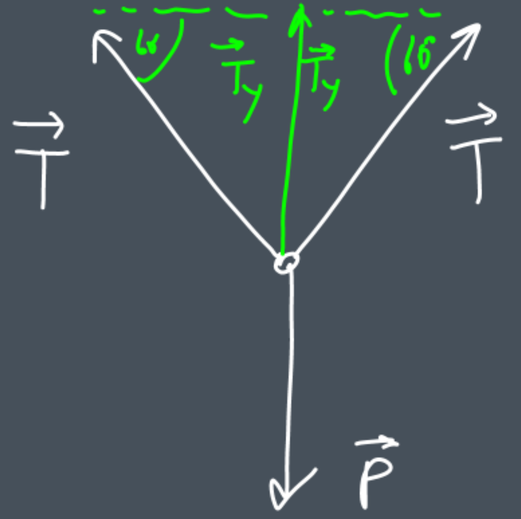
$$T_y + T_y - P = 0$$

$$2\,T_y = P$$

$$2\,T\,\text{sen}60° = \frac{P}{2\,\text{sen}60°}$$

$$T = \frac{P}{2\,\text{sen}60°} = \frac{60\,N}{2 \cdot \text{sen}60°} = 34,6\,N$$

(A)



n° 2 / DIZIONARIO

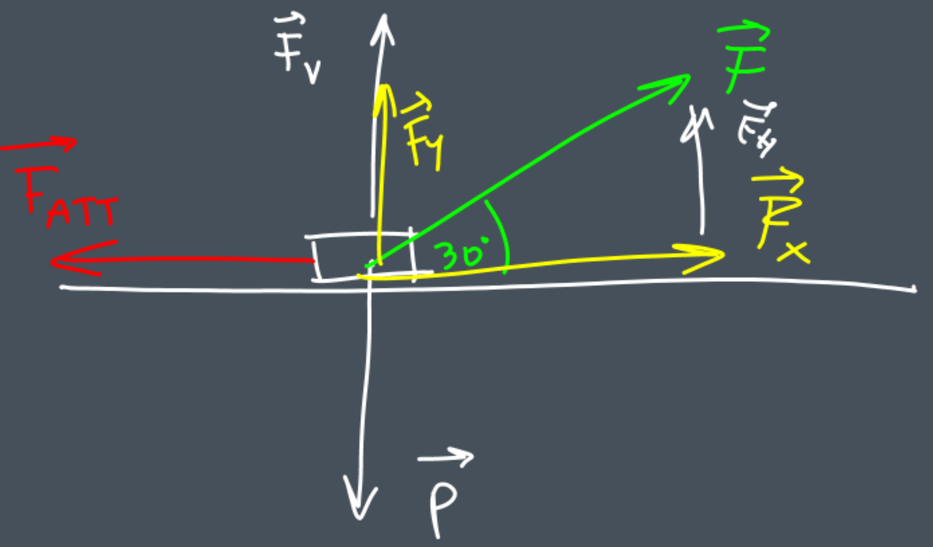
$m = 3\,kg$

$\mu = 0{,}65$

$F = ?$

$\alpha = 30°$

A



B EQUILIBRIO asse x

$$F_x = F_{ATT}$$

$$F\cos\alpha = \mu \cdot F_\perp$$

$$F\cos\alpha = \mu\,(P - F_y)$$

$$F\cos\alpha = \mu\,(m\cdot g - F\,\mathrm{sen}\,\alpha)$$

$$F\cos\alpha = \mu m g - \mu F\,\mathrm{sen}\,\alpha$$

$$F\cos\alpha + \mu F\,\mathrm{sen}\,\alpha = \mu m g$$

$$F(\cos\alpha + \mu\,\mathrm{sen}\,\alpha) = \mu m g$$

$$F = \frac{\mu m g}{\cos\alpha + \mu\,\mathrm{sen}\,\alpha}$$

$$F = \frac{0{,}65 \cdot 3\,\cancel{kg} \cdot 9{,}8\,\frac{N}{\cancel{kg}}}{\cos 30° + 0{,}65\,\mathrm{sen}\,30°} = 16\,N$$

n.3 / LEVA

$F_R = 40\,N$

$b_R = \frac{1}{2} b_M$

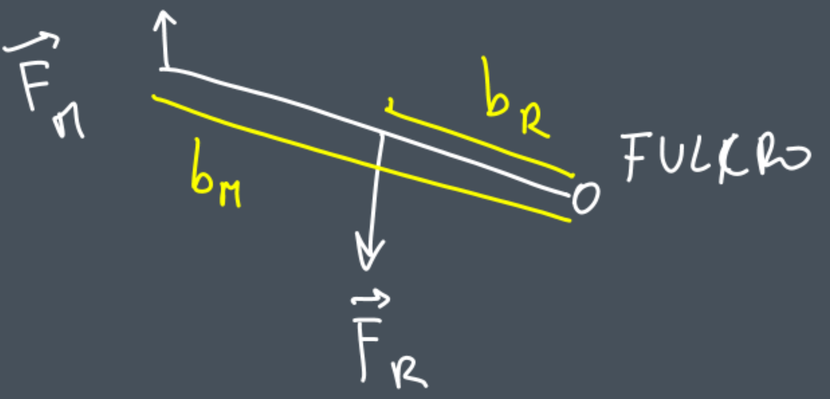
$F_M = ?$

EQUILIBRIO

$F_M b_M = F_R b_R$

$F_M = F_R \cdot \frac{b_R}{b_M}$

$F_M = 40\,N \cdot \frac{\frac{1}{2} b_M}{b_M} = \frac{40\,N}{2} = 20\,N$



m. 4 ALTALENA

$m_G = \frac{4}{5} m_S$ (A)

$b_G = ?$

EQUILIBRIO

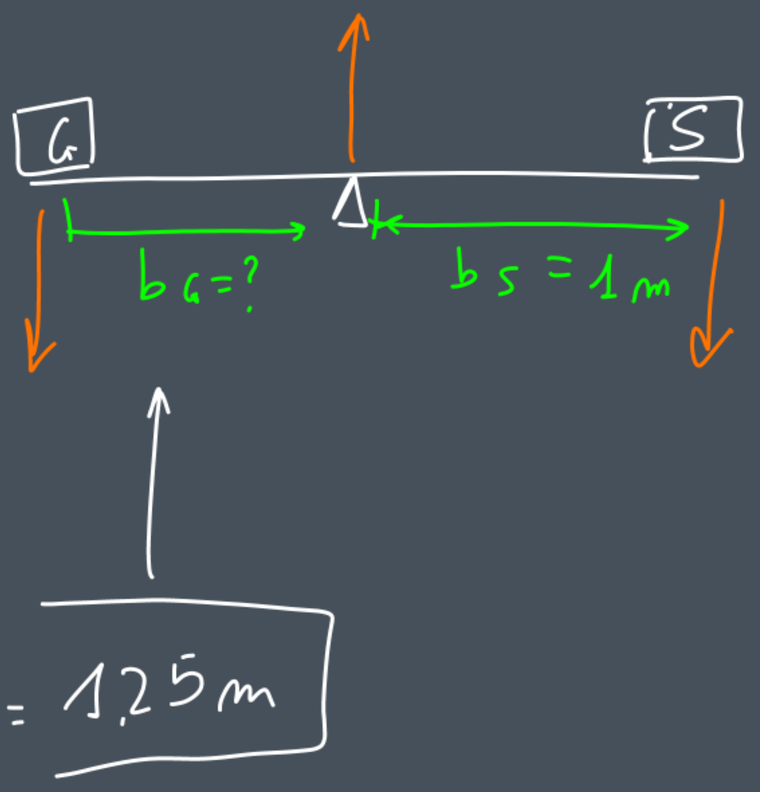
$P_G \cdot b_G = P_S \cdot b_S$

$m_G \cdot g \cdot b_G = m_S \cdot g \cdot b_S$

$\frac{4}{5} m_S \cdot b_G = m_S \cdot b_S$

$b_G = \frac{b_S}{\left(\frac{4}{5}\right)}$

$b_G = \frac{5}{4} b_S = \frac{5}{4} \cdot 1\,m = 1{,}25\,m$

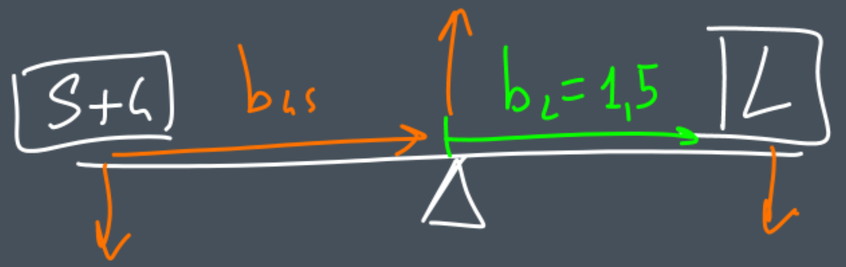


M.4 (B)

EQUILIBRIO

$(m_g + m_s) \cdot b_{gs} = m_L \cdot b_L$

$b_{gs} = b_L - b_{LS}$



$m_L = 75\,kg$

$b_L = 1,5\,m$

$b_{gs} = 1,25\,m$

$m_g + m_s = m_L \dfrac{b_L}{b_{gs}} = 75\,kg \cdot \dfrac{1,5\,m}{1,25\,m} = 90\,kg$

$m_g + m_s = 90\,kg$

$\dfrac{4}{5} m_s + m_s = 90\,kg$

$\dfrac{9}{5} m_s = 90\,kg$

$m_s = \dfrac{90\,kg}{\frac{9}{5}} = 50\,kg$

$\rightarrow m_g = \dfrac{4}{5} m_s = \dfrac{4}{5} \cdot 50\,kg = 40\,kg$

Nr 4

(C) nel corso A

$$F_V = P_G + P_S = m_g \cdot g + m_s g = 40\,kg \cdot 9{,}8\,\frac{N}{kg} + 50\,kg \cdot 9{,}8\,\frac{N}{kg} = 882\,N$$

$$= g(m_s + m_g) =$$

(D) nel corso B

$$F_V = P_{G+S} + P_L = 882\,N + 75\,kg \cdot 9{,}8\,\frac{N}{kg} = 1617\,N$$