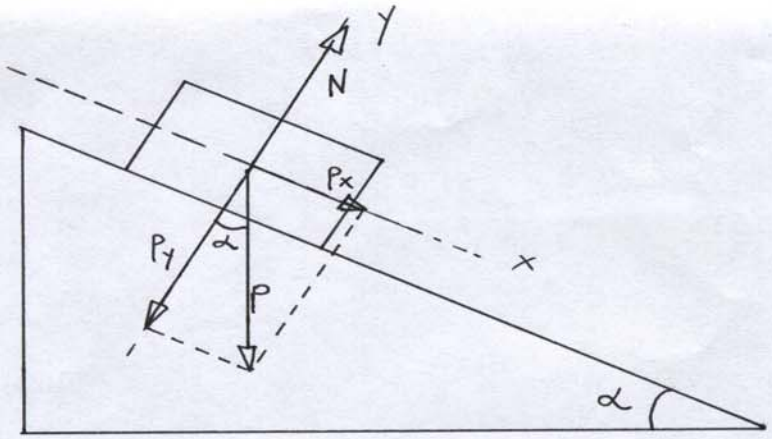
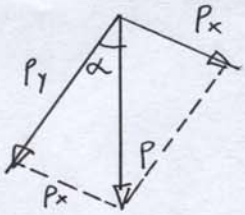




$\operatorname{sen}\alpha = \frac{P_x}{P}$

$\cos\alpha = \frac{P_y}{P}$

$P_x = P \cdot \operatorname{sen}\alpha$

$P_y = P \cdot \cos\alpha$

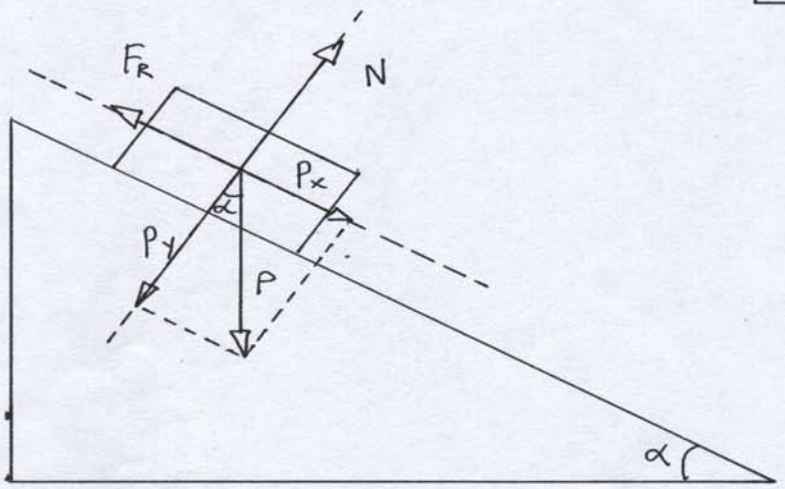
EJE X → $\sum F = m \cdot a$

EJE Y → $N = P_y$

$P_x = m \cdot a \longrightarrow P \cdot \operatorname{sen}\alpha = m \cdot a \longrightarrow m \cdot g \cdot \operatorname{sen}\alpha = m \cdot a$

$$\boxed{a = g \cdot \operatorname{sen}\alpha}$$

- DESCIENDE (CAE) CON ROZAMIENTO:



Eje X → $\sum F = m \cdot a \longrightarrow P_x - F_R = m \cdot a \longrightarrow P \operatorname{sen}\alpha - \mu N = m \cdot a$

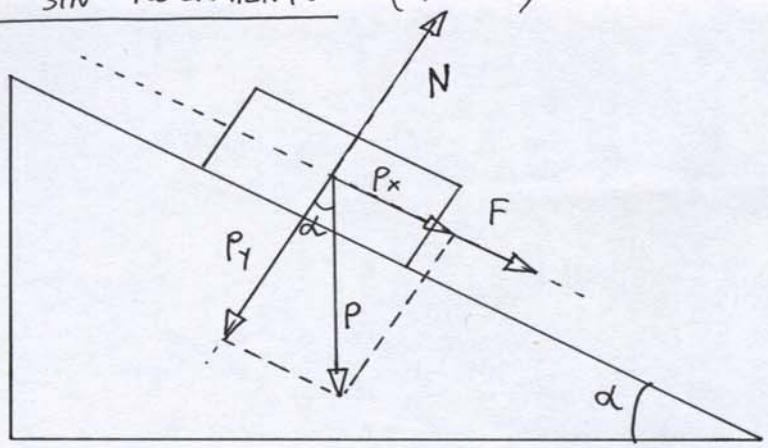
EJE Y → $N = P_y$

$m g \operatorname{sen}\alpha - \mu P_y = m \cdot a$

$m g \operatorname{sen}\alpha - \mu m g \cos\alpha = m \cdot a$

$$\boxed{a = g \operatorname{sen}\alpha - \mu g \cos\alpha}$$

· DESCENSO SIN ROZAMIENTO ($F_R = 0$)



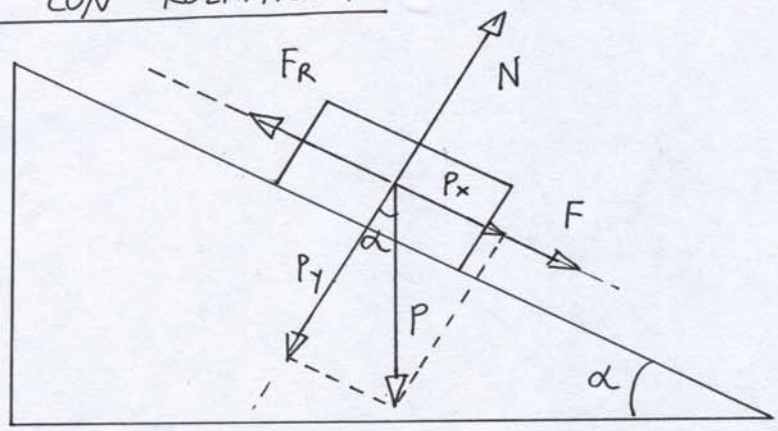
EJE X → $\sum F = m \cdot a$

EJE Y → $N = P_y$

$F + P_x = m \cdot a \longrightarrow F + P \cdot \operatorname{sen}\alpha = m \cdot a \longrightarrow$

$$a = \frac{F + P \cdot \operatorname{sen}\alpha}{m}$$

· DESCENSO CON ROZAMIENTO.



EJE X → $\sum F = m \cdot a$

EJE Y → $N = P_y$

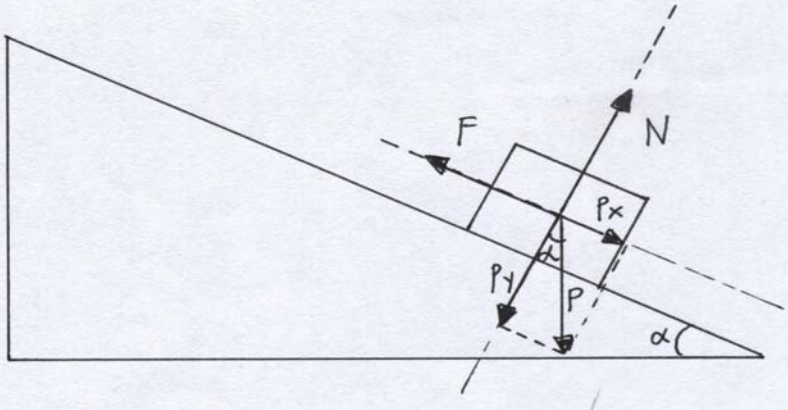
$F + P_x - F_R = m \cdot a$

$$a = \frac{F + P_x - F_R}{m}$$

$$\begin{cases} P_x = P \cdot \operatorname{sen}\alpha = mg \operatorname{sen} \\ F_R = \mu N = \mu P_y = \\ = \mu m g \cos\alpha \end{cases}$$

Academia, Librería, Informática Diego
Tlf: 968 30 30 00
C/ Manresa (El Rincón), 110 Puente Tocinos, Murcia
info@academiadiego.com

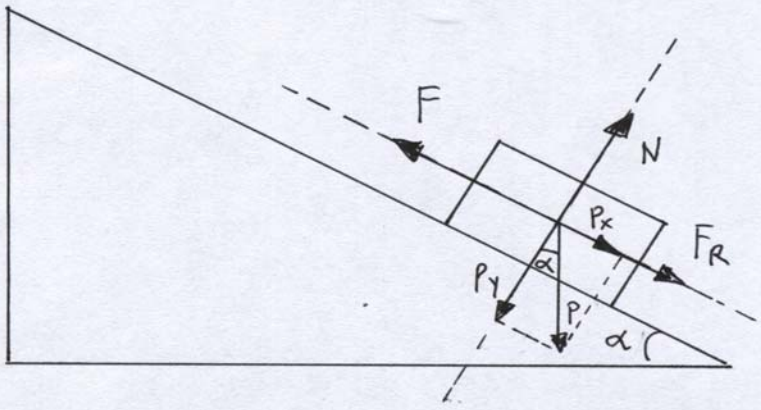
. ASCIENDE SIN ROZAMIENTO. ($F_R = 0$)



EJE X → $\sum F = m \cdot a$
EJE Y → $N = P_y$

$F - P_x = m \cdot a \rightarrow$ $\boxed{a = \dfrac{F - P_x}{m}}$ $\quad P_x = mg \operatorname{sen}\alpha$

. ASCIENDE CON ROZAMIENTO.



EJE X → $\sum F = m \cdot a$
EJE Y → $N = P_y$

$F - P_x - F_R = m \cdot a \rightarrow$ $\boxed{a = \dfrac{F - P_x - F_R}{m}}$

$\left\{ \begin{array}{l} P_x = mg \operatorname{sen}\alpha \\ F_R = \mu N = \mu P_y = \mu mg \cos\alpha \end{array} \right\}$

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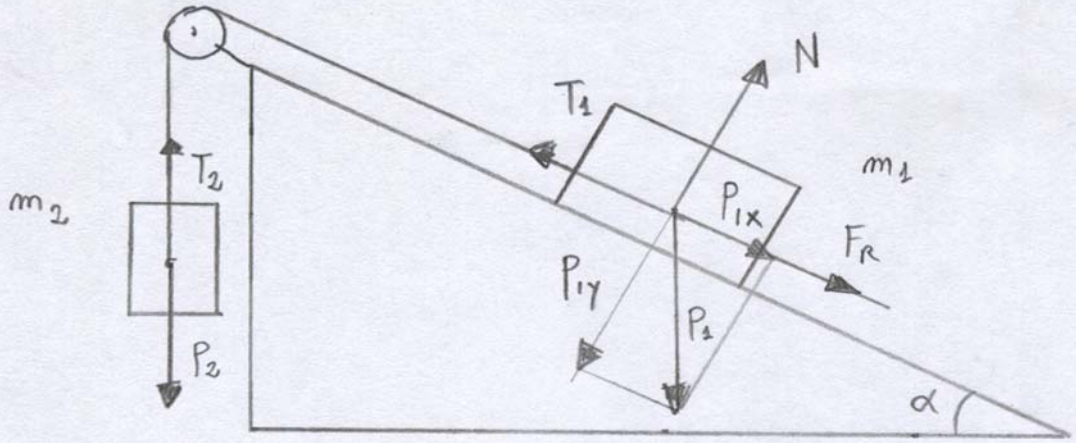
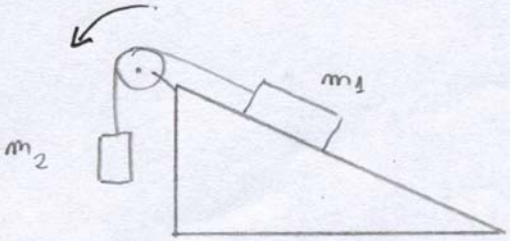
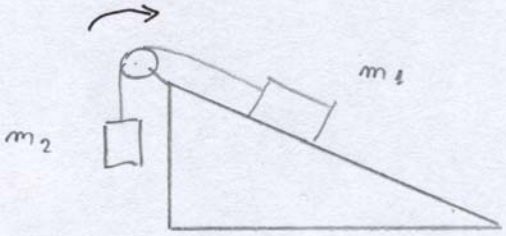
CUERPOS ENLAZADOS (CON F_R)







$$P_2 - T_2 = m_2 \cdot a$$

$$T_1 - P_{1x} - F_R = m_1 \cdot a$$

$$P_2 - P_{1x} - F_R = (m_1 + m_2) \cdot a$$

$$a = \frac{P_2 - P_{1x} - F_R}{m_1 + m_2}$$

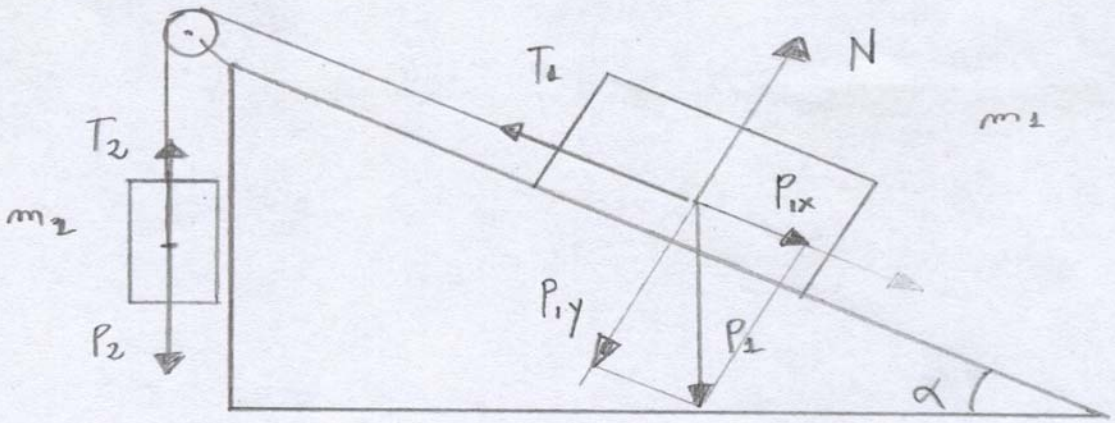
$$F_R + P_{1x} - T_1 = m_1 \cdot a$$

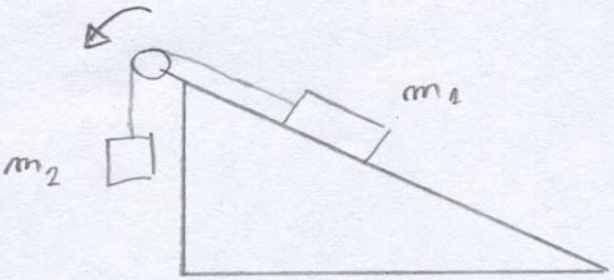
$$T_2 - P_2 = m_2 \cdot a$$

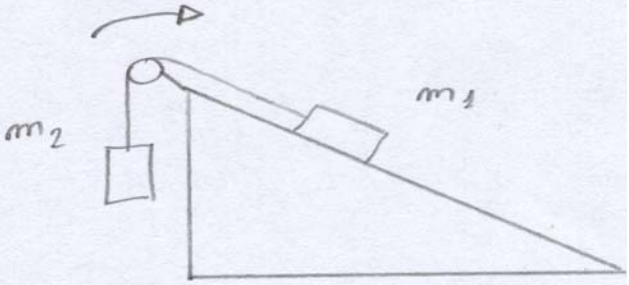
$$F_R + P_{1x} - P_2 = (m_1 + m_2) \cdot a$$

$$a = \frac{F_R + P_{1x} - P_2}{m_1 + m_2}$$

CUERPOS ENLAZADOS (SIN FR)







$$P_2 - T_2 = m_2 \cdot a$$

$$T_1 - P_{1x} = m_1 \cdot a$$

$$P_2 - P_{1x} = (m_1 + m_2)\, a$$

$$\boxed{a = \frac{P_2 - P_{1x}}{m_1 + m_2}}$$

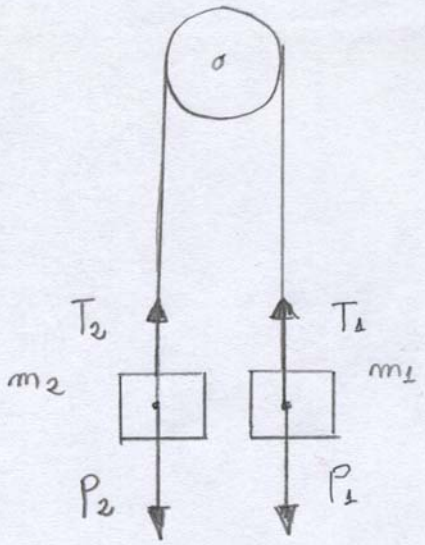
$$P_{1x} - T_1 = m_1 \cdot a$$

$$T_2 - P_2 = m_2 \cdot a$$

$$P_{1x} - P_2 = (m_1 + m_2)\, a$$

$$\boxed{a = \frac{P_{1x} - P_2}{m_1 + m_2}}$$

MÁQUINA DE ATWOOD (POLEAS)



$T_1 = T_2$

$P_1 = m_1 \cdot g$

$P_2 = m_2 \cdot g$

$m_1 > m_2$

$P_1 - T_1 = m_1 \cdot a$

$T_2 - P_2 = m_2 \cdot a$

$P_1 - P_2 = m_1 \cdot a + m_2 \cdot a$

$P_1 - P_2 = (m_1 + m_2) \cdot a$

$$a = \frac{P_1 - P_2}{m_1 + m_2}$$

$m_1 < m_2$

$P_2 - T_2 = m_2 \cdot a$

$T_1 - P_1 = m_1 \cdot a$

$P_2 - P_1 = m_1 a + m_2 a$

$P_2 - P_1 = (m_1 + m_2)\, a$

$$a = \frac{P_2 - P_1}{m_1 + m_2}$$