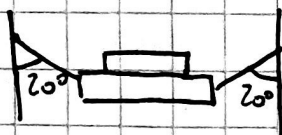


Prueba Fis II

V. Bourgeois E. V. Vungz-

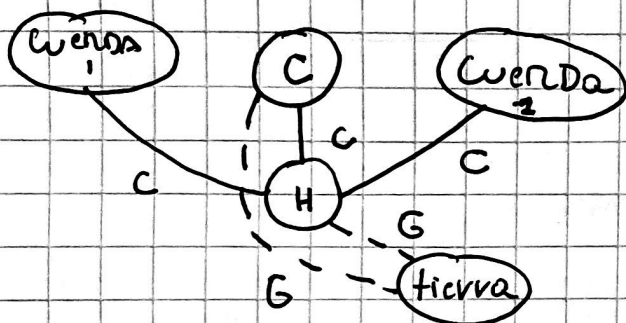
1)



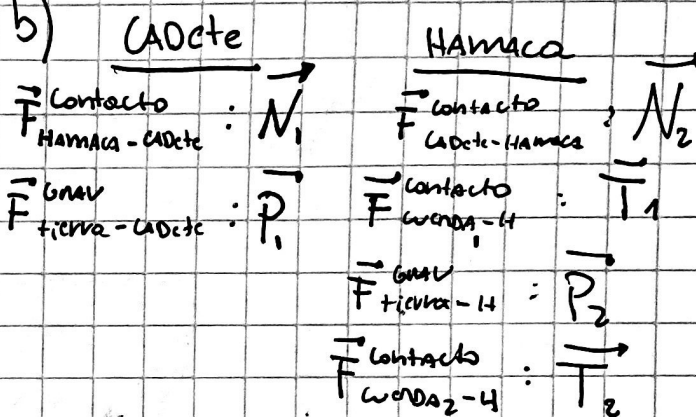
$$\text{CADete} = C \rightarrow 60 \text{ kg} = 600 \text{ [N]}$$

$$\text{HAMACA} = H \rightarrow 10 \text{ kg} = 100 \text{ [N]}$$

a)



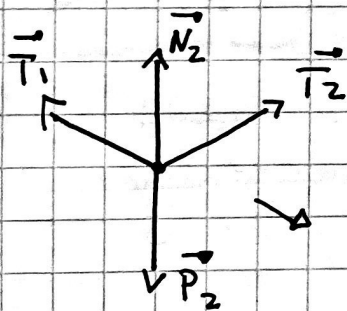
b)



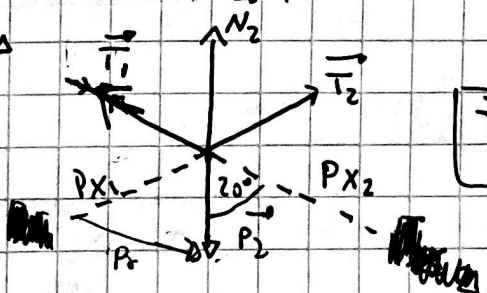
c)

CADete

HAMACA



Las Normales forman
(en el contacto de Cuerdas entre
CADete → HAMACA y viceversa)
un par de Acci3n y reacci3n.



$$\vec{P}_{x2} = \vec{P}_2 \cos 20^\circ$$

$$\vec{T}_1 = 93,97 \text{ [N]}$$

$$\approx 94 \text{ [N]}$$

$$d) \sum F_y = 0$$

$$\vec{N}_1 = \vec{P}_1$$

$$\vec{N}_1 = 600 \text{ [N]}$$

$$\sum F_x = 0 \rightarrow \vec{T}_1 = \vec{P}_{x2}$$

$$\vec{T}_1 = \vec{P}_{x2}$$

$$\vec{T}_2 = \vec{P}_{x1}$$

$$\vec{P}_{x1} = \vec{P}_2 \sin 20^\circ$$

$$\vec{P}_{x1} = 34,2 \text{ [N]}$$

$$\vec{T}_2 = 34,2 \text{ [N]}$$

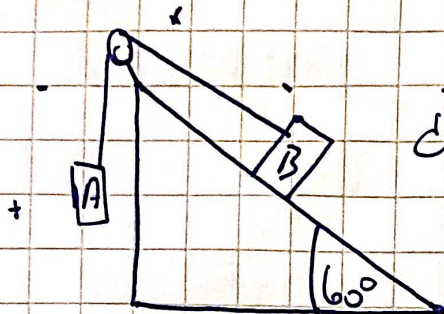
$$\approx 34 \text{ [N]}$$

2)

V. Bourgeois E.

✓

$A, B = 15 \text{ [kg]}$



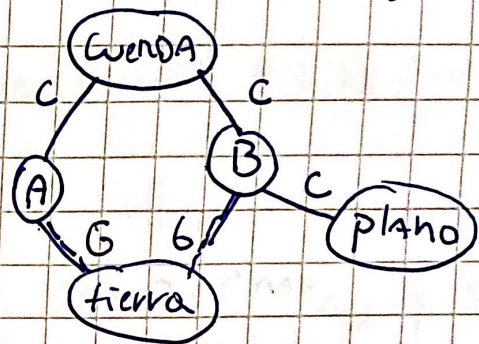
$A = B$

hay $\vec{a}$ y $f_{rc} = 0.2$
 $\mu = 0.2$

$f_v = N \cdot \mu$

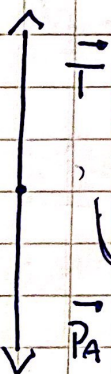
¿a?

a)



b)

A



$$\sum f_y = m \cdot \vec{a}$$

$$\vec{T} - \vec{P}_A = m \cdot \vec{a}$$

$$\textcircled{1} \vec{T} - 150 \text{ [N]} = 15 \cdot \vec{a}$$

$$\textcircled{2} 150 \text{ [N]} - \vec{T} = 15 \cdot \vec{a}$$

A

$$F_{\text{cuerda A-A}}^{\text{contact}} : \vec{T}$$

$$F_{\text{tierra-A}}^{\text{grav}} : \vec{P}_A$$

B

$$F_{\text{cuerda B-B}}^{\text{contact}} : \vec{T}$$

$$F_{\text{plano-B}}^{\text{contact}} : \vec{N} \text{ y } f_{rc}$$

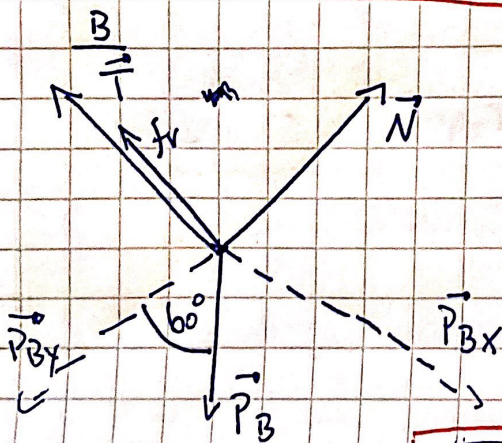
$$F_{\text{tierra-B}}^{\text{grav}} : \vec{P}_B$$

$$\textcircled{1} 150 \text{ [N]} - \vec{T} = 15 \cdot \vec{a}$$

$$\vec{T} - 114.9 \text{ [N]} = 15 \cdot \vec{a}$$

$$35.1 = 30a$$

$$1.17 \text{ m/s}^2 = a$$



$$\vec{P}_{Bx} = \vec{P}_B \sin 60^\circ$$

$$\vec{P}_{By} = \vec{P}_B \cos 60^\circ$$

$$\vec{P}_{Bx} = 129.9 \text{ [N]}$$

$$\vec{P}_{By} = 75 \text{ [N]}$$

$$N = 75 \text{ [N]}$$

$$f_{rc} = 75 \cdot 0.2 = 15 \text{ [N]}$$

~~scribbles~~

$$\sum f_x = m \cdot a$$

~~scribbles~~

$$\vec{T} + f_{rc} - \vec{P}_{Bx} = m \cdot a$$

$$\vec{T} + 15 - 129.9 = 15 \cdot a \textcircled{2}$$

③

V. Bourgeois E.

✓

DADOS:

$$R_{D1} : 0,1[m]$$

$$R_2 : 0,2[m]$$

$$R_3 : 0,05[m]$$

$$\omega_3 : 800 \text{ rpm} \rightarrow 83,78 [\text{rad/s}]$$

a) ω ?

$$\omega = 800 \text{ rpm} \cdot \frac{2\pi}{1 \text{ rev}} \cdot \frac{1 \text{ min}}{60 \text{ s}} = 83,78 [\text{rad/s}] \approx 83,8 [\text{rad/s}] //$$

b) $V_3 = V_2$

$$V_3 = \omega_3 \cdot R_3 \rightarrow V_3 = 83,4 \cdot 0,05 = 4,19 [\text{m/s}]$$

$$4,19 = \omega_2 \cdot R_2 \rightarrow 4,19 = \omega_2 \cdot 0,2$$

$$\frac{4,19}{0,2} = \omega_2 \rightarrow \omega_2 = 20,94 [\text{rad/s}]$$

$(\approx \omega_2 = 21 [\text{rad/s}]) //$

c) $\omega_1 = \omega_2$

$$V = \omega \cdot R$$

$$V = 21 \cdot 0,1$$

$$(V = 2,1 [\text{m/s}]) //$$

d) $d = \theta \cdot R$

$$0,8[m] = \theta \cdot 0,1$$

$$8 [\text{rad}] = \theta$$

$$\frac{2\pi (\text{rad})}{360^\circ} \Rightarrow 8 [\text{rad}] \rightarrow x^\circ$$

$$\frac{458,36^\circ}{360}$$

$$= 1,27 \text{ vueltas} //$$