

Soluting M.R.

Ex01:

$$\sum \vec{F}_i = \vec{0}, \vec{P} + \vec{T}_A + \vec{T}_B = \vec{0} \quad (0,15)$$

Par projecting: $ox: T_B \cos \alpha + T_A \cos \beta = 0 \quad (1)$

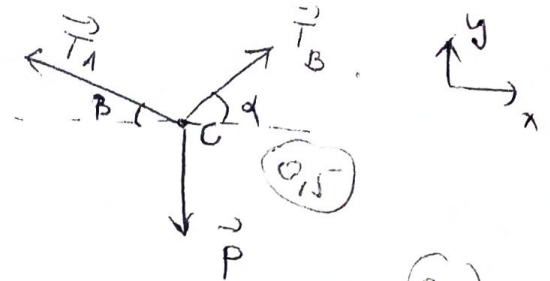
$oy: -P + T_B \sin \alpha + T_A \sin \beta = 0 \quad (2)$

de (1): $T_B = T_A \frac{\cos \beta}{\cos \alpha} \quad (3)$

(3) dans (2): $T_A = \frac{P}{\cos \beta \tan \alpha + \sin \beta}$

AN: $T_A = 528,8 \text{ N}$

$T_B = 695,4 \text{ N}$



$\tan \alpha = \frac{1,22}{0,9} \Rightarrow \alpha = 53,6^\circ$

$\tan \beta = \frac{1,22}{1,52} \Rightarrow \beta = 38,7^\circ$

Ex02:

$$\sum \vec{F}_i = \vec{0} \Rightarrow \vec{P} + \vec{T} + \vec{N} + \vec{R} = \vec{0}$$

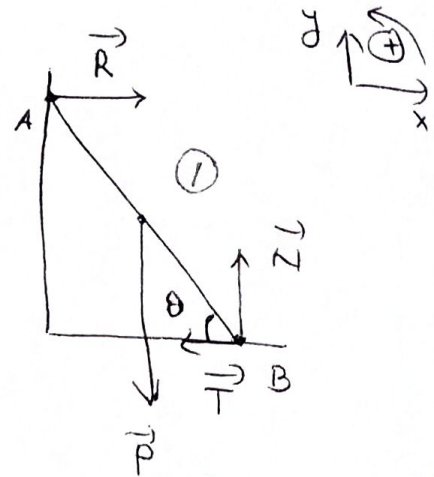
Par projecting: $ox: R - T = 0 \Rightarrow R = T$

$oy: -P + N = 0 \Rightarrow N = P = 178 \text{ N}$

$\sum M_B(\vec{F}_i) = 0 \Rightarrow M_B(\vec{N}) + M_B(\vec{T}) + M_B(\vec{P}) + M_B(\vec{R}) = 0$

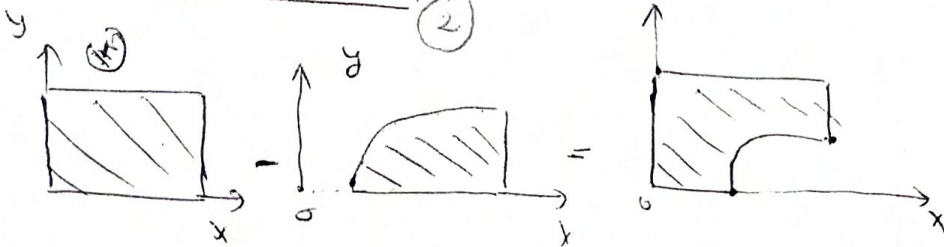
$\frac{PL}{2} \cos \theta - RL \sin \theta = 0 \Rightarrow R = \frac{P}{2 \tan \theta}$

donc $R = T = 31,5 \text{ N}$



$\cos \theta = \frac{1,22}{3,66} \Rightarrow \theta = 70,5^\circ$

Ex03:



	carré	1/4 disque
x_c	76	108,69
y_c	76	43,31
S_i	23104	8167,14

$x_G = \frac{x_1 S_1 - x_2 S_2}{S_1 - S_2}$

$y_G = \frac{y_1 S_1 - y_2 S_2}{S_1 - S_2}$

$x_G = 58,12 \text{ mm}$

$y_G = 93,87 \text{ mm}$