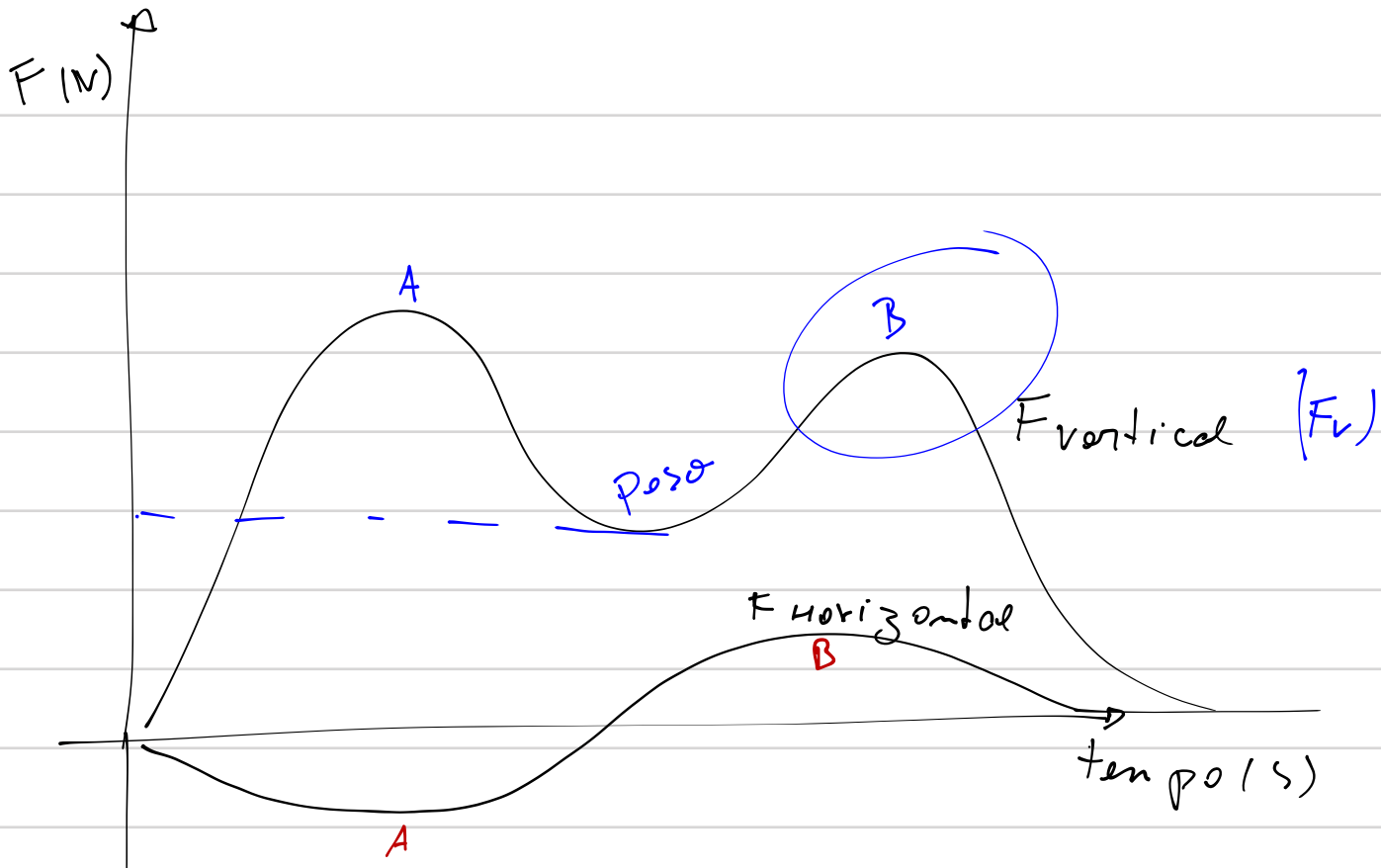
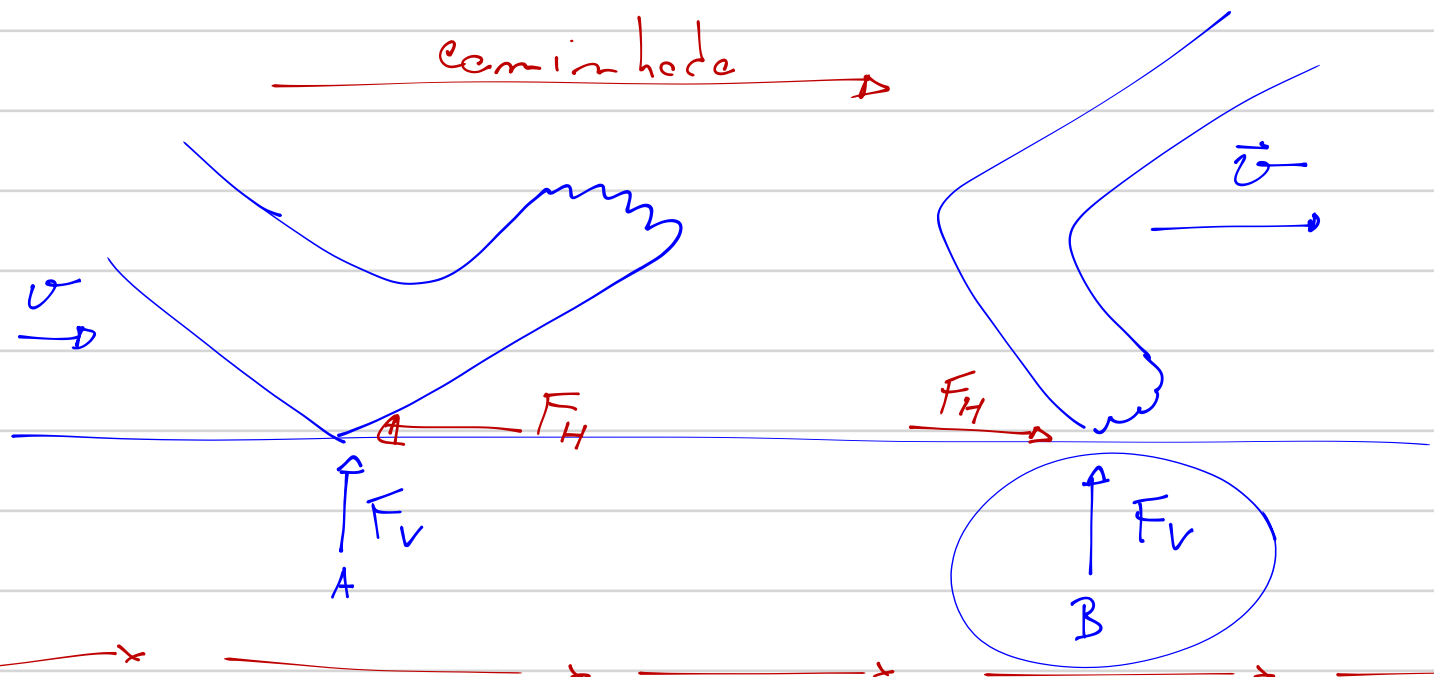
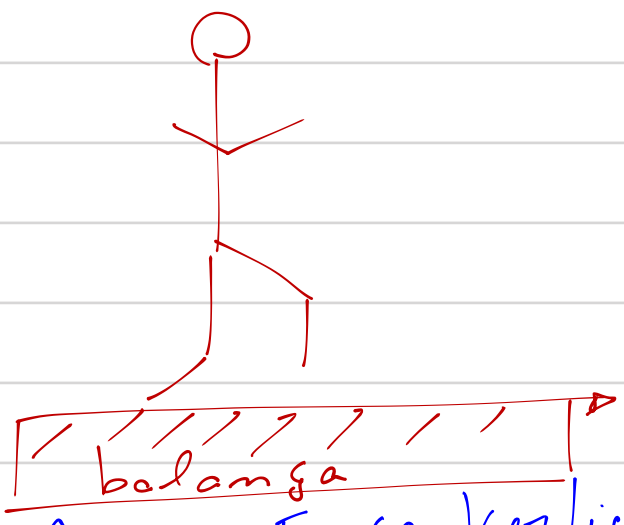
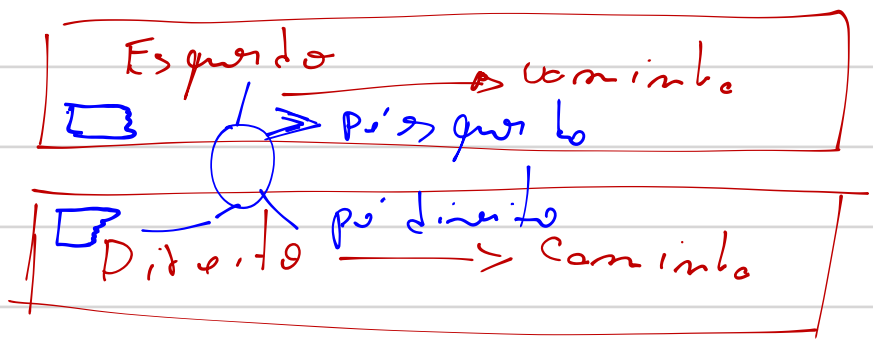




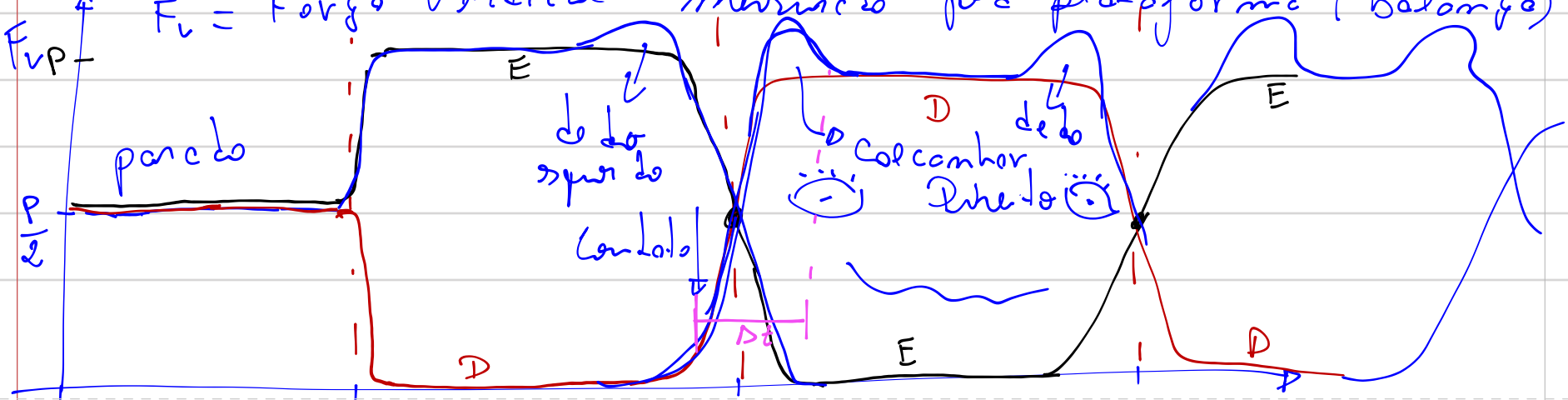
vista lateral

vista superior





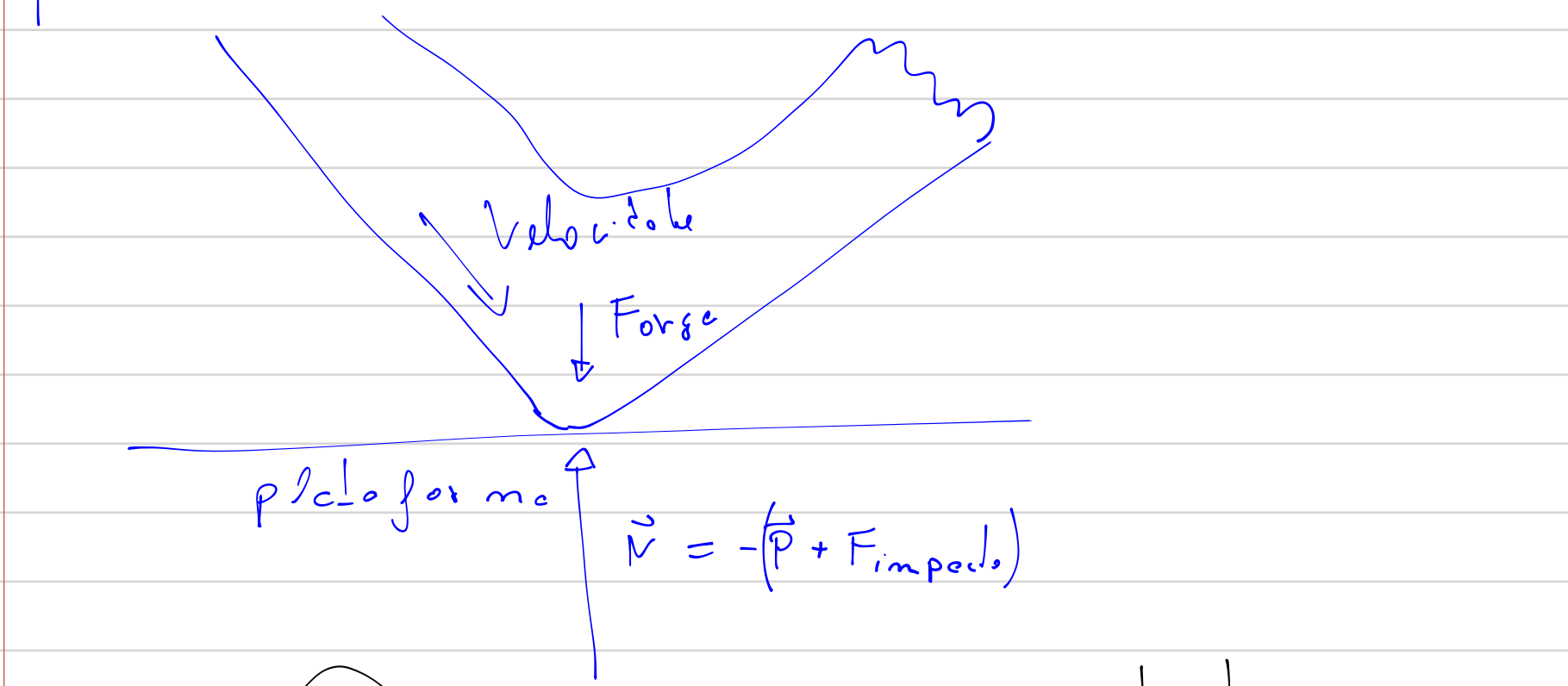
F_V = Força Vertical medida pela plataforma (balança)

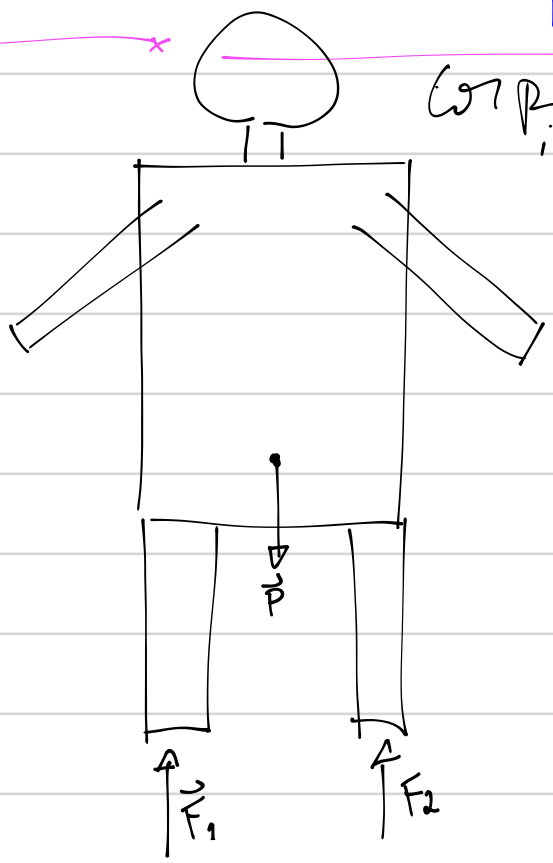


parado sendo

1º passo (pé direito)

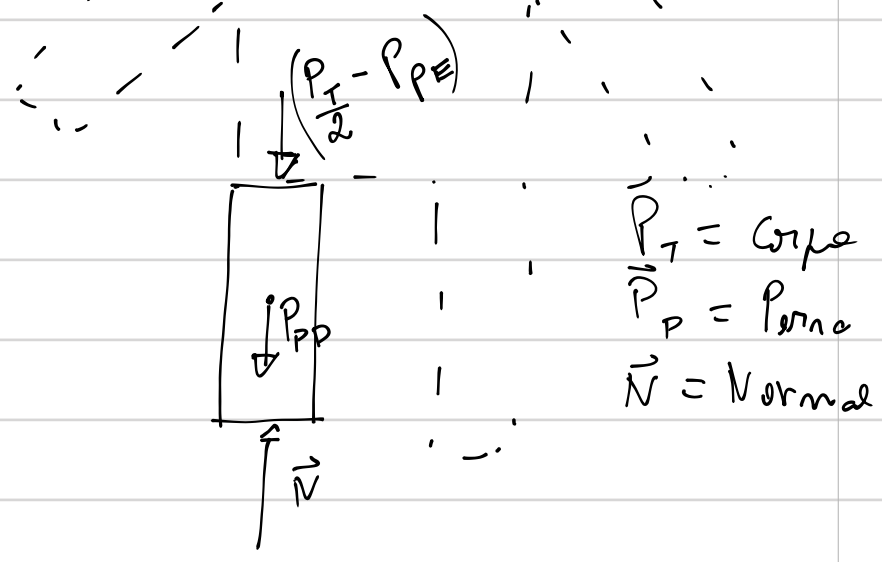
2º passo (pé esquerdo contato)





Corpo inteiro

Estático
pernas (apenas uma)



Equilíbrio translacional

$\sum$ Forças do corpo = 0

$\sum F_x = 0$

$\sum F_y = 0 \quad -P + F_1 + F_2 = 0$

$$\boxed{P = F_1 + F_2}$$

$$\sum F_y = -\left(\frac{P_T}{2} - P_{PE}\right) - P_{PD} + N = 0$$

$$\boxed{N = \frac{P_T}{2} - P_{PE} + P_{PD}}$$

$$\boxed{N = \frac{P_T}{2}}$$

Equilíbrio Rotacional $\sum \vec{\tau} = 0$

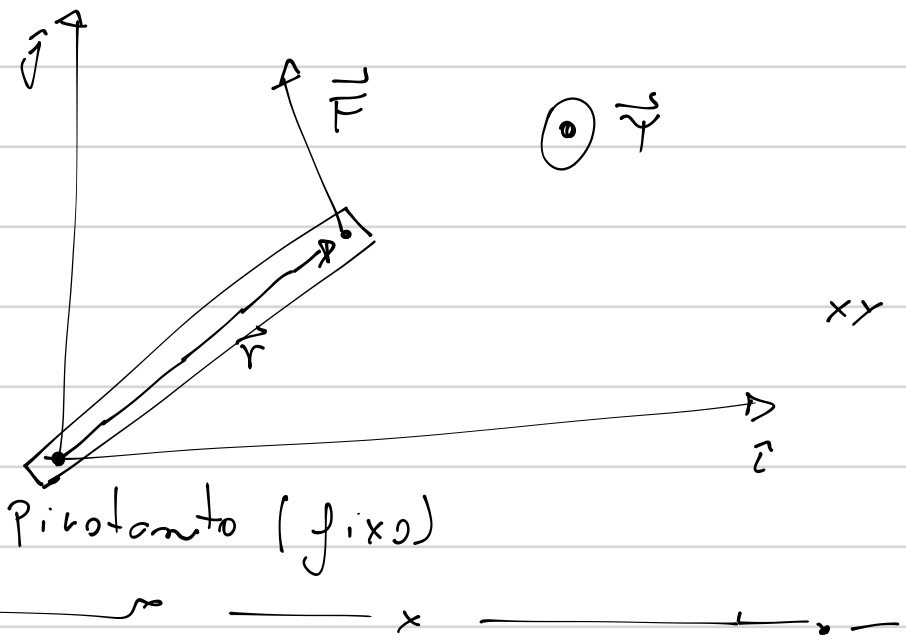
a soma dos torques que agem sobre o corpo é igual a zero : que não rotaciona

Torque $(\vec{\tau})$ $\qquad \vec{\tau} = \vec{r} \times \vec{F}$

$\vec{r} = r_x \hat{i} + r_y \hat{j}$

$\vec{F} = F_x \hat{i} + F_y \hat{j}$

$\vec{\tau} = \tau_z \hat{k}$



$\vec{r} = r_x \hat{i} + r_y \hat{j} + r_z \hat{k}$

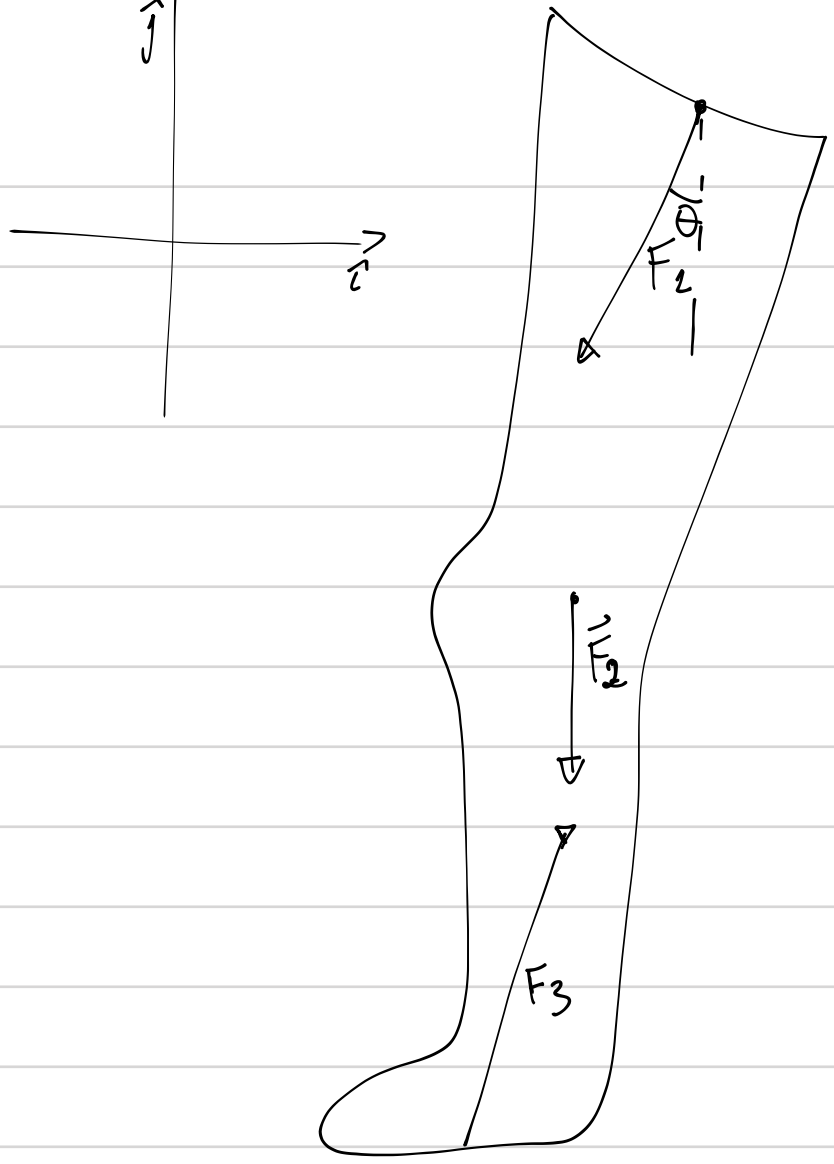
$\vec{F} = F_x \hat{i} + F_y \hat{j} + F_z \hat{k}$

$$\vec{\tau} = \vec{r} \times \vec{F} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} & \hat{i} & \hat{j} \\ r_x & r_y & r_z & r_x & r_y \\ F_x & F_y & F_z & F_x & F_y \end{vmatrix}$$

método de Sarrus

$$= \hat{i} r_y F_z + \hat{j} r_z F_x + \hat{k} r_x F_y - \hat{k} r_y F_x - \hat{i} r_z F_y - \hat{j} r_x F_z$$

$$\boxed{\vec{\tau} = \hat{i}(r_y F_z - r_z F_y) + \hat{j}(r_z F_x - r_x F_z) + \hat{k}(r_x F_y - r_y F_x)}$$



Equilíbrio

translacional $\quad \sum \vec{F} = 0$

rotacional $\quad \sum \vec{\tau} = 0$

$$\vec{F}_1 = -\left(\frac{P_T}{2} - P_P\right) \operatorname{Sen}\theta\, \hat{i} - \left(\frac{P_T}{2} - P_P\right) \cos\theta\, \hat{j}$$

$$\vec{F}_2 = 0\,\hat{i} - P_P\,\hat{j}$$

$$\vec{F}_3 = F_r\,\hat{i} + N\,\hat{j}$$

N = normal

F_r = F. de atrito

$$r_1 = r_{1x}\,\hat{i} + r_{1y}\,\hat{j}$$
$$r_2 = r_{2x}\,\hat{i} + r_{2y}\,\hat{j}$$
$$r_3 = r_{3x}\,\hat{i} + r_{3y}\,\hat{j}$$

$\sum \tau_z = 0$
$\sum F_x = 0$
$\sum F_y = 0$
$\Big\rangle$ Equilíbrio