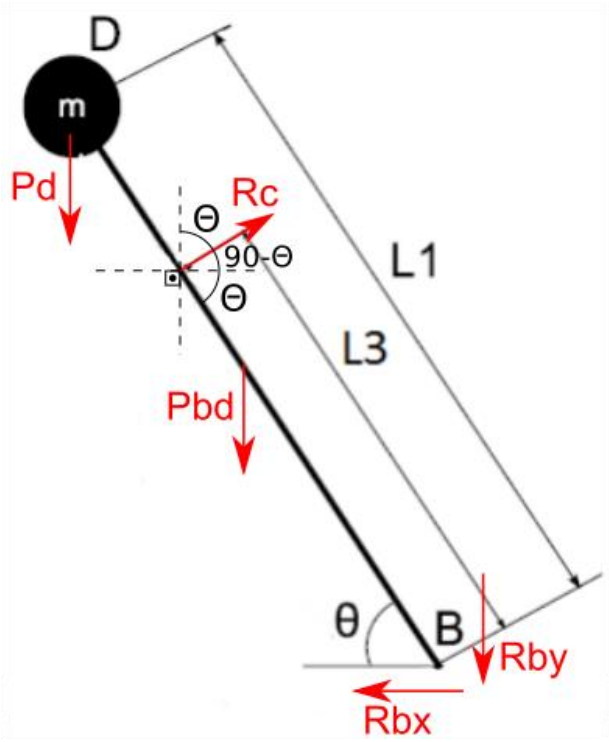
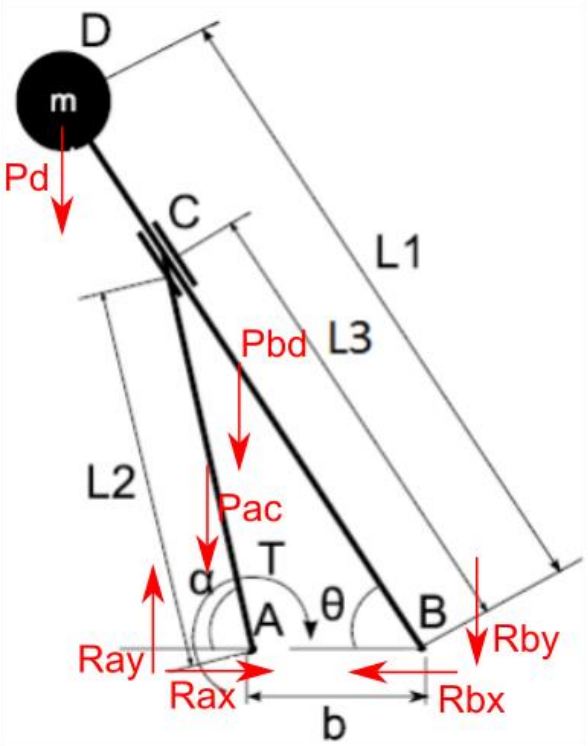
Trabalho Computacional 1

Diagramas de Corpo Livre





Equações de Equilíbrio e Relações Trigonométricas

$$R_C = \frac{L1.\cos\theta}{2.L3}\ (2.P_D + P_{BD})$$

$$R_{Bx} = R_C.\sin\theta$$

$$R_{By} = R_C.\cos\theta - P_D - P_{BD}$$

$$R_{Ax} = R_{Bx}$$

$$R_{Ay} = R_{By} + P_D + P_{BD} + P_{AC}$$

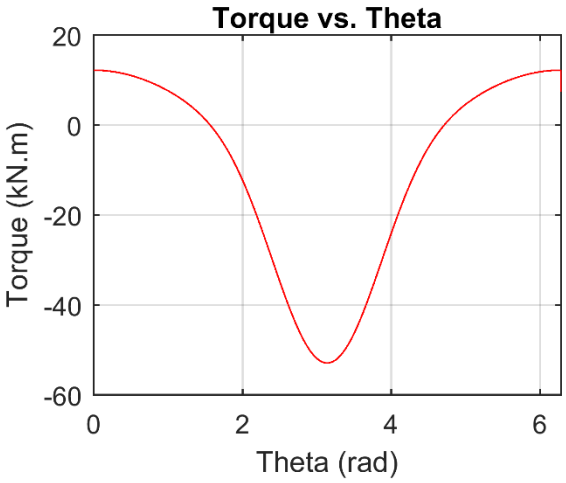
$$T = \frac{P_{AC}.L2.\cos\alpha}{2} + P_D(L1.\cos\theta - b) + P_{BD}\left(\frac{L1.\cos\theta}{2} - b\right) - R_{By}.b$$

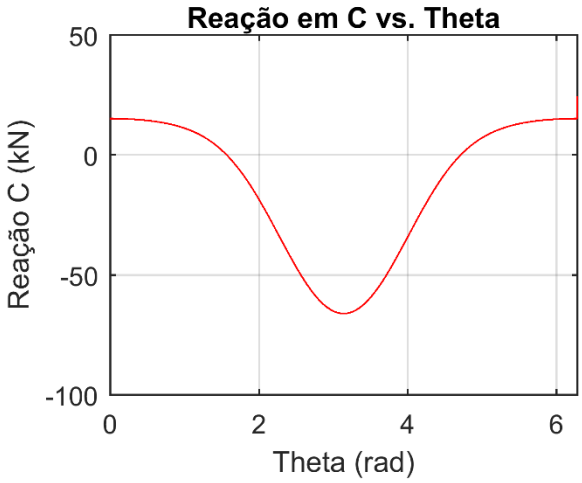
Do triângulo formado por L2, L3 e b:

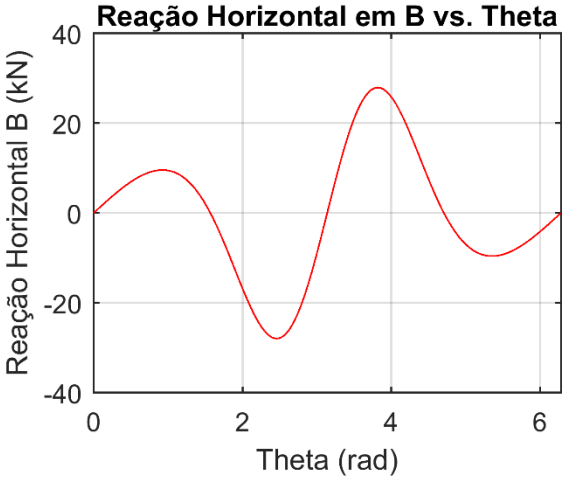
$$\alpha = \sin^{-1}\left(\frac{b.\sin\theta}{L2}\right) + \theta$$

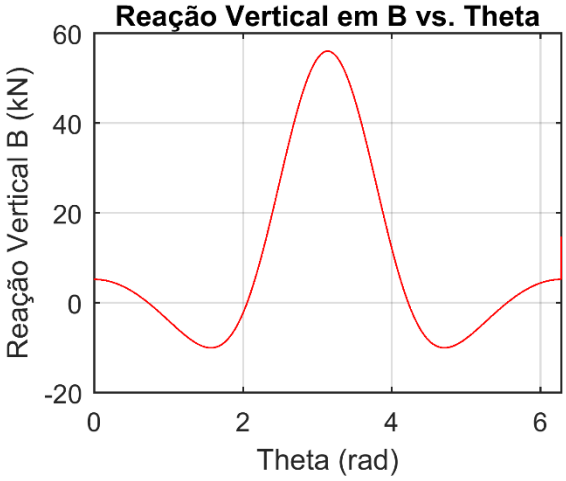
$$L3 = \frac{L2.\sin\alpha}{\sin\theta}$$

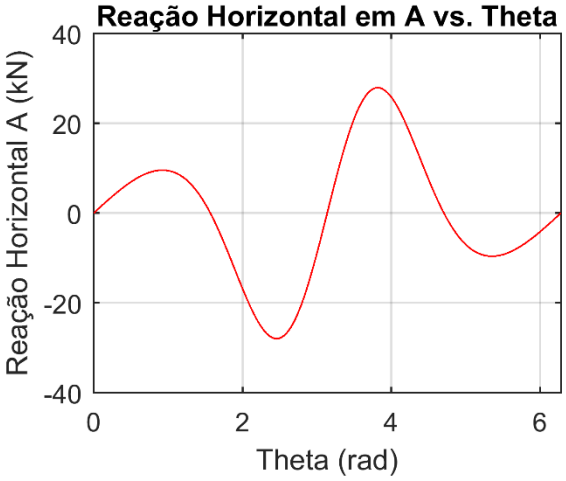
Gráficos

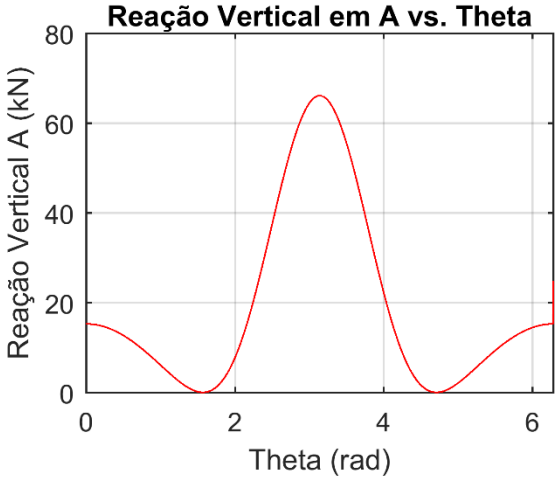












Módulo do Torque Máximo

O módulo máximo de torque encontrado foi 52.886364 $kN.m$