

Distancias

$$e = f = \frac{a}{2} \cos \gamma$$

$$g = h = \frac{a}{2} \sin \gamma$$

$$i = \text{longitud rampa} = 130 \text{ cm} = 1,30 \text{ m}$$

$$j = 0,56 \text{ m}$$

$$k = 0,10 \text{ m}$$

$$n = 1,18 \text{ m}$$

$$RG3 = \left(\frac{i}{2} - j \right)_{LP}$$

Incógnitas

$$L_x$$

$$L_y$$

$$O_x$$

$$O_y$$

$$M_0$$

$$M_x$$

$$M_y$$

$$N_x$$

$$N_y$$

Conocidos



$$m_2 a_{2y}$$



$$m_3 a_{3x}$$

$$m_3 a_{3y}$$

$$W_1$$

$$W_3$$

$$W_4 \Rightarrow W_2 = W_4$$

Variables adicionales $\theta, p, q \Rightarrow$ sólo varían con el ángulo

$$0 = (w_4 + m_4 a_{4x})l + m_4 a_{4y}h - I_4 \alpha_4$$

$$p = m_3 a_{3y}(g+h) + (P + w_3 + m_3 a_{3x})(e+l)$$

$$q = \overline{PRG_3} - I_3 \alpha_3 + m_3 a_{3y}h + (P + w_3 + m_3 a_{3x})j$$

cte.

P (fuerza) = $\left(\frac{\text{masa silla} + \text{masa persona}}{2} \right) g$

Reacciones

$$L_y = \frac{-q}{k+n}$$

$$L_x = \left[\frac{1}{e+l} \right] [-0 - p - L_y(g+h)]$$

$$M_x = -P - L_x - w_3 - m_3 a_{3x}$$

$$M_y = -L_y - m_3 a_{3y}$$

$$N_x = M_x - w_4 - m_4 a_{4x}$$

$$N_y = M_y - m_4 a_{4y}$$

$$O_x = w_2 + m_2 a_{2x} - L_x$$

$$O_y = m_2 a_{2y} - L_y$$

$$M_0 = L_x e + L_y g - O_x f - O_y h$$

$$L = \sqrt{L_x^2 + L_y^2}$$

$$O = \sqrt{O_x^2 + O_y^2}$$

$$M = \sqrt{M_x^2 + M_y^2}$$

$$N = \sqrt{N_x^2 + N_y^2}$$