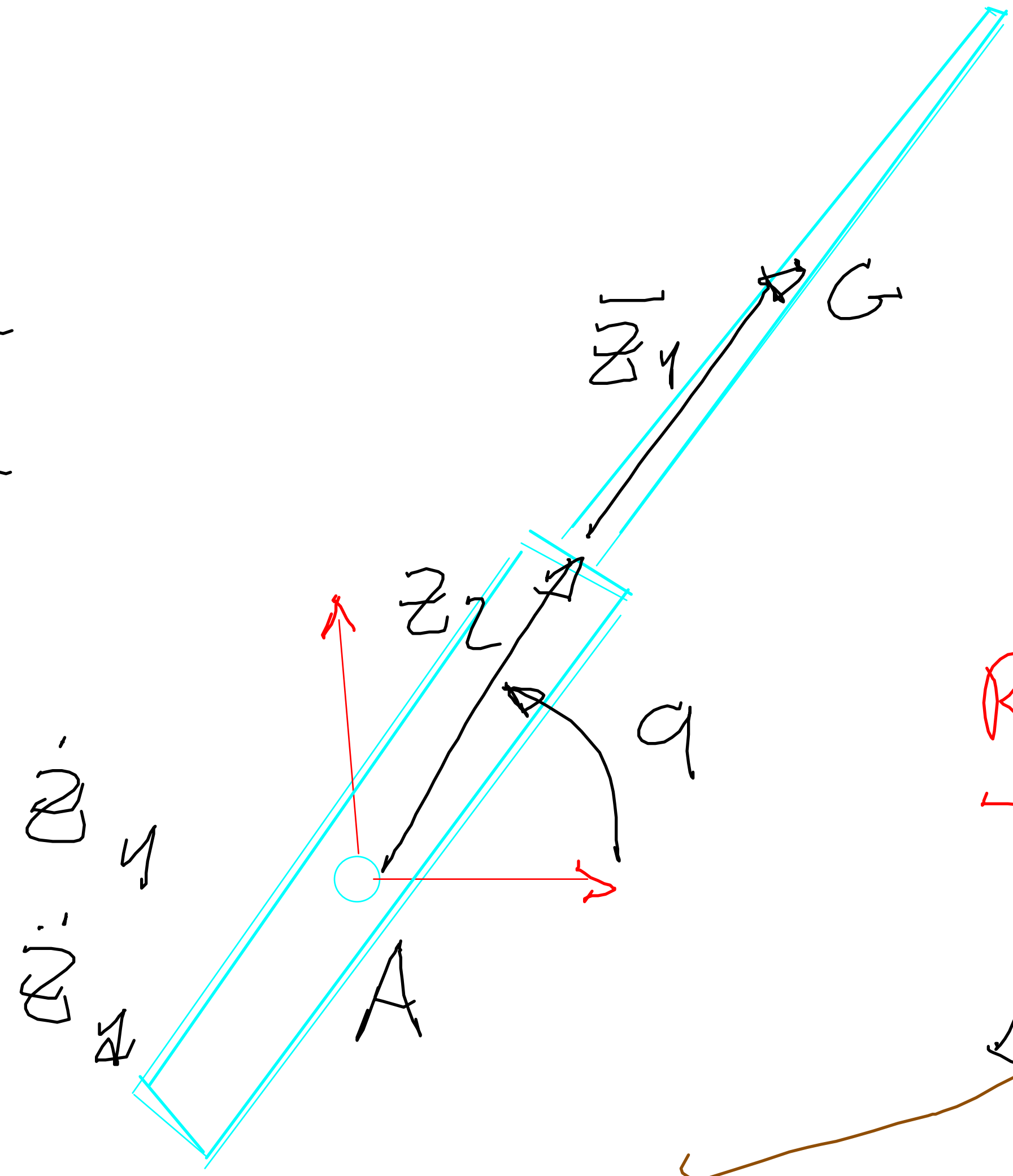


$$R_{1x} + F_{inx} + \underline{R_{2x}} = 0$$

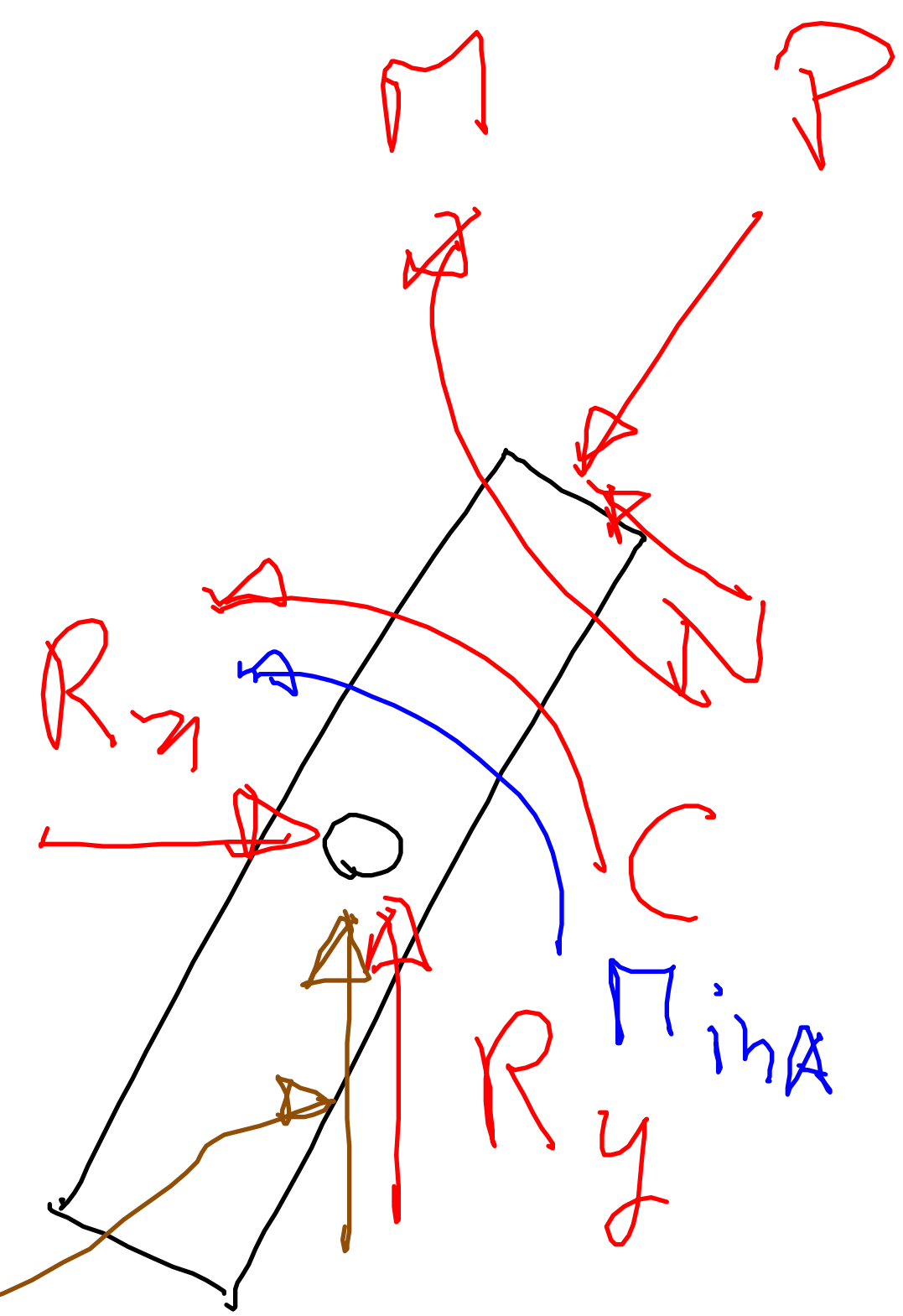
$$R_{1y} + \underline{F_{iny}} + \underline{R_{2y}} = 0$$

$$C_2 + \underline{M_{in}} + b_1 \wedge \underline{R_1} + b_2 \wedge \underline{R_2} = 0$$

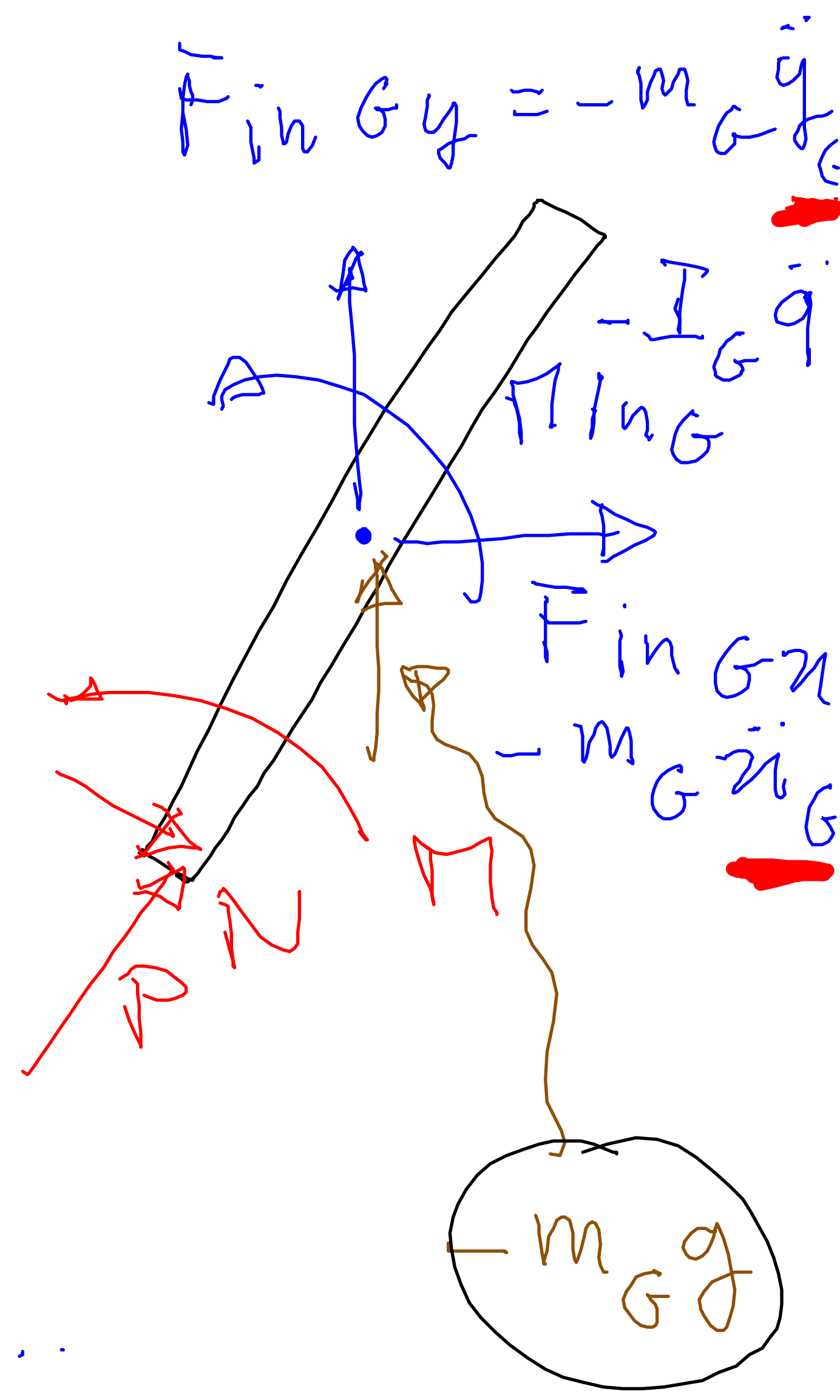
I_A
 I_G
 m_G
 m_A
 \dot{q}
 q



$\sim m_A g$



$M_{inA} = I_A \ddot{q}$



$F_{in Gy} = -m_G \ddot{y}_G$

$M_{inG} = -I_G \ddot{q}$

$F_{in Gz} = -m_G \ddot{z}_G$

$-m_G g$

$$G = (z_2 + z_1) \begin{Bmatrix} c q \\ s q \end{Bmatrix}$$

$$\dot{G} = \dot{z}_1 \begin{Bmatrix} c q \\ s q \end{Bmatrix} + (\underbrace{z_1 + z_2}_{\text{blue circle}}) \begin{Bmatrix} -s q \\ c q \end{Bmatrix} \dot{q}$$

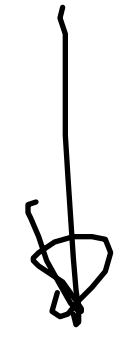
$$\ddot{G} = \ddot{z}_1 \begin{Bmatrix} c q \\ s q \end{Bmatrix} + \dot{z}_1 \begin{Bmatrix} -s q \\ c q \end{Bmatrix} \dot{q} - (z_1 + z_2) \begin{Bmatrix} c q \\ s q \end{Bmatrix} \dot{q}^2 +$$

$$+ \dot{z}_1 \begin{Bmatrix} -s q \\ c q \end{Bmatrix} \ddot{q} + (z_1 + z_2) \begin{Bmatrix} -s q \\ c q \end{Bmatrix} \ddot{q}$$

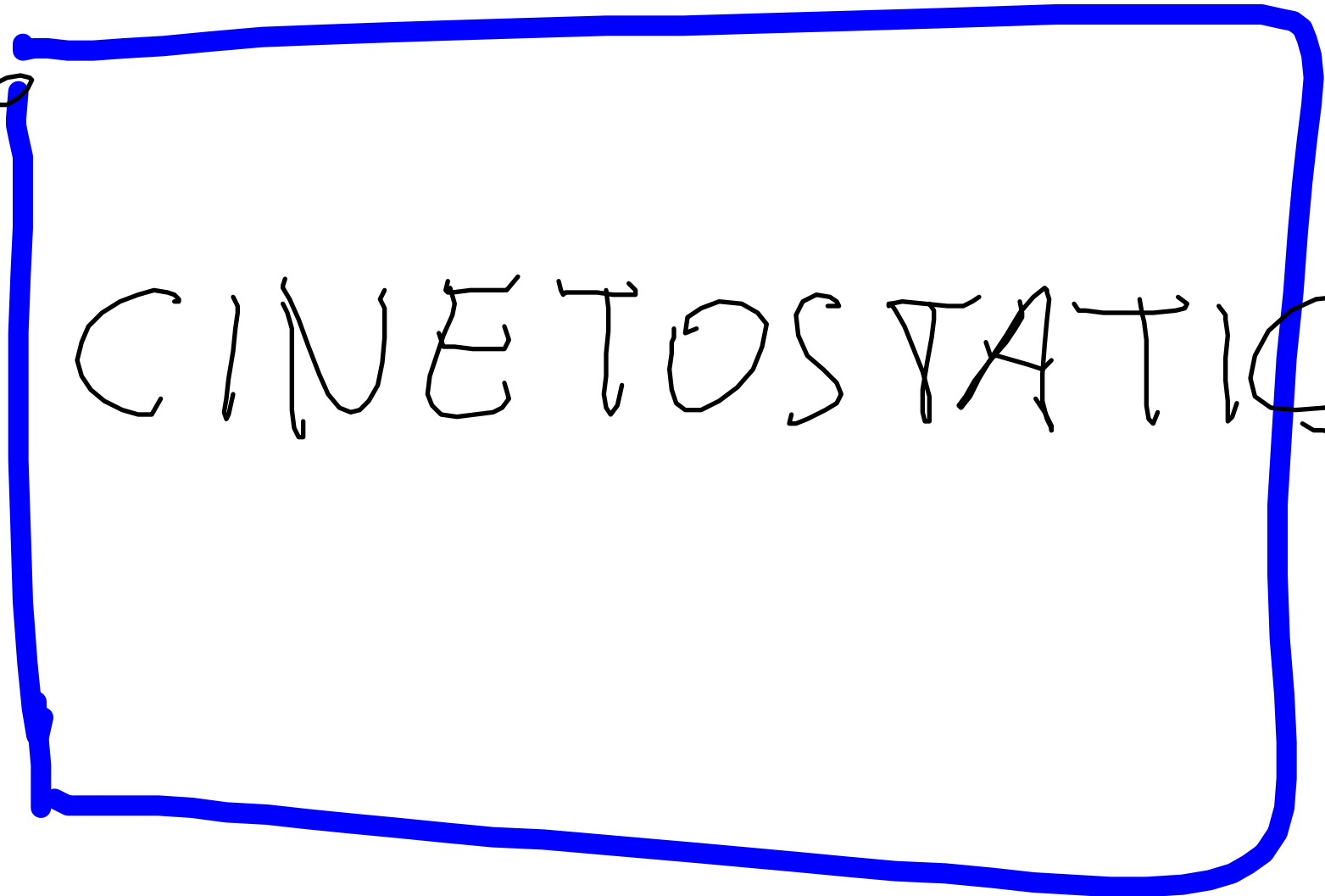
$$\left. \begin{aligned}
 R_x - P_c q - N_s q &= 0 \\
 R_y - P_s q + N_c q - m_A g &= 0 \\
 C + M_{inA} - M + N z_2 &= 0
 \end{aligned} \right\} \text{corpo I}$$

$$\left. \begin{aligned}
 P_c q + N_s q + F_{inGx} &= 0 \\
 P_s q - N_c q + F_{inGy} - m_G g &= 0 \\
 M + M_{inG} + N z_1 &= 0
 \end{aligned} \right\} \text{corpo II}$$

inerzie, masse
geometria



meccanica



$q(t)$



$t \rightarrow q, \dot{q}, \ddot{q}$

• reazioni vincolari

• forze degli attuatori

$$F - ma = 0$$

$$F + f_{in} = 0$$