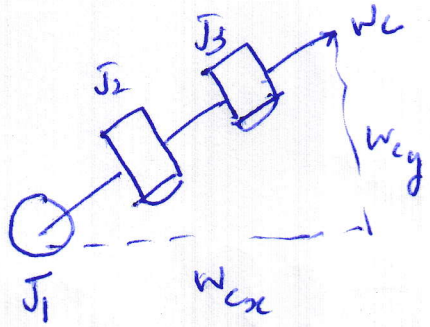
IK

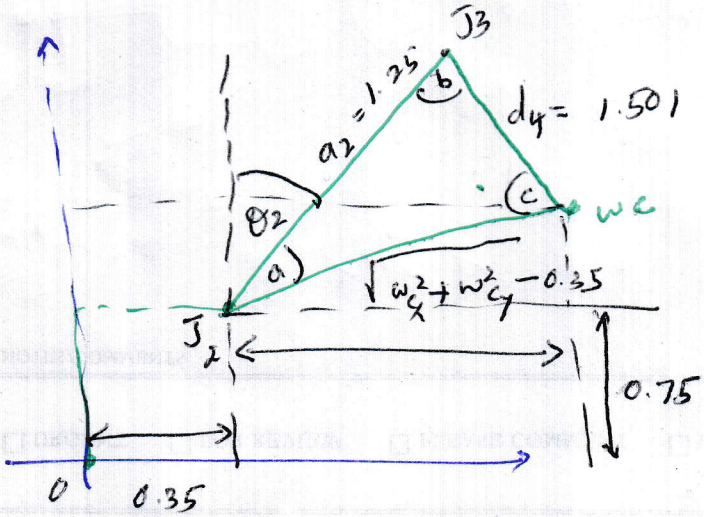
$$\begin{pmatrix} wc_x \\ wc_y \\ wc_z \end{pmatrix} = \begin{pmatrix} p_x \\ p_y \\ p_z \end{pmatrix} - {}^{0}_{6}R \begin{bmatrix} 0 \\ 0 \\ d_{G1} \end{bmatrix}$$

~~thetas~~ θ_1:



$$\theta_1 = \text{atan2}(wc_y, wc_x)$$

θ_2:

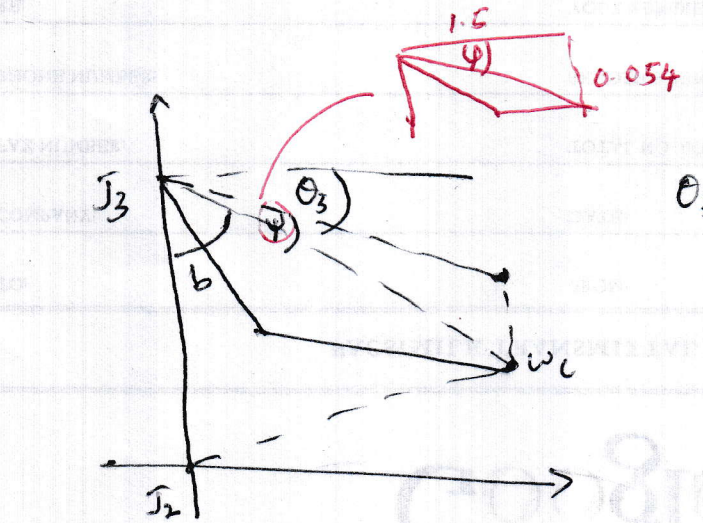


$$\theta_2 = \pi/2 - \hat{a} - \text{atan2}\left(wc_z - 0.75,\ \sqrt{wc_x^2 + wc_y^2} - 0.35\right)$$

$$a^2 = b^2 + c^2 - 2bc\cos(\hat{a})$$

$$b^2 = a^2 + c^2 - 2ac\cos(\hat{b})$$

θ_3:



$$\theta_3 = \pi/2 - \hat{b} - \text{atan2}(0.054, 1.5)$$