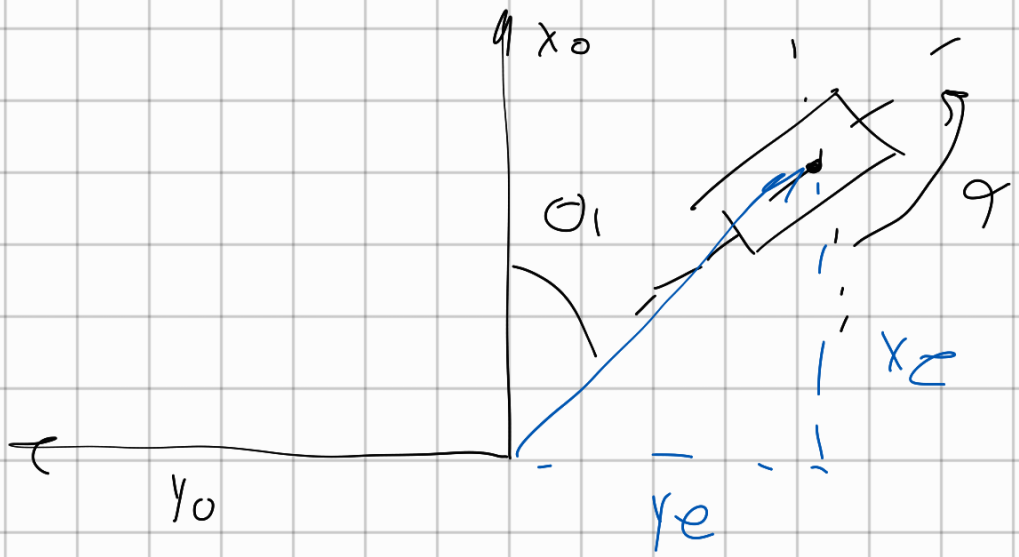
Fanuc IK

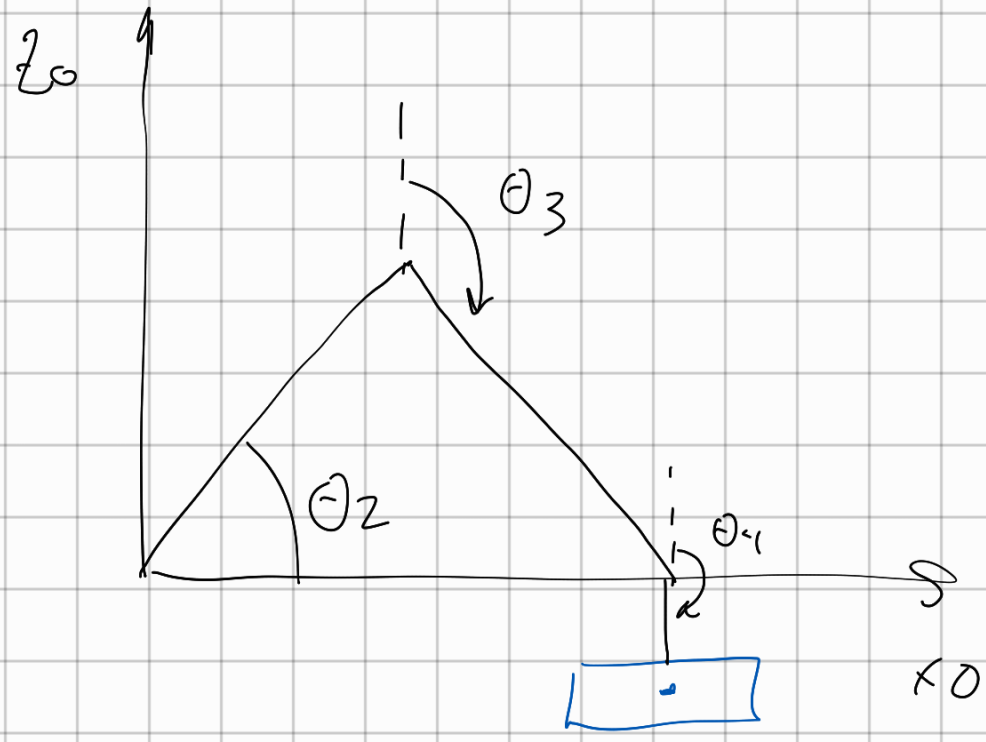
θ_1

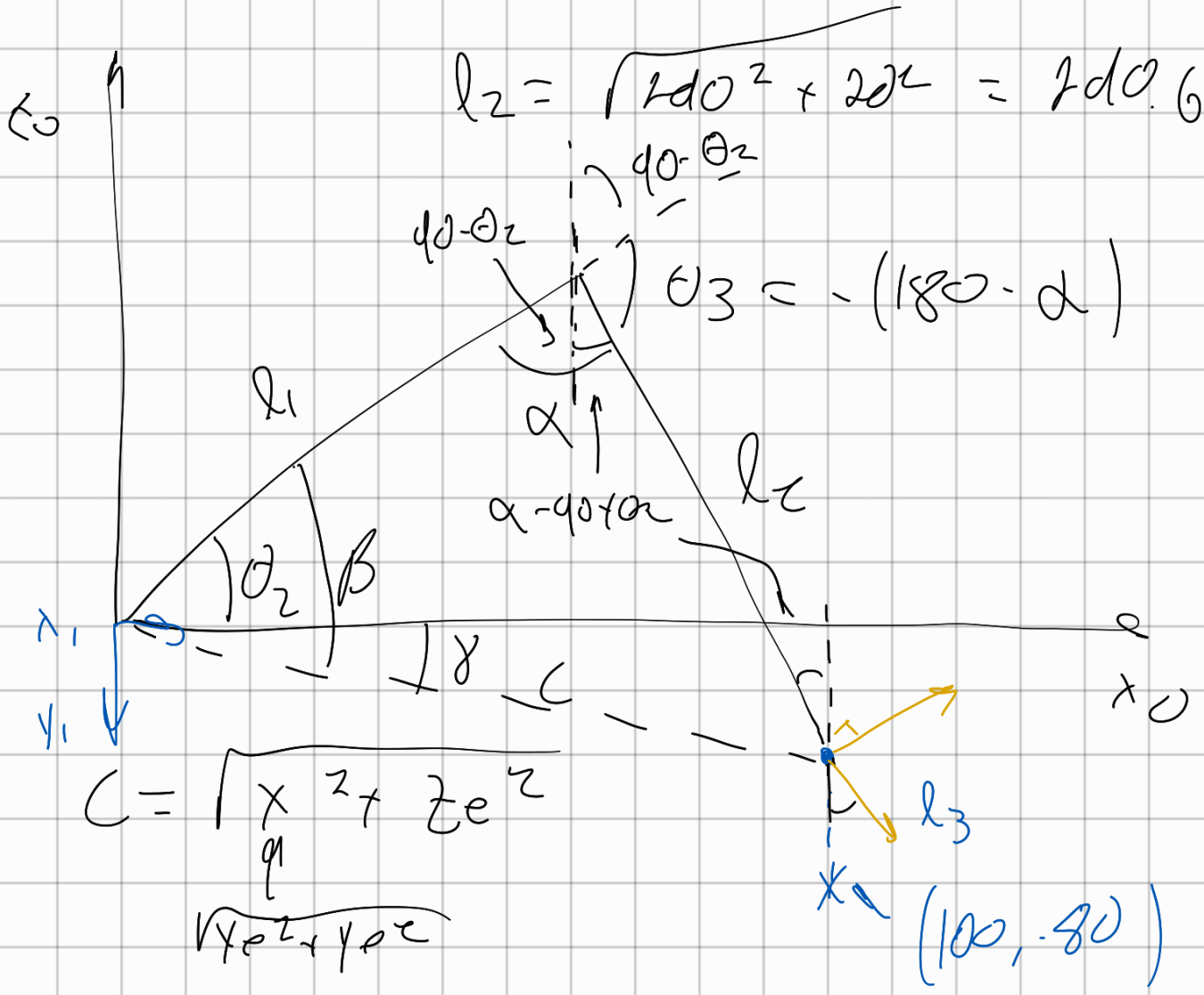


$$\theta_1 = -90 - \text{atan2}(x_e, y_e)$$

$$= -90 - \text{atan2}(435, -105)$$

$$= -13.59.$$





$$\cos\alpha = \frac{l_1^2 + l_2^2 - C^2}{2 l_1 l_2}$$

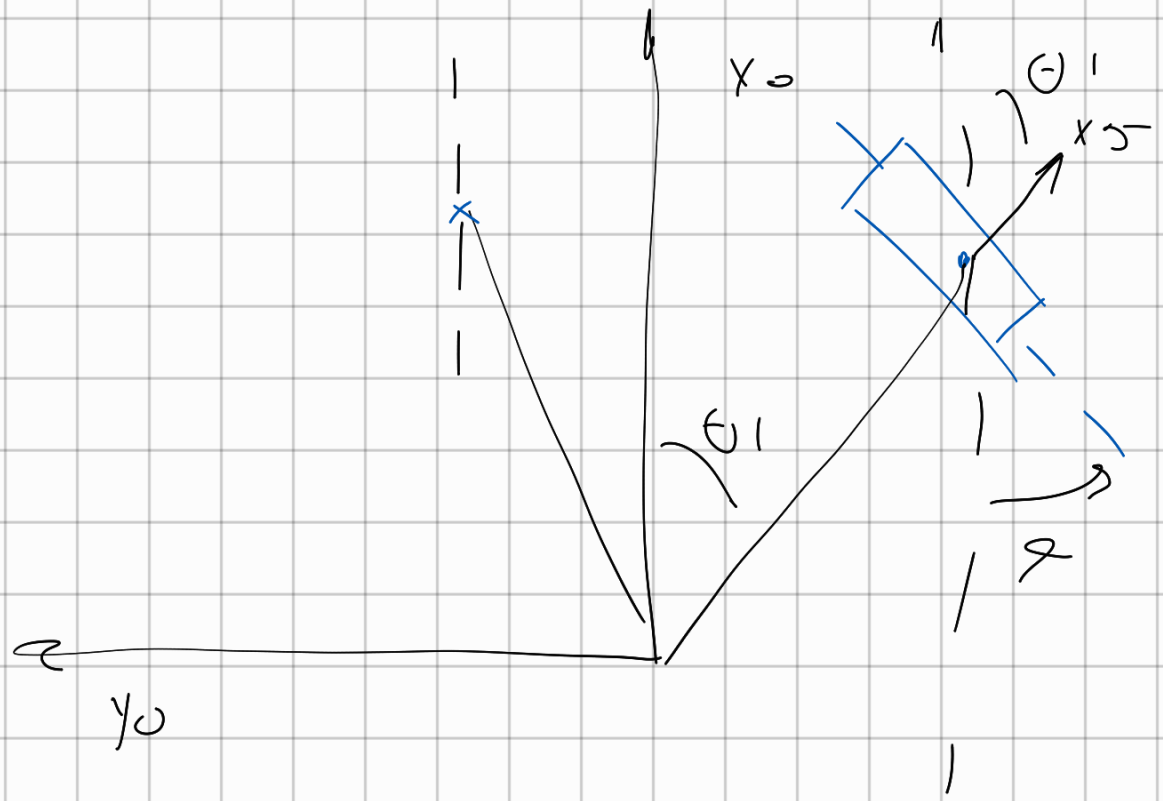
$$= \frac{l_1^2 + l_2^2 - (xe^2 + ze^2)}{2 l_1 l_2}$$

$$\cos\beta = \frac{l_1^2 + C^2 - l_2^2}{2 l_1 C}$$

$$\theta_2 = -(\beta + \gamma)$$

$$\theta_3 = \alpha - 180$$

$$\theta_4 = 90 - (\alpha - (90 - (\beta + \gamma)))$$



$$\theta_5 = 180 + \theta_1 - \alpha$$