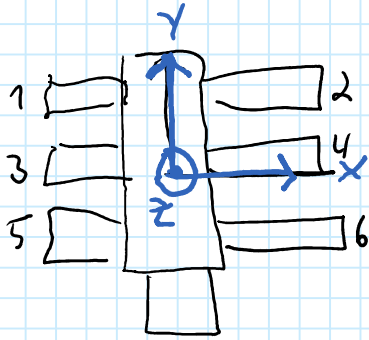


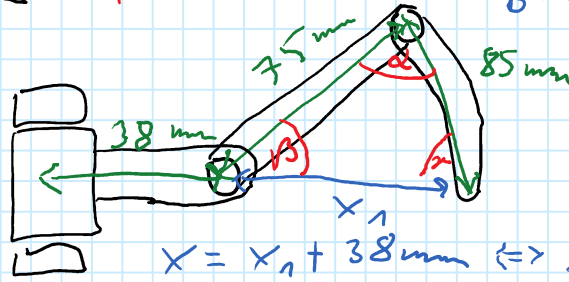
# Inverse kinematic model MK1 redesigned

Freitag, 17. Dezember 2021

17:54

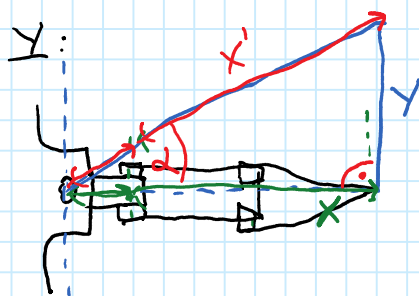


$x: 40 - 155 \text{ mm}$



$$X = X_1 + 38 \text{ mm} \Leftrightarrow X_1 = X - 38 \text{ mm}$$

$$\alpha = \cos^{-1} \left( \frac{75^2 + 85^2 - X_1^2}{2 \cdot 75 \cdot 85} \right); \beta = \cos^{-1} \left( \frac{X_1^2 + 75^2 - 85^2}{2 \cdot X_1 \cdot 75} \right)$$

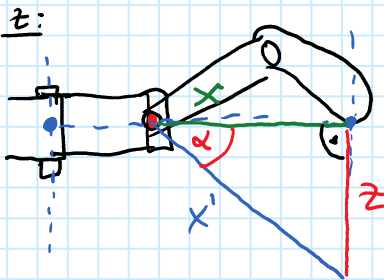


$$\alpha = \cos^{-1} \left( \frac{X'^2 + Y'^2 - Y^2}{2 \cdot X' \cdot Y'} \right),$$

$$\alpha = \sin^{-1} \left( \frac{Y}{X'} \right),$$

$$X': a^2 + b^2 = c^2 \rightarrow X'^2 + Y'^2 = X'^2$$

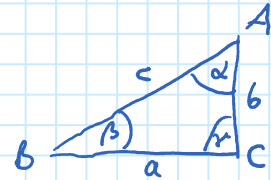
$$\Leftrightarrow X' = \sqrt{X^2 + Y^2} \Rightarrow X' \text{ in } X\text{-Modell einsetzen!}$$



$$\alpha = \sin^{-1} \left( \frac{Z}{X'} \right),$$

$$X' = \sqrt{X^2 + Z^2}$$

$$\alpha \text{ nun in } \beta \text{ in } X \text{ addiert werden!}$$



Kosinussatz:

$$d = \cos^{-1} \left( \frac{b^2 + c^2 - a^2}{2bc} \right)$$

$$\beta = \cos^{-1} \left( \frac{a^2 + c^2 - b^2}{2ac} \right)$$

$$\gamma = \cos^{-1} \left( \frac{a^2 + b^2 - c^2}{2ab} \right)$$