



PRACTICA 2

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Ing. Mecatrónica

8°B T/M

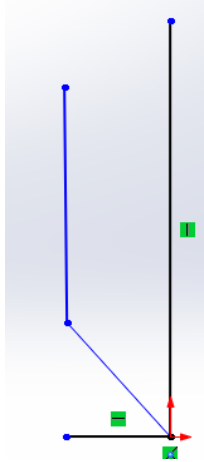
Cinemática de robots

$$l_1 = 2.96$$

$$l_2 = 4.52$$

$$6. (4,6)(1,-7)(-6,3)(-2,8)$$

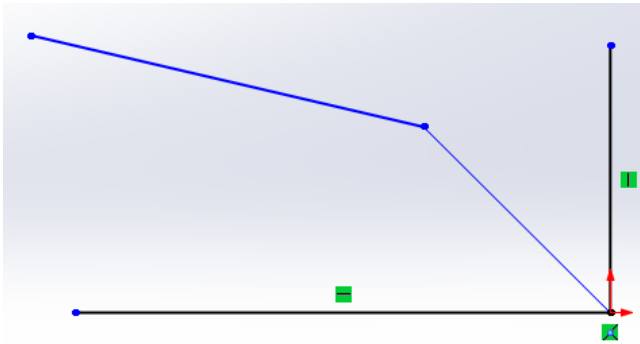
Coordenada (-2,8)



$$q_2 = \operatorname{atan}\left(\frac{(-2)^2 + (8)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \operatorname{atan}1.45 = 55.413^\circ$$

$$q_1 = \operatorname{atan}\left(\frac{8}{-2}\right) - \operatorname{atan}\left(\frac{4.52 \operatorname{sen}(55.413)}{2.96 + 4.52 \cos(55.413)}\right) \\ = -75.963 - 33.959 = 42.004^\circ$$

Coordenada (-6,3)



$$q_2 = \operatorname{atan}\left(\frac{(-6)^2 + (3)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) \\ = \operatorname{atan}0.59 = 30.573^\circ$$

$$q_1 = \operatorname{atan}\left(\frac{3}{-6}\right) - \operatorname{atan}\left(\frac{4.52 \operatorname{sen}(30.573)}{2.96 + 4.52 \cos(30.573)}\right) \\ = -26.565 - 18.55 = -45.115^\circ$$

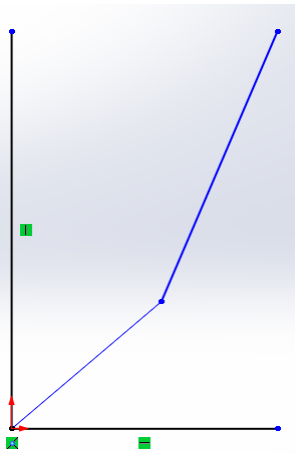
Coordenada (1,-7)



$$q_2 = \text{atan}\left(\frac{(1)^2 + (-7)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \text{atan}0.777 = 37.869^\circ$$

$$q_1 = \text{atan}\left(\frac{-7}{1}\right) - \text{atan}\left(\frac{4.52 \sin(37.869)}{2.96 + 4.52 \cos(37.869)}\right) = -81.869 - 23.022 = -104.891^\circ$$

Coordenadas (4,6)



$$q_2 = \text{atan}\left(\frac{(4)^2 + (6)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \text{atan}0.852 = 40.443^\circ$$

$$q_1 = \text{atan}\left(\frac{6}{4}\right) - \text{atan}\left(\frac{4.52 \sin(40.443)}{2.96 + 4.52 \cos(40.443)}\right) = -56.309 - 16.701 = 39.608^\circ$$

TEMA

Practica #2
Navarro Covantes Jose

FECHA

25/3/2019

$$l_1 = 2.96$$

$$l_2 = 4.52$$

$$(4.6) \quad 6. \quad (0, -7) \quad (-6, 3) \quad (-2, 8)$$



(-2, 8)

$$\theta_2 = \arctan\left(\frac{(0)^2 + (8)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \arctan(1.4563104)$$

$$\theta_2 = 55.93^\circ$$

$$\theta_1 = \arctan\left(\frac{y}{x}\right) = \arctan\left(\frac{l_2 \sin(\theta_2)}{l_1 + l_2 \cos(\theta_2)}\right) = 75.46^\circ = \arctan\left(\frac{4.52}{5.5251}\right)$$

$$\theta_1 = 75.46^\circ - 33.45^\circ = 42.00^\circ$$

(-6, 3)

$$\theta_2 = \arctan\left(\frac{(-6)^2 + (3)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \frac{15.808}{26.1758} = \arctan(0.6039)$$

$$\theta_2 = 30.57^\circ$$

$$\theta_1 = \arctan\left(\frac{y}{x}\right) = \arctan\left(\frac{4.52 \sin(30.57^\circ)}{2.96 + 4.52 \cos(30.57^\circ)}\right) = -26.56^\circ$$

$$\theta_1 = -26.56^\circ - 16.55^\circ = -43.11^\circ$$

(4, -2)

$$\theta_2 = \arctan\left(\frac{(4)^2 + (-2)^2 - (2.96)^2 - (4.52)^2}{2(2.96)(4.52)}\right) = \frac{20.808}{26.1758} = \arctan(0.7948)$$

$$\theta_2 = 37.86^\circ$$

$$\theta_1 = \arctan\left(\frac{y}{x}\right) = \arctan\left(\frac{4.52 \sin(37.86^\circ)}{2.96 + 4.52 \cos(37.86^\circ)}\right) = 81.80^\circ = \frac{2.774}{2.115}$$

$$\theta_1 = 81.80^\circ - 39.80^\circ = 42.00^\circ$$