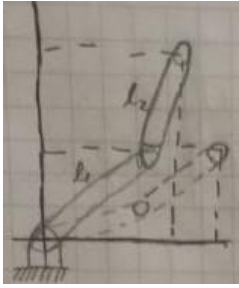


# PRACTICA.2

Héctor David Curiel Sánchez  
CINEMATICA DE ROBOTS UPZMG



5.- (8, 3) (1, -5) (-1, 1)

$$q_2 = \left( \frac{(8)^2 + (3)^2 - (30)^2 - (20)^2}{2((20)(30))} \right) = -1.02$$

$$\text{atan} = -45.63$$

$$q_1 = \text{atan}\left(\frac{8}{3}\right) - \text{atan}\left(\frac{(30)\text{sen}(-45.63)}{(20) + (30)\cos(-45.63)}\right) = 97.06$$

(1, -5)

$$q_2 = \left( \frac{(1)^2 + (-5)^2 - (30)^2 - (20)^2}{2((20)(30))} \right) = -1.06$$

$$\text{atan} = -46.66$$

$$q_1 = \text{atan}\left(\frac{1}{-5}\right) - \text{atan}\left(\frac{(30)\text{sen}(-46.66)}{(20) + (30)\cos(-46.66)}\right) = 16.75$$

(-1, 1)

$$q_2 = \left( \frac{(-1)^2 + (1)^2 - (30)^2 - (20)^2}{2((20)(30))} \right) = -1.08$$

$$\text{atan} = -47.20$$

$$q_1 = \text{atan}\left(\frac{-1}{1}\right) - \text{atan}\left(\frac{(30)\text{sen}(-47.20)}{(20) + (30)\cos(-47.20)}\right) = 16.39$$

Hector David Curiel Sanchez

Practica 2

25/03/2019

5: (8,3) (1,-5) (-1,1)

(8,3)

$$q_2 = \frac{(8)^2 + (3)^2 - (30)^2 - (20)^2}{2(30)(20)} = -1.02$$

$$\alpha_{\tan} = -45.63^\circ$$

$$q_1 = \alpha_{\tan} \left( \frac{3}{8} \right) - \alpha_{\tan} \left[ \frac{(30) \sin(-45.63)}{(20) + (30) \cos(-45.63)} \right] = 97.06$$

(1,-5)

$$q_2 = \frac{(1)^2 + (-5)^2 - (30)^2 - (20)^2}{2(30)(20)} = -1.06$$

$$\alpha_{\tan} = -46.66^\circ$$

$$q_1 = \alpha_{\tan} \left( \frac{1}{5} \right) - \alpha_{\tan} \left[ \frac{(30) \sin(-46.66)}{(20) + (30) \cos(-46.66)} \right] = 16.75^\circ$$

(-1,1)

$$q_2 = \frac{(-1)^2 + (1)^2 - (30)^2 - (20)^2}{2(30)(20)} = -1.08$$

$$\alpha_{\tan} = -47.20^\circ$$

$$q_1 = \alpha_{\tan} \left( \frac{-1}{1} \right) - \alpha_{\tan} \left[ \frac{(30) \sin(-47.20)}{(20) + (30) \cos(-47.20)} \right] = 16.39^\circ$$