



$$\text{Position of end effector } P (P_x, P_y) = L_0 + L_1 + L_2$$

$$\begin{aligned} P_x &= L_1 \cos \theta_1 + L_2 \cos (\pi - (\theta_1 + \theta_2)) \\ &= L_1 \cos \theta_1 - L_2 \cos (\theta_1 + \theta_2) \end{aligned}$$

$$\begin{aligned} P_y &= L_0 + L_1 \sin \theta_1 - L_2 \sin (\pi - (\theta_1 + \theta_2)) \\ &= L_0 + L_1 \sin \theta_1 - L_2 \sin (\theta_1 + \theta_2) \end{aligned}$$

$$L_0 = 12.5 \text{ cm}$$

$$L_1 = 30 \text{ cm}$$

$$L_2 = 20 \text{ cm}$$