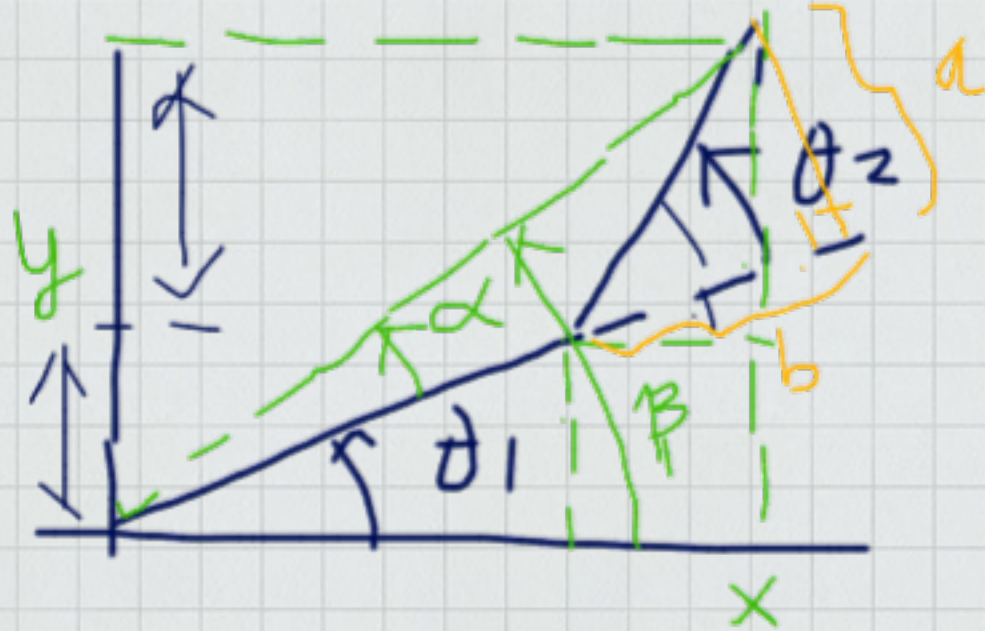




$$x = l_1 \cos \theta_1 + l_2 \cos (\theta_1 + \theta_2) \rightarrow x_p$$

$$= l_1 \cos \theta_1 + l_2 \cos \theta_1 \cos \theta_2 - l_2 \sin \theta_1 \sin \theta_2$$

$$y = l_1 \sin \theta_1 + l_2 \sin (\theta_1 + \theta_2) \rightarrow y_p$$

$$= l_1 \sin \theta_1 + l_2 \sin \theta_1 \cos \theta_2 + l_2 \cos \theta_1 \sin \theta_2$$

$$x^2 = l_1^2 \cos^2 \theta_1 + 2l_1 l_2 \cos^2 \theta_1 \cos \theta_2 - 2l_1 l_2 \sin \theta_1 \cos \theta_1 \sin \theta_2$$

$$+ 2l_2^2 \sin^2 \theta_1 \cos^2 \theta_2 + l_2^2 \cos^2 \theta_1 \cos^2 \theta_2 + l_2^2 \sin^2 \theta_1 \sin^2 \theta_2$$

$$y^2 = l_1^2 \sin^2 \theta_1 + 2l_1 l_2 \sin^2 \theta_1 \cos \theta_2 + 2l_1 l_2 \cos \theta_1 \sin \theta_1 \cos \theta_2 \sin \theta_2$$

$$+ 2l_2^2 \sin \theta_1 \cos \theta_1 \sin \theta_2 \cos \theta_2 + l_2^2 \sin^2 \theta_1 \cos^2 \theta_2 + l_2^2 \cos^2 \theta_1 \sin^2 \theta_2$$

$$x^2 + y^2 = l_1^2 + 2l_1 l_2 \cos \theta_2 + l_2^2 \cos^2 \theta_2 + l_2^2 \sin^2 \theta_2$$