$$E_1 = \vec{OA} + \vec{AP}$$
$$E_2 = \vec{OB} + \vec{BC} + \vec{CP}$$

$$E_{x_1} = l_a C\theta_1 + l_b C\theta_2$$
$$E_{y_1} = l_a S\theta_1 + l_b S\theta_2$$

$$E_{x_2} = l_c + l_a C\theta_4 + l_b C\theta_3$$
$$E_{y_2} = l_a S\theta_4 + l_b S\theta_3$$

$$E_{x_1} = E_{x_2} \longrightarrow l_a C\theta_1 + l_b C\theta_2 = l_c + l_a C\theta_4 + l_b C\theta_3$$

$$l_b C\theta_2 = l_c + l_a C\theta_4 + l_b C\theta_3 - l_a C\theta_1 \longrightarrow \boxed{1}$$

$$E_{y_1} = E_{y_2} \longrightarrow l_a S\theta_1 + l_b S\theta_2 = l_a S\theta_4 + l_b S\theta_3$$

$$l_b S\theta_2 = l_a S\theta_4 + l_b S\theta_3 - l_a S\theta_1 \longrightarrow \boxed{2}$$

For forward kinematics

$$E_x = l_c + l_a \cos\theta_4 + l_b \cos\left[2\tan^{-1}\left[\frac{-F \pm \sqrt{E^2+F^2-G^2}}{G-E}\right]\right]$$

$$E_y = l_a \sin\theta_4 + l_b \sin\left[2\tan^{-1}\left[\frac{-F \pm \sqrt{E^2+F^2-G^2}}{G-E}\right]\right]$$

where: $E = 2l_b\left(l_c + l_a\left(\cos\theta_4 - \cos\theta_1\right)\right)$

$F = 2l_a l_b\left(\sin\theta_4 - \sin\theta_1\right)$

$G = l_c^2 + 2l_a^2 + 2l_c l_a \cos\theta_4 - 2l_c l_a \cos\theta_1 - 2l_a^2 \cos(\theta_4 - \theta_1)$

For Inverse kinematics

$$\theta_1 = 2\tan^{-1}\left[\frac{-F_1 \pm \sqrt{E_1^2+F_1^2-G_1^2}}{G_1-E_1}\right]$$

$$\theta_2 = 2\tan^{-1}\left[\frac{-F_4 \pm \sqrt{E_4^2+F_4^2-G_4^2}}{G_4-E_4}\right]$$

where: $E_1 = -2l_a E_x$ $\quad E_4 = 2l_a(-E_x + l_c)$

$F_1 = -2l_a E_y$ $\quad F_4 = -2l_a E_y$

$G_1 = l_a^2 + E_x^2 + E_y^2 - l_b^2$ $\quad G_4 = l_c^2 + l_a^2 - l_b^2 + E_x^2 + E_y^2 - 2l_c E$