

Formulae:

$${}^{i-1}_i H = R_X(\alpha_{i-1})D_X(a_{i-1})R_Z(\theta_i)D_Z(d_i)$$

$$\cos^2 \theta + \sin^2 \theta = 1$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cos \beta \mp \sin \alpha \sin \beta$$

$$\sin(\alpha \pm \beta) = \sin \alpha \cos \beta \pm \cos \alpha \sin \beta$$

Equation(s)	Solution(s)
$\sin \theta = a$	$\theta = \text{Atan2}\left(a, \pm \sqrt{1-a^2}\right)$
$\cos \theta = b$	$\theta = \text{Atan2}\left(\pm \sqrt{1-b^2}, b\right)$
$\begin{cases} \sin \theta = a \\ \cos \theta = b \end{cases}$	$\theta = \text{Atan2}(a, b)$
$a \cos \theta - b \sin \theta = 0$	$\theta^{(1)} = \text{Atan2}(a, b)$ $\theta^{(2)} = \text{Atan2}(-a, -b) = \pi + \theta^{(1)}$
$a \cos \theta + b \sin \theta = c$	$\theta^{(1)} = \text{Atan2}\left(c, \sqrt{a^2 + b^2 - c^2}\right) - \text{Atan2}(a, b)$ $\theta^{(2)} = \text{Atan2}\left(c, -\sqrt{a^2 + b^2 - c^2}\right) - \text{Atan2}(a, b)$
$\begin{cases} a \cos \theta - b \sin \theta = c \\ a \sin \theta + b \cos \theta = d \end{cases}$	$\theta = \text{Atan2}(ad - bc, ac + bd)$
$\begin{cases} \sin \alpha \sin \beta = a \\ \cos \alpha \sin \beta = b \\ \cos \beta = c \end{cases}$	$\begin{cases} \alpha^{(1)} = \text{Atan2}(a, b) \\ \beta^{(1)} = \text{Atan2}\left(\sqrt{a^2 + b^2}, c\right) \\ \alpha^{(2)} = \text{Atan2}(-a, -b) = \pi + \alpha^{(1)} \\ \beta^{(2)} = \text{Atan2}\left(-\sqrt{a^2 + b^2}, c\right) \end{cases}$