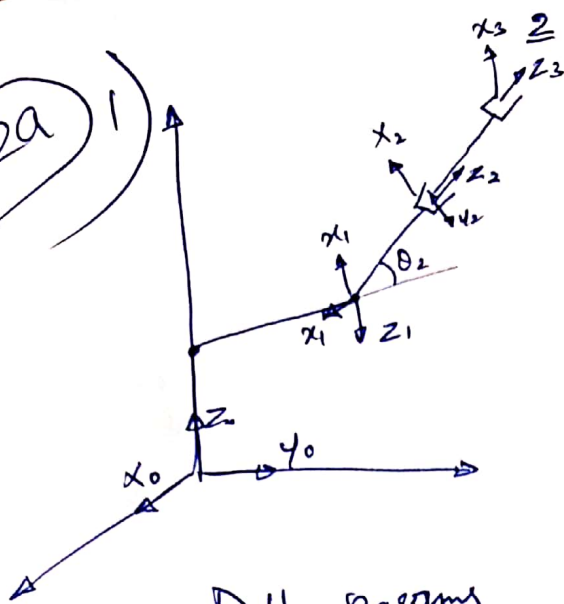


2a) 1



\* CHELCA  
ME17B179

DH params

	$\theta$	$d$	$a$	$\alpha$
1.	$\theta_1$	$l_1$	$l_2$	$-90$
2.	$\theta_2$	$0$	$0$	$-90$
3.	$90$	$d_3$	$0$	$0$

$l_1, l_2$  are constants and let them be 10

From code

linear Jacobian:

$$\begin{bmatrix} s_1 (d_3 s_2 - 10) & -d_3 c_1 c_2 & -c_1 s_2 \\ -c_1 (d_3 s_2 - 10) & -d_3 c_2 s_1 & -s_1 s_2 \\ 0 & d_3 s_2 & -c_2 \end{bmatrix}$$

Angular Jacobian

$$\begin{bmatrix} 0 & -s_1 & 0 \\ 0 & c_1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$$