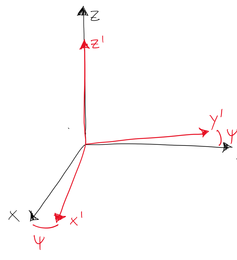
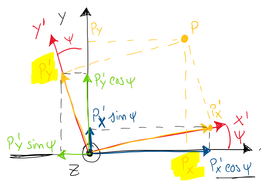
Recordings

martedì 16 maggio 2023 21:46





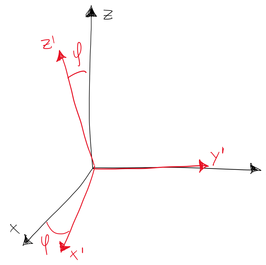
P_X ?
P_Y ? $\Rightarrow$
P_Z ?

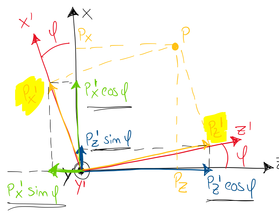
$$\begin{cases} P_Z = P_Z' \\ P_X = P_X'\cos\Psi - P_Y'\sin\Psi \\ P_Y = P_X'\sin\Psi + P_Y'\cos\Psi \end{cases}$$

$$\begin{bmatrix} P_X \\ P_Y \\ P_Z \end{bmatrix} = \begin{bmatrix} \cos\Psi & -\sin\Psi & 0 \\ \sin\Psi & \cos\Psi & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} P_X' \\ P_Y' \\ P_Z' \end{bmatrix}$$

ELEMENTARY ROTATION MATRIX

$$R_z(\Psi)$$





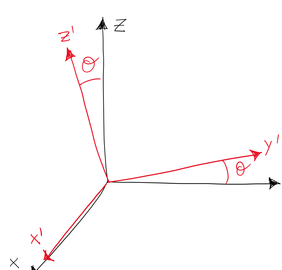
P_X ?
P_Y ?
P_Z ?

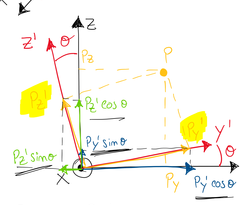
$$\begin{cases} P_Y = P_Y' \\ P_X = P_X'\cos\varphi + P_Z'\sin\varphi \\ P_Z = -P_X\sin\varphi + P_Z'\cos\varphi \end{cases}$$

$$\begin{bmatrix} P_X \\ P_Y \\ P_Z \end{bmatrix} = \begin{bmatrix} \cos\varphi & 0 & \sin\varphi \\ 0 & 1 & 0 \\ -\sin\varphi & 0 & \cos\varphi \end{bmatrix} \begin{bmatrix} P_X' \\ P_Y' \\ P_Z' \end{bmatrix}$$

ELEMENTARY ROTATION MATRIX

$$R_y(\varphi)$$





P_X ?
P_Y ? $\Rightarrow$
P_Z ?

$$\begin{cases} P_X = P_X' \\ P_Y = P_Y'\cos\Theta - P_Z'\sin\Theta \\ P_Z = P_Y'\sin\Theta + P_Z'\cos\Theta \end{cases}$$

$$\begin{bmatrix} P_X \\ P_Y \\ P_Z \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \cos\Theta & -\sin\Theta \\ 0 & \sin\Theta & \cos\Theta \end{bmatrix} \begin{bmatrix} P_X' \\ P_Y' \\ P_Z' \end{bmatrix}$$

ELEMENTARY ROTATION MATRIX

$$R_x(\Theta)$$

$$R = R_z(\Psi) \cdot R_y(\varphi) \cdot R_x(\Theta)$$