Assignment 3

1 Suppose that three coordinate frames $o_1x_1y_1z_1$, $o_2x_2y_2z_2$ and $o_3x_3y_3z_3$ are given, and suppose

$$R_2^1 = \begin{bmatrix} 1 & 0 & 0 \\ 0 & \frac{1}{2} & -\frac{\sqrt{3}}{2} \\ 0 & \frac{\sqrt{3}}{2} & \frac{1}{2} \end{bmatrix}; R_3^1 = \begin{bmatrix} 0 & 0 & -1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$$

Find the matrix R^2_3.

2- Find the rotation matrix corresponding to the set of Euler angles $\{\pi/2, 0, \pi/4\}$. What is the direction of the x_1 axis relative to the base frame? **hint : first column**

3- Find the sets of Euler angles and roll/pitch/yew angles corresponding to R^2_3 in problem **1**