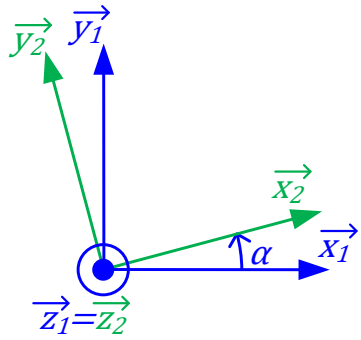
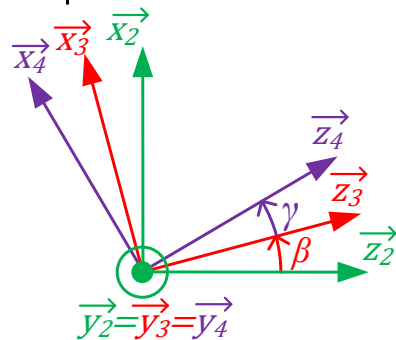




$$\begin{aligned}
 \vec{x}_1 \cdot \vec{x}_1 &= 1 \\
 \vec{x}_1 \cdot \vec{y}_1 &= 0 \\
 \vec{x}_1 \cdot \vec{z}_1 &= 0 \\
 \vec{x}_1 \cdot \vec{x}_2 &= \cos(\alpha) \\
 \vec{x}_1 \cdot \vec{y}_2 &= -\sin(\alpha) \\
 \vec{x}_1 \cdot \vec{z}_2 &= 0 \\
 \vec{x}_1 \cdot \vec{x}_3 &= \cos(\alpha) \cos(\beta) \\
 \vec{x}_1 \cdot \vec{y}_3 &= -\sin(\alpha) \\
 \vec{x}_1 \cdot \vec{z}_3 &= \sin(\beta) \cos(\alpha) \\
 \vec{x}_1 \cdot \vec{x}_4 &= \cos(\alpha) \cos(\beta + \gamma) \\
 \vec{x}_1 \cdot \vec{y}_4 &= -\sin(\alpha) \\
 \vec{x}_1 \cdot \vec{z}_4 &= \sin(\beta + \gamma) \cos(\alpha) \\
 \vec{y}_1 \cdot \vec{x}_1 &= 0 \\
 \vec{y}_1 \cdot \vec{y}_1 &= 1 \\
 \vec{y}_1 \cdot \vec{z}_1 &= 0 \\
 \vec{y}_1 \cdot \vec{x}_2 &= \sin(\alpha) \\
 \vec{y}_1 \cdot \vec{y}_2 &= \cos(\alpha) \\
 \vec{y}_1 \cdot \vec{z}_2 &= 0 \\
 \vec{y}_1 \cdot \vec{x}_3 &= \sin(\alpha) \cos(\beta) \\
 \vec{y}_1 \cdot \vec{y}_3 &= \cos(\alpha) \\
 \vec{y}_1 \cdot \vec{z}_3 &= \sin(\alpha) \sin(\beta) \\
 \vec{y}_1 \cdot \vec{x}_4 &= \sin(\alpha) \cos(\beta + \gamma) \\
 \vec{y}_1 \cdot \vec{y}_4 &= \cos(\alpha) \\
 \vec{y}_1 \cdot \vec{z}_4 &= \sin(\alpha) \sin(\beta + \gamma) \\
 \vec{z}_1 \cdot \vec{x}_1 &= 0 \\
 \vec{z}_1 \cdot \vec{y}_1 &= 0 \\
 \vec{z}_1 \cdot \vec{z}_1 &= 1 \\
 \vec{z}_1 \cdot \vec{x}_2 &= 0 \\
 \vec{z}_1 \cdot \vec{y}_2 &= 0 \\
 \vec{z}_1 \cdot \vec{z}_2 &= 1 \\
 \vec{z}_1 \cdot \vec{x}_3 &= -\sin(\beta)
 \end{aligned}$$



$$\begin{aligned}
 \vec{z}_2 \cdot \vec{z}_1 &= 1 \\
 \vec{z}_2 \cdot \vec{x}_2 &= 0 \\
 \vec{z}_2 \cdot \vec{y}_2 &= 0 \\
 \vec{z}_2 \cdot \vec{z}_2 &= 1 \\
 \vec{z}_2 \cdot \vec{x}_3 &= -\sin(\beta) \\
 \vec{z}_2 \cdot \vec{y}_3 &= 0 \\
 \vec{z}_2 \cdot \vec{z}_3 &= \cos(\beta) \\
 \vec{z}_2 \cdot \vec{x}_4 &= -\sin(\beta + \gamma) \\
 \vec{z}_2 \cdot \vec{y}_4 &= 0 \\
 \vec{z}_2 \cdot \vec{z}_4 &= \cos(\beta + \gamma) \\
 \vec{x}_3 \cdot \vec{x}_1 &= \cos(\alpha) \cos(\beta) \\
 \vec{x}_3 \cdot \vec{y}_1 &= \sin(\alpha) \cos(\beta) \\
 \vec{x}_3 \cdot \vec{z}_1 &= -\sin(\beta) \\
 \vec{x}_3 \cdot \vec{x}_2 &= \cos(\beta) \\
 \vec{x}_3 \cdot \vec{y}_2 &= 0 \\
 \vec{x}_3 \cdot \vec{z}_2 &= -\sin(\beta) \\
 \vec{x}_3 \cdot \vec{x}_3 &= 1 \\
 \vec{x}_3 \cdot \vec{y}_3 &= 0 \\
 \vec{x}_3 \cdot \vec{z}_3 &= 0 \\
 \vec{x}_3 \cdot \vec{x}_4 &= \cos(\gamma) \\
 \vec{x}_3 \cdot \vec{y}_4 &= 0 \\
 \vec{x}_3 \cdot \vec{z}_4 &= \sin(\gamma) \\
 \vec{y}_3 \cdot \vec{x}_1 &= -\sin(\alpha) \\
 \vec{y}_3 \cdot \vec{y}_1 &= \cos(\alpha) \\
 \vec{y}_3 \cdot \vec{z}_1 &= 0 \\
 \vec{y}_3 \cdot \vec{x}_2 &= 0 \\
 \vec{y}_3 \cdot \vec{y}_2 &= 1 \\
 \vec{y}_3 \cdot \vec{z}_2 &= 0 \\
 \vec{y}_3 \cdot \vec{x}_3 &= 0 \\
 \vec{y}_3 \cdot \vec{y}_3 &= 1 \\
 \vec{y}_3 \cdot \vec{z}_3 &= 0 \\
 \vec{y}_3 \cdot \vec{x}_4 &= 0 \\
 \vec{y}_3 \cdot \vec{y}_4 &= 1 \\
 \vec{y}_3 \cdot \vec{z}_4 &= 0 \\
 \vec{z}_3 \cdot \vec{x}_1 &= \sin(\beta) \cos(\alpha) \\
 \vec{z}_3 \cdot \vec{y}_1 &= \sin(\alpha) \sin(\beta) \\
 \vec{z}_3 \cdot \vec{z}_1 &= \cos(\beta) \\
 \vec{z}_3 \cdot \vec{x}_2 &= \sin(\beta) \\
 \vec{z}_3 \cdot \vec{y}_2 &= 0 \\
 \vec{z}_3 \cdot \vec{z}_2 &= \cos(\beta) \\
 \vec{z}_3 \cdot \vec{x}_3 &= 0
 \end{aligned}$$

$$\begin{aligned}
 \vec{z}_3 \cdot \vec{z}_3 &= 1 \\
 \vec{z}_3 \cdot \vec{x}_4 &= -\sin(\gamma) \\
 \vec{z}_3 \cdot \vec{y}_4 &= 0 \\
 \vec{z}_3 \cdot \vec{z}_4 &= \cos(\gamma) \\
 \vec{x}_4 \cdot \vec{x}_1 &= \cos(\alpha) \cos(\beta + \gamma) \\
 \vec{x}_4 \cdot \vec{y}_1 &= \sin(\alpha) \cos(\beta + \gamma) \\
 \vec{x}_4 \cdot \vec{z}_1 &= -\sin(\beta + \gamma) \\
 \vec{x}_4 \cdot \vec{x}_2 &= \cos(\beta + \gamma) \\
 \vec{x}_4 \cdot \vec{y}_2 &= 0 \\
 \vec{x}_4 \cdot \vec{z}_2 &= -\sin(\beta + \gamma) \\
 \vec{x}_4 \cdot \vec{x}_3 &= \cos(\gamma) \\
 \vec{x}_4 \cdot \vec{y}_3 &= 0 \\
 \vec{x}_4 \cdot \vec{z}_3 &= -\sin(\gamma) \\
 \vec{x}_4 \cdot \vec{x}_4 &= 1 \\
 \vec{x}_4 \cdot \vec{y}_4 &= 0 \\
 \vec{x}_4 \cdot \vec{z}_4 &= 0 \\
 \vec{y}_4 \cdot \vec{x}_1 &= -\sin(\alpha) \\
 \vec{y}_4 \cdot \vec{y}_1 &= \cos(\alpha) \\
 \vec{y}_4 \cdot \vec{z}_1 &= 0 \\
 \vec{y}_4 \cdot \vec{x}_2 &= 0 \\
 \vec{y}_4 \cdot \vec{y}_2 &= 1 \\
 \vec{y}_4 \cdot \vec{z}_2 &= 0 \\
 \vec{y}_4 \cdot \vec{x}_3 &= 0 \\
 \vec{y}_4 \cdot \vec{y}_3 &= 1 \\
 \vec{y}_4 \cdot \vec{z}_3 &= 0 \\
 \vec{y}_4 \cdot \vec{x}_4 &= 0 \\
 \vec{y}_4 \cdot \vec{y}_4 &= 1 \\
 \vec{y}_4 \cdot \vec{z}_4 &= 0 \\
 \vec{z}_4 \cdot \vec{x}_1 &= \sin(\beta + \gamma) \cos(\alpha) \\
 \vec{z}_4 \cdot \vec{y}_1 &= \sin(\alpha) \sin(\beta + \gamma) \\
 \vec{z}_4 \cdot \vec{z}_1 &= \cos(\beta + \gamma) \\
 \vec{z}_4 \cdot \vec{x}_2 &= \sin(\beta + \gamma) \\
 \vec{z}_4 \cdot \vec{y}_2 &= 0 \\
 \vec{z}_4 \cdot \vec{z}_2 &= \cos(\beta + \gamma) \\
 \vec{z}_4 \cdot \vec{x}_3 &= \sin(\gamma) \\
 \vec{z}_4 \cdot \vec{y}_3 &= 0 \\
 \vec{z}_4 \cdot \vec{z}_3 &= \cos(\gamma) \\
 \vec{z}_4 \cdot \vec{x}_4 &= 0 \\
 \vec{z}_4 \cdot \vec{y}_4 &= 0 \\
 \vec{z}_4 \cdot \vec{z}_4 &= 1
 \end{aligned}$$

