



$$\vec{i}'' = \vec{i}' \cdot \cos(90^\circ + 60^\circ) + \vec{j}' \cdot 0 - \vec{k}' \sin(90^\circ + 60^\circ)$$

$$\vec{k}'' = \vec{i}' \sin(90^\circ + 60^\circ) + \vec{j}' \cdot 0 + \vec{k}' \cos(90^\circ + 60^\circ)$$

$$\vec{j}'' = \vec{j}'$$

$$T_{B' \rightarrow B''} = \begin{pmatrix} -\sin 60^\circ & 0 & \cos 60^\circ \\ 0 & 1 & 0 \\ -\cos 60^\circ & 0 & -\sin 60^\circ \end{pmatrix} = \begin{pmatrix} -\frac{\sqrt{3}}{2} & 0 & \frac{1}{2} \\ 0 & 1 & 0 \\ -\frac{1}{2} & 0 & -\frac{\sqrt{3}}{2} \end{pmatrix}$$

$$T_{B \rightarrow B''} = T_{B \rightarrow B'} \cdot T_{B' \rightarrow B''}$$

$$T_{B \rightarrow B''} = \begin{pmatrix} 1 & 0 & 0 \\ 0 & \frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ 0 & \frac{\sqrt{3}}{2} & \frac{1}{2} \end{pmatrix} \cdot \begin{pmatrix} -\frac{\sqrt{3}}{2} & 0 & \frac{1}{2} \\ 0 & 1 & 0 \\ -\frac{1}{2} & 0 & -\frac{\sqrt{3}}{2} \end{pmatrix} =$$

$$= \begin{pmatrix} -\frac{\sqrt{3}}{2} & 0 & \frac{1}{2} \\ \frac{1}{\sqrt{2}} & \frac{\sqrt{3}}{2} & -\frac{1}{2} \\ -\frac{1}{\sqrt{2}} & \frac{1}{2} & -\frac{\sqrt{3}}{2} \end{pmatrix}$$