$$\begin{bmatrix} -1 \\ 2 \\ 0 \\ 0 \\ -1 \end{bmatrix} \quad \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 9 \end{bmatrix}$$

$$C = \frac{-1}{\sqrt{1+1}} = -\frac{1}{\sqrt{2}} \qquad S = \frac{1}{\sqrt{2}}$$

$$G_1 = G(5,1) = \begin{bmatrix} C & & & & S \\ & 1 & & & \\ & & 1 & & \\ & & & 1 & \\ -S & & & & C \end{bmatrix} \cdot \begin{bmatrix} -1 \\ 2 \\ 0 \\ 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 0 \\ 2 \\ 0 \\ 0 \\ \sqrt{2} \end{bmatrix}$$

$$G_2 = G(5,2) = \begin{bmatrix} 1 & & & & \\ & C & & & S \\ & & 1 & & \\ & & & 1 & \\ & -S & & & C \end{bmatrix} \cdot \begin{bmatrix} 0 \\ 2 \\ 0 \\ 0 \\ \sqrt{2} \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ \sqrt{6} \end{bmatrix}$$