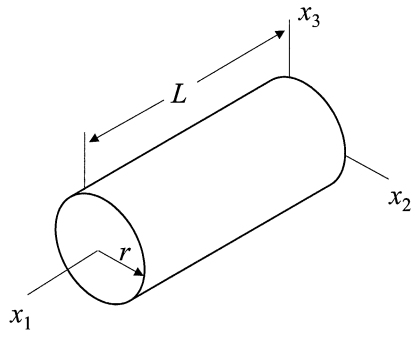

FIGURE P3.9
Cylinder of radius r and length L.

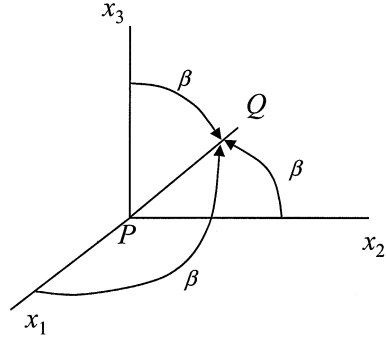

FIGURE P3.10
Axis Q making equal angles with x_1, x_2, and x_3.

$$\left[\sigma_{ij}\right] = \begin{bmatrix} 3 & 0 & 6 \\ 0 & 0 & 0 \\ 6 & 0 & -3 \end{bmatrix}$$

if the angle of rotation is (a) 120°, or (b) 60°.

Answer: (a) $\left[\sigma'_{ij}\right] = \begin{bmatrix} 0 & 0 & 0 \\ 0 & -3 & 6 \\ 0 & 6 & 3 \end{bmatrix}$ MPa,

(b) $\left[\sigma'_{ij}\right] = \frac{1}{3}\begin{bmatrix} -5 & 10 & 10 \\ 10 & -11 & -2 \\ 10 & -2 & 16 \end{bmatrix}$ MPa