

Perform the following matrix multiplications. Round all answers to three decimal places. Caution: Be sure your calculator or computer application is in *degree mode*. Sometimes the default is radian mode, which will result in incorrect answers!

$$1. \begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix} \begin{bmatrix} -4 & 6 \\ 2 & -2 \end{bmatrix}$$

$$2. \begin{bmatrix} -4 & 6 \\ 2 & -2 \end{bmatrix} \begin{bmatrix} 3 & -1 \\ 5 & 2 \end{bmatrix}$$

$$3. \begin{bmatrix} 3 & 2 \\ -2 & 4 \end{bmatrix} \begin{bmatrix} \cos(40^\circ) & -\sin(40^\circ) \\ \sin(40^\circ) & \cos(40^\circ) \end{bmatrix}$$

$$4. \begin{bmatrix} \cos(70^\circ) & -\sin(70^\circ) \\ \sin(70^\circ) & \cos(70^\circ) \end{bmatrix} \begin{bmatrix} 0.75 & 0 \\ 0 & 0.5 \end{bmatrix}$$