Samples **Matrix Arithmetic SOLUTIONS**

1.

$$\begin{pmatrix} 3 & 1 \\ 0 & -6 \end{pmatrix}^{-1} = \frac{1}{3 \times (-6) - 1 \times 0} \begin{pmatrix} -6 & -1 \\ 0 & 3 \end{pmatrix}$$

$$= \frac{1}{-18} \begin{pmatrix} -6 & -1 \\ 0 & 3 \end{pmatrix}$$

$$= \begin{pmatrix} 1/3 & 1/18 \\ 0 & -1/6 \end{pmatrix}$$

2.

$$\begin{pmatrix} 6 & 2 \\ 6 & -6 \end{pmatrix}^{-1} = \frac{1}{6 \times (-6) - 2 \times 6} \begin{pmatrix} -6 & -2 \\ -6 & 6 \end{pmatrix}$$

$$= \frac{1}{-48} \begin{pmatrix} -6 & -2 \\ -6 & 6 \end{pmatrix}$$

$$= \begin{pmatrix} 1/8 & 1/24 \\ 1/8 & -1/8 \end{pmatrix}$$

3.

$$\begin{pmatrix} 3 & 1 \\ -4 & -3 \end{pmatrix}^{-1} = \frac{1}{3 \times (-3) - 1 \times (-4)} \begin{pmatrix} -3 & -1 \\ 4 & 3 \end{pmatrix}$$

$$= \frac{1}{-5} \begin{pmatrix} -3 & -1 \\ 4 & 3 \end{pmatrix}$$

$$= \begin{pmatrix} 3/5 & 1/5 \\ -4/5 & -3/5 \end{pmatrix}$$