

Exercises

Exercise 3.1.2 Let $A = \begin{bmatrix} 1 & 2 & 4 \\ 0 & 1 & 3 \\ -2 & 5 & 1 \end{bmatrix}$. Find the following.

(a) $\text{minor}(A)_{11}$

(b) $\text{minor}(A)_{21}$

(c) $\text{minor}(A)_{32}$

(d) $\text{cof}(A)_{11}$

(e) $\text{cof}(A)_{21}$

(f) $\text{cof}(A)_{32}$

Exercise 3.1.3 Find the determinants of the following matrices.

(a) $\begin{bmatrix} 1 & 2 & 3 \\ 3 & 2 & 2 \\ 0 & 9 & 8 \end{bmatrix}$

(b) $\begin{bmatrix} 4 & 3 & 2 \\ 1 & 7 & 8 \\ 3 & -9 & 3 \end{bmatrix}$

(c) $\begin{bmatrix} 1 & 2 & 3 & 2 \\ 1 & 3 & 2 & 3 \\ 4 & 1 & 5 & 0 \\ 1 & 2 & 1 & 2 \end{bmatrix}$

Exercise 3.2.2 *Let*

$$A = \begin{bmatrix} 1 & 2 & 0 \\ 0 & 2 & 1 \\ 3 & 1 & 1 \end{bmatrix}$$

Determine whether the matrix A has an inverse by finding whether the determinant is nonzero. If the determinant is nonzero, find the inverse using the formula for the inverse.

Exercise 3.2.3 *Let*

$$A = \begin{bmatrix} 1 & 3 & 3 \\ 2 & 4 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

Determine whether the matrix A has an inverse by finding whether the determinant is nonzero. If the determinant is nonzero, find the inverse using the formula for the inverse.

Exercise 3.2.4 *Let*

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 2 & 1 \\ 2 & 6 & 7 \end{bmatrix}$$

Determine whether the matrix A has an inverse by finding whether the determinant is nonzero. If the determinant is nonzero, find the inverse using the formula for the inverse.

Exercise 3.2.5 *Let*

$$A = \begin{bmatrix} 1 & 0 & 3 \\ 1 & 0 & 1 \\ 3 & 1 & 0 \end{bmatrix}$$

Determine whether the matrix A has an inverse by finding whether the determinant is nonzero. If the determinant is nonzero, find the inverse using the formula for the inverse.

Exercise 3.2.14 *Find the inverse, if it exists, of the matrix*

$$A = \begin{bmatrix} e^t & \cos t & \sin t \\ e^t & -\sin t & \cos t \\ e^t & -\cos t & -\sin t \end{bmatrix}$$