

2-1

September 23, 2025

**3 a)**

$$A = \begin{bmatrix} 4 & -1 & 1 & 6 \\ 0 & 0 & -3 & 3 \\ 4 & 1 & 0 & 14 \\ 4 & 1 & 3 & 2 \end{bmatrix}$$

Find  $M_{13}$  and  $C_{13}$ .

**b)**

$M_{23}$  and  $C_{23}$ .

In Exercises 5–8, evaluate the determinant of the given matrix. If the matrix is invertible, use Equation (2) to find its inverse.

**7**

$$\begin{bmatrix} -5 & 7 \\ -7 & -2 \end{bmatrix}$$

”Exercises 15–18 find all values of  $\lambda$  for which  $\det(A) = 0$ .”

**15**

$$A = \begin{bmatrix} \lambda - 2 & 1 \\ -5 & \lambda + 4 \end{bmatrix}$$

"In Exercises 21–26 evaluate  $\det(A)$  by a cofactor expansion along a row or column of your choice."

**21**

$$A = \begin{bmatrix} -3 & 0 & 7 \\ 2 & 5 & 1 \\ -1 & 0 & 5 \end{bmatrix}$$

**25**

$$A = \begin{bmatrix} 3 & 3 & 0 & 5 \\ 2 & 2 & 0 & -2 \\ 4 & 1 & -3 & 0 \\ 2 & 10 & 3 & 2 \end{bmatrix}$$

"In Exercises 27–32 evaluate the determinant of the given matrix by inspection"

**27**

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

**29**

$$\begin{bmatrix} 0 & 0 & 0 & 0 \\ 1 & 2 & 0 & 0 \\ 0 & 4 & 3 & 0 \\ 1 & 2 & 3 & 8 \end{bmatrix}$$