



10-1 Additional Practice

Operations with Matrices

1. In matrix D , the entries represent the number of students in clubs in a high school. Column 1 lists the males and column 2 lists the females. Row 1 lists the number of students in the Spanish club, and row 2 lists the number of students in the French club. Find d_{11} , d_{21} and d_{12} and tell what each number represents.

$$D = \begin{bmatrix} 46 & 39 \\ 62 & 12 \end{bmatrix}$$

2. For matrix P , the rows represent the price of sweaters and pants. The columns represent the color scheme of black, blue and khaki. A black sweater costs \$45, a blue sweater costs \$60, and a khaki sweater costs \$25. The black pants cost \$30, the blue pants cost \$40, and the khaki pants cost \$20.

a. Write matrix P to represent this scenario.

- b. The store is having a 35% off sale. Find the reduced price of each type of sweater and pants and write a new matrix that represents the sale prices.

For Items 3–5, find the sum or difference, if possible. If not possible, explain why.

$$P = \begin{bmatrix} 0 & 2 & 4 \\ 9 & 8 & 2 \end{bmatrix}$$

$$Q = \begin{bmatrix} -2 & -4 & 1 \\ 9 & 7 & 0 \end{bmatrix}$$

$$R = \begin{bmatrix} 4 & -1 & 0 \\ 2 & 3 & 5 \\ 0 & -6 & 1 \end{bmatrix}$$

3. $P + Q =$

4. $Q - P =$

5. $Q + R =$

6. Find the additive inverse of the matrix $X = \begin{bmatrix} 2 & -5 \\ -6 & 3 \end{bmatrix}$.

7. \overline{EF} has endpoints $(2, 4)$ and $(4, 5)$.

- a. Use matrices to translate \overline{EF} 2 units right and 4 units down to \overline{YZ} . What are the coordinates of Y and Z ?
- b. Use matrices to dilate \overline{EF} to \overline{UV} by a scale factor of 4, centered at the origin. What are the coordinates of U and V ?