

1. Aşağıda verilen işlemlerinin sonuçlarını hesaplayın: (b)

(a)

$$\begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix} + \begin{bmatrix} 3 & 1 \\ 2 & 1 \end{bmatrix}$$

(b)

$$\begin{bmatrix} 2 & -1 \\ 3 & 4 \end{bmatrix} \cdot \begin{bmatrix} 3 & 1 \\ 2 & 1 \end{bmatrix}$$

2. Aşağıda verilen matrislerin \mathbb{R}^2 üzerindeki etkilerini geometrik olarak tarif edin:

(a)

$$\begin{bmatrix} 2 & 0 \\ 0 & -3 \end{bmatrix}$$

(b)

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

(c)

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

(d)

$$\begin{bmatrix} \sqrt{2}/2 & -\sqrt{2}/2 \\ \sqrt{2}/2 & \sqrt{2}/2 \end{bmatrix}$$

(e)

$$\begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix} \cdot \begin{bmatrix} \sqrt{2}/2 & -\sqrt{2}/2 \\ \sqrt{2}/2 & \sqrt{2}/2 \end{bmatrix}$$

3. Aşağıda verilen $\mathbb{R}^2 \rightarrow \mathbb{R}^2$ lineer dönüşümlerine karşılık gelen birer matris bulun: (e)

(a) $L(x, y) = (2x, -3y)$

(b) $T(x, y) = (x + y, y)$

(c) $A(x, y) = (2x + y, -x + 2y)$

(d) $K(x, y) = (\sqrt{3}x/2 - y/2, x/2 + \sqrt{3}y/2)$

4. Aşağıda verilen denklem sistemlerini matris biçiminde yazıp çözün:

(a)

$$\begin{aligned} 2x + y + 3z &= 44 \\ x + y + z &= 21 \\ x + 3y + 2z &= 44 \end{aligned}$$

$$3z = 9$$

$$x + 5y - z = 2$$

$$x + 6y + z = 12$$

(c)

$$x + y + z = 9$$

$$2x + 4y - z = 1$$

$$3x + 6y - 5z = 0$$

4. Aşağıda verilen matrislerin determinantlarını hesaplayıp, varsa matrisin tersini bulun.

(a)

$$\begin{bmatrix} \sqrt{2}/2 & -\sqrt{2}/2 \\ \sqrt{2}/2 & \sqrt{2}/2 \end{bmatrix}$$

(b)

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

(c)

$$\begin{bmatrix} 2 & 1 & 4 \\ 5 & 2 & 3 \\ 8 & 7 & 3 \end{bmatrix}$$

(d)

$$\begin{bmatrix} 1 & 0 & 2 \\ 1 & 3 & 4 \\ 0 & 6 & 0 \end{bmatrix}$$

$$\begin{bmatrix} 8 & -1 & 9 \\ 3 & 1 & 8 \\ 11 & 0 & 17 \end{bmatrix}$$

5. Aşağıdaki denklem sistemini çözün:

$$\begin{bmatrix} 8 & -1 & 9 \\ 3 & 1 & 8 \\ 11 & 0 & 17 \end{bmatrix} \cdot \begin{bmatrix} z \\ y \\ x \end{bmatrix} = \begin{bmatrix} 16 \\ 15 \\ 39 \end{bmatrix}$$

6. Türkçeye çevirin:

“I would say, if you like, that the party is like an out-moded mathematics...that is to say, the mathematics of Euclid. We need to invent a non-Euclidian mathematics with respect to political discipline.”