

Drill Quiz for Chapter 10 Section 5

Please use your own paper to answer these questions.

1. Solve the system of equations by using the inverse of the coefficient matrix.

$$2x + 3y = 10$$

$$x - y = -5$$

2. Find the eigenvalues and corresponding eigenvectors for the matrix $A = \begin{bmatrix} -3 & 12 \\ -2 & 7 \end{bmatrix}$.

Answers:

1. $x = -1, y = 4$.

2. Eigenvalues are $\lambda = 1, 3$.

For $\lambda = 1$, the eigenvectors are $(3y, y)$, where y is any real number (another correct way to express the eigenvectors is $(x, x/3)$ where x is any real number).

For $\lambda = 3$, the eigenvectors are $(2y, y)$ where y is any real number (another correct way to express the eigenvectors is $(x, x/2)$ where x is any real number).