

MATH 121A Prep: Row Operations

Facts to Know:

Elementary Row Operations:

1.

2.

3.

Solving Systems of Linear Equations:

Examples:

1. Reduce the matrix $\begin{bmatrix} 1 & 2 & -1 \\ 2 & 3 & 0 \\ -1 & 4 & 2 \end{bmatrix}$ to row echelon form.

2. Solve the matrix equation $A\vec{x} = \vec{b}$ where $A = \begin{bmatrix} 2 & -2 & 1 \\ 0 & 1 & 3 \\ -2 & 1 & 1 \end{bmatrix}$ and $\vec{b} = \begin{bmatrix} 3 \\ -3 \\ -5 \end{bmatrix}$

3. For what values of a does the matrix equation

$$\begin{bmatrix} 1 & 2 \\ -2 & -4 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 3 \\ a \end{bmatrix}$$

have a solution?