

Aim: How do we use the graphing calculator to solve systems of equations?

I. Do Now: Solve the system of equations:

$$2x + 3y + 4z = 18$$

$$3x + 9y + 9z = 33$$

$$x + 3y + 4z = 13$$

II. Using the Graphing Calculator to Put Matrices in Reduced Row Echelon Form

Notes:

Note:

A matrix is in reduced row echelon form if the following conditions are satisfied:

1. The first nonzero number in a row is a 1. (We call it a leading 1.)
2. All rows of zeros (if there are any) are together at the bottom of the matrix.
3. Each column that contains a leading 1 has only zeros below it.
4. Each column that contains a leading 1 has zeros everywhere else.

III. Applications

Use the graphing calculator to solve each system of equations:

1. $-x + 2y = 1.5$

$$2x - 4y = -3$$

2. $2x - y + 3z = 24$

$$2y - z = 14$$

$$7x - 5y = 6$$

3. $7x + 5y - 3z = 16$

$$3x - 5y + 2z = -8$$

$$5x + 3y - 7z = 0$$

4. $4x + 12y - 7z - 20w = 22$

$$3x + 9y - 5z - 28w = 30$$

IV. Decompose: $\frac{9x^3 + 3x^2 + 15x - 1}{(x^2 + 1)(x^2 + 3)}$