



Math Virtual Learning

College Algebra

May 20, 2020



College Algebra

Lesson: May 20, 2020

Objective/Learning Target:
Students will use reduced row echelon form
to solve systems of equations.



Warm Up Activity:

Practice Row Operations

[Row Operations](#)

Lesson:

Watch this video on how to put an augmented matrix into reduced row echelon form. We encourage you to have your own sheet of paper out and work along with the video.

Write the system of equations as an augmented matrix.
Then solve the system by putting the matrix in reduced row echelon form.

$$\begin{array}{l} 4x - y + 2z = 0 \\ 2x + y - z = -11 \\ 2x - 2y + z = 3 \end{array}$$

$-2R_1 + R_2$
 $R_3 - R_1$

$$\left[\begin{array}{ccc|c} 4 & -1 & 2 & 0 \\ 2 & 1 & -1 & -11 \\ 2 & -2 & 1 & 3 \end{array} \right]$$
$$\left[\begin{array}{ccc|c} 4 & -1 & 2 & 0 \\ 0 & -3 & -3 & -11 \\ 0 & -1 & -1 & 3 \end{array} \right]$$



Practice:

Matrix operations and Row Echelon Practice

[Practice](#)

NOTE: step by step solutions included

Additional Practice: Find the reduced row echelon form of each of the following matrices

$$\begin{aligned} 1) \quad x + y + z &= 6 \\ x - y + z &= 10 \\ 2x + 2y - z &= 3 \end{aligned}$$

$$\begin{aligned} 2) \quad 2x - 7y - z &= -3 \\ x - 3y + z &= -1 \\ 4x - y + 2z &= 7 \end{aligned}$$

$$\begin{aligned} 3) \quad 2x - y - z &= -5 \\ x + 3y + z &= 6 \\ 3x - y - 2z &= -7 \end{aligned}$$

$$\begin{aligned} 4) \quad x + 2y + z &= 0 \\ 2x + y + 2z &= 3 \\ x - y + z &= 2 \end{aligned}$$

Additional Practice Answers:

1) $x = 5, y = -2, z = 3$ | 2) $x = 2, y = 1, z = 0$

3) $x = -1, y = 2, z = 1$ | 4) No Solution