

Get a graphing calculator.

Bell Work

1. $AB =$

2. $BA =$

3. $B^2 =$

4. $A^{-1} =$

$$A = \begin{bmatrix} -4 & 5 \\ 7 & -9 \end{bmatrix}$$

$$B = \begin{bmatrix} 4 & -6 \\ 3 & -5 \end{bmatrix}$$

Write as an augmented matrix.

$$\begin{array}{l} 2x + y = 11 \\ 3x - 2y = 6 \end{array} \quad \left[\begin{array}{cc|c} 2 & 1 & 11 \\ 3 & -2 & 6 \end{array} \right]$$

An augmented matrix includes all the numbers of both equations.

A dotted line divides the coefficients and the constants.

$$\begin{array}{l} 5x - 11y = 6 \\ 8x + 7y = -15 \end{array} \quad \left[\begin{array}{cc|c} 5 & -11 & 6 \\ 8 & 7 & -15 \end{array} \right]$$

Write as an augmented matrix and then solve.

$$\begin{array}{l} 4x - 9y = 26 \\ 8x + 5y = 6 \end{array} \quad \left[\begin{array}{cc|c} 4 & -9 & 26 \\ 8 & 5 & 6 \end{array} \right] \quad \left[\begin{array}{cc|c} 1 & 0 & 4 \\ 0 & 1 & 3 \end{array} \right] \quad (4, 3)$$

1. Type the 2×3 matrix into the calculator.

2. 2nd MATRIX MATH rref(2nd MATRIX Select Matrix Enter

The calculator will not have the dotted line. Use your imagination.

To find rref(app on the calculator, you have to scroll down to B.

Write as an augmented matrix and then solve.

$$8x = 5y + 18 \quad 8x - 5y = 18$$

$$5x + 8y = -11 \quad 5x + 8y = -11$$

$$\left[\begin{array}{cc|c} 8 & -5 & 18 \\ 5 & 8 & -11 \end{array} \right]$$

$$\left[\begin{array}{cc|c} 1 & 0 & 1 \\ 0 & 1 & -2 \end{array} \right]$$

Rewrite the equations into standard form.

1. Type the 2×3 matrix into the calculator.

$(1, -2)$

2. 2nd MATRIX MATH RREF 2nd MATRIX Select Matrix Enter

Write as an augmented matrix and then solve.

$$\begin{array}{l}
 2y = -9x - 73 \quad 9x + 2y = -73 \\
 3x = 34 + 11y \quad 3x - 11y = 34
 \end{array}
 \left[\begin{array}{cc|c} 9 & 2 & -73 \\ 3 & -11 & 34 \end{array} \right]
 \left[\begin{array}{cc|c} 1 & 0 & -7 \\ 0 & 1 & -5 \end{array} \right]$$

Rewrite the equations into standard form.

1. Type the 2×3 matrix into the calculator.

$$(-7, -5)$$

2. 2nd MATRIX MATH RREF 2nd MATRIX Select Matrix Enter

Write as an augmented matrix and then solve.

$$x - 2y + z = 7$$

$$3x - 5y + z = 14$$

$$2x - 2y - z = 3$$

$$\left[\begin{array}{ccc|c} 1 & -2 & 1 & 7 \\ 3 & -5 & 1 & 14 \\ 2 & -2 & -1 & 3 \end{array} \right]$$

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

$$(2, -1, 3)$$

Write as an augmented matrix and then solve.

$$2x - 3y = 13$$

$$2x - 3y = 13$$

$$4z - x = 11$$

$$-x + 4z = 11$$

$$y = 6z - 25$$

$$y - 6z = -25$$

$$\left[\begin{array}{ccc|c} 2 & -3 & 0 & 13 \\ -1 & 0 & 4 & 11 \\ 0 & 1 & -6 & -25 \end{array} \right]$$

Rewrite the equations into standard form.

Use 0s for missing variables.

$$(5, -1, 4)$$

$$\left[\begin{array}{ccc|c} 1 & 0 & 0 & 5 \\ 0 & 1 & 0 & -1 \\ 0 & 0 & 1 & 4 \end{array} \right]$$

Assignment:

Augmented Matrices and RREF Worksheet