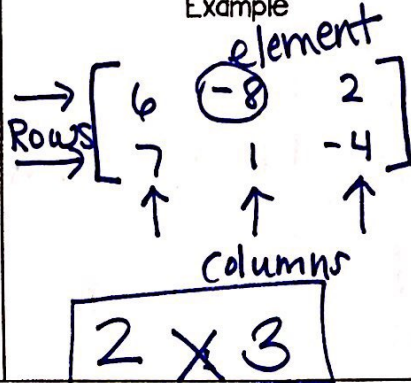


What is a Matrix?

What is a matrix?

A rectangular array of elements arranged in rows & columns.

Example



How do you name a matrix?

You name a matrix by its number of rows & number of columns.
 Rows x Columns

Equal Matrices

What are equal matrices?

Have the same dimensions & their corresponding elements are equal.

Give an example.

$$\begin{bmatrix} 3x & 6 \\ y & -2 \end{bmatrix} = \begin{bmatrix} 15 & 6 \\ 2 & -2 \end{bmatrix}$$

Can you solve for variables given equal matrices?

$$3x = 15 \quad y = 2$$

$$x = 5$$

Adding and Subtracting Matrices

Example

$$A = \begin{bmatrix} -5 & 2 \\ 7 & 0 \end{bmatrix} \text{ and } B = \begin{bmatrix} 11 & 4 \\ -2 & -6 \end{bmatrix}$$

$$A - B = \begin{bmatrix} -5 & 2 \\ 7 & 0 \end{bmatrix} - \begin{bmatrix} 11 & 4 \\ -2 & -6 \end{bmatrix}$$

$$A - B = \begin{bmatrix} -16 & -2 \\ 9 & 6 \end{bmatrix}$$

Subtracting Matrices
 You can subtract two matrices if they have the same dimensions.

Example

$$A + B = \begin{bmatrix} -5 & 2 \\ 7 & 0 \end{bmatrix} + \begin{bmatrix} 11 & 4 \\ -2 & -6 \end{bmatrix}$$

$$A + B = \begin{bmatrix} 6 & 6 \\ 5 & -6 \end{bmatrix}$$

Adding Matrices
 You can add two matrices if they have the same dimensions.

Name that Matrix

$$\begin{bmatrix} 2 & -1 \end{bmatrix}$$

1×2

$$\begin{bmatrix} 6 \\ 2 \end{bmatrix}$$

2×1

$$\begin{bmatrix} -9 & 4 & 0 \end{bmatrix}$$

1×3

$$\begin{bmatrix} 8 \\ -3 \\ 11 \end{bmatrix}$$

3×1

$$\begin{bmatrix} 4 & 1 \\ -7 & 5 \end{bmatrix}$$

2×2

$$\begin{bmatrix} 0 & -7 \\ -3 & 5 \\ 8 & 2 \end{bmatrix}$$

3×2

$$\begin{bmatrix} 1 & 3 & -11 \\ 6 & 12 & -8 \\ -6 & 5 & 9 \end{bmatrix}$$

3×3

$$\begin{bmatrix} 2 & 15 & 1 \\ -3 & 4 & -6 \end{bmatrix}$$

2×3

Matrices: Special Types

Draw a line from the term to the correct definition.

Terms

Definitions

Row Matrix

A matrix that has the same number of rows as columns.

Column Matrix

A matrix that has only 0 elements.

Square Matrix

A matrix that has only one row.

Zero Matrix

A matrix that has only one column.

What is scalar multiplication?

Scalar Multiplication

Each element of the matrix is multiplied by the same number or constant. A new matrix is created.

Example

$$5 \begin{bmatrix} 3 & -2 \\ 6 & 0 \\ 8 & 1 \end{bmatrix}$$

$$\begin{bmatrix} 15 & -10 \\ 30 & 0 \\ 40 & 5 \end{bmatrix}$$