



# Math Virtual Learning

# College Algebra

May 13, 2020



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## Lesson: May 13, 2020

**Objective/Learning Target:** Students will know properties of matrices and add matrices together.

## Warm Up Activity:

Watch this matrix intro video.



## Lesson:

Watch this video on how to add matrices together. We encourage you to have your own sheet of paper out and work along with the video.

DM

# Addition

$$\begin{bmatrix} \text{Matrix} \\ 1 \end{bmatrix} + \begin{bmatrix} \text{Matrix} \\ 2 \end{bmatrix}$$

## Practice:

1. Find the sum of A and B where  $A = \begin{bmatrix} 2 & 3 \\ -5 & 7 \end{bmatrix}$  and  $B = \begin{bmatrix} 4 & 6 \\ 2 & -11 \end{bmatrix}$

2. Find  $A + B$  when  $A = \begin{bmatrix} 2 & 3 & 4 \\ 5 & 6 & 7 \\ 8 & 5 & 11 \end{bmatrix}$  and  $B = \begin{bmatrix} 3 & -2 & -3 \\ 5 & 4 & 3 \\ 1 & 3 & 2 \end{bmatrix}$

## Practice:

3. If  $A = \begin{bmatrix} -1 & 2 & -3 \\ -2 & 1 & 4 \end{bmatrix}$  and  $B = \begin{bmatrix} 0 & -1 & 2 \\ 3 & 0 & 1 \end{bmatrix}$ , then find the sum of A and B.

4. If  $\begin{bmatrix} 2 & 3 \\ -5 & 4 \end{bmatrix} + \begin{bmatrix} -2 & 1 \\ x & 3 \end{bmatrix} = \begin{bmatrix} 0 & 4 \\ -3 & 9 \end{bmatrix}$ , find the value of x.

## Practice:

5. Given  $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$  and  $B = \begin{bmatrix} -4 & -1 \\ -3 & -2 \end{bmatrix}$ , compute  $A + B$ .

6. If  $\begin{bmatrix} 5 & -3 \\ 2 & 4 \end{bmatrix} + A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ , find the matrix  $A$ .

## Practice:

7. Given  $M = \begin{bmatrix} 1 & 3 \\ 2 & 4 \end{bmatrix}$ , find a matrix  $N$  such that  $M + N = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ .

8. If  $A = \begin{bmatrix} 1 & 0 & 2 \\ 0 & 2 & 3 \\ 1 & 0 & 0 \end{bmatrix}$ ,  $B = \begin{bmatrix} 0 & -1 & 0 \\ -2 & 0 & 3 \\ 0 & 1 & 2 \end{bmatrix}$  and  $C = \begin{bmatrix} 2 & 3 & 1 \\ 0 & 0 & -3 \\ 1 & 1 & -1 \end{bmatrix}$ , find  $A + B + C$ .



## Practice: ANSWERS

$$1. \begin{bmatrix} 6 & 9 \\ -3 & -4 \end{bmatrix}$$

$$2. \begin{bmatrix} 5 & 1 & 1 \\ 10 & 10 & 10 \\ 9 & 8 & 13 \end{bmatrix}$$

$$3. \begin{bmatrix} -1 & 1 & -1 \\ 1 & 1 & 5 \end{bmatrix}$$

$$4. x = 2$$

$$5. \begin{bmatrix} -3 & 3 \\ -1 & 1 \end{bmatrix}$$

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

$$7. \begin{bmatrix} -1 & -3 \\ -2 & -4 \end{bmatrix}$$

$$8. \begin{bmatrix} 3 & 2 & 3 \\ -2 & 2 & 3 \\ 2 & 2 & 1 \end{bmatrix}$$

## Additional Practice: Add the Matrices or write “undefined” for those that are undefined

1) 
$$\begin{bmatrix} -2 & 2 & 3 \\ -2 & 5 & -4 \end{bmatrix} + \begin{bmatrix} -2 & 6 & -3 \\ 2 & -1 & -5 \end{bmatrix}$$

2) 
$$\begin{bmatrix} -1 & 6 \\ 5 & 2 \\ -5 & -1 \\ 4 & -4 \end{bmatrix} + \begin{bmatrix} -3 & 5 \\ 4 & 1 \\ 1 & -1 \\ 4 & -4 \end{bmatrix}$$

3) 
$$\begin{bmatrix} -2 & 4 & -4 \\ 3 & 4 & -1 \end{bmatrix} + \begin{bmatrix} -3 & -3 \\ -5 & -1 \\ -3 & -6 \end{bmatrix}$$

4) 
$$\begin{bmatrix} 5 & -4 & 6 & -1 \end{bmatrix} + \begin{bmatrix} -3 & -1 & -2 & -3 \end{bmatrix}$$

## Additional Practice Answers:

1) 
$$\begin{bmatrix} -4 & 8 & 0 \\ 0 & 4 & -9 \end{bmatrix}$$

3) undefined

2) 
$$\begin{bmatrix} -4 & 11 \\ 9 & 3 \\ -4 & -2 \\ 8 & -8 \end{bmatrix}$$

4) 
$$\begin{bmatrix} 2 & -5 & 4 & -4 \end{bmatrix}$$