

Topic: _____

Activity 1.

Read p.78 - 79 and answer the following questions.

1. What is a matrix? _____
2. How are the elements of a matrix arranged? _____
2. What is $m \times n$ matrix? _____
3. What are m and n ? _____
4. What is a row matrix? _____
5. What is a column matrix? _____
6. What is a square matrix? _____
7. When are two matrices equal? _____

Activity 2.

**Take notes and complete 1, 2, (worksheet)
and 15, 17, 19, 21, 23, and 25 on p. 83.**

EXAMPLE 1

Find the values of x and y for which the matrix equation $\begin{bmatrix} y \\ x \end{bmatrix} = \begin{bmatrix} 3x + 16 \\ 3y \end{bmatrix}$ is true.

1.

2.

15.

17.

19.

21.

23.

25.

Activity 3.

Take notes and do 3, 4, 5 (worksheet) and 27, 29, 31, and 35 on p.83.

Adding and Subtracting Matrices

EXAMPLE 2

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

Find $C - D$ if $C = \begin{bmatrix} 5 & 2 \\ 8 & 1 \\ -4 & 3 \\ 2 & -1 \end{bmatrix}$ and $D = \begin{bmatrix} 2 & 5 \\ -3 & 4 \\ 6 & -8 \\ 3 & 5 \end{bmatrix}$.

3.

27.

29.

4.

5.

31.

35.

Activity 4.

Take notes and do 6 (worksheet) and 33, 37 on p.83.

Multiplying by a Scalar

EXAMPLE 3

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

6.

33.

37.

Activity 5

Take notes and do 7, 8, 9, 10, 11, 12, 13 (worksheet) and 39, 41 on p.83.

Multiplying Matrices

EXAMPLE 4

$$\begin{bmatrix} 3 & 2 \\ -1 & 0 \end{bmatrix} \bullet \begin{bmatrix} -2 & 1 \\ 1 & -1 \end{bmatrix}$$

Use matrices $A = \begin{bmatrix} 2 & 4 \\ 0 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 3 & 1 & -2 \\ 4 & 0 & -1 \end{bmatrix}$, and $C = \begin{bmatrix} -3 & 4 & 2 \\ 1 & 5 & 0 \end{bmatrix}$ to find each product.

7.

8.

9.

10.

11.

12.

39.

41.

Activity 6.

Take notes and do 13 (worksheet)

Example 5.

SHOPPING At a certain clothing store, each pair of jeans (J) is priced at \$15, each t-shirt (T) is priced at \$10, and each sweater (S) is priced at \$20. The chart lists the number of each of these items purchased by five shoppers. Use matrix multiplication to find the total amount spent by each shopper.

Shopper	Jeans	T-Shirts	Sweaters
Sarah	1	3	1
Dave	2	2	0
Jessica	3	1	2
Drew	0	4	1
Emily	1	2	2

Write the purchase information as a 5×3 matrix and write the prices as a 3×1 matrix. Then multiply the matrices.

13.