Welcome Back!

1. Have a seat anywhere. Choose a desk where you can focus!

2. Staple your prerequisite packet, if it is complete, & put your name on it. Turn in on my desk.

@precalcs19

81010

Jul 31-8:24 AM

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MATRIX VOCABULARY p. 5

a rectangular array of #s in rows + columns

$$A = \begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{ccc} C_1 & C_2 & C_3 \end{array} \\ \begin{bmatrix} 3 & 7 & 5 \\ 2 & 1 & -4 \end{bmatrix} \end{array}$$

The data in a matrix. AKA an entry

$A_{21} = 2$
row 2, col. 1

rows x # column

$A = \begin{bmatrix} 1 & 2 \\ 0 & -1 \\ 4 & 0 \end{bmatrix}$ 3x2

$B = \begin{bmatrix} 3 & 4 & 7 \\ -2 & 0 & 5 \end{bmatrix}$ 2x3

matrices with same dimensions + same elements in the same position

a number; scalar multiplication multiplies the # to all entries

$\underset{\text{scalar}}{2}\begin{bmatrix} 3 & 5 \\ -7 & 1 \end{bmatrix} = \begin{bmatrix} 6 & 10 \\ -14 & 2 \end{bmatrix}$

matrix with 1 row

$C = \begin{bmatrix} 2 & 4 & 0 & \frac{1}{2} \end{bmatrix}$
1x4

matrix with 1 column

$D = \begin{bmatrix} 5 \\ -6 \\ 0 \end{bmatrix}$ 3x1

matrix with equal # of rows + col.

$A = \begin{bmatrix} 2 & 1 \\ 0 & 4 \end{bmatrix}$ 2x2 $B = \begin{bmatrix} 3 & 2 & 1 \\ 4 & 7 & 0 \\ -1 & 8 & 1 \end{bmatrix}$ 3x3

all entries are zero

$C = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$

a square matrix with 1's down main diagonal + 0's every where else

$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

ADD & SUBTRACT MATRICES p. 6

To add or subtract matrices simply add or subtract corresponding elements. You can add/subtract only if they have same dimensions. ← Glue in

1. $\begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & C_2 \end{array} \\ \begin{bmatrix} 2 & 0 \\ -7 & \frac{1}{2} \end{bmatrix} \end{array} + \begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & C_2 \end{array} \\ \begin{bmatrix} -15 & -5 \\ 4 & 6 \end{bmatrix} \end{array} = \begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & C_2 \end{array} \\ \begin{bmatrix} -13 & -5 \\ -3 & 6\frac{1}{2} \end{bmatrix} \end{array}$

2×2 2×2

2. $\begin{bmatrix} -3 & 0 \\ 8 & 2 \\ 4 & -1 \end{bmatrix} - \begin{bmatrix} 11 & 10 \\ -7 & -3 \\ -6 & 1 \end{bmatrix} = \begin{bmatrix} -3 & 0 \\ 8 & 2 \\ 4 & -1 \end{bmatrix} + \begin{bmatrix} -11 & -10 \\ -7 & 3 \\ 6 & -1 \end{bmatrix}$ 3×2 3×2

*change to "add opposite"

$\begin{bmatrix} -14 & -10 \\ 1 & 5 \\ 10 & -2 \end{bmatrix}$

3. $\begin{bmatrix} 8 & 3 \\ 5 & 4 \\ 1 & 0 \end{bmatrix} + \begin{bmatrix} 6 & 2 & 8 \\ -1 & 5 & 1 \end{bmatrix}$

3×2 2×3

not possible or undefined

SCALAR MULTIPLICATION

1. $3\begin{bmatrix} -2 & 0 \\ 4 & -7 \end{bmatrix}$ Scalar

$\begin{bmatrix} -6 & 0 \\ 12 & -21 \end{bmatrix}$

2. $-2\begin{bmatrix} 1 & 2 \\ 0 & 5 \\ -4 & -3 \end{bmatrix} + \begin{bmatrix} -6 & -2 \\ 4 & -8 \\ 3 & 5 \end{bmatrix}$

$\begin{bmatrix} -2 & -4 \\ 0 & -10 \\ 8 & 6 \end{bmatrix} + \begin{bmatrix} -6 & -2 \\ 4 & -8 \\ 3 & 5 \end{bmatrix}$

$\begin{bmatrix} -8 & -6 \\ 4 & -18 \\ 11 & 11 \end{bmatrix}$

Solve for a missing entry.

$2\left(\begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & \end{array} \\ \begin{bmatrix} 3x & -1 \\ 8 & 5 \end{bmatrix} \end{array} + \begin{array}{c} \\ R_1 \\ R_2 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & \end{array} \\ \begin{bmatrix} 4 & 1 \\ -2 & -4 \end{bmatrix} \end{array}\right) = \begin{array}{c} \\ R_1 \end{array}\begin{array}{c} \begin{array}{cc} C_1 & \end{array} \\ \begin{bmatrix} 26 & 0 \\ 12 & 8 \end{bmatrix} \end{array}$

$\frac{2(3x+4)}{2} = \frac{26}{2}$

$3x+4=13$

$3x=9$

$x=3$

$\frac{2(5+-y)}{2} = \frac{8}{2}$

$5-y=4$

$-y=-1$

$y=1$