

Matrices on the Graphing Calculator Outline

Enter Matrices on the Calculator:

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

$$B = \begin{bmatrix} -1 & 5 \\ 4 & 0 \end{bmatrix}$$

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

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

Perform Basic Operations:

1. $A + B$

$$\begin{bmatrix} 3 & 8 \\ 3 & 2 \end{bmatrix}$$

2. $3A - B$

$$\begin{bmatrix} 13 & 4 \\ -7 & 6 \end{bmatrix}$$

3. AB

$$\begin{bmatrix} 8 & 20 \\ 9 & -5 \end{bmatrix}$$

3. CB

$$\begin{bmatrix} 6 & -10 \\ 8 & 20 \\ -4 & 0 \end{bmatrix}$$

5. BC

$$N/A$$

Determinants:

6. $|A|$

$$11$$

7. $|B|$

$$-20$$

8. $|D|$

$$-15$$

Inverses:

9. A^{-1}

$$\begin{bmatrix} 2/11 & -3/11 \\ 1/11 & 4/11 \end{bmatrix}$$

10. B^{-1}

$$\begin{bmatrix} 0 & 1/4 \\ 1/5 & 1/20 \end{bmatrix}$$

11. D^{-1}

$$\begin{bmatrix} -2/15 & 1/15 & 2/5 \\ -1/3 & 2/3 & 0 \\ 1/15 & 2/15 & -1/5 \end{bmatrix}$$

Solving Systems:

12. $2x - y = -10$
 $-3x + 4y = 5$

$$\begin{bmatrix} 2 & -1 \\ -3 & 4 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -10 \\ 5 \end{bmatrix}$$

$$x = -7, y = -4$$

13. $x + 2y + 2z = -2$
 $2x - y + 3z = -6$
 $x - 3y + 2z = -7$

$$\begin{bmatrix} 1 & 2 & 2 \\ 2 & -1 & 3 \\ 1 & -3 & 2 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -2 \\ -6 \\ -7 \end{bmatrix}$$

$$x = 2, y = 1, z = -3$$

Steps:

TI 83/84:

2nd Matrix

Edit

- Choose A, B, etc

- label - x -

- input values

Nspire:

New Document

- Add Calculator

- Menu

- matrix (?)

- create (1)

- matrix (1)

- row x column

TI 83/84

2nd Matrix

Math

- det (1)

Nspire

Menu

Matrix (?)

- Det (3)