

CH.10 MATRICES → GETTING STARTED WITH A TI83 or TI84 CALCULATOR:

- *Clear your screen, then push 2nd MATRIX.
- *Push the ► right arrow key twice to highlight EDIT. Use ▲ ▼ up/down arrows to highlight the name of your matrix. Press ENTER.
- *Enter the dimensions of your matrix, then enter your values for each element. (*Push enter after each input. The cursor will automatically move to the next space.*)
- *Once all elements are entered, push 2nd QUIT to finalize your entry.
- *Repeat the process to input the other matrices.
- *To solve #1-17, push 2nd MATRIX, then NAME → now choose proper matrices
- *Hint: use the x^{-1} **button** when finding the inverse

To clear matrices:
 2nd MEM (above + symbol)
 2: Mem Mgmt / Del
 5: Matrix
 push delete to clear the matrix next to the arrow

OR get started using the Desmos online calculator: <https://www.desmos.com/matrix>

Enter the following values into your calculator:

$$A = \begin{bmatrix} 6 & 3 \\ 7 & 5 \end{bmatrix} \quad B = \begin{bmatrix} -4 & -7 \\ 5 & 7 \end{bmatrix} \quad C = \begin{bmatrix} -2 & -7 & 11 \\ 4 & 3 & -8 \end{bmatrix} \quad D = \begin{bmatrix} 2 & -5 & 10 \\ 3 & 1 & -12 \\ -7 & 6 & 8 \end{bmatrix}$$

Use calculator commands to solve for the following:

(Write given notation and each answer on a separate sheet of paper.)

<ol style="list-style-type: none"> 1. $A + B$ 2. $B - A$ 3. BA 4. AB 5. BC 6. AC 7. CD 8. B^2 9. A^2 	<ol style="list-style-type: none"> 10. A^{-1} (<i>Express your answer with fractions using the MATH button on far left 1: ►Frac</i>) 11. D^{-1} (<i>Express your answer with fractions</i>) 12. DD^{-1} 13. $A^{-1}A$ 14. BB^{-1} 15. $\det A$ (<i>determinant can be found using the matrix menu and highlighting “math” at the top</i>) 16. $\det D$ 17. Write a matrix equation, then solve for (x, y, z) using your calculator. $-x - 2y + 9z = 13$ $2x + y - 2z = 11$ <i>Be sure to use proper notation. On your paper, please</i> $x - 3z = 7$ <u>write the command</u> <i>that you are using in the calculator.</i>
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IMPORTANT!!!! SOLVE 10.3 #30-38even,58,60 WITH A CALCULATOR → write matrix equation, write calculator command, and then solve using matrices. DON'T SHOW ALL OF YOUR WORK ALGEBRAICALLY LIKE YOU DID PREVIOUSLY IN 10.2!

CHECK YOUR ANSWERS: worksheet #1-17 AND 10.3 #30-38even, 58,60

$$\begin{bmatrix} -73 & -47 \\ 79 & 50 \end{bmatrix} \quad \begin{bmatrix} -9 & -21 \\ -3 & -14 \end{bmatrix} \quad \begin{bmatrix} 2 & -4 \\ 12 & 12 \end{bmatrix} \quad \begin{bmatrix} 57 & 33 \\ 77 & 46 \end{bmatrix} \quad \begin{bmatrix} -10 & -10 \\ -2 & 2 \end{bmatrix} \quad \begin{bmatrix} 0 & -33 & 42 \\ 6 & -34 & 37 \end{bmatrix} \quad \begin{bmatrix} -19 & -21 \\ 15 & 14 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\begin{bmatrix} -20 & 7 & 12 \\ 18 & -14 & -1 \end{bmatrix} \quad \begin{bmatrix} -102 & 69 & 152 \\ 73 & -65 & -60 \end{bmatrix} \quad \begin{bmatrix} 8/11 & 10/11 & 5/11 \\ 6/11 & 43/55 & 27/55 \\ 5/22 & 23/110 & 17/110 \end{bmatrix} \quad \begin{bmatrix} 5/9 & -1/3 \\ -7/9 & 2/3 \end{bmatrix} \quad \begin{bmatrix} -1 & -2 & 9 \\ 2 & 1 & -2 \\ 1 & 0 & -3 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 13 \\ 11 \\ 7 \end{bmatrix} \quad A^{-1} \cdot B = \begin{bmatrix} - \\ - \\ - \end{bmatrix}$$

matrix equation command, ↑solution