Casio
Working with Matrices

WHEN IN DOUBT, EXIT OUT.

Example: $A=\begin{bmatrix}-2 & 3\\ 4 & -5\end{bmatrix}$ $B=\begin{bmatrix}-5 & 1\\ 2 & -2\end{bmatrix}$

1. **MENU**
2. **Go to MAT and EXE.**
3. **Push F2 for DEL-A to delete all previously used data.**
4. **Highlight MAT A and type 2 EXE 2 EXE.**
   The arrow buttons may be used to move from matrix to matrix. Each matrix must be defined by diminsion first. (Number of rows and number of columns)
5. **An empty matrix A will appear so that you input each element. Type -2 EXE 3 EXE 4 EXE -5 EXE. The completed matrix A will appear.**
6. **Push EXIT.**
7. **Highlight MAT B and type 2 EXE 2 EXE.**
8. **A new matrix B will appear so that you input each element as in step 5.**
9. **Push EXIT.**

Matrices are written in the MAT window but operations on matrices are performed in the Run window using the OPTN key. It is helpful to input all matrices before going to the Run window. Once you are in the Run window and have used OPTN once, you can clear with AC and eliminate some of the steps.

Each matrix must be preceeded by MAT and the remainder of the operations is the same as always.

10. **Push MENU.**
11. **Go to RUN and EXE.**
12. **Push OPTN.**
13. **Push F2 for MAT.**

14. **To compute A + B,**
Push F1 for Mat then ALPHA, A + F1 for Mat ALPHA, B AND EXE.
The answer will appear. $\begin{bmatrix} -7 & 4 \\ 6 & -7 \end{bmatrix}$

15. **Find** $\begin{vmatrix} -2 & 3 \\ 4 & -5 \end{vmatrix}$ **. (The determinant of A)**

16. **Since you are already in RUN, just type F3 for Det, F1 for Mat, ALPHA, A, EXE The answer is -2.**
Otherwise you would need to use
MENU, RUN, EXE, OPTN, F2 for MAT, F3 for Det, F1 for Mat, ALPHA, A, EXE The answer is -2.

17. **Find A $^{-1}$. (The inverse of A)**

18. **Since you are already in RUN, just type F1 for Mat, ALPHA, A, SHIFT, X^{-1} above the) , EXE.**
The answer will appear. $\begin{bmatrix} 2.5 & 1.5 \\ 2 & 1 \end{bmatrix}$
Otherwise you would need to use
MENU, RUN, EXE, OPTN, F2 for MAT, F1 for Mat, ALPHA, A, SHIFT, X^{-1}, EXE.
The answer will appear. $\begin{bmatrix} 2.5 & 1.5 \\ 2 & 1 \end{bmatrix}$

Practice Problems **Solutions**

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

1. $A + B$ $\begin{bmatrix} 3 & 3 \\ -4 & 9 \end{bmatrix}$

2. The determinant of C -252

3. A^{-1} $\begin{bmatrix} -2 & 1 \\ 1.5 & -0.5 \end{bmatrix}$

4. $5A + B$ $\begin{bmatrix} 7 & 11 \\ 8 & 25 \end{bmatrix}$

5. AB $\begin{bmatrix} -12 & 11 \\ -22 & 23 \end{bmatrix}$

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