

Use the following matrices for the problems 1 - 13. Show ALL WORK by HAND and check with the calculator.

$$A = \begin{bmatrix} -3 & 2 \\ -7 & 5 \end{bmatrix}$$

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

$$C = \begin{bmatrix} 3 & 2 & 1 \\ 1 & -2 & 6 \end{bmatrix}$$

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

$$E = \begin{bmatrix} 5 & x & 3 \\ 0 & 7 & y+1 \end{bmatrix}$$

1. What are the dimensions of Matrix D?

2. $[D]^T$

3. $[C] + [E] =$

4. $[D] + [C] =$

5. $2[B] - 3[A] =$

6. $[C] \cdot [D] =$

7. $[B] \cdot [D] =$

8. $[B] \cdot [E] =$

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9. $C_{22} + D_{31} - B_{21} =$

10. $[A]^2 =$

11. $[D] \cdot [D]^T =$

12. Create a 2x2, 3x3, and 5x 5 IDENTITY matrices

13. Are Matrices A and B inverses? Demonstrate how you can tell.

Determine possible values for a and b that would make the following matrix statement true.

$$14. \begin{bmatrix} 2 & 2 \\ 2 & 1 \end{bmatrix} \cdot \begin{bmatrix} a \\ 6 \end{bmatrix} = \begin{bmatrix} 2 \\ b \end{bmatrix}$$

a =

b =

Determine possible values for a , b , and c that would make the following matrix statement true.

$$14. \begin{bmatrix} 4 & 1 \\ 2 & 3 \end{bmatrix} \cdot \begin{bmatrix} a & 6 \\ 2 & b \end{bmatrix} = \begin{bmatrix} 6 & 27 \\ 8 & c \end{bmatrix}$$

a =

b =

c =

15. The determinant of $\begin{bmatrix} 4 & 2 \\ 5 & 3 \end{bmatrix}$ by hand and show work.

14. Find the determinant of $\begin{bmatrix} 3 & 5 & -1 \\ 0 & 2 & 3 \\ 1 & 4 & 6 \end{bmatrix}$ by hand and show work.

15. Find the inverse of $\begin{bmatrix} 4 & 2 \\ 5 & 3 \end{bmatrix}$ by hand and show work.

16. Find the inverse of $\begin{bmatrix} 6 & -3 \\ 4 & 2 \end{bmatrix}$ by hand and show work.

17. On one weekend, the Goxfield Theater reported the following ticket sales for three first-run movies, as shown in the matrix at the right. If the ticket prices were \$6 for each adult and \$4 for each child, what were the weekend sales for each movie?

	Adults	Children
Movie 1	1021	523
Movie 2	2547	785
Movie 3	3652	2456