

Admin User
Algebra 2

Form Number 1 Name: _____

1. Find the sum of the matrices. $\begin{bmatrix} 25 & -6 \\ 19 & -14 \end{bmatrix} + \begin{bmatrix} -39 & -18 \\ 4 & 8 \end{bmatrix}$

2. Subtract: $\begin{bmatrix} 39 & -10 \\ 16 & -5 \end{bmatrix} - \begin{bmatrix} -36 & -12 \\ 15 & 12 \end{bmatrix}$

3. If $A = \begin{bmatrix} 6 & 1 & 0 \\ -8 & 9 & -7 \\ -3 & 8 & -5 \end{bmatrix}$ and $B = \begin{bmatrix} 9 & -7 & -9 \\ 5 & -4 & 0 \\ -3 & 7 & 6 \end{bmatrix}$, find $A + B$.

$$[A] \begin{bmatrix} -3 & 8 & 9 \\ -13 & 13 & -11 \\ 0 & 1 & -7 \end{bmatrix}$$

$$[B] \begin{bmatrix} -3 & 8 & 9 \\ -13 & 13 & -7 \\ 0 & 1 & -11 \end{bmatrix}$$

$$[C] \begin{bmatrix} 15 & -6 & -9 \\ -3 & 5 & 1 \\ -6 & 15 & -7 \end{bmatrix}$$

$$[D] \begin{bmatrix} 15 & -6 & -9 \\ -3 & 5 & -7 \\ -6 & 15 & 1 \end{bmatrix}$$

4. Perform the matrix operations, if possible. $5 \begin{bmatrix} 2 & 1 & -5 \\ 6 & -3 & 4 \end{bmatrix}$

5. Solve for x and y . $2 \begin{bmatrix} 1 & 5 \\ 3 & -2 \end{bmatrix} - \begin{bmatrix} -2 & 1 \\ 1 & -3 \end{bmatrix} = \begin{bmatrix} x & 9 \\ 5 & y \end{bmatrix}$

6. Solve for x and y . $3 \begin{bmatrix} 4 & x \\ -1 & 3 \end{bmatrix} - 2 \begin{bmatrix} 1 & 3 \\ y & 0 \end{bmatrix} = \begin{bmatrix} 10 & 6 \\ -7 & 9 \end{bmatrix}$

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Perform the matrix operations, if possible.

7.
$$\begin{bmatrix} 2 & -3 \\ 6 & 5 \\ 1 & 4 \end{bmatrix} \begin{bmatrix} 2 & 4 \\ 3 & -2 \end{bmatrix}$$

8.
$$\begin{bmatrix} 2 & 5 \\ -1 & 7 \end{bmatrix} \begin{bmatrix} 2 & 1 & -4 \end{bmatrix}$$

9. Student Government and the cheerleaders at a local school are ordering supplies. The supplies they need are listed below.

	Paint	Paper	Tape
Student Government	11	11	6
Cheerleaders	8	16	9

A bottle of paint costs \$5, a roll of paper costs \$12, and a roll of tape costs \$2. Use matrices to find the total cost of supplies for each group.

Evaluate the determinant of the matrix.

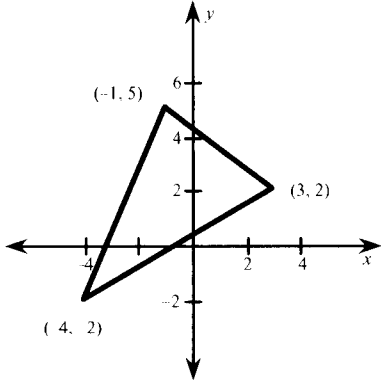
10.
$$\begin{vmatrix} 4 & 4 \\ 6 & 7 \end{vmatrix}$$

11.
$$\begin{vmatrix} 2 & 5 & 4 \\ 2 & 4 & 5 \\ 1 & 3 & 1 \end{vmatrix}$$

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12. Find the area of the triangle.



13. Use Cramer's Rule to solve for y :
$$\begin{cases} 5x - y = -1 \\ x - 2y = 11 \end{cases}$$

14. Use Cramer's Rule to solve for z :
$$\begin{cases} 3x - 2y + z = -11 \\ 2x - 3y - z = -19 \\ x - 2y - 3z = -17 \end{cases}$$

15. Use Cramer's Rule to solve the linear system.

$$\begin{cases} 3x - 5y = -2 \\ 4x + 3y = 5 \end{cases}$$

16. Find the inverse of the matrix (if it exists) $\begin{bmatrix} 1 & 1 \\ 2 & 4 \end{bmatrix}$.

[A] $\begin{bmatrix} \frac{1}{2} & -1 \\ -\frac{1}{2} & 2 \end{bmatrix}$

[B] A^{-1} does not exist.

[C] $\begin{bmatrix} 4 & 2 \\ 1 & 1 \end{bmatrix}$

[D] $\begin{bmatrix} 2 & -\frac{1}{2} \\ -1 & \frac{1}{2} \end{bmatrix}$

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17. Find the inverse of both $A = \begin{bmatrix} 1 & -3 \\ 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 1 \\ 3 & -1 \end{bmatrix}$ to determine $A^{-1} - B^{-1}$.

18. Use the inverse of the matrix $A = \begin{bmatrix} -2 & -1 \\ 5 & 2 \end{bmatrix}$ to decode the message $-1, -3, 37, 14, 68, 27$.

$$1 = A \quad 8 = H \quad 15 = O \quad 22 = V$$

$$2 = B \quad 9 = I \quad 16 = P \quad 23 = W$$

$$3 = C \quad 10 = J \quad 17 = Q \quad 24 = X$$

$$4 = D \quad 11 = K \quad 18 = R \quad 25 = Y$$

$$5 = E \quad 12 = L \quad 19 = S \quad 26 = Z$$

$$6 = F \quad 13 = M \quad 20 = T$$

$$7 = G \quad 14 = N \quad 21 = U$$

19. Use an inverse matrix to solve the linear system.

$$\begin{cases} 5x + y = -6 \\ 9x + 2y = -10 \end{cases}$$

20. The inverse of the coefficient matrix is given. Use the inverse to solve the linear system.

$$\begin{cases} 3x + 2y + 10z = -28 \\ -2x - y - 7z = 18 \\ 3x + 2y + 11z = -31 \end{cases}, A^{-1} = \begin{bmatrix} 3 & -2 & -4 \\ 1 & 3 & 1 \\ -1 & 0 & 1 \end{bmatrix}$$