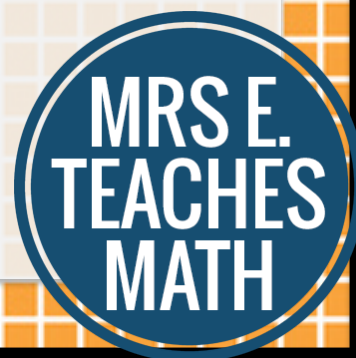


# Matrix Operations

**FREE Worksheet**



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# Practice with Matrix Operations

Simplify. Write "undefined" for any operations that are undefined.

$$1. \begin{bmatrix} -5 & 2 & -2 \\ 4 & -2 & 0 \end{bmatrix} - \begin{bmatrix} 6 & -5 & -6 \\ 1 & 3 & -3 \end{bmatrix}$$

$$2. -2u \begin{bmatrix} 7u & 3w^2 & 5u & 5 \end{bmatrix}$$

$$3. \begin{bmatrix} z-5 \\ -6 \\ -1-6z \\ 3y \end{bmatrix} - \begin{bmatrix} -3y \\ 3z \\ 5+z \\ 4z \end{bmatrix}$$

$$4. \begin{bmatrix} 0 & 5 \\ -3 & 1 \\ -5 & 1 \end{bmatrix} \cdot \begin{bmatrix} -4 & 4 \\ -2 & -4 \end{bmatrix}$$

$$5. \begin{bmatrix} -1 & 1 & -1 \\ 5 & 2 & -5 \\ 6 & -5 & 1 \\ -5 & 6 & 0 \end{bmatrix} \cdot \begin{bmatrix} 6 & 5 \\ 5 & -6 \\ 6 & 0 \end{bmatrix}$$

$$6. \begin{bmatrix} 2 & -5v \end{bmatrix} \cdot \begin{bmatrix} -5u & -v \\ 0 & 6 \end{bmatrix}$$

$$7. \begin{bmatrix} -4 & -y \\ -2x & -4 \end{bmatrix} \cdot \begin{bmatrix} -4x & 0 \\ 2y & -5 \end{bmatrix}$$

$$8. -3 \left( \begin{bmatrix} 2 & -2 & 5 \end{bmatrix} + \begin{bmatrix} 5 & 1 & 0 \end{bmatrix} \right)$$

Remember the order of operations!

$$9. \begin{bmatrix} -1 & -1 \\ -6 & 3 \end{bmatrix} + \begin{bmatrix} -5 & -1 \\ -4 & 2 \end{bmatrix} \cdot \begin{bmatrix} 3 & 6 \\ 1 & 6 \end{bmatrix}$$

$$10. \begin{bmatrix} -2 \\ -6 \end{bmatrix} - 3 \begin{bmatrix} -6 \\ 0 \end{bmatrix}$$

$$11. \begin{bmatrix} 1 & -3 \\ -1 & 0 \end{bmatrix} \cdot \begin{bmatrix} 6 & -5 & -6 \\ 6 & 4 & -1 \end{bmatrix} \cdot \begin{bmatrix} -3 & -1 \\ 5 & 4 \\ 1 & 0 \end{bmatrix}$$

$$12. \left( \begin{bmatrix} -4y & 2y \\ 2 & 3 \end{bmatrix} + \begin{bmatrix} 2y & 6 \\ 2 & 2x \end{bmatrix} \right) \cdot \begin{bmatrix} 5 \\ -5 \end{bmatrix}$$

$$13. \begin{bmatrix} 6y & y^2 \\ -2y & -2y \end{bmatrix} \cdot \begin{bmatrix} -y & xy \\ -6 & x^2 \end{bmatrix} - \begin{bmatrix} 6y & -6 \\ -3y & y \end{bmatrix}$$

# Practice with Matrix Operations

## Solutions

$$1. \begin{bmatrix} -11 & 7 & 4 \\ 3 & -5 & 3 \end{bmatrix}$$

$$2. \begin{bmatrix} -14u^2 & -6uw^2 & -10u^2 & -10u \end{bmatrix}$$

$$3. \begin{bmatrix} 3y+z-5 \\ -3z-6 \\ -7z-6 \\ 3y-7z \end{bmatrix}$$

$$4. \begin{bmatrix} -10 & -20 \\ 10 & -16 \\ 18 & -24 \end{bmatrix}$$

$$5. \begin{bmatrix} -7 & -11 \\ 10 & 13 \\ 17 & 60 \\ 0 & -61 \end{bmatrix}$$

$$6. \begin{bmatrix} -10u & -32v \end{bmatrix}$$

$$7. \begin{bmatrix} 16x-2y^2 & 5y \\ 8x^2-8y & 20 \end{bmatrix}$$

$$8. \begin{bmatrix} -21 & 3 & -15 \end{bmatrix}$$

$$9. \begin{bmatrix} -17 & -37 \\ -16 & -9 \end{bmatrix}$$

$$10. \begin{bmatrix} 16 \\ -6 \end{bmatrix}$$

$$11. \begin{bmatrix} -52 & -56 \\ 49 & 26 \end{bmatrix}$$

$$12. \begin{bmatrix} -20y-30 \\ -10x+5 \end{bmatrix}$$

$$13. \begin{bmatrix} -12y^2-6y & 6y^2x+y^2x^2+6 \\ 2y^2+15y & -2y^2x-2yx^2-y \end{bmatrix}$$

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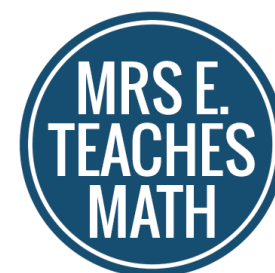
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## A special thank you to the following artists:



Mel Stampz

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