

Multiplication of Matrices – Distributive Property

Prove that $A(B+C) = AB + AC$.

$$A = \begin{bmatrix} 6 & 1 & 3 \\ -4 & 2 & 4 \end{bmatrix}, B = \begin{bmatrix} 3 & 2 & 5 \\ 6 & 7 & 1 \\ -2 & -2 & 8 \end{bmatrix}, C = \begin{bmatrix} 3 & 4 & 4 \\ -10 & 8 & 9 \\ 2 & 1 & 2 \end{bmatrix}$$

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

$$A = \begin{bmatrix} 1 & 3 & 4 \\ 5 & 0 & 8 \\ -7 & 3 & 4 \end{bmatrix}, B = \begin{bmatrix} 5 \\ -7 \\ 8 \end{bmatrix}$$

$$A = \begin{bmatrix} 3 & 6 \\ -7 & 11 \end{bmatrix}, B = \begin{bmatrix} 10 \\ -5 \end{bmatrix}, C = \begin{bmatrix} 6 \\ -8 \end{bmatrix}$$

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Answer key

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Sheet 1

$$A(B+C) = AB + AC = \begin{bmatrix} 32 & 48 & 94 \\ -32 & 2 & 24 \end{bmatrix}$$

$$A(B+C) = AB + AC = \begin{bmatrix} -4 & 12 & 16 \\ 58 & 10 & 14 \end{bmatrix}$$

$$A(B+C) = AB + AC = \begin{bmatrix} 37 & 15 & 19 \\ 15 & 19 & 23 \\ -19 & 23 & 27 \end{bmatrix}$$

$$A(B+C) = AB + AC = \begin{bmatrix} -3 & 12 & 15 \\ -2 & 15 & 18 \end{bmatrix}$$

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