

Enrichment 4-2

A Mathematical City

Fill in the blanks to find an American city named for a famous mathematician. Complete each matrix calculation. When you find a 0 in the resulting matrix, note the row and column numbers. Then, *reverse* the row and column numbers. The matrix element in this position indicates where to place the corresponding letter.

1 2 3 4 5 6 7 8 9 10 11

L $\begin{bmatrix} 5 & 6 \\ 8 & -3 \\ 0 & 2 \end{bmatrix} - \begin{bmatrix} 2 & 6 \\ 4 & 4 \\ -2 & 10 \end{bmatrix}$

O $\begin{bmatrix} 0 & -1 & 2 \\ -2 & 4 & 1 \\ -3 & 0 & 3 \end{bmatrix} + \begin{bmatrix} 1 & 6 & 9 \\ 1 & 0 & 5 \\ 3 & 3 & 2 \end{bmatrix}$

D $\begin{bmatrix} 1 & -6 & 0 \\ 6 & 5 & 5 \end{bmatrix} - \begin{bmatrix} 2 & -12 & 2 \\ 6 & -5 & 7 \end{bmatrix}$

O $\begin{bmatrix} 1 & -2 & 3 & 5 \\ 3 & 1 & -1 & 8 \\ 4 & 2 & 7 & -7 \end{bmatrix} + \begin{bmatrix} 2 & -4 & 5 & 0 \\ -1 & 3 & 5 & -6 \\ -4 & -5 & 4 & 3 \end{bmatrix}$

E $\begin{bmatrix} -3 & -5 & 6 & 7 \\ 2 & 6 & 1 & -4 \\ 3 & 4 & -5 & -6 \end{bmatrix} - \begin{bmatrix} 1 & -2 & 6 & 5 \\ -3 & 1 & -1 & -3 \\ 2 & 3 & 1 & 0 \end{bmatrix}$

I $\begin{bmatrix} 1 & -3 & 8 \\ 3 & -4 & 0 \\ 12 & 7 & 3 \end{bmatrix} - \begin{bmatrix} 2 & -1 & 8 \\ 2 & -3 & 1 \\ 2 & 9 & 4 \end{bmatrix}$

C $\begin{bmatrix} 1 & 2 & 3 & 1 & 8 \\ 4 & 1 & 6 & 2 & 8 \\ -3 & 8 & -7 & 3 & -4 \end{bmatrix} + \begin{bmatrix} 3 & -4 & -7 & -4 & -1 \\ 3 & 0 & -6 & -5 & 2 \\ 5 & -5 & 4 & -2 & 5 \end{bmatrix}$

H $\begin{bmatrix} 3 & 5 & -6 & 7 \\ 8 & -5 & 6 & 2 \\ 1 & 5 & 0 & 6 \end{bmatrix} + \begin{bmatrix} 1 & -2 & -1 & -3 \\ -5 & 3 & -6 & -4 \\ 3 & 4 & -3 & 0 \end{bmatrix}$

U $\begin{bmatrix} 2 & -8 & 3 \\ 7 & 3 & 3 \\ 1 & 6 & 5 \end{bmatrix} - \begin{bmatrix} 4 & -9 & 0 \\ 14 & 5 & 1 \\ -4 & 6 & 8 \end{bmatrix}$

I $\begin{bmatrix} 1 & 3 & 8 & -5 \\ 6 & -2 & 0 & 5 \\ 9 & -3 & 4 & 7 \end{bmatrix} - \begin{bmatrix} 2 & -2 & 8 & -1 \\ 4 & 3 & 1 & 0 \\ 4 & 1 & 1 & 5 \end{bmatrix}$

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