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● *Revenue*

Left Coast Bookstore chain

In January, it sold 700 hardcover books, 1300 softcover books, and 2000 plastic books in San Francisco; it sold 400 hardcover, 300 softcover, and 500 plastic books in Los Angeles. Now, hardcover books sell for \$30 each, softcover books sell for \$10 each, and plastic books sell for \$15 each. Write a column matrix with the price data and show how matrix multiplication (using the sales and price data matrices) may be used to compute the total revenue at the two stores.

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Solve the following matrix equations

$$\textcircled{1} \begin{bmatrix} -5 & 31 \\ 32 & 30 \end{bmatrix} = \begin{bmatrix} 3 & -5 \\ 0 & -2 \end{bmatrix} + 4X$$

$$\textcircled{2} \begin{bmatrix} 9 & -15 \\ -21 & 39 \end{bmatrix} = \begin{bmatrix} 2 & -3 \\ -7 & 9 \end{bmatrix} X$$

$$\textcircled{a} \begin{bmatrix} -17 \\ -9 \\ -30 \\ -12 \end{bmatrix} = -2B + \begin{bmatrix} -3 \\ 11 \\ -8 \\ -6 \end{bmatrix}$$

$$\textcircled{4} A \begin{bmatrix} -1 & -9 \\ 0 & -1 \end{bmatrix} = \begin{bmatrix} 11 \\ 2 \end{bmatrix}$$

Solve using Cramer's Rule

(A)

$$4x + 5y + 3z - 2w = 2$$

$$3x + 1y + 2z - 1w = 4$$

$$1x - 6y - 2z + 2w = 0$$

$$2x + 2y + 3z - 1w = 1$$

(B)

$$4x + 5y = 2$$

$$11x + y + 2z = 3$$

$$x + 5y + 2z = 1$$