Student # 18195121

Determinant

$$\begin{bmatrix} 2 & 4 \\ 3 & -1 \end{bmatrix} = 2\times(-1) - 4\times 3$$
$$= -14$$

Inverse of a Matrix

$$A = \begin{bmatrix} 2 & 4 \\ 3 & -1 \end{bmatrix} \qquad A^{-1} = \frac{1}{\text{determinant}} \times \begin{bmatrix} -1 & -4 \\ -3 & 2 \end{bmatrix}$$

$$= \frac{1}{-14}\begin{bmatrix} -1 & -4 \\ -3 & 2 \end{bmatrix} = \begin{bmatrix} \frac{-1}{-14} & \frac{-4}{-14} \\ \frac{-3}{-14} & \frac{2}{-14} \end{bmatrix}$$

$$= \begin{bmatrix} 0.07142857 & 0.28571428 \\ 0.21428571 & -0.14285714 \end{bmatrix}$$

After Validaty the result, found a bug in the code for inverse Calculation.

Student # 1819512

Cross Product of two vectors

$$V1 = \begin{bmatrix} 1 \\ 2 \\ -1 \end{bmatrix} \qquad V2 = \begin{bmatrix} -4 \\ 1 \\ -2 \end{bmatrix}$$

Cross Product

$$\vec{V1} \times \vec{V2} = \begin{bmatrix} (2\times-2)-(1\times-1) \\ (1\times-2)-(-4\times-1) \\ (1\times1)-(-4\times2) \end{bmatrix} \rightarrow (-4\times-1)-(-2\times1)$$

$$= \begin{bmatrix} -3 \\ +6 \\ 9 \end{bmatrix}$$