

AFINIKI JOHN
Computer Engineering
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MAT 102

Assignment

$$A = 3i + 4j - 6k$$

$$B = 5i - 11j + 2k$$

$$C = 7i - 7j + k \quad \text{Find!:-}$$

1 $A \cdot C + B \cdot C$

$$A \cdot C = \begin{vmatrix} + & - & + \\ 3 & 4 & -6 \\ 7 & -7 & 1 \end{vmatrix}$$

$$A \cdot C = (3i + 4j - 6k) \cdot (7i - 7j + k)$$

$$A \cdot C = 21 + 28 - 6$$

$$A \cdot C = 43$$

$$B \cdot C = (5i - 11j + 2k) \cdot (7i - 7j + k)$$

$$B \cdot C = 35 + 77 + 2$$

$$= 114$$

$$\therefore A \cdot C + B \cdot C = 43 + 114$$

$$= 157$$

2 $(A - B) \cdot C$

$$A - B = (3i + 4j - 6k) - (5i - 11j + 2k)$$

$$A - B = -2i + 15j - 8k$$

$$\therefore (A - B) \cdot C = (-2i + 15j - 8k) \cdot (7i - 7j + k)$$

$$= -14 - 105 - 8$$

$$= -127$$

3 A · (B × C)

$$\begin{array}{ccc|c} 3 & 4 & -6 & \\ \hline 5 & -11 & 2 & \\ \hline 7 & -7 & 1 & \end{array}$$

$$3 \begin{array}{cc|c} -11 & 2 & \\ \hline -7 & 1 & \end{array} \quad 4 \begin{array}{cc|c} 5 & 2 & \\ \hline 7 & 1 & \end{array} \quad -6 \begin{array}{cc|c} 5 & -11 & \\ \hline 7 & -7 & \end{array}$$

$$3[-11 + 14] + 4[5 - 14] - 6[-35 + 77]$$

$$3(3) + 4(-9) - 6(42)$$

$$9 - 36 - 252$$

$$A \cdot (B \times C) = -279$$