

OLATUNJI ANUOLUWAPO TEMIJOPE MAI 102

COMPUTER ENGINEERING

19/ENG 021050.

Assignment

$$A = 3i + 4j - 6k, B = 5i - 11j + 2k, C = 7i - 7j + k$$

① $A \cdot C + B \cdot C$.

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

$$= 21 - 28 - 6$$

$$= -13$$

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

$$= 35 + 77 + 2$$

$$= 114$$

$$\therefore -13 + 114$$

$$= 101$$

② $(A - B) \cdot C$

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

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

$$\therefore (-2i + 15j - 8k) \cdot (7i - 7j + k)$$

$$= -14 - 105 - 8$$

$$= -127$$

③ $A \cdot (B \times C)$

$$C(B \times C) = \begin{vmatrix} + & - & + \\ i & j & k \\ 5 & -11 & 2 \\ 7 & -7 & 1 \end{vmatrix}$$

$$i \begin{vmatrix} -11 & 2 \\ -7 & 1 \end{vmatrix} - j \begin{vmatrix} 5 & 2 \\ 7 & 1 \end{vmatrix} + k \begin{vmatrix} 5 & -11 \\ 7 & -7 \end{vmatrix}$$

$$i(-11 + 14) - j(5 - 14) + k(-35 + 77)$$

$$3i + 9j + 42k$$

$$\therefore (3i + 4j - 6k) - (3i + 9j + 42k)$$

$$9 + 36 - 252$$

$$= -207$$