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Matric No: 19/ENG04/003

Course Code: MAT 102.

$$1) A = 3i + 4j - 6k,$$

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

$$C = 7i - 7j + k$$

$$a.) A \cdot C + B \cdot C$$

$$A \cdot C = (3i + 4j - 6k) \cdot (7i - 7j + k)$$
$$= 21 + 28 - 6$$

$$A \cdot C = 43$$

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

$$= 35 + 77 + 2$$

$$= 114$$

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

$$= 157$$

$$b.) (A-B) \cdot C$$

$$(A-B) = (3i - 4j - 6k) - (5i - 11j + 2k)$$
$$= -2i - 15j - 4k$$

$$(A-B) \cdot C = (-2i - 15j - 4k) \cdot (7i - 7j + k)$$
$$= -14 + 105 - 4$$
$$= 87_{ii}$$

$$c.) A \cdot (B \times C) = \begin{array}{ccc} + & - & + \\ \left| \begin{array}{ccc} 3 & 4 & -6 \\ 5 & -11 & 2 \\ 7 & -7 & 1 \end{array} \right| \end{array}$$

$$3 \left| \begin{array}{cc} -11 & 2 \\ -7 & 1 \end{array} \right| - 4 \left| \begin{array}{cc} 5 & 2 \\ 7 & 1 \end{array} \right| - 6 \left| \begin{array}{cc} 5 & -11 \\ 7 & -7 \end{array} \right|$$

$$3(-11 + 14) - 4(5 - 14) - 6(-35 + 77)$$

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

$$9 + 36 - 252 = -207_{ii}$$