

NAME: Harry Dominion Batey

COURSE: MATH 102

MAT NO: 191ENG061026

MECHANICAL ENG

$$1) A \cdot C = [3i + 4j - 6k] \cdot [7i - 7j + k]$$

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

$$A \cdot C = -13$$

$$B \cdot C = [5i - 11j + 2k] \cdot [7i - 7j + k]$$

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

$$B \cdot C = 114$$

$$A \cdot C \neq B \cdot C = -13 \neq 114$$

$$A \cdot C + B \cdot C = 101$$

$$2) (A - B) \cdot C$$

$$A - B = 3i + 4j - 6k - [5i - 11j + 2k]$$

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

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

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

$$(A - B) \cdot C = -14 - 105 - 8$$

$$(A - B) \cdot C = -127$$

$$3) A \cdot (B \times C) = \begin{vmatrix} + & - & + \\ 3 & 4 & -6 \\ 5 & -11 & 2 \\ 7 & -7 & 1 \end{vmatrix}$$

$$B(BXL) = 3 \begin{vmatrix} -11 & 2 \\ -7 & 1 \end{vmatrix} - 4 \begin{vmatrix} 5 & 2 \\ 7 & 1 \end{vmatrix} - 6 \begin{vmatrix} 5 & -11 \\ 7 & -7 \end{vmatrix}$$

$$A. (BXL) = 3 \cdot (-11 + 14) - 4(5 - 14) - 6(-35 + 77)$$

$$A. (BXL) = 3 \times (3) - 4 \times (9) - 6 \times (42)$$

$$A. (BXL) = 9 + 36 - 252$$

$$A. (BXL) = -207$$