

Zacharys Daniel Aguilari Mat 102

$$\text{If } A = 3i + 4j - 6k$$

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

$$C = 7i - 7j + 1k$$

$$\text{Find } \textcircled{1} A \cdot C + B \cdot C \quad \textcircled{2} (A-B) \cdot C \quad \textcircled{3} A \cdot (B \times C)$$

Solution

$$\textcircled{1} A \cdot C + B \cdot C$$

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

$$= (5i - 11j + 2k) \cdot (7i - 7j + 1k) + B \cdot C$$

$$= (21 - 28 - 6) + (35 + 77 + 2) - 13 + 114 = 161$$

$$\textcircled{2} (A-B) \cdot C$$

$$(3i + 4j - 6k)$$

$$- (5i - 11j + 2k)$$

$$= (-2i + 15j - 8k) \cdot (7i - 7j + 1k)$$

$$= -14 - 105 - 8 = -127$$

② (BXC).A

$$1 \quad j \quad k$$

$$S \quad -11 \quad +2$$

$$T \quad -7 \quad 1$$

$$1 \quad \left| \begin{array}{cc|cc} -11 & 2 & -3 & 5 \\ -7 & 1 & 7 & 1 \end{array} \right| \begin{array}{c} +1k \\ S \quad -11 \\ T \quad -7 \end{array}$$

$$1(-11 - (-14)) - 2(5 - 17k) + 1k(-35 - (-7))$$

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

$$9 + 36 + 292$$

$$- 2479$$