

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

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

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

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$$\text{1) } A \cdot C + B \cdot C$$

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

$$= \cancel{21i} + \cancel{28j} - 6k$$

$$21i - 28j - 6k$$

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

$$= 35i + 77j + 2k$$

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

$$21i - 28j - 6k + 35i + 77j + 2k$$

$$56i + 49j - 4k$$

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

$$(A-B) = (8i + 4j - 6k) - (5i - 11j + 2k)$$

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

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

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

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

$$= -14i - 105j - 8k$$

$$B) A \cdot (B \times C)$$

$$(B \times C)$$

$$\begin{array}{c|c|c} i & j & k \\ \hline 5 & -11 & 2 \\ \hline 7 & -7 & 1 \end{array}$$

j)

k)

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

$$i[-11+14] - j[5-14] + k[-77+35]$$

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

$$A \cdot (B \times C)$$

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

$$9i + 36j + 252k$$