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Computer Engr.  
19/ENG02/020  
MAT 102

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

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

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

1.  $A \cdot C + B \cdot C$

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

$$B \cdot C = (5i - 11j + 2k) \cdot (7i - 7j + k)$$
$$= 35i + 77j + 2k$$

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

$$21i - 28j - 6k + 35i + 77j + 2k$$
$$56i + 49j - 4k$$

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

$$(A - B) = (3i + 4j - 6k) - (5i - 11j + 2k)$$
$$= 3i + 4j - 6k - 5i + 11j - 2k$$
$$= -2i + 15j - 8k$$

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

$$= (-2i + 15j - 8k) \cdot (7i - 7j + k)$$
$$= -14i - 105j - 8k$$

3. A.  $(B \times C)$   
 $(B \times C)$

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

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

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

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

A.  $(B \times C)$   
 $(3i + 4j - 6k)$

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

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