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1 A.C + B.C

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

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

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

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

$$(3i + 4j - 6k) \times (7i - 7j + k) + (5i - 11j + 2k) \times (7i - 7j + k)$$
$$21i^2 + 28j^2 - 6k^2 + 35i^2 - 77j^2 + 2k^2$$

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

$$\text{Ans. } 56i^2 +$$

$$56i^2 - 49j^2 - 4k$$

$$= 28i - 12j - 4k$$

(A-B) · C

$$3i + 4j - 6k, \quad 5i - 11j + 2k, \quad 7i - 7j + k$$

$$(3i + 4j - 6k - 5i - 11j + 2k) \times 7i - 7j + k$$

$$(3i - 5i + 4j - 11j - 6k + 2k) \times 7i - 7j + k$$

$$-2i - 7j - 4k$$

$$= (-2i - 7j - 4k) \times 7i - 7j + k$$

$$= (-2i \times 7i) + (7j \times 7j) - 4k$$

$$= -14i^2 + 49j^2 - 4k$$

$$= -7i + 24j - 4k$$

3 A · (B × C)

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

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

$$7i - 7j + k$$

$$3i + 4j - 6k \times ((5i - 11j + 2k) \times (7i - 7j + k))$$

$$3i + 4j - 6k \times (35i^2 + 77j^2 + 2k^2)$$

$$3i + 4j - 6k \times (15i + 38j + k)$$

$$45i^2 + 4j - 6k^2$$