

If $A = 3i + 4j - 6k$, $B = 5i - 11j + 2k$, $C = 7i - 7j + k$

Find

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

$$\begin{aligned} A \cdot C &= (3i + 4j - 6k) \cdot (7i - 7j + k) \\ &= 21 - 28 - 6 \\ &= -13 \end{aligned}$$

$$\begin{aligned} B \cdot C &= (5i - 11j + 2k) \cdot (7i - 7j + k) \\ &= 35 - 77 + 2 \\ &= -40 \end{aligned}$$

$$\begin{aligned} A \cdot C + B \cdot C &= -13 + (-40) \\ &= -53 \end{aligned}$$

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

$$\begin{aligned} &= -13 + 40 \\ &= 27 \end{aligned}$$

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

3	4	-6
5	-11	2
7	-7	1

3	-11	2	-4	5	2	-6	5	-11
	-7	1		7	1		7	-7

$$3(-11 + 14) - 4(5 - 14) - 6(-35 + 77)$$

$$= 9 + 36 - 252$$

$$A \cdot (B \times C) = -207$$