

Answer on Question #56117 – Math – Vector Calculus

Let $A=i+3j-2k$ and $B=4i-2j+4k$, find $(2A+B) \cdot (A-2B)$

-14

-21

-10

-5

Solution

$$2A=2i+6j-4k;$$

$$2B=8i-4j+8k;$$

$$(2A+B) \cdot (A-2B) = (2i+6j-4k+4i-2j+4k) \cdot (i+3j-2k-8i-4j+8k) = (6i+4j) \cdot (-7i+7j-10k) = 6 \cdot (-7) + 4 \cdot 7 + 0 \cdot 10 = -42 + 28 = -14.$$

Answer: -14.