

Answer on Question #46930 – Math – Vector Calculus

Question:

If $U = i + 3j - 2k$ and $V = 4i - 2j - 4k$ are vectors, find $(2U + V) \cdot (U - 2V)$

Solution:

$$\vec{U}(1;3;-2), \vec{V}(4;-2;-4)$$

$$2\vec{U} + \vec{V} = (6;4;-8)$$

$$\vec{U} - 2\vec{V} = (-7;7;6)$$

$$(2\vec{U} + \vec{V})(\vec{U} - 2\vec{V}) = 6*(-7) + 4*7 - 8*6 = -62$$