Answer on Question # 59234 – Physics – Mechanics | Relativity

Given two vectors $\bar{a} = 4\bar{i} - 3\bar{j} + 2\bar{k};\ \bar{b} = \bar{i} + 2\bar{j} - \bar{k}.$ Calculate $\bar{a} \cdot \bar{b}$.

Solution:

The dot product of the two vectors:

$$\bar{a} \cdot \bar{b} = a_x \cdot b_x + a_y \cdot b_y + a_z \cdot b_z = 4 \times 1 + (-3) \times 2 + 2 \times (-1) = 4 - 6 - 2 = -4.$$

Answer: $\bar{a} \cdot \bar{b} = -4.$