Answer on Question #51981 – Physics – Other

Question.

Given:

$\vec{a} = 1\vec{\imath} - 4\vec{\jmath} + 2\vec{k}$

$\vec{b} = 3\vec{\imath} + 2\vec{\jmath} - 2\vec{k}$

$\vec{c} = 2\vec{\imath} - 3\vec{\jmath} + 1\vec{k}$

Find:

$\vec{a} \cdot [\vec{b} \times \vec{c}] = ?$

Solution.

By definitiontriple product is:

$$\vec{a} \cdot \left[\vec{b} \times \vec{c}\right] = \begin{vmatrix} a_x & a_y & a_z \\ b_x & b_y & b_z \\ c_x & c_y & c_z \end{vmatrix} = \begin{vmatrix} 1 & -4 & 2 \\ 3 & 2 & -2 \\ 2 & -3 & 1 \end{vmatrix} = -2$$

Answer.

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