

Answer on Question #56008– Math – Vector Calculus

Given that $A = 3i - 2j + k$, $B = 2i - 4j - 3k$ and $C = -i + 2j + 2k$.
Find $|A + B + C|$

Solution

$$A + B + C = 3i - 2j + k + 2i - 4j - 3k - i + 2j + 2k = (3 + 2 - 1)i + (-2 - 4 + 2)j + (1 - 3 + 2)k = 4i - 4j.$$

$$\text{If } a = (a_x, a_y, a_z) \text{ then } |a| = \sqrt{a_x^2 + a_y^2 + a_z^2}.$$

Thus,

$$|A + B + C| = \sqrt{4^2 + (-4)^2 + 0^2} = \sqrt{32} = 4\sqrt{2}.$$

$$\text{Answer: } |A + B + C| = 4\sqrt{2}.$$