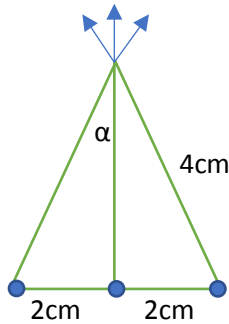


Answer on Question #69554, Physics / Electromagnetism

Question: q_1, q_2, q_3 charges placed on a bisector triangle in a straight line q_1, q_3 at edges and q_2 at center P is a point placed at top of the triangle. $q_1 = q_2 = -q_3 = 2 \mu\text{C}$. distance between $q_1, q_2 = q_2, q_3 = 2 \text{ cm}$, $pq_1 = pq_3 = 4 \text{ cm}$. determine the magnitude and the direction of the electric field at point P.

Solution:



$$\vec{E} = \vec{E}_1 + \vec{E}_2 + \vec{E}_3.$$

$$E = E_1 + 2E_2 \cos \alpha = \frac{kq}{r_1^2} + \frac{2kq}{r_2^2} \frac{\sqrt{12}}{2} = 9 * 10^9 * 2 * \frac{10^{-6}}{4 * 10^{-4}} + 9 * 10^9 * 4 * \frac{10^{-6}}{16 * 10^{-4}} \frac{\sqrt{12}}{2} =$$

$$(4.5 + 3.89) * 10^7 = 8.39 * 10^7 \frac{N}{C} \text{ (upwards)}$$

Answer: $8.39 * 10^7 \frac{N}{C}$ (upwards)

Answer provided by <https://www.AssignmentExpert.com>