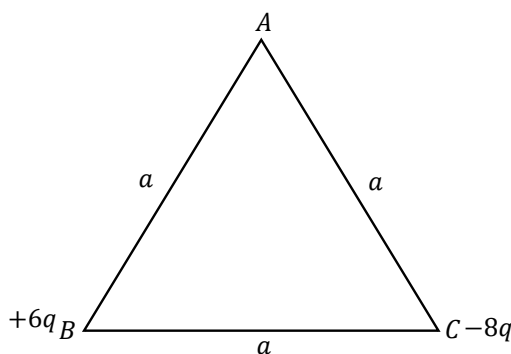


Class - 12th

Electric Charges and Fields

DPP – 05

1. Obtain an expression for the electric field intensity at a point at a distance r from a charge q .
What is the nature of this field?
2. An electron separated from the proton through a distance of 0.53 \AA . Calculate the electric field at the location of the electron.
3. Two point charges $2 \times 10^{-7} \text{ C}$ and $1.0 \times 10^{-7} \text{ C}$ are 1.0 cm apart. What is the magnitude of the field produced by either charge at the site of the other? Use standard value of $\frac{1}{4\pi\epsilon_0}$.
4. Two point charges q_1 and q_2 of $2 \times 10^{-8} \text{ C}$ and $-2 \times 10^{-8} \text{ C}$ respectively are placed 0.4 m apart. Calculate the electric field at the centre of the line joining the two charges.
5. Two point charges $+q$ and $+4q$ are separated by a distance of $6a$. Find the point on the line joining the two charges where the electric field is zero.
6. Three charges, each equal to q are placed at the three corners of a square of side a . Find the electric field at the fourth corner.
7. Two point charges $+6q$ and $-8q$ are placed at the vertices ' B ' and ' C ' of an equilateral triangle ABC of side ' a ' as shown in figure. Obtain the expression for (i) the magnitude and (ii) the direction of the resultant electric field at the vertex A due to these two charges.



8. Four charges $+q, +q, -q, -q$ are placed respectively at the four corners A, B, C and D of a square of side ' a '. Calculate the electric field at the centre of the square.
9. Two point charges of $+16 \mu\text{C}$ and $-9 \mu\text{C}$ are placed 8 cm apart in air. Determine the position of the point at which the resultant field is zero.