Field Intensity near a Point Charge

$$\vec{E} = \frac{\vec{F}_Q}{q_t}$$

$$|\vec{F}_Q| = k\frac{qq_t}{r^2}$$

$$|\vec{E}| = k\frac{q}{r^2}$$

## ELECTRIC FIELD INTENSITY NEAR A POINT CHARGE

The magnitude of the electric field intensity a distance away from a point charge is the product of Coulomb's constant and the charge, divided by the square of the distance from the charge. The direction of the field is radially outward from a positive point charge and radially inward toward a negative point charge.

$$|\vec{E}| = k\frac{q}{r^2}$$

| Quantity | Symbol | SI unit |
|---|---|---|
| electric field intensity | $\vec{E}$ | $\frac{N}{C}$ (newtons per coulomb) |
| Coulomb's constant | $k$ | $\frac{N \cdot m^2}{C^2}$ (newton · metres squared per coulomb squared) |
| source charge | $q$ | C (coulombs) |
| distance | $r$ | m (metres) |