

Electric Field Lines

- ⇒ They can be drawn in a way that they do not intersect
- ✗ +ve to -ve
- ✗ Non-intersecting
- ✗ It is a conservative field lines that cannot form closed loops
- ✗ They are perpendicular from surface.

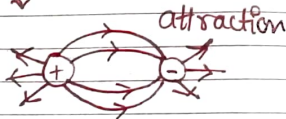
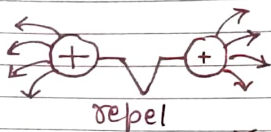
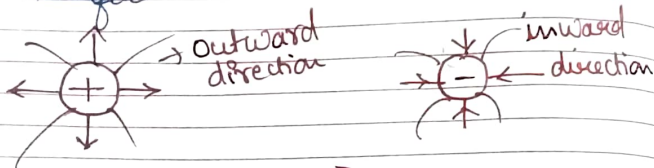
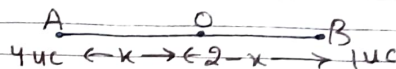


Diagram of Electric field

Two point charges $4\mu C$ & $1\mu C$ are separated by a distance of $2m$ in air. Find the point on line joining the 2 charges where the charge is zero.



$$E = E_A + E_B = 0$$

$$|E_A| = |E_B|$$

$$\Rightarrow \frac{1}{4\pi\epsilon_0} \frac{4}{x^2} = \frac{1}{4\pi\epsilon_0} \frac{1}{(2-x)^2}$$

$$\frac{4}{x^2} = \frac{1}{(2-x)^2} = \frac{1}{x^2} = \left(\frac{x}{2-x}\right)^2$$

$$\frac{x}{2-x} = \frac{2}{1}$$

$$x = 4 - 2x$$

$$3x = 4$$

$$x = \frac{4}{3}$$