

Gradually,

Source charges will be replaced
by Electric field.

Q

q

Force acting on small q :

Q is the source charge

q is the external charge.

Q

r

q $\rightarrow$ E due to Q .

$$F = q|E| = \frac{1}{4\pi\epsilon_0} \frac{Qq}{r^2}$$

$$= \frac{1}{4\pi\epsilon_0} \frac{Q}{r^2}$$

Force acting on big Q .

Q is the external charge

q is the source charge.

Q

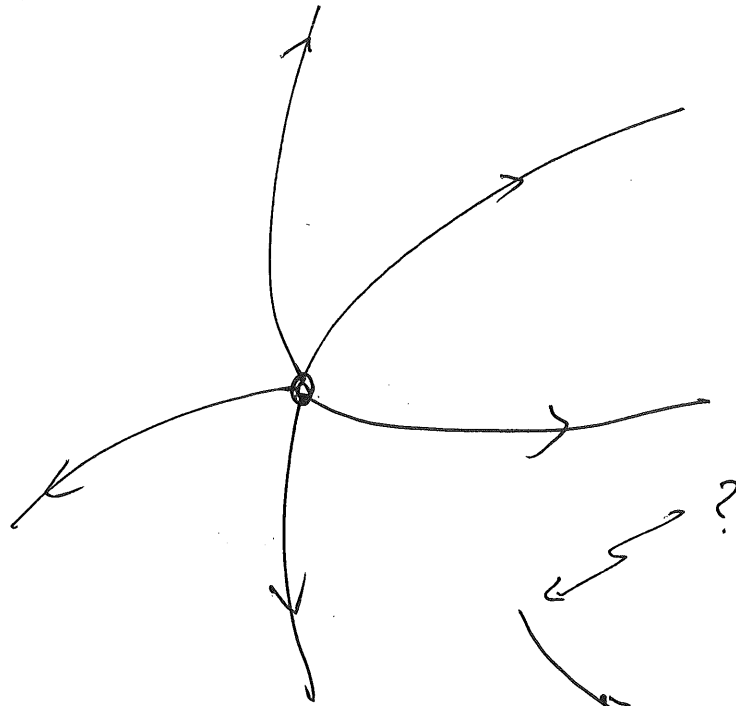
r

q

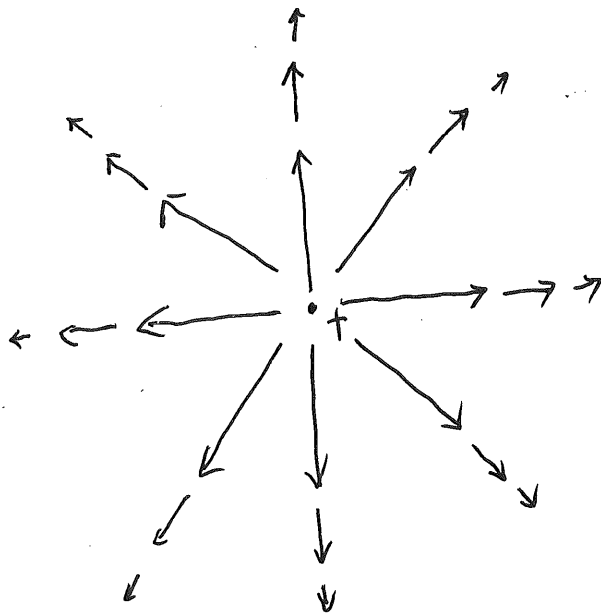
Q $\leftarrow$ E' due to q .

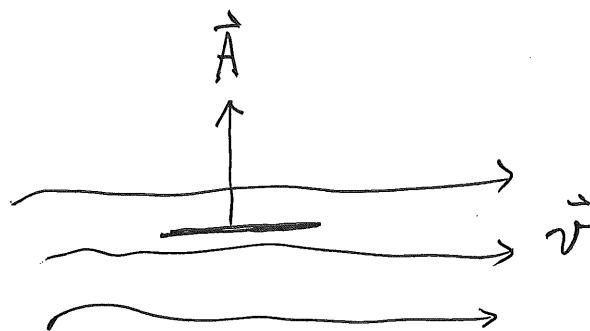
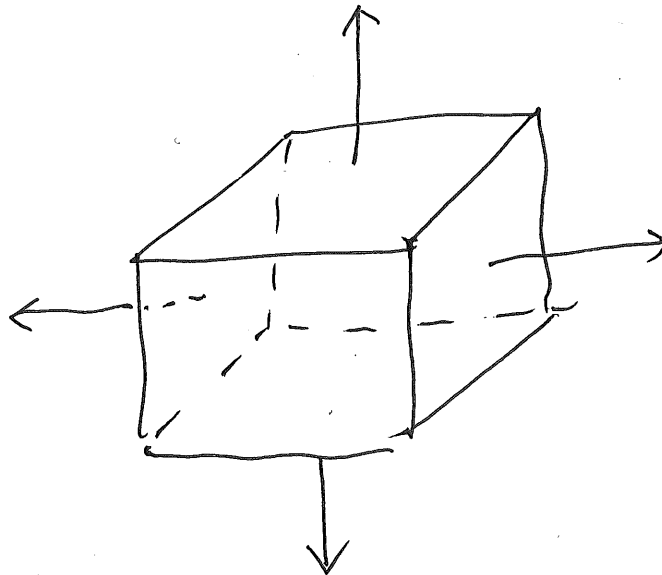
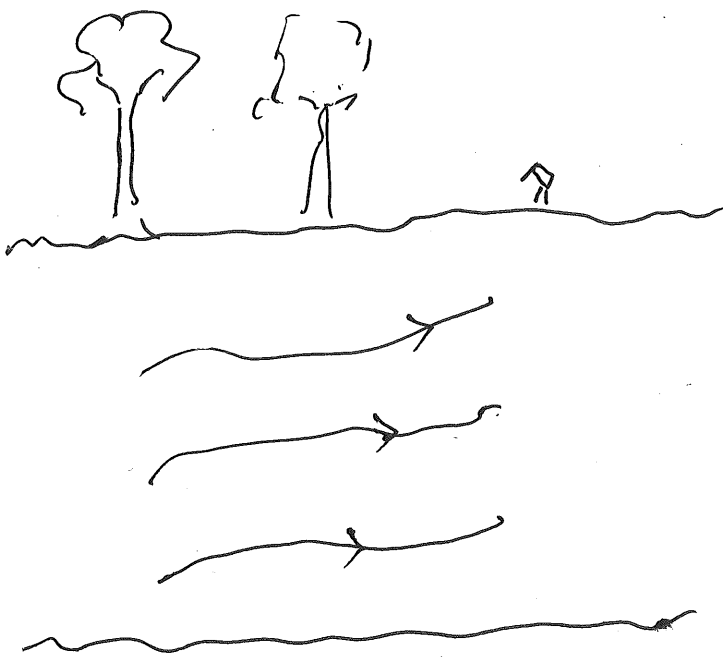
$$F = Q|E'| = \frac{1}{4\pi\epsilon_0} \frac{Qq}{r^2}$$

$$E' = \frac{1}{4\pi\epsilon_0} \frac{q}{r^2}$$

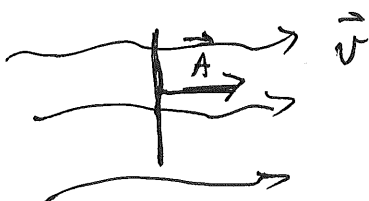


?? Either drawing is ~~wrong~~
wrong OR there is a
point charge at this
point





$$\vec{A} \cdot \vec{v} = 0$$



$$\begin{aligned} \vec{v} \cdot \vec{A} &= vA \cos 0^\circ \\ &= vA \text{ (max)} \end{aligned}$$