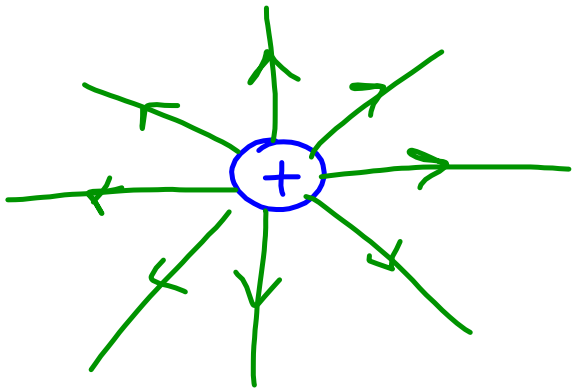
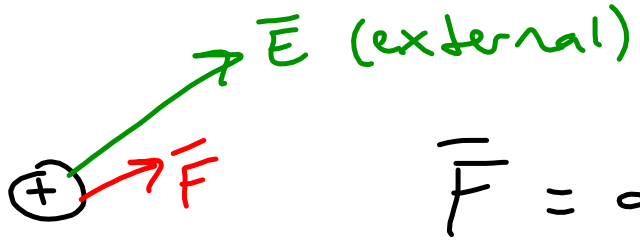
Electric Fields and Forces



For any object with charge, electric field exists.



$$\vec{F} = q\vec{E}$$

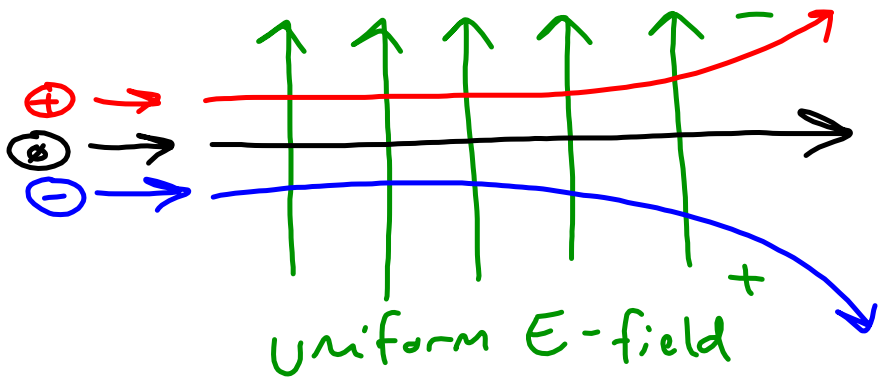
AP Eqn. sheet: $\vec{E} = \frac{\vec{F}_E}{q}$

Electric Field at some distance from a charge:

$$\vec{E}_1 = \frac{1}{4\pi\varepsilon_0}\frac{q_1}{|\vec{r}|^2}\hat{r}$$

$\hat{r}$ ↑ direction

Unit for $E \rightarrow \frac{N}{C}$ $\frac{\text{Newtons}}{\text{Coulombs}}$


−
+
uniform E-field

MATH...

- $\vec{F}_e$ and $\vec{E}$ are vectors, so we have to use our vector addition/multiplication.
- 2-D vectors → triangles → sin/cos/tan
- 3-D vectors