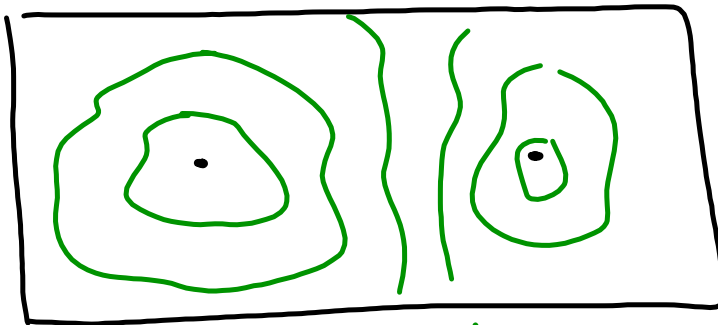
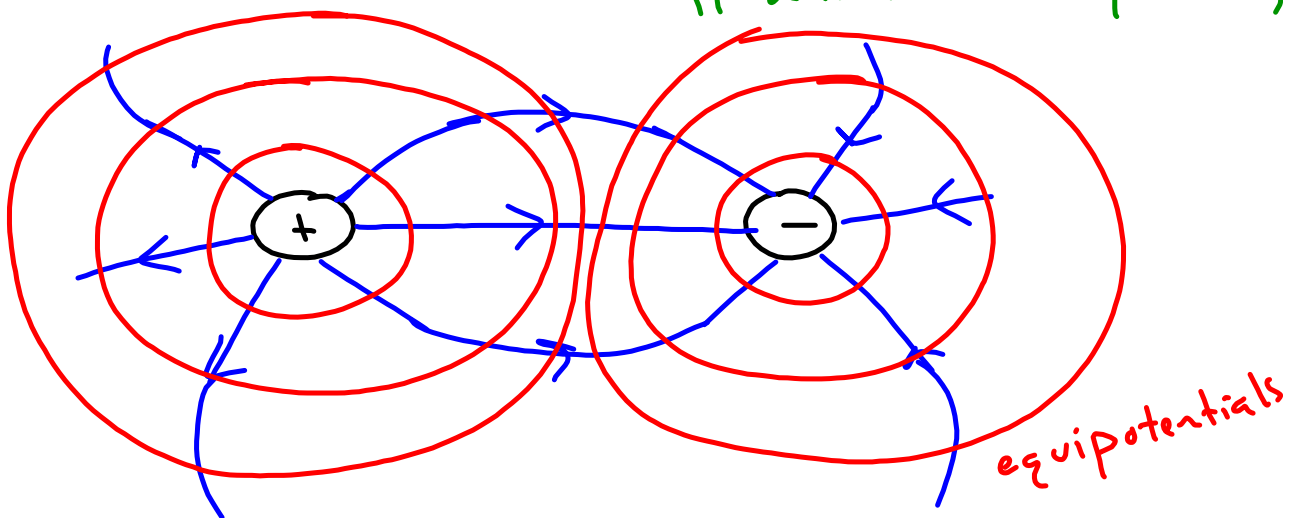


ELECTRIC FIELD LINES



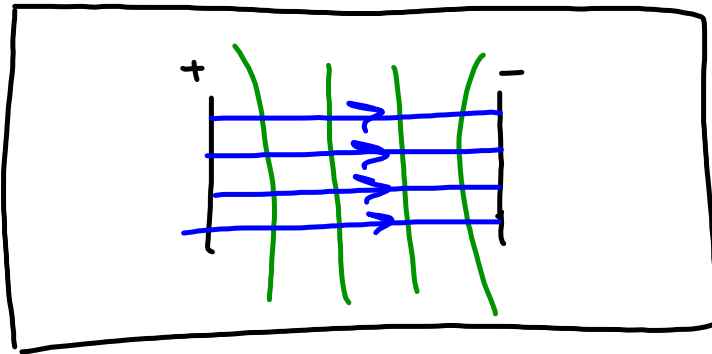
* measured
electric
potential

equipotential lines
(if a charge is on a line,
it has the same potential)

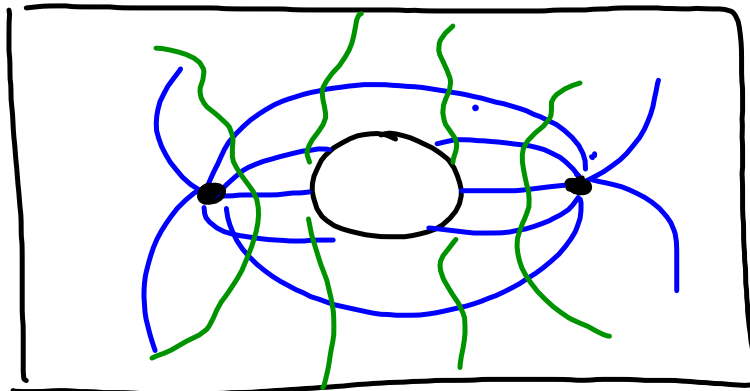


equipotentials

- Electric fields and equipotentials
are perpendicular to each other



- Blue \rightarrow E-field
- Green \rightarrow Equipotentials



$$\frac{1}{4\pi\epsilon_0}$$

- NO E-field inside!

E/M Worksheet 5

$$1) \quad \vec{E} = \frac{\vec{F}}{q_1}$$

$$= \frac{\frac{1}{4\pi\epsilon_0} \cancel{q_1} q_2}{|\vec{r}|^2} \hat{r}$$

$$\vec{E} = \frac{1}{4\pi\epsilon_0} \frac{q_2}{|\vec{r}|^2} \hat{r}$$

↖ direction!
becomes positive
or negative

$$2) \quad \vec{E} = \frac{1}{4\pi\epsilon_0} \frac{q}{|\vec{r}|^2} \hat{r}$$

↖ \vec{E} changes
with radius
squared

$$\vec{E} = \frac{1}{4\pi\epsilon_0} \frac{q}{(3r)^2}$$

$$= \frac{1}{4\pi\epsilon_0} \frac{1}{9} \frac{q}{r^2}$$

