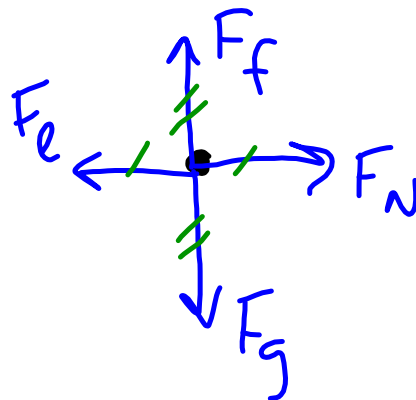


ELECTROSTATICS



Balloon
on wall

FBD



Factors that affect electric force:

- charge of first object
- charge of second object
- distance between objects

Magnitude
of electric
force

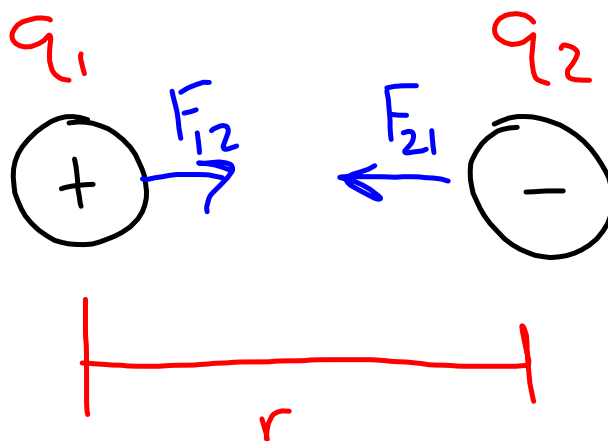
$$F_e = \frac{k q_1 q_2}{r^2}$$

Electric
force
(N)

Coulomb's
constant
 $9 \times 10^9 \frac{N \cdot m^2}{C^2}$

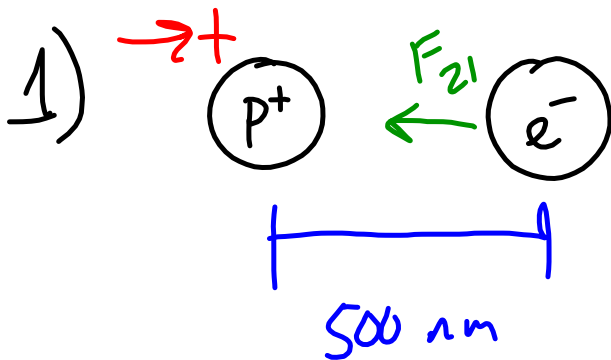
$q \rightarrow$ charge (Coulomb
[C])

$r \rightarrow$ distance between
objects (m)



F_{12} → Force on charge 1 by charge 2

Coulomb's law PS



$$F_{21} = \frac{k q_1 q_2}{r^2}$$

$$= \frac{(9 \times 10^9 \frac{\text{N} \cdot \text{m}^2}{\text{C}^2})(+1.6 \times 10^{-19} \text{ C})(-1.6 \times 10^{-19} \text{ C})}{(5 \times 10^{-7} \text{ m})^2}$$

$$= -9.22 \times 10^{-16} \text{ N}$$