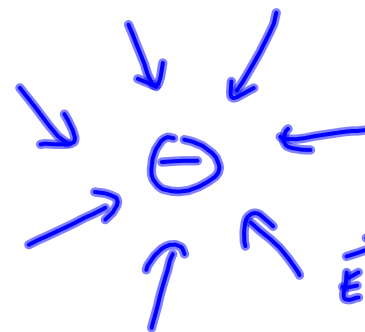
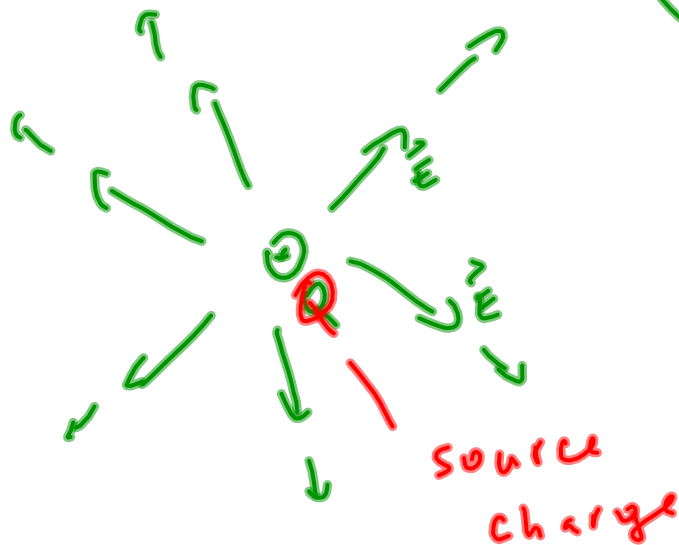


$$\vec{F} = q \vec{E}$$

$$k = \frac{1}{4\pi\epsilon_0}$$
$$\epsilon_0 = 8.85 \cdot 10^{-12} \frac{C^2}{N \cdot m^2}$$

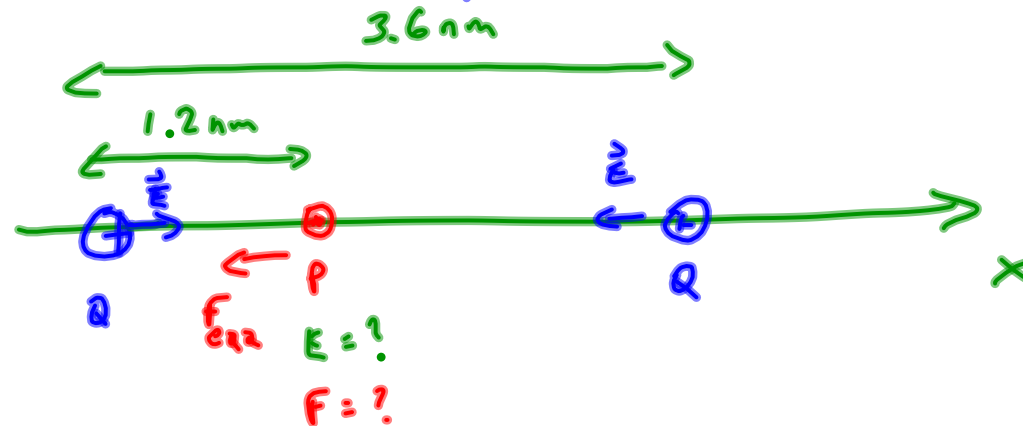
q. test charge

q. test charge



Example

2 protons are 3.6 nm apart. Find the electric field at a point between them, 1.2 nm from one of the protons. Then find the force on an electron at that point.



$$\vec{E} = \vec{E}_1 + \vec{E}_2 = \frac{1}{4\pi\epsilon_0} \cdot \left[\frac{q}{r_1^2} \hat{i} + \frac{Q}{r_2^2} (\dots \hat{i}) \right]$$

$$= 750 \hat{i} \text{ N/C}$$

$$\vec{F} = q \cdot \vec{E} = \underset{\substack{\uparrow \\ \text{electron}}}{-e} \cdot E = -0.12 \hat{i} \text{ nN}$$