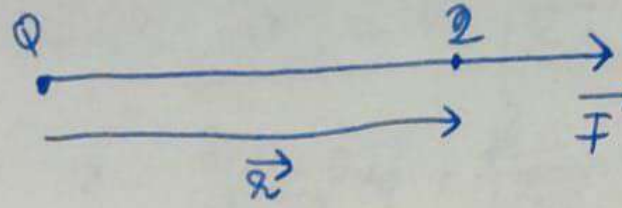
Câmpul electrostatic. Intensitatea câmpului electrostatic ④



$\vec{F} = k \frac{Qq}{r^3} \vec{r}$ (Coulomb)

$F = k \frac{|Qq|}{r^2}$

$\vec{F} = q \left(k \frac{Q}{r^3} \vec{r} \right)$

$\boxed{E = k \frac{Q}{r^3} \vec{r}}$

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

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

$[E]_{SI} = \frac{N}{C} = \frac{V}{m}$

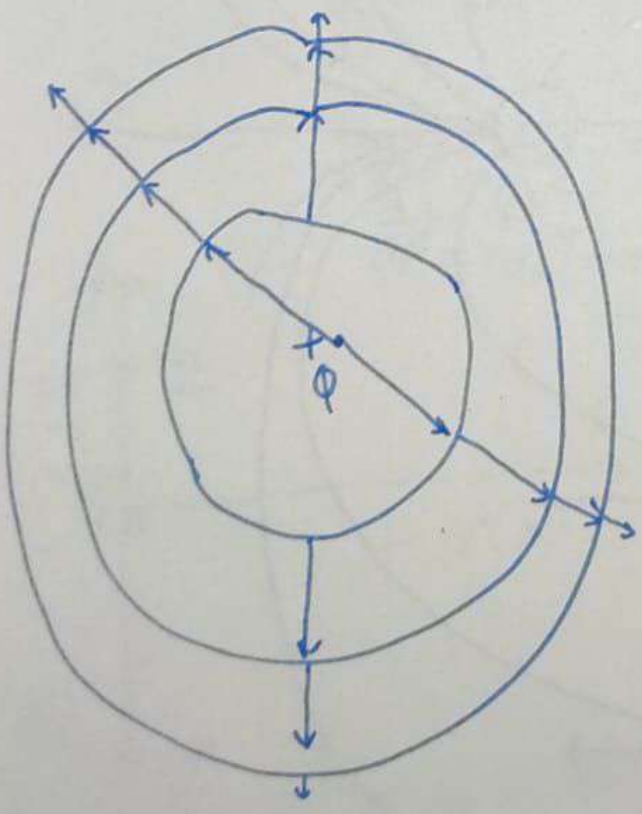
unitate de măsură câmp electrostatic

$\vec{F} = m \cdot \vec{\Gamma}$

Γ - intensitate câmp gravitațional

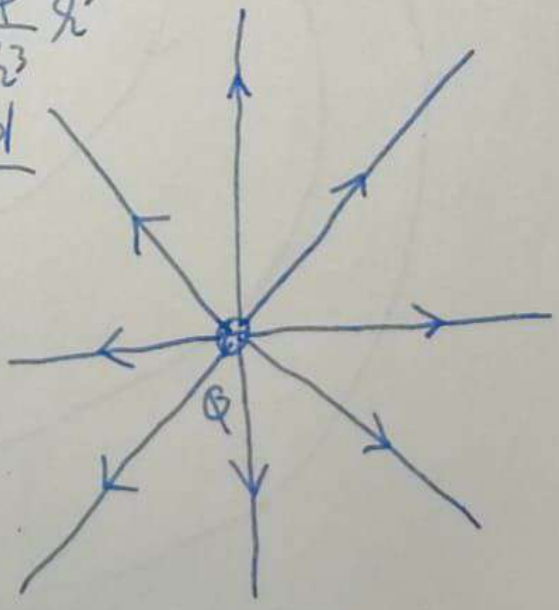
$\vec{\Gamma} = \frac{\vec{F}}{m}$

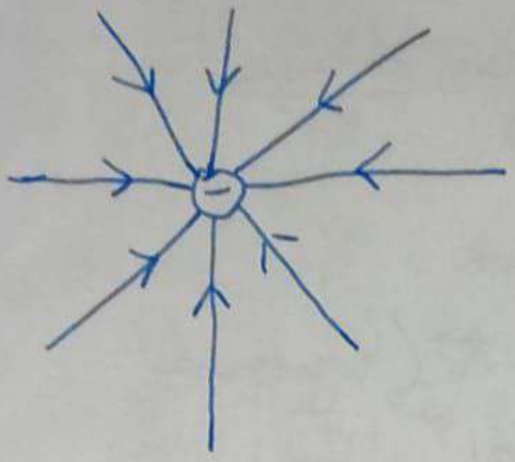
$[\Gamma]_{SI} = \frac{N}{kg} = \left(\frac{m}{s^2} \right)$

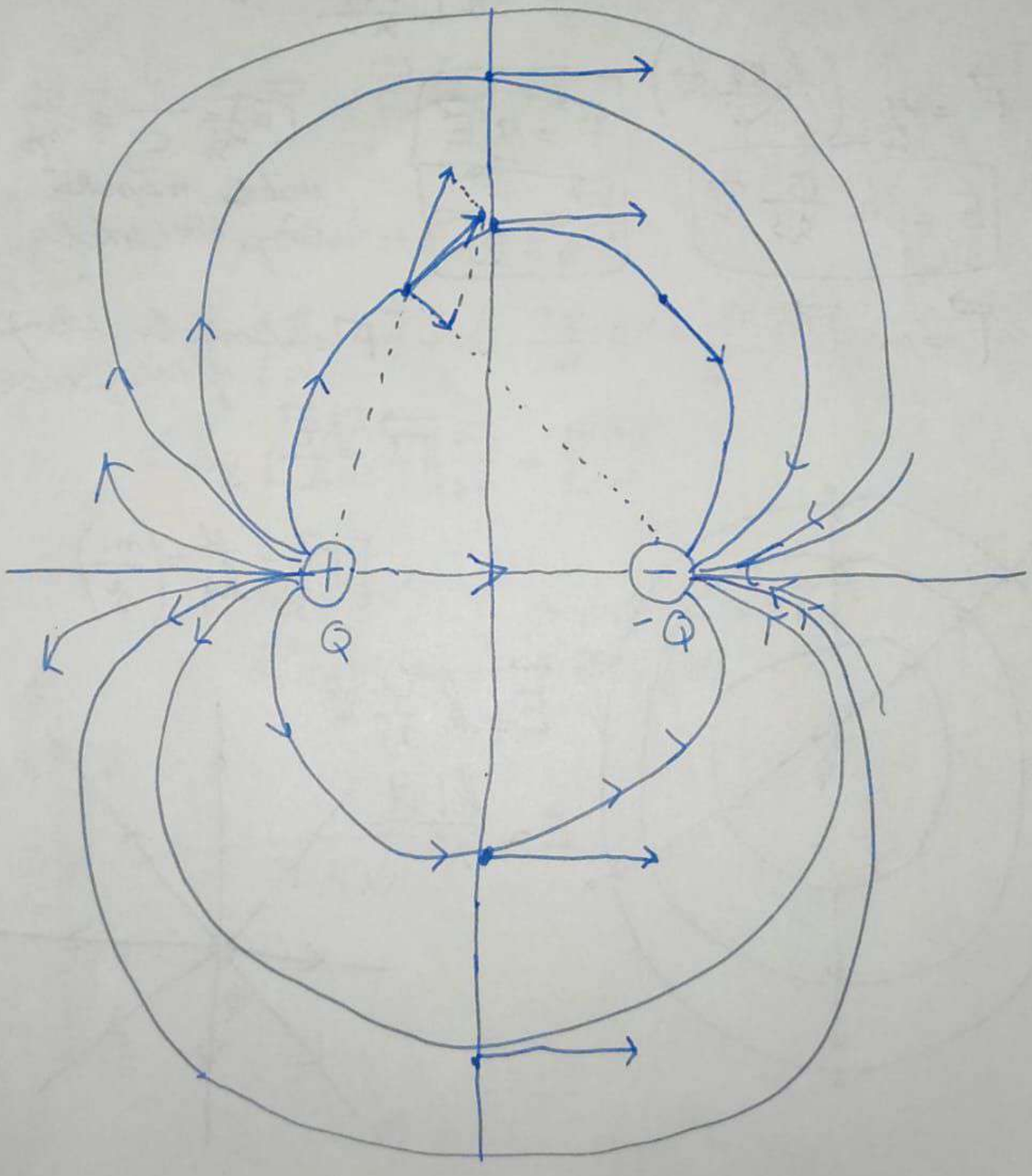


$\vec{E} = k \frac{Q}{r^3} \vec{r}$

$E = \frac{k|Q|}{r^2}$






+
Q
−
−Q

$$\vec{E}_q = \vec{E}_{1q} + \vec{E}_{2q}$$

$$\vec{F}_q = \vec{F}_{1q} + \vec{F}_{2q} = k\frac{Q_1 q}{|\vec{r}_{1q}|}\vec{r}_{1q} + k\frac{Q_2 q}{|\vec{r}_{2q}|^3}\vec{r}_{2q}$$

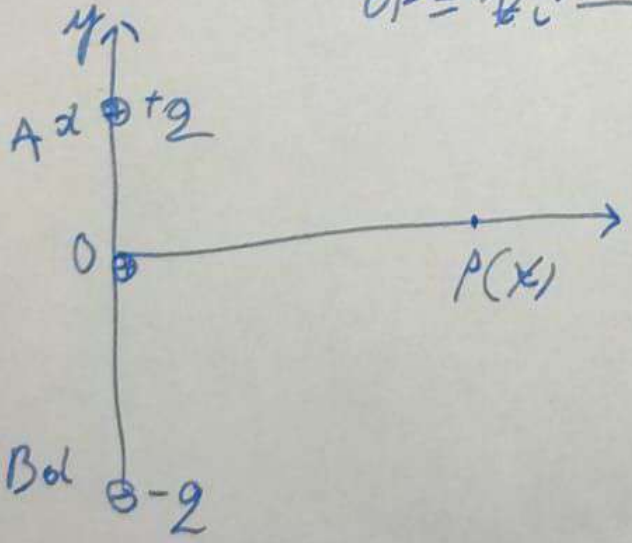
$$= q\left(\frac{kQ_1}{|\vec{r}_{1q}|^3}\vec{r}_{1q} + \frac{kQ_2}{|\vec{r}_{1q}|}\vec{r}_{13}\right) = q\left(\vec{E}_{1q} + \vec{E}_{2q}\right) = q\vec{E}_2$$

$$\vec{E} = k\frac{Q}{r^3}\vec{r} = \vec{E}(x,y,t)$$

35/777 a) $\vec{E}_p = \vec{E}_{AP} + \vec{E}_{OP} + \vec{E}_{BP}$

$$= k\cdot\frac{-q}{AP^3}\vec{AP} + k\cdot\frac{2q}{OP^3}\vec{OP} + \frac{k(-q)}{BP^3}\cdot\vec{BP}$$

$$= kq\left(-\frac{\vec{AP}}{AP^3} + \frac{2\vec{OP}}{OP^3} + \frac{\vec{BP}}{BP^3}\right)$$

$$\vec{AP} = x\vec{i} - a\vec{j} \longrightarrow AP = \sqrt{x^2+a^2}$$

$$\vec{OP} = x\vec{i} \longrightarrow OP = |x|$$