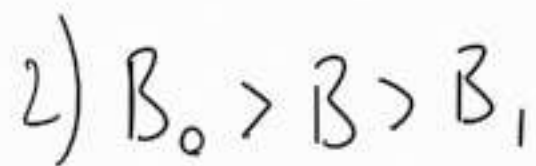


- 1) θ
- 2) $B = ?$
- 3) $\beta = ?$
- 4) $\beta = ?$

$$r = \frac{mv}{qB}$$

$$1) B > B_0, B_0 = ?, r_0 = \frac{mv}{qB_0} = \left(\frac{a}{2}\right) \frac{1}{2} = \frac{a}{4} \Rightarrow$$

$$B_0 = \frac{4mv}{qe}$$



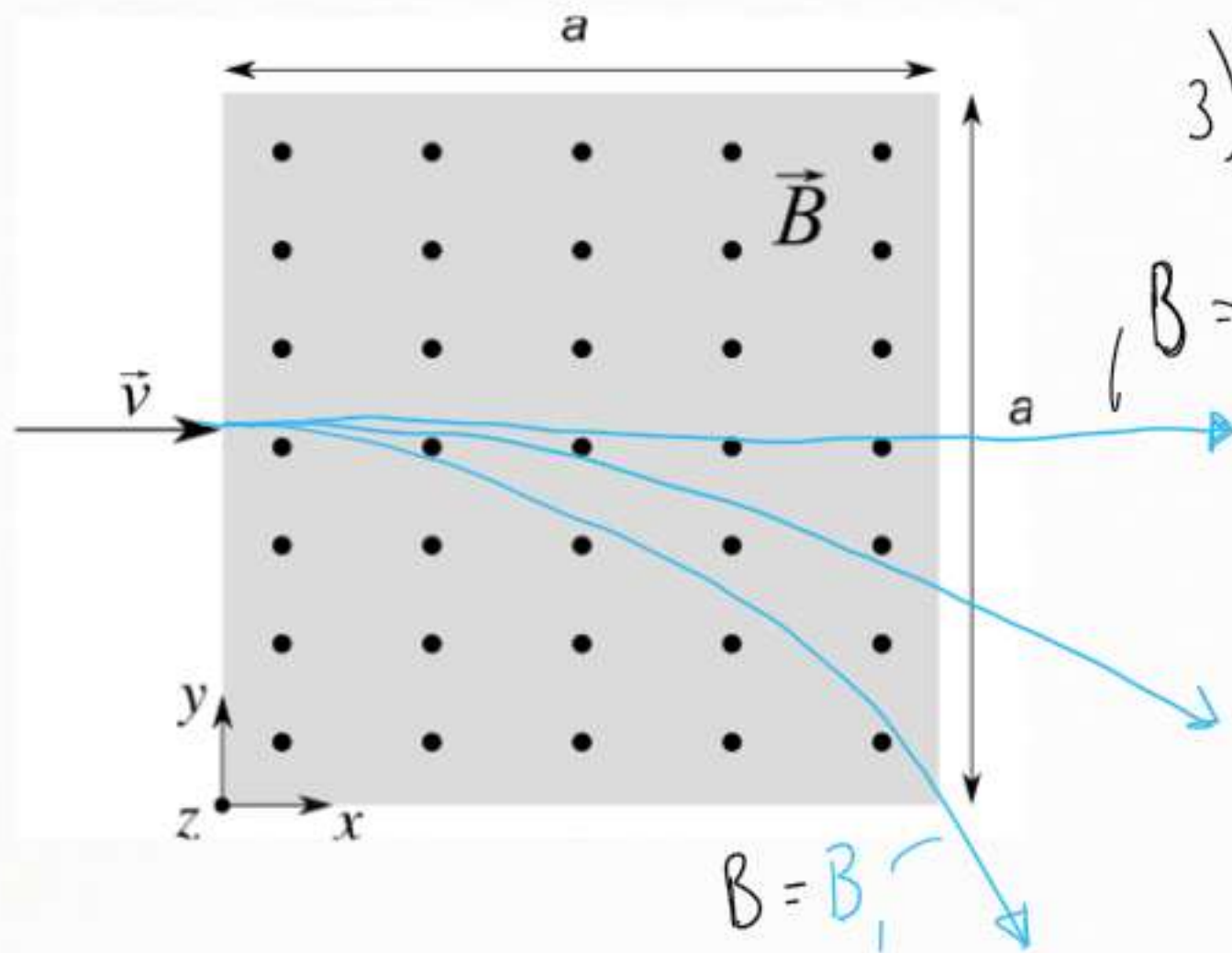
$$r_1 = \frac{mv}{qB_1}$$

$$r_1^2 = a^2 + \left(r_1 - \frac{a}{2}\right)^2 = a^2 + r_1^2 + \frac{a^2}{4} - r_1 a \Rightarrow$$

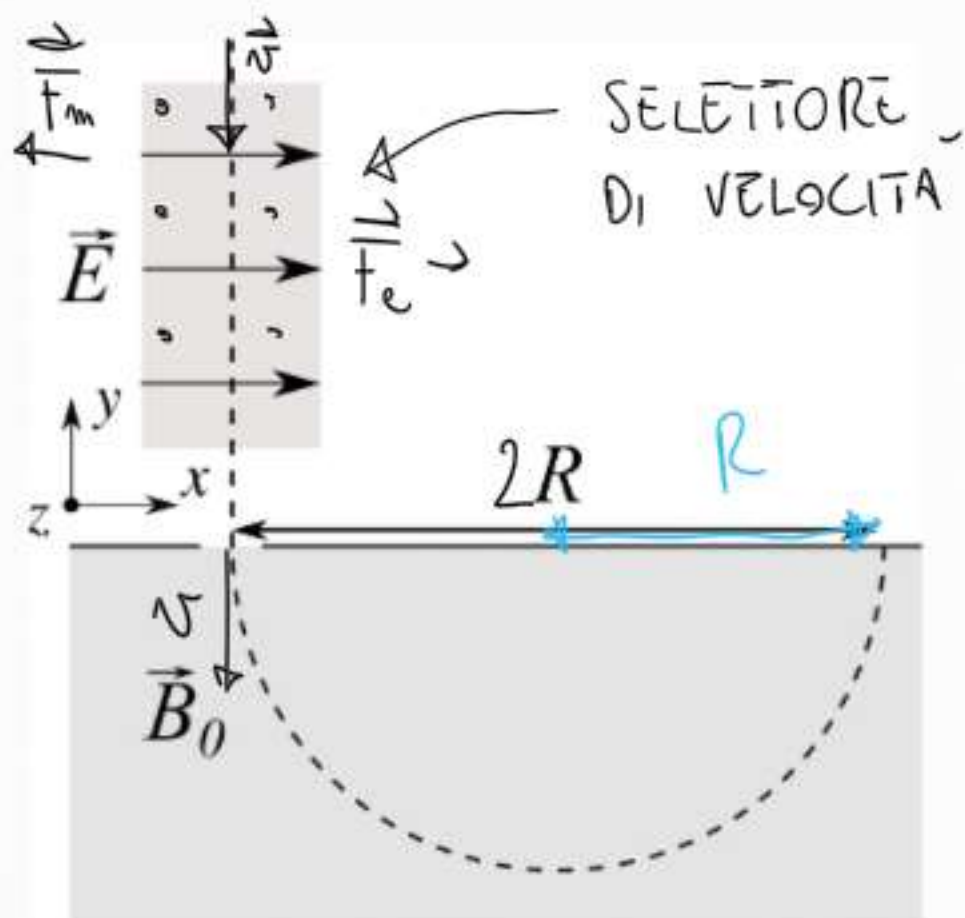
$$r_1 q = a^2 + \frac{a^2 x}{4} \rightarrow r_1 = \frac{5}{4} a = \frac{mv}{q B_1} \rightarrow$$

$$B_1 = \frac{4}{5} \frac{mv}{qQ}$$

$$\frac{4mv}{9\alpha} > \beta > \frac{4}{5} \frac{mv}{9\alpha}$$



$$3) 0 \leq B < B_1$$



$$E = 2.5 \frac{\text{KV}}{\text{m}}, \vec{E} \parallel \hat{x}$$

$$B_0 = 0.035 \text{ T}$$

$$q = 1.6 \cdot 10^{-19} \text{ C}, m = 2.18 \cdot 10^{-26} \text{ Kg}$$

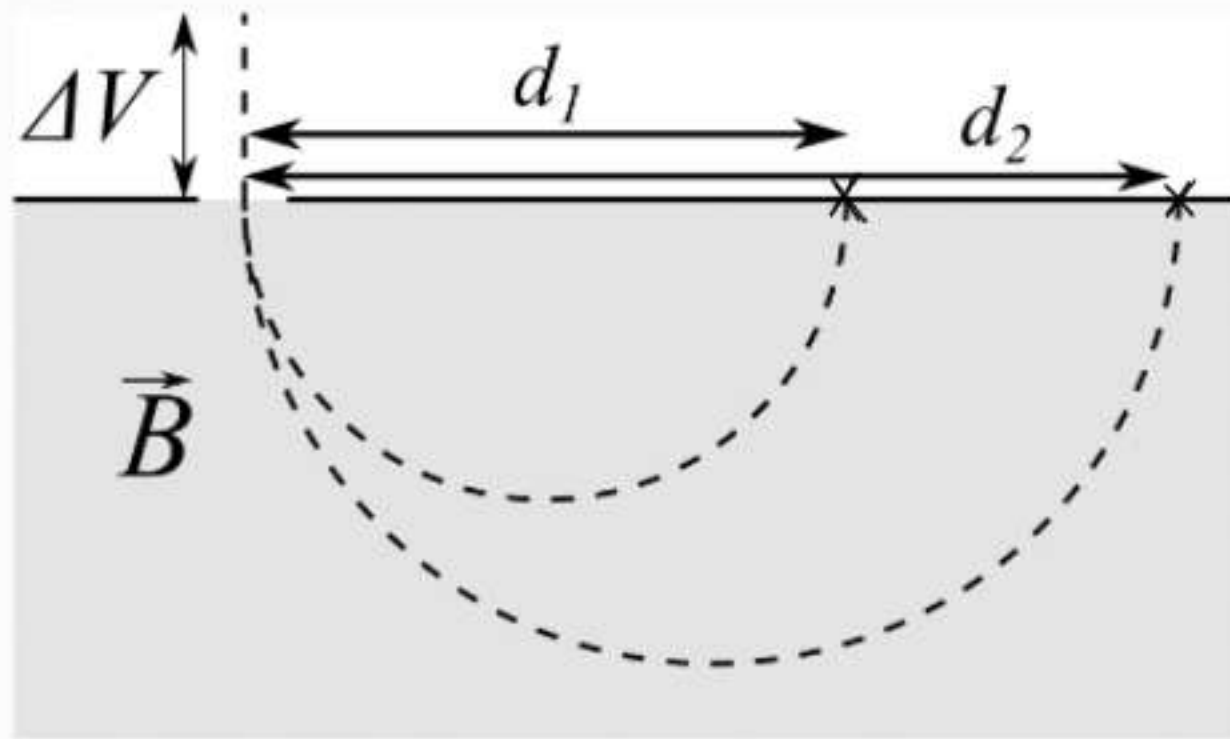
$$R = 0.28 \text{ m}$$

$$\vec{B} = ?$$

$$q \vec{v} \times \vec{B} + q \vec{E} = 0$$

$$\vec{B} \parallel \hat{z}, \quad q v B = q E \Rightarrow B = \frac{E}{v} \quad R = \frac{m v}{q B_0} \Rightarrow v = \frac{R q B_0}{m} \Rightarrow$$

$$B = \frac{E m}{R q B_0}$$



$$q = 1.6 \cdot 10^{-19} \text{ C}, \Delta V = 23 \text{ V}$$

$$d_1 = 280 \text{ mm}, d_2 = 392 \text{ mm}$$

$$m_1 = 3.8 \cdot 10^{-26} \text{ kg}$$

$$1) \vec{B} \parallel ?$$

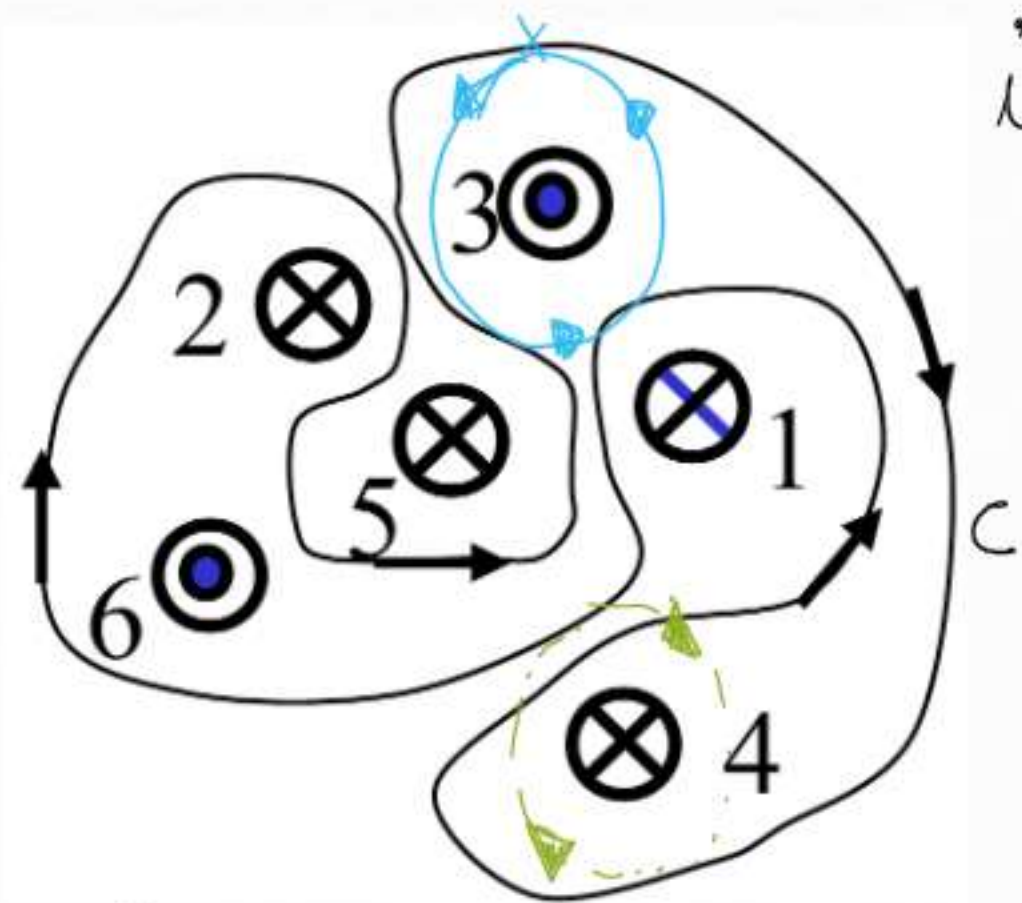
$$2) m_2, v_2$$

$$r = \frac{mv}{qB}, r_1 = \frac{d_1}{2}, r_2 = \frac{d_2}{2}$$

$$\boxed{\frac{1}{2} m_1 v_1^2 = \frac{1}{2} m_2 v_2^2 = q \Delta V \Rightarrow v_1 = \sqrt{\frac{2q\Delta V}{m_1}}}$$

$$qB = \frac{m_1 v_1}{r_1} = \frac{m_2 v_2}{r_2}$$

$$\Rightarrow \boxed{\begin{aligned} m_2 &= m_1 \left(\frac{r_2}{r_1} \right)^2 \\ v_2 &= v_1 \frac{r_1}{r_2} \end{aligned}}$$



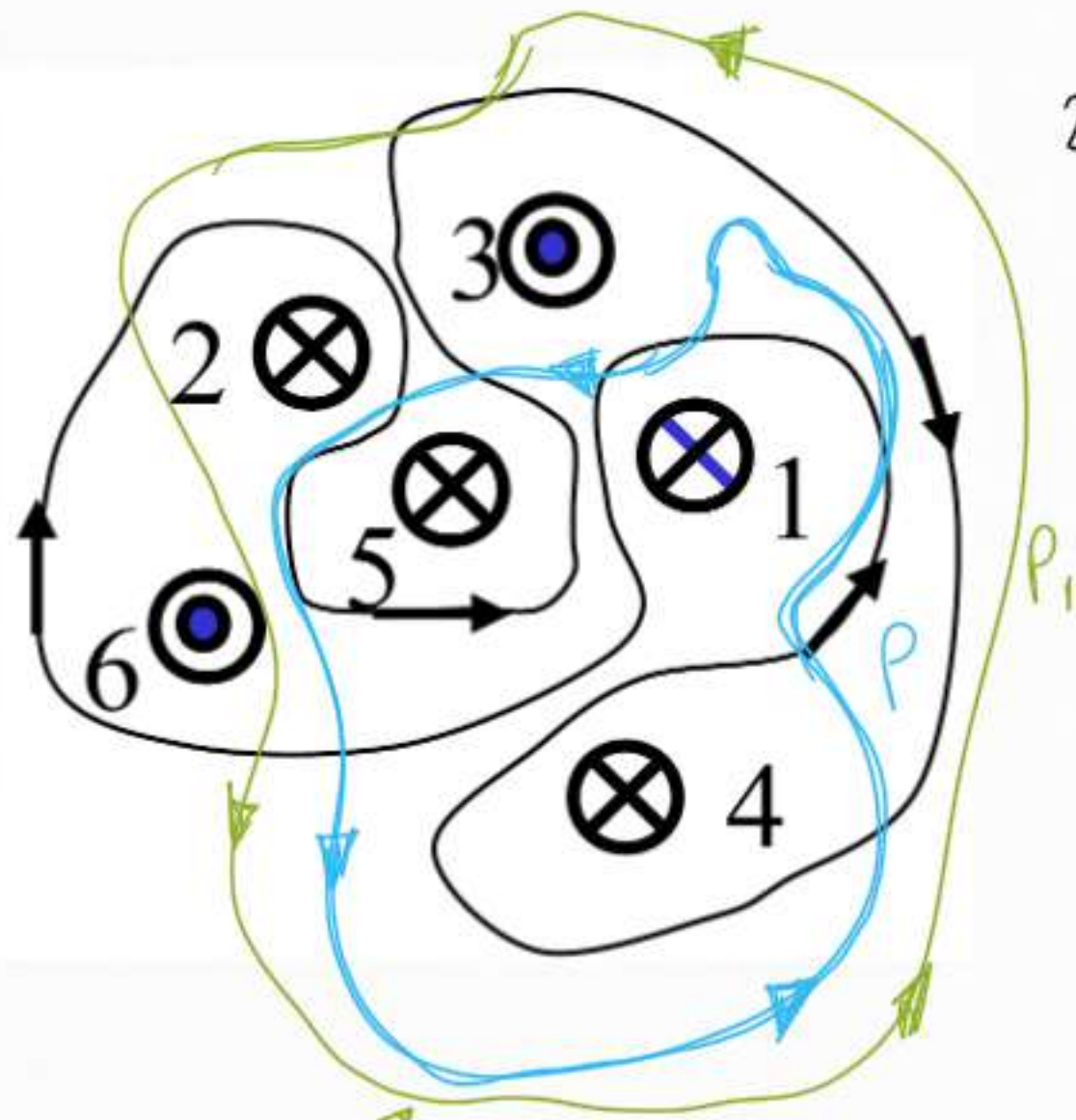
i

$$1) \oint_C \vec{B} \cdot d\vec{s} = ?$$

$$2) \text{TROVARE, SE ESISTE, UN } P : \oint_P \vec{B} \cdot d\vec{s} = -3\mu_0 i$$

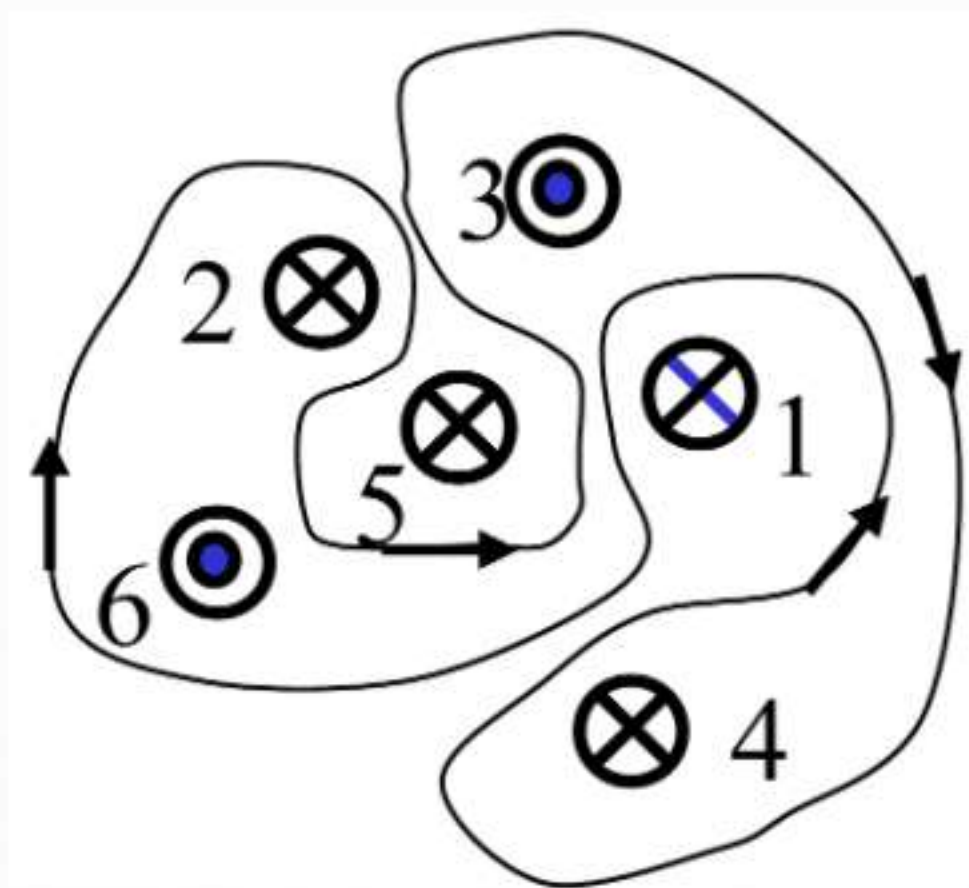
$$3) \text{ " " " " : } \oint_P \vec{B} \cdot d\vec{s} = \mu_0 \frac{i}{2}$$

$$1) \oint_C \vec{B} \cdot d\vec{s} = \mu_0 \sum_k i_k = \mu_0 (i_4 + i_2 - i_3 - i_6) = 0$$



$$2) \quad \oint_P \vec{B} \cdot d\vec{s} = -3\mu_0 i$$

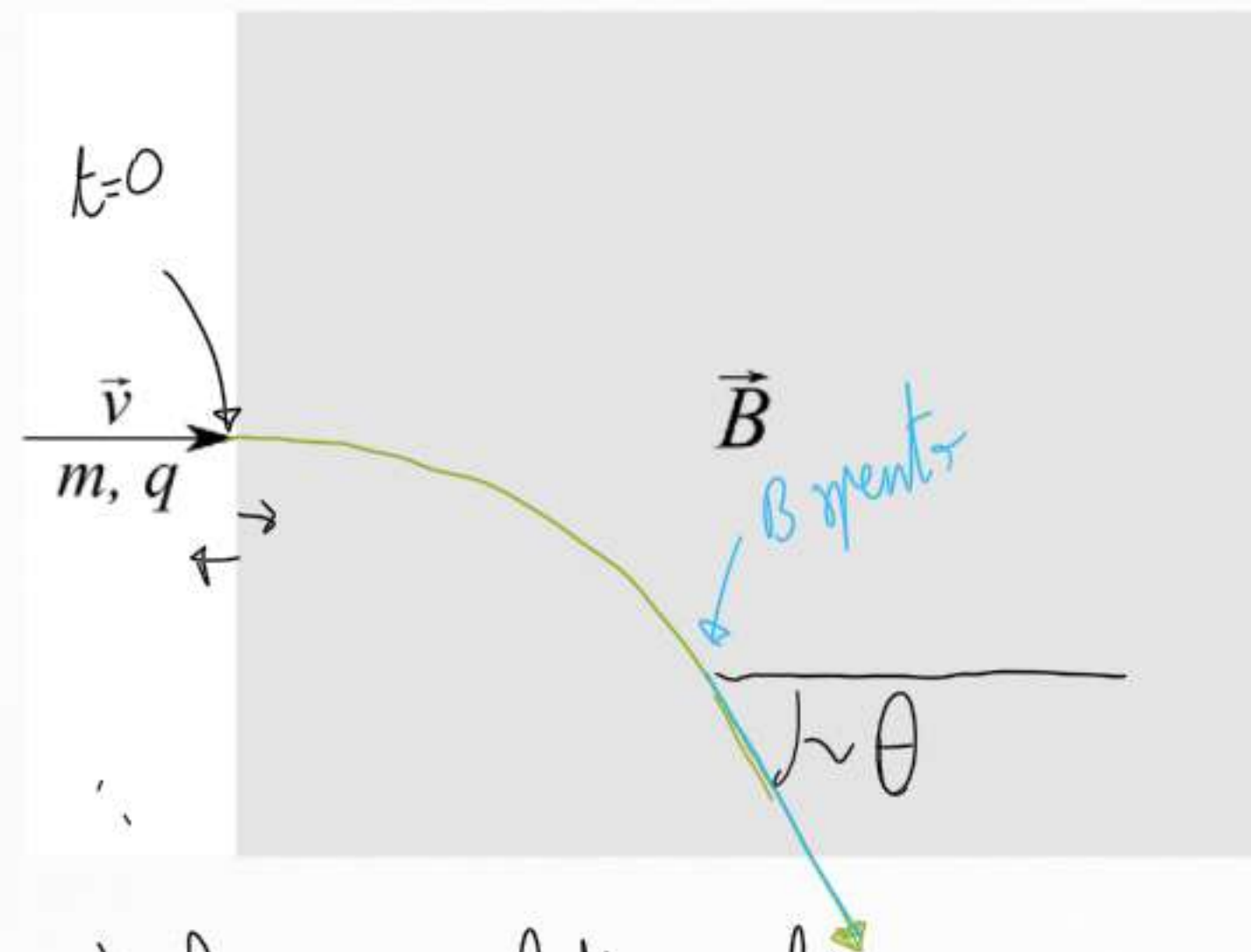




$$3) \rho: \oint_P \vec{B} \cdot d\vec{s} = \frac{\mu_0 i}{2}$$

ρ non esiste!

$$\mu_0 \sum_k i_k = \mu_0 X$$



3) che campo elettrico bisogna aggiungere per far sì che la particella non venga deviata

$$q = 50 \text{ mC}, m = 20 \text{ g}$$

$$B = 0.25 \text{ T}, v = 8 \text{ m/s}$$

1) calcolare la distanza a cui la particella esce dalla regione di campo

2) quanto tempo trascorre all'interno della regione di campo

4) e che tempo bisogna "spegnere" \vec{B} per far sì che $\theta = 30^\circ$

$$t = \frac{\theta}{\omega}$$