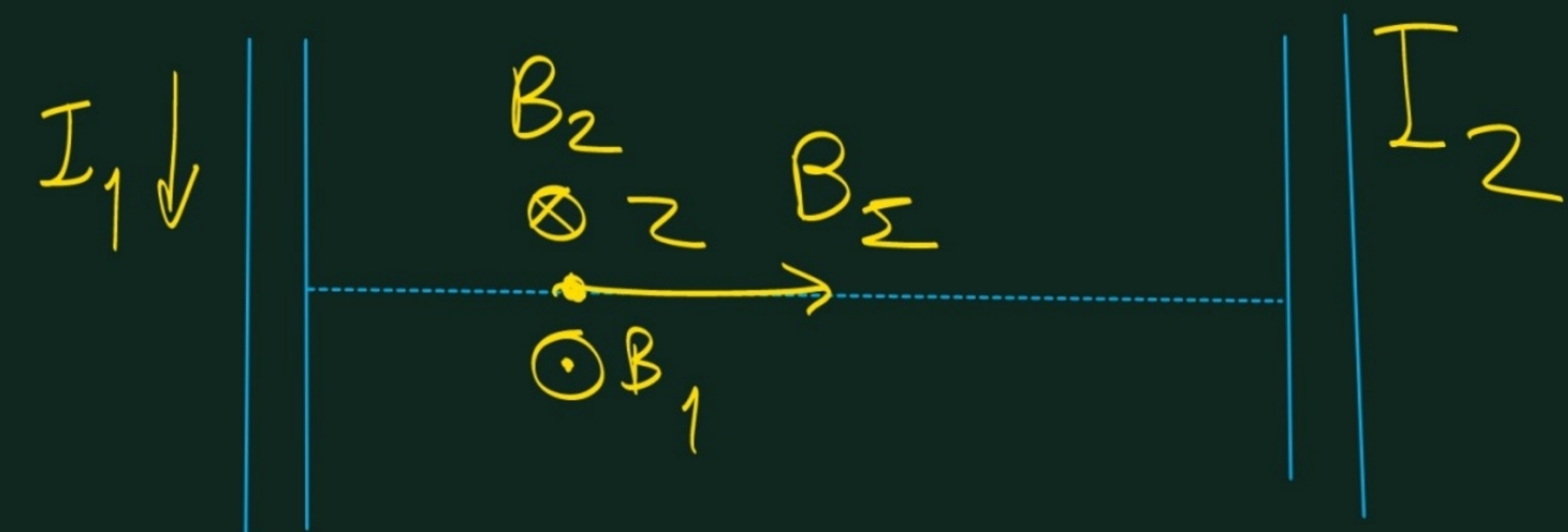
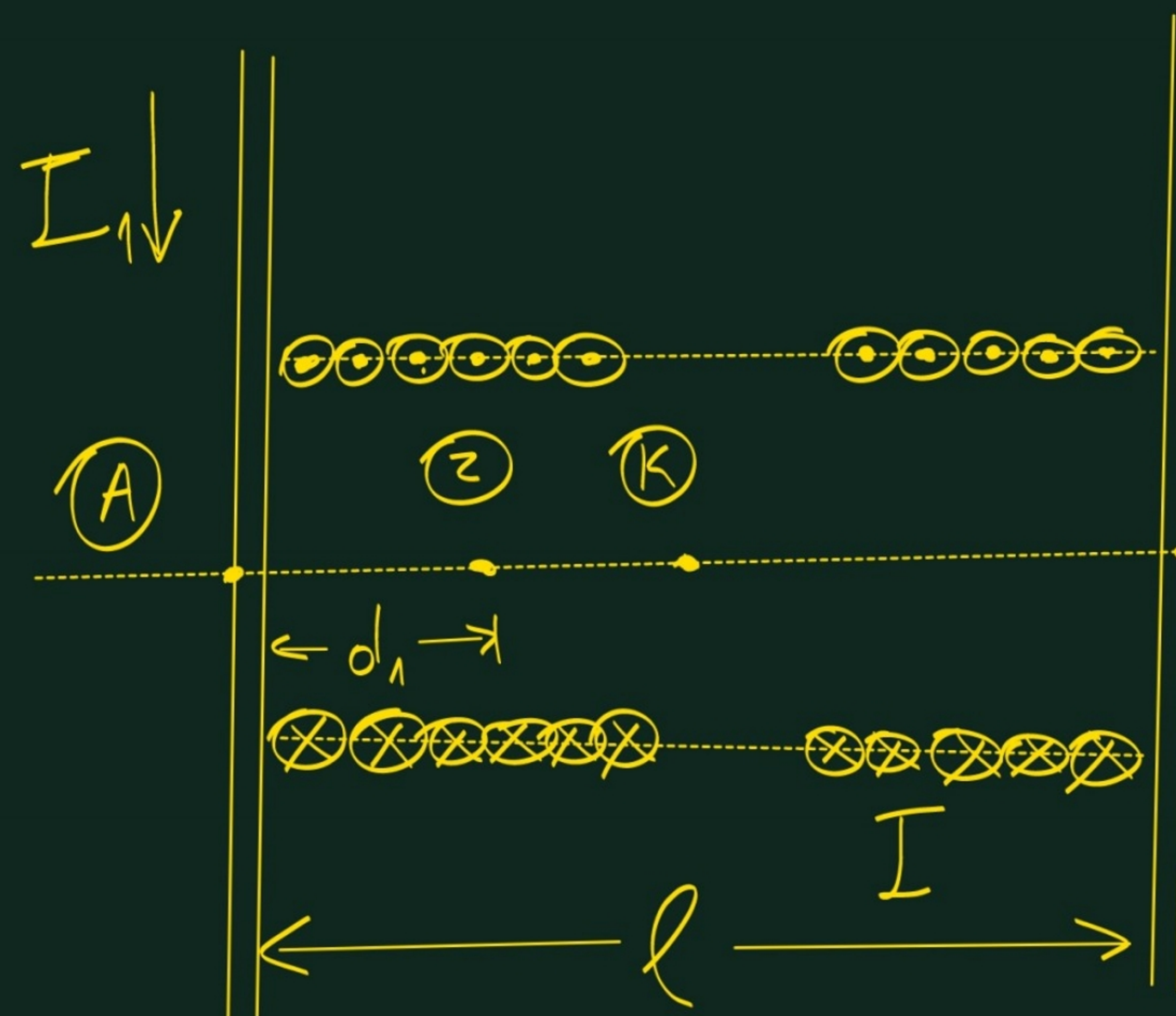


Ασκ. 2.259.



$$L = 32 \mu\text{H}$$

$$S = 1 \text{ mm}$$

$$\Delta = 4 \text{ cm}$$

$$E = 3 \text{ V}$$

$$r = 2,2 \text{ cm}$$

$$I = 80 \text{ mA}$$

$$d_1 = 0,2 \text{ m}$$

$$a) L = N \cdot \pi \Delta \Rightarrow$$

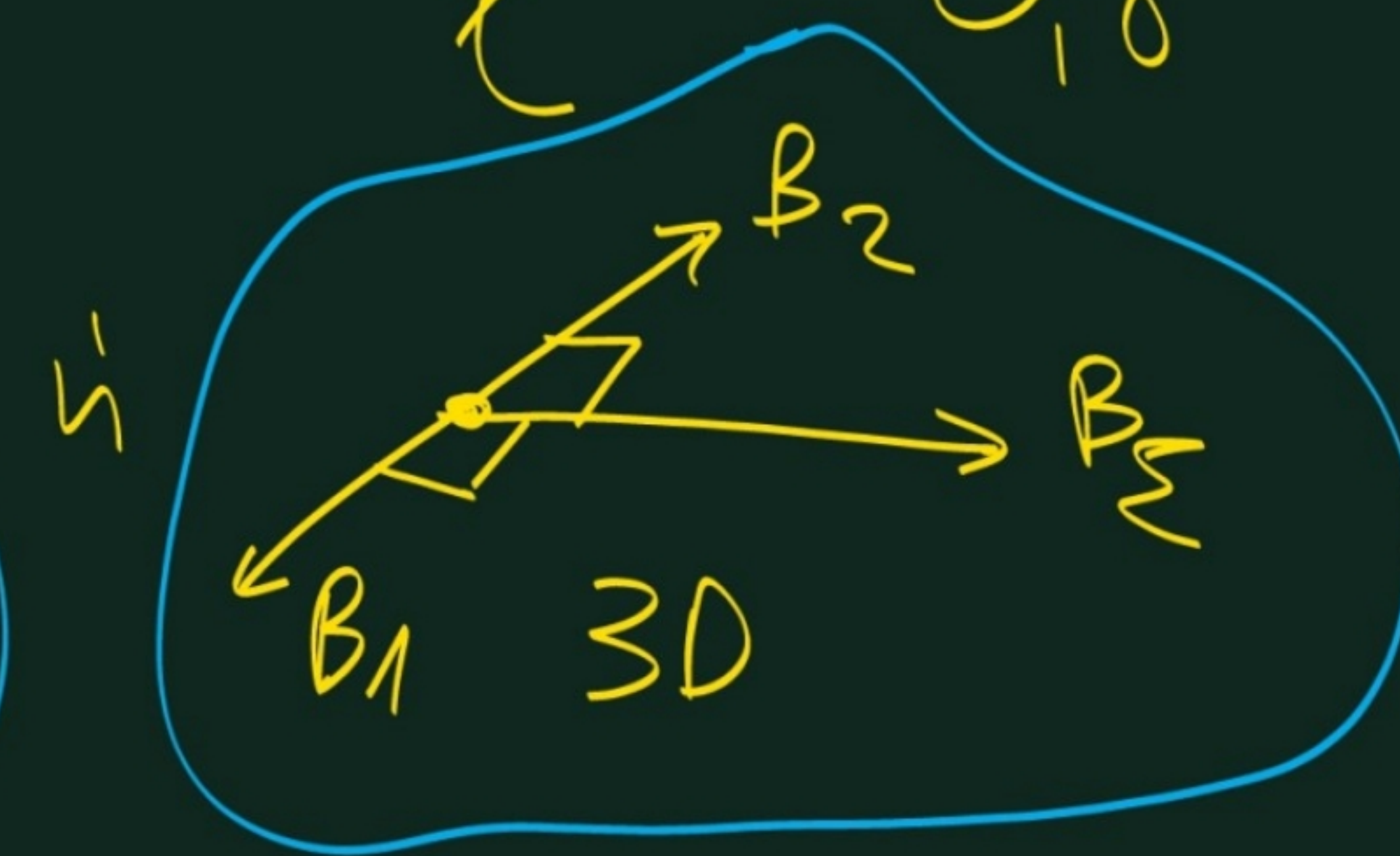
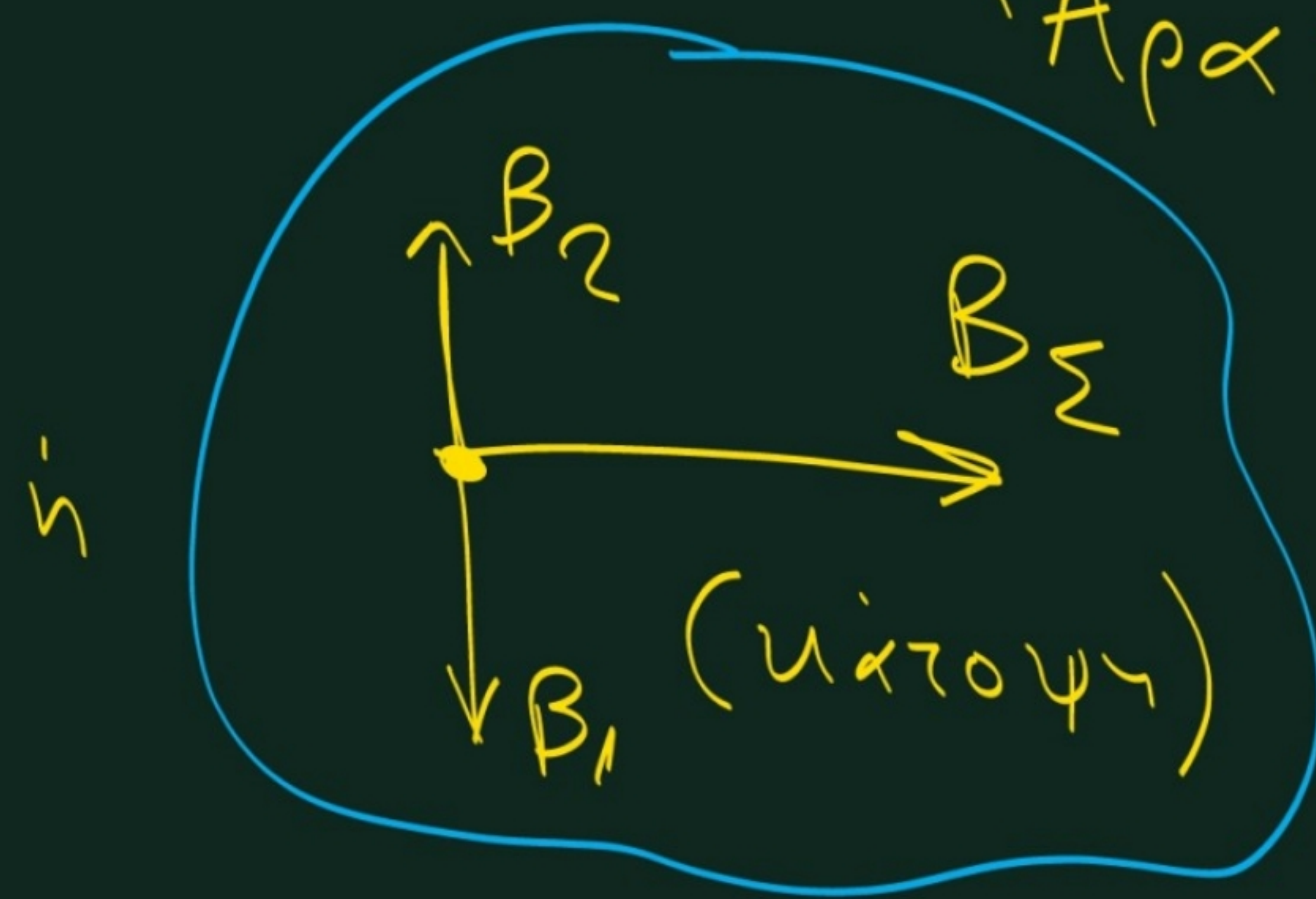
$$32 \mu\text{H} = N \cdot \pi \cdot 4 \cdot 10^{-2} \Rightarrow$$

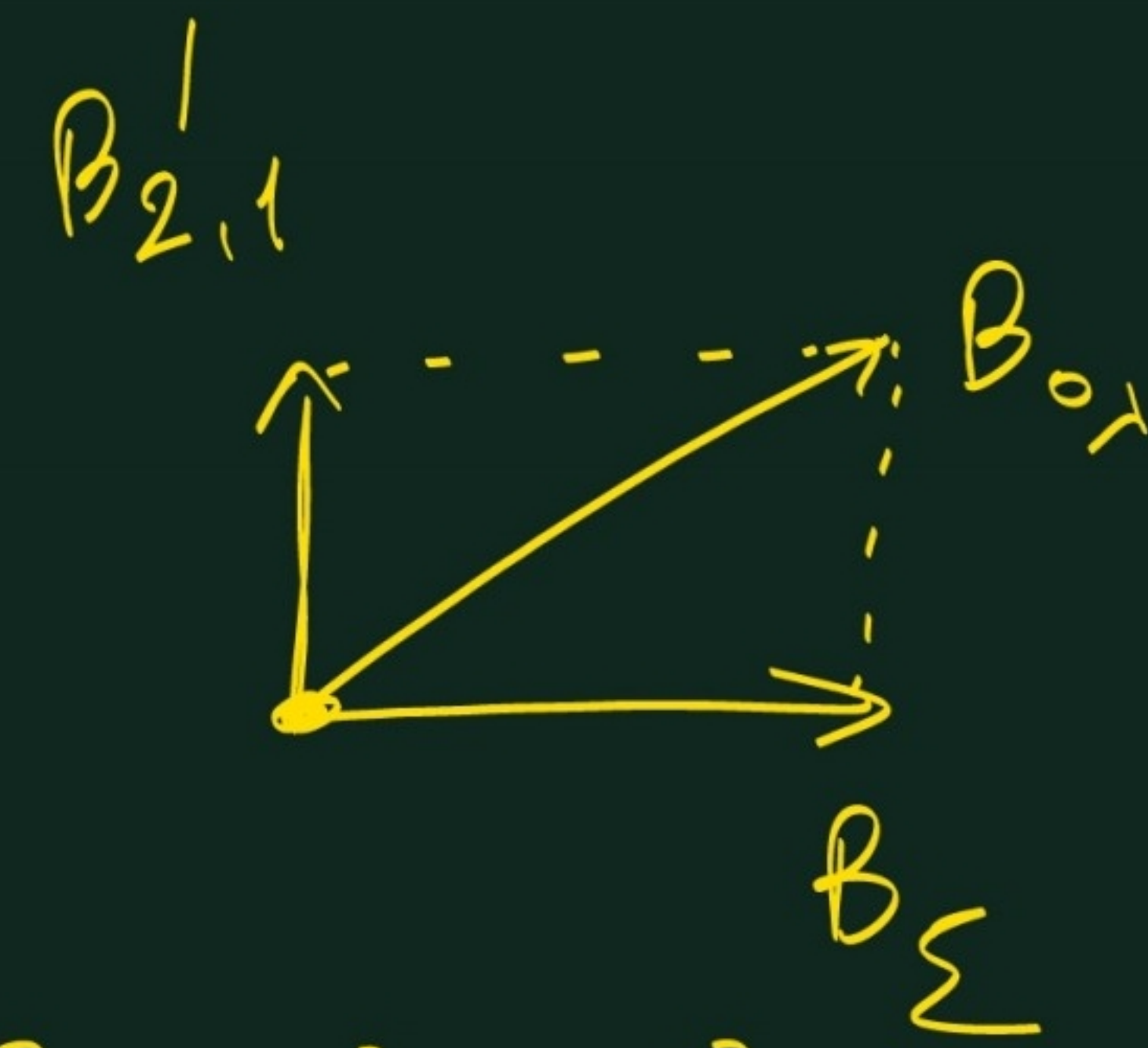
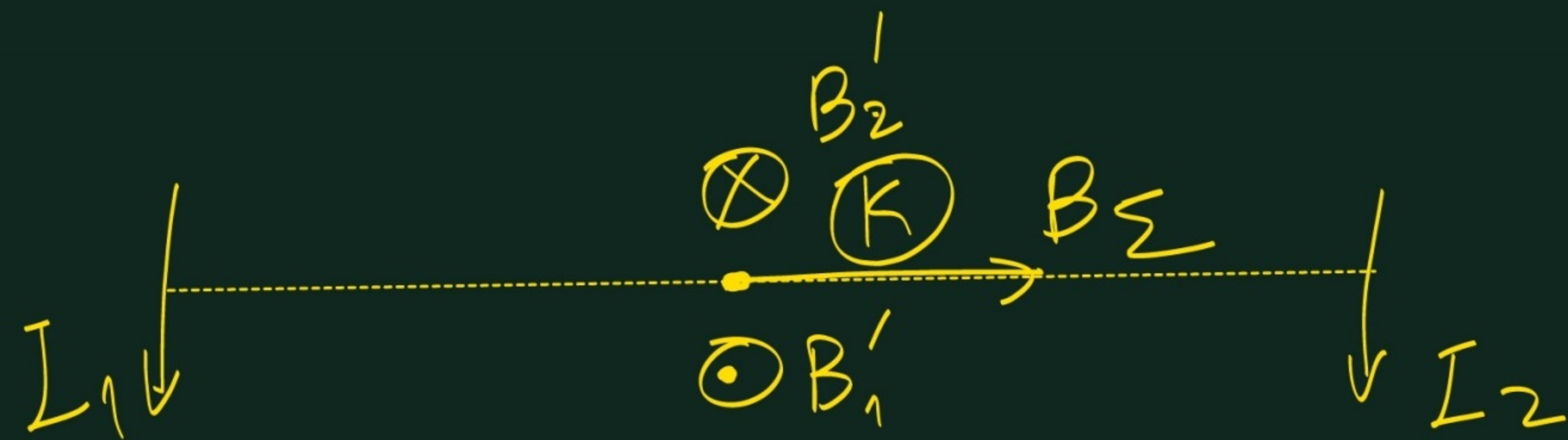
$$N = \frac{32}{4 \cdot 10^{-2}} \Rightarrow N = 800 \text{ σπείρες}$$

$$b) \ell = N \cdot S \Rightarrow$$

$$\ell = 800 \cdot 10^{-3} = 0,8 \text{ m}$$

$$A_{\text{ρα}}: n = \frac{N}{\ell} = \frac{800}{0,8} = 10^3 \text{ σπ/μ}$$





$$B'_{2,1} = B'_2 - B'_1 = 8n \cdot 10^{-5} \text{ Tesla}$$

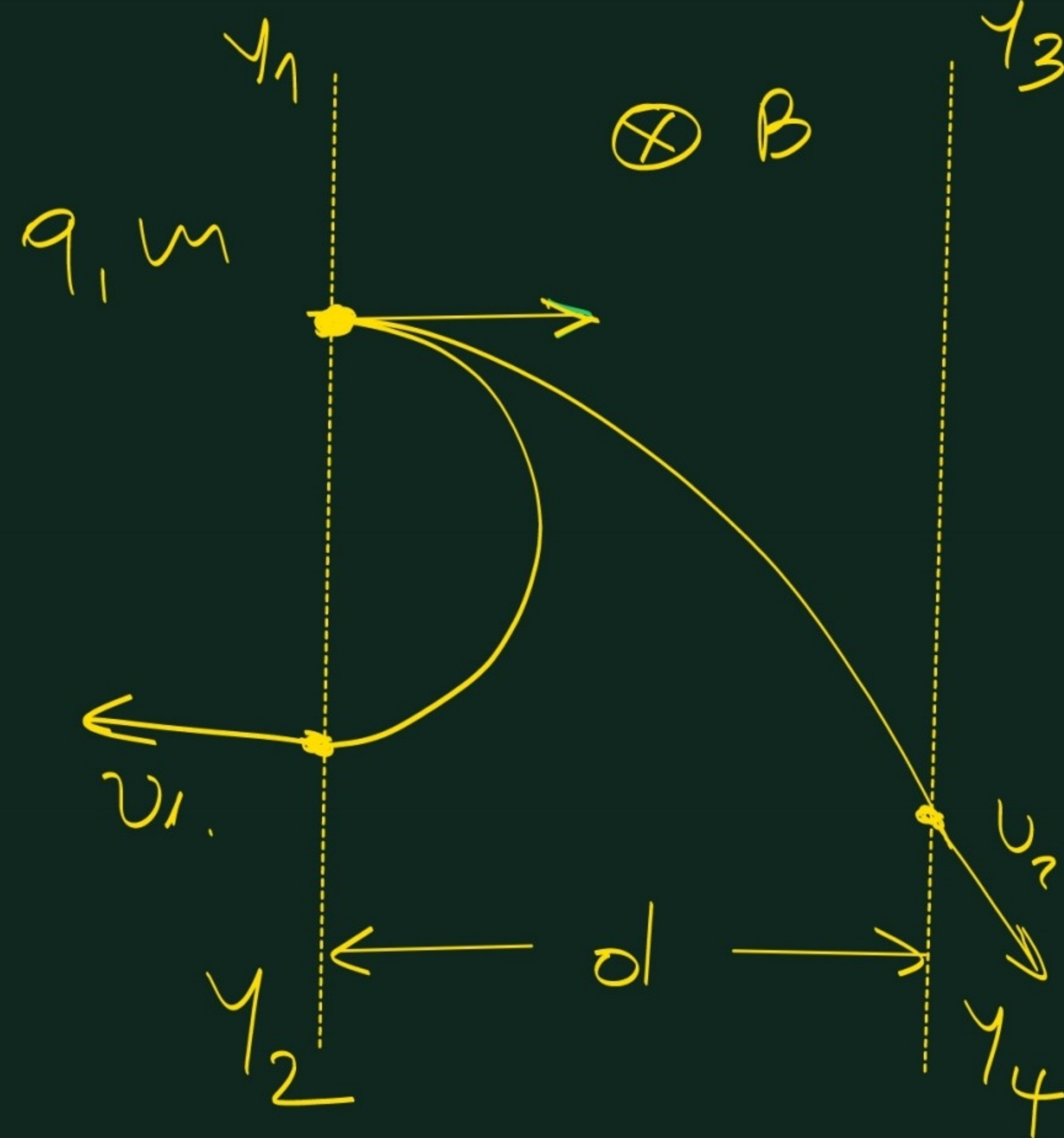
$$B_\Sigma = 8n \cdot 10^{-5} \text{ T}$$

Αprox: $B_{0,2}^2 = B_\Sigma^2 + B'_{2,1}{}^2 = 2(8n \cdot 10^{-5})^2 \Rightarrow B_{0,2} = 8\sqrt{2}n \cdot 10^{-5} \text{ Tesla}$

$$B'_1 = \frac{\mu_0}{2n} \cdot \frac{I_1}{\frac{\ell}{2}} = \frac{4n \cdot 10^{-7}}{2n} \cdot \frac{80n}{0,4} = 2 \cdot 10^{-7} \cdot 200n = 4n \cdot 10^{-5} \text{ Tesla}$$

$$B'_2 = \frac{\mu_0}{2n} \cdot \frac{I_2}{\frac{\ell}{2}} = 3B'_1 \text{ (αφού } I_2 = 3I_1) \quad \text{Αprox: } B'_2 = 12n \cdot 10^{-5} \text{ Tesla}$$

Αδ. 3.82.)



Ταχύτητα v_1 βγαίνει από το $y_1 y_2$ σε χρονική διάρκεια $\Delta t_1 = \frac{T}{2}$

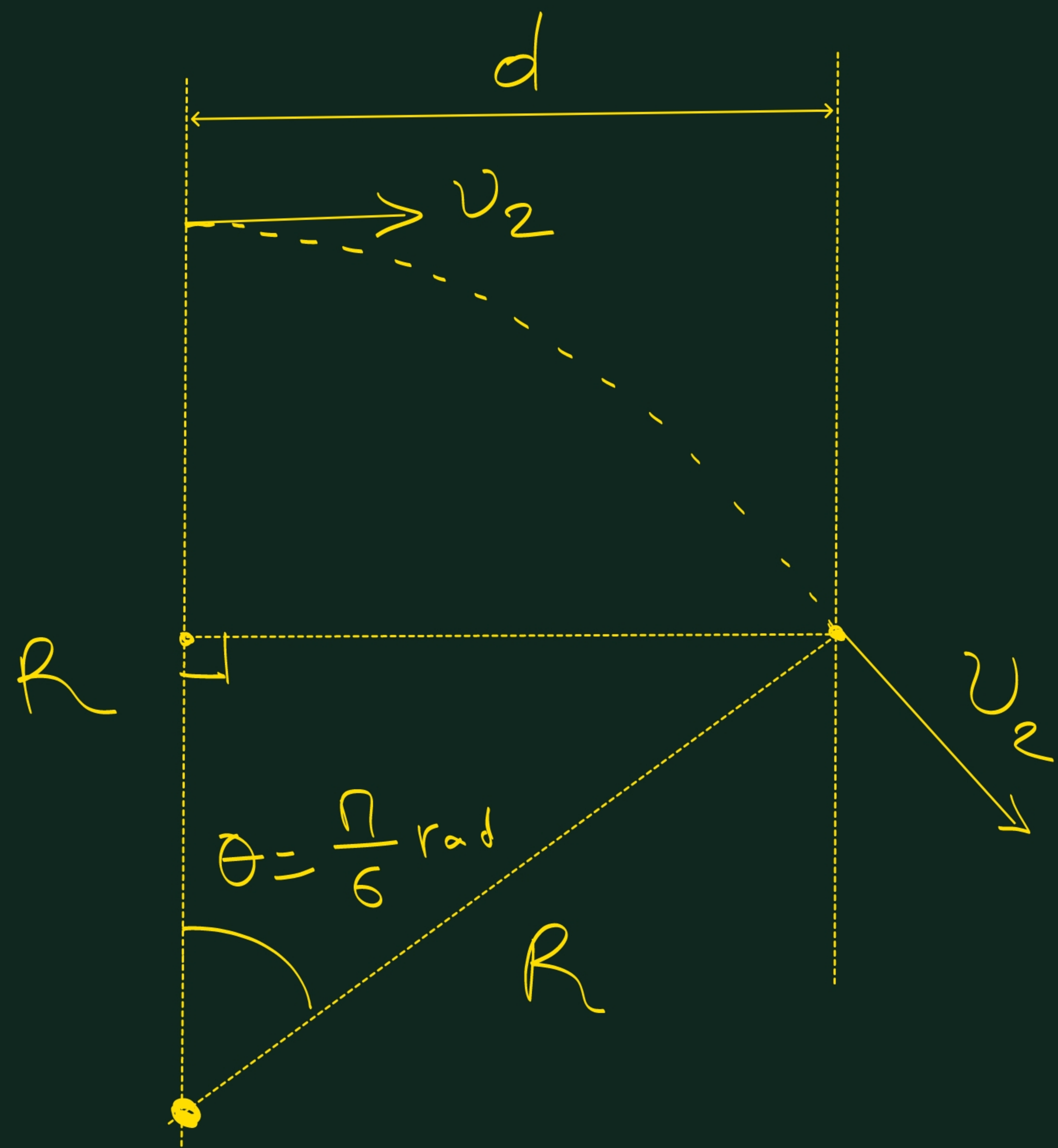
Ταχύτητα v_2 βγαίνει από το $y_3 y_4$ σε χρόνο $\Delta t_2 = \frac{\Delta t_1}{6} = \frac{T}{12}$

$$T \rightarrow 2\pi \text{ rad}$$

$$\frac{T}{12} \rightarrow \frac{2\pi}{12} = \frac{\pi}{6} \text{ rad}$$

$$\frac{T}{2} \rightarrow \frac{2\pi}{2} = \pi \text{ rad}$$

Αρα όταν εισέρχεται με ταχύτητα v_2 η ευθεία αυτή διαγράφει τόξο που αντιστοιχεί σε ενήμερη γωνία $\frac{\pi}{6} \text{ rad}$



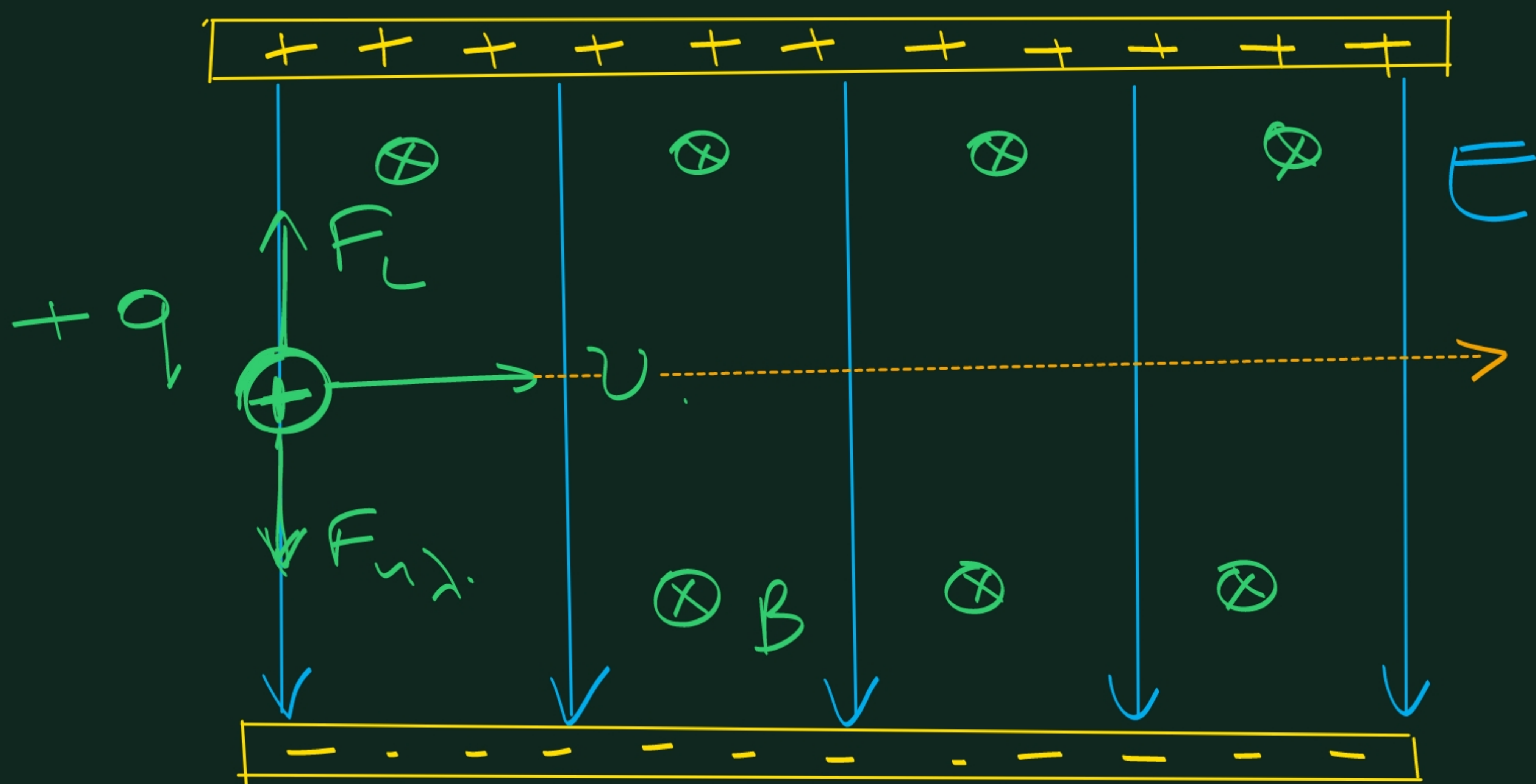
$$d = R \omega \theta = R \omega \frac{\pi}{6} = R \omega 30^\circ = \frac{R}{2} \Rightarrow$$

$$R = 2d$$

$$\frac{mv_2^2}{R} = |q|v_2 B \Rightarrow$$

$$R = \frac{mv_2}{|q|B} \Rightarrow 2d = \frac{mv_2}{|q|B} \Rightarrow$$

$$d = \frac{mv_2}{2|q|B} \quad \Sigma \omega \tau_0 \tau_0 (S)$$



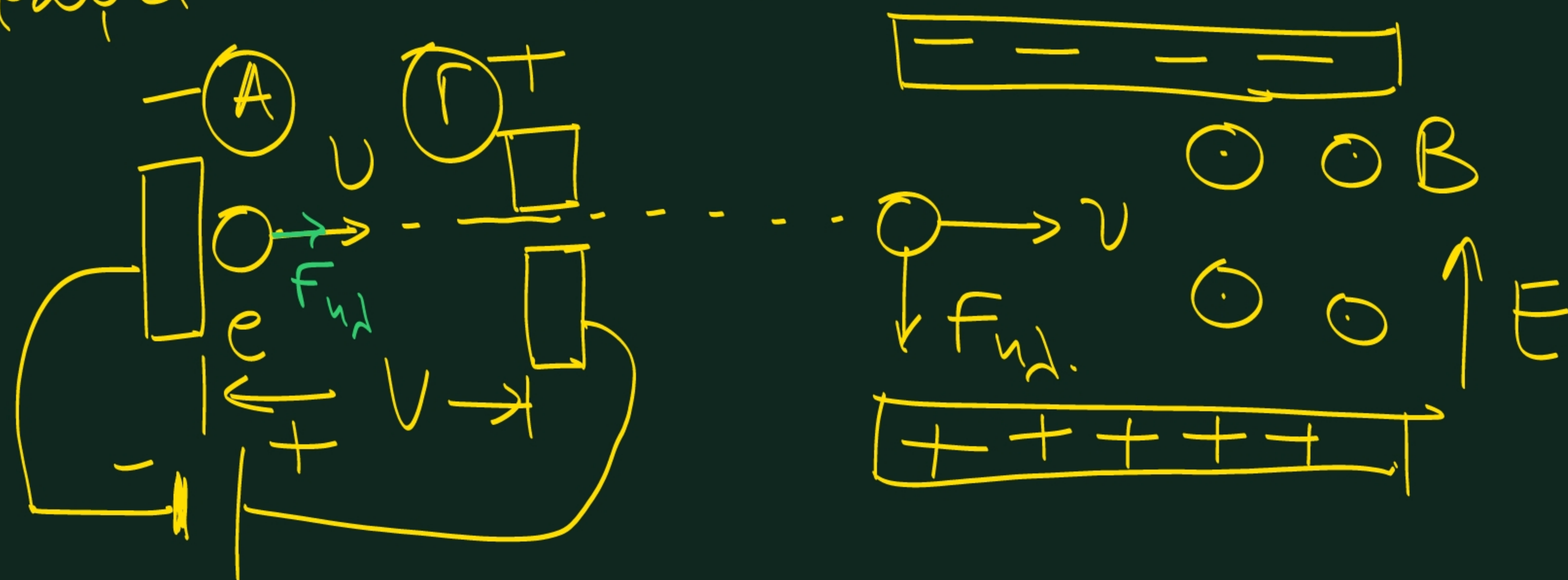
$$Aν \text{ ισχύει } F_L = F_{ηλ} \Rightarrow$$

$$q \cdot v \cdot B = q \cdot E \Rightarrow$$

$$vB = E \Rightarrow v = \frac{E}{B}$$

η κίνηση του φορτισμένου
σωματιδίου είναι ευθύγραμμη
ομαλή (επιλογής ταχυτήτων)

Πείραμα Thomson.



Από το ΘΜΚΕ μεταξύ των (Α) και (Γ)
έχουμε:

$$K_{\Gamma} - K_A = W_{F_{\eta\lambda}} \Rightarrow \frac{1}{2}mv^2 - 0 = F_{\eta\lambda} \cdot A\Gamma$$

$$\Rightarrow \frac{1}{2}mv^2 = eE \cdot A\Gamma = eV$$

$$\text{αφού } E = \frac{V}{A\Gamma}$$

