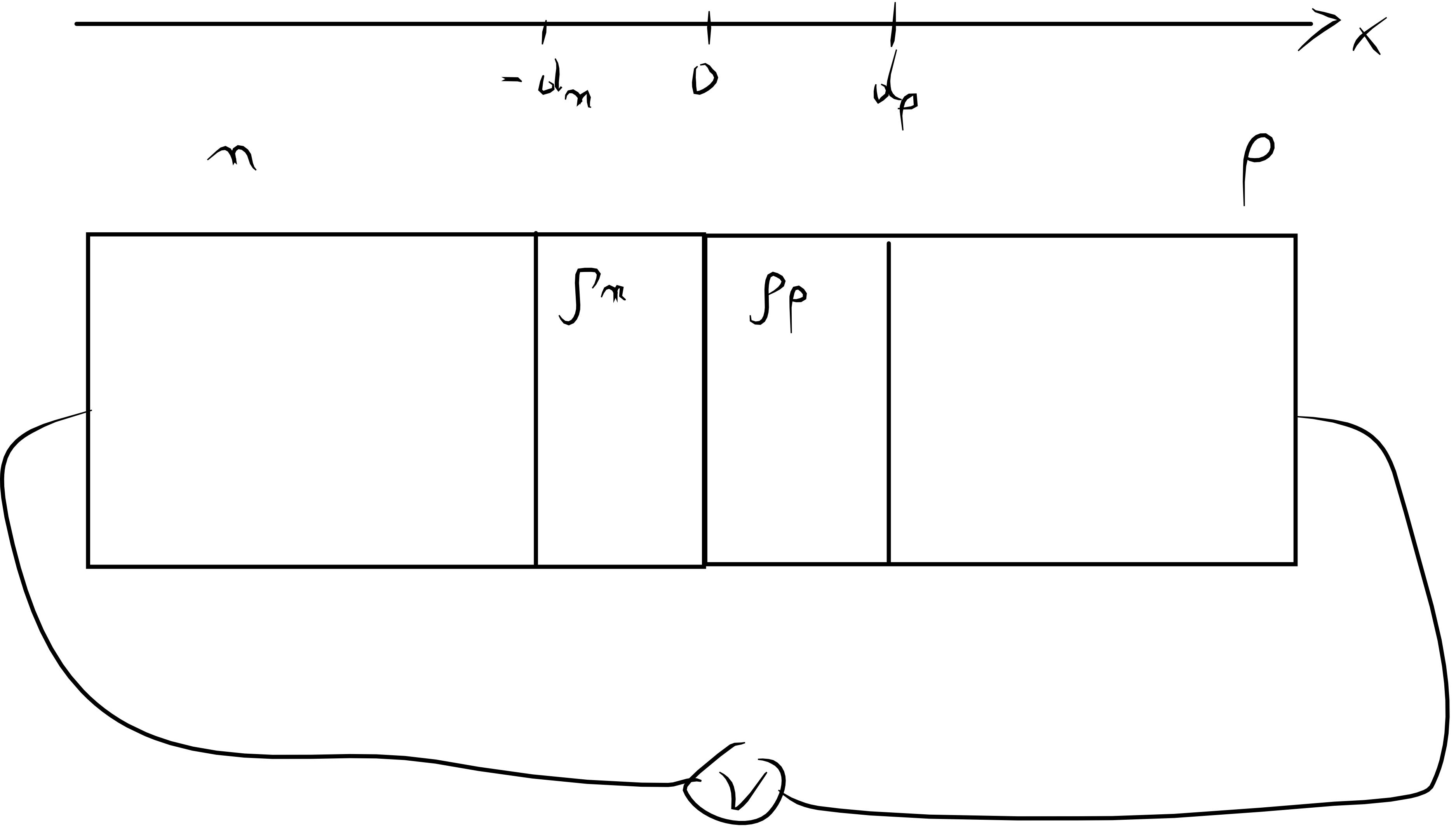
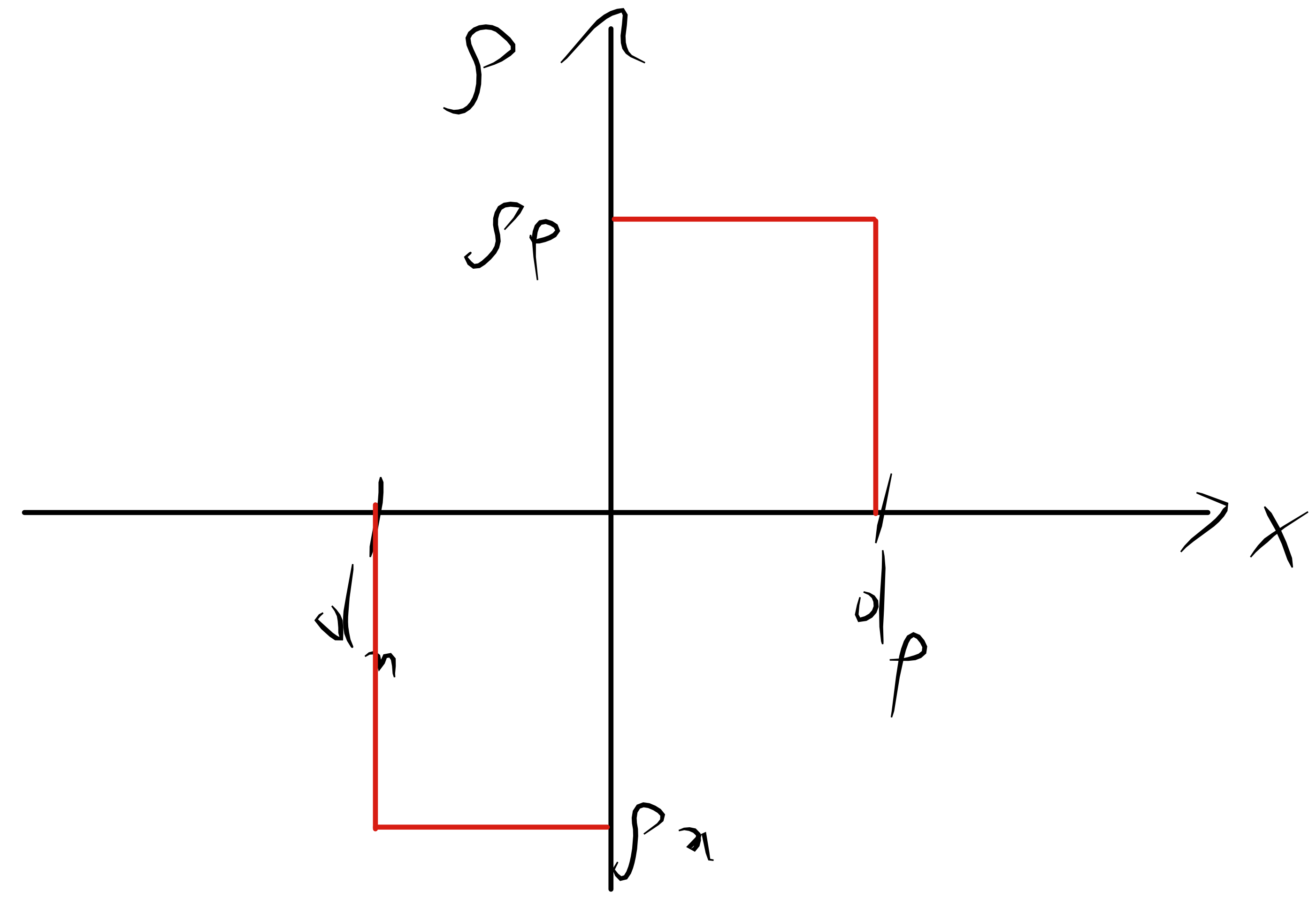
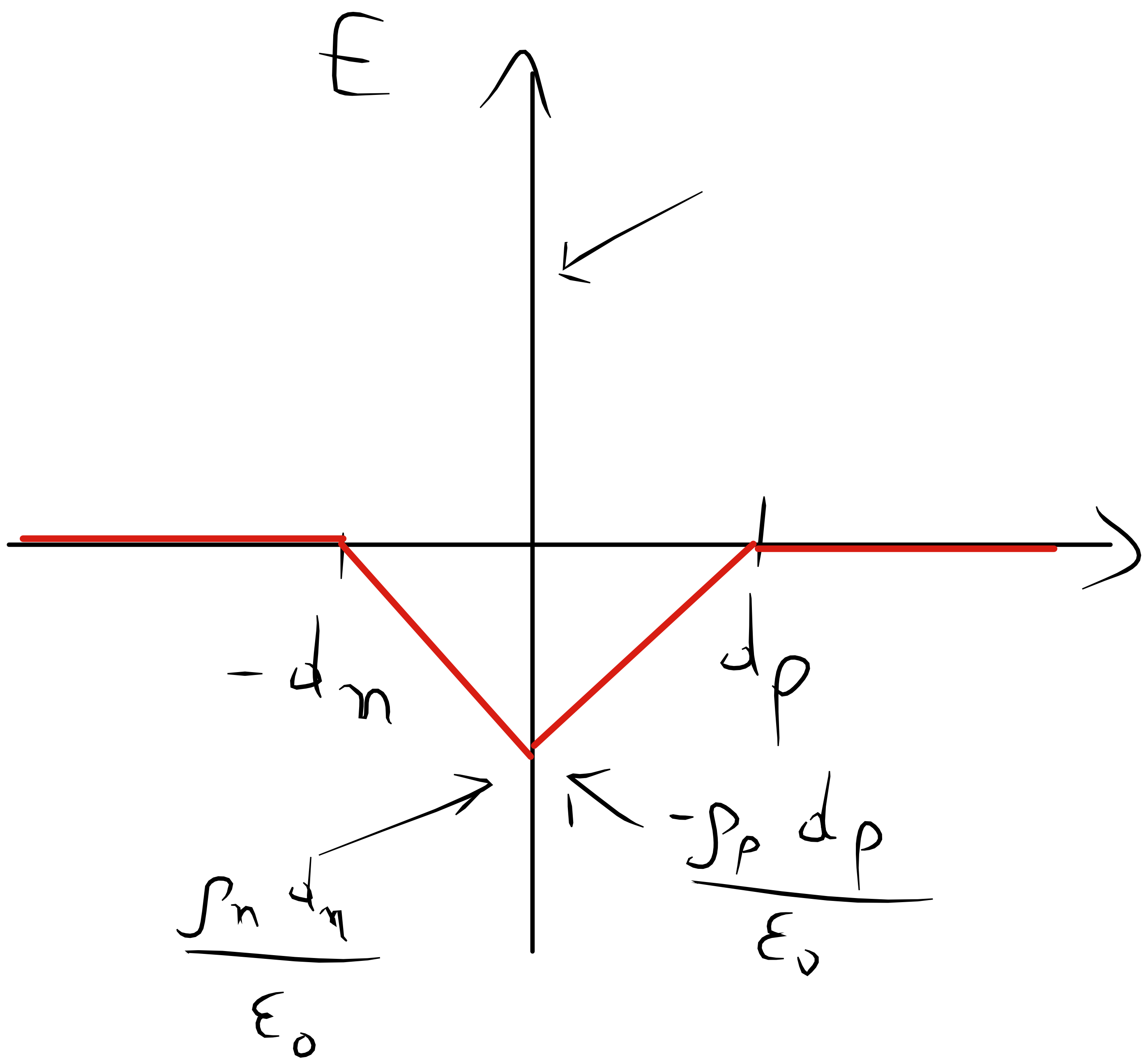


$$Q_n = -Q_p$$

$$d_n \rho_n S = -\rho_n d_p S$$

$$n d_n = p d_p$$





dla $x \in]d_n ; 0[$

$$\frac{d}{dx} E = \frac{\rho_n}{\varepsilon_0}$$

$$E = \frac{\rho_n x}{\varepsilon_0} + \frac{\rho_n d_n}{\varepsilon_0}$$

dla $x \in]0 ; d_p[$

$$E = \frac{\rho_p x}{\varepsilon_0} - \frac{\rho_p d_p}{\varepsilon_0}$$

$$e n d_n = e p d_p$$

$$n d_n = p d_p$$

$$U = -\int_{-d_n}^{d_p} E\, dx = \frac{\rho_n d_n^2}{2\varepsilon_0} - \frac{\rho_p d_p^2}{2\varepsilon_0} =$$

$$= \frac{1}{2\varepsilon_0} \rho_n d_n (d_n + d_p)$$

$$Q = \rho_n S d_n = \rho_p S d_p = \frac{2\varepsilon_0 U}{d_n + d_p}$$

$$C = \frac{dQ}{dU} = \frac{2\varepsilon_0}{d_n + d_p}$$