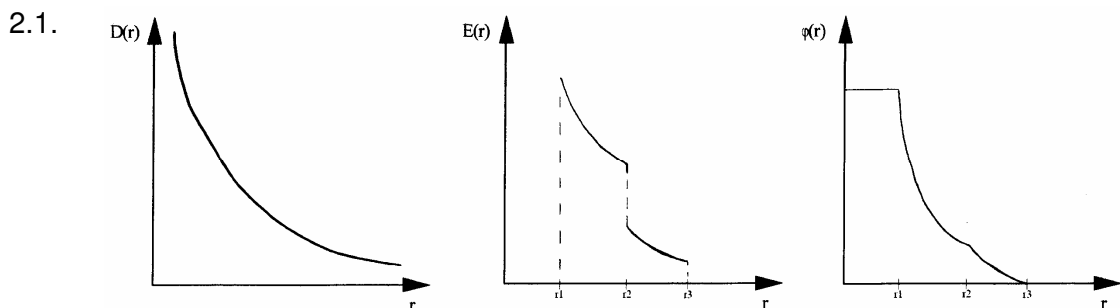


Lösungen

Aufgabe 1:

- 1.1. $I_1 = 0,1 \text{ A}$ $U_v = 4,21 \text{ V}$
 $I_2 = 65,15 \text{ mA}$
 $I_3 = 63,64 \text{ mA}$
 $I_4 = 34,85 \text{ mA}$
 $I_5 = 36,36 \text{ mA}$
 $I_6 = 1,51 \text{ mA}$
- 1.2. $I_{q,\max} = 181,44 \text{ mA}$

Aufgabe 2:



2.2. $r_2 \leq r \leq r_1 : \varphi(r) = \frac{Q}{2\pi\epsilon_0 l} \left[\frac{1}{\epsilon_{r_2}} \cdot \ln\left(\frac{r_3}{r_2}\right) + \frac{1}{\epsilon_{r_1}} \cdot \ln\left(\frac{r_2}{r}\right) \right]$

$r_3 \leq r \leq r_2 : \varphi(r) = \frac{Q}{2\pi\epsilon_0 \epsilon_{r_2} l} \cdot \ln\left(\frac{r_3}{r}\right)$

2.3. $U = 45,75 \text{ kV}$

2.4. $C_1 = 134,3 \text{ pF}$ $U = 30,5 \text{ kV}$

Aufgabe 3:

3.1. $L = 0,92 \text{ H}$

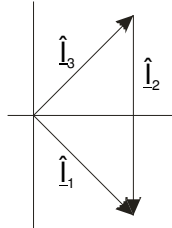
3.2. $B_L = 0,803 \text{ T}$

3.3. $M = 28,91 \text{ mH}$

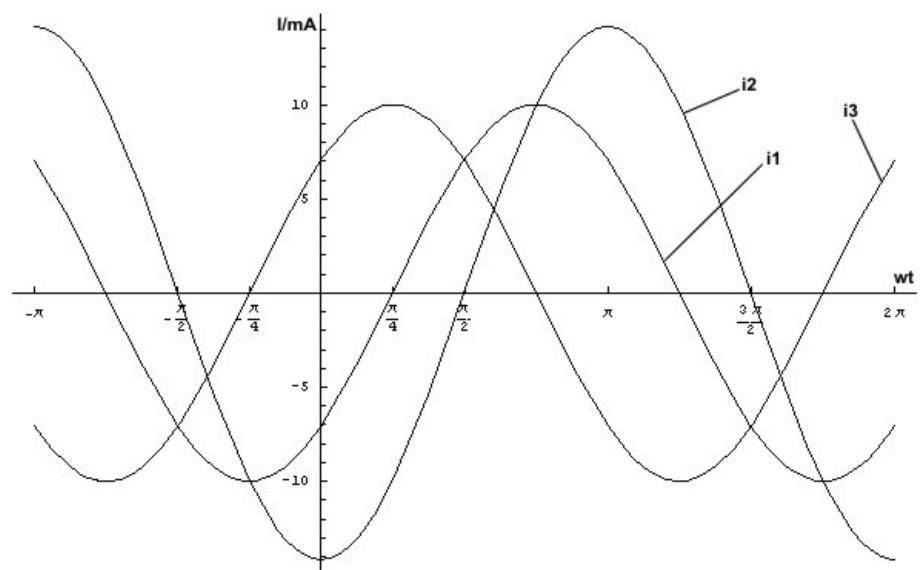
3.4. $u_2(t) = 314 \text{ mV} \cdot e^{-\frac{t}{92 \text{ ms}}}$

Aufgabe 4:

4.1. $\hat{I}_1 = 10\text{mA} \cdot e^{-j45^\circ}$ $\hat{I}_2 = 14,14\text{mA} \cdot e^{-j90^\circ}$ $\hat{I}_3 = 10\text{mA} \cdot e^{j45^\circ}$



4.2.



4.3. $R_p = 4\text{k}\Omega$ $L_p = 4\text{H}$

4.4. $C = 125\text{nF}$