

# 3. Linear sources and dipoles

## Student Group

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# Gegeben sind folgende Gleichungen

$U_A = f(U, E)$	mit III.	
$U_A = U_{D-U_C}$		$U_D = \{ 1 \text{ over } A, D \} \cdot U_A \overset{A \rightarrow \infty}{\longrightarrow} 0$
$U_A = \text{color{blue}\{-U_D\} - U_C}$	mit II. und I.	$\text{color{blue}\{U_D\} = \{ 1 \text{ over } A, D \} \cdot U_A \overset{A \rightarrow \infty}{\longrightarrow} 0$
$U_A = \text{quad } 0 \text{ quad } \text{color{blue}\{U_C\}}$	mit V.	$\text{color{blue}\{U_C\} = \{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} I_C \, dt + Q_0(t_0)$
$U_A = -\{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} \text{color{blue}\{I_C\} \, dt + Q_0(t_0)}$	mit IV.	$\text{color{blue}\{I_C\} = I_{R_S}$
$U_A = \text{color{blue}\{-\{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} I_R \, dt + Q_0(t_0)\}$	Ausklammern	
$U_A = -\{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} I_R \, dt - \text{color{blue}\{Q_0(t_0) \text{ over } C\}}$	Integrationskonstante betrachten	$\text{color{blue}\{Q_0(t_0) \text{ over } C\} = U_C(t_0) = -U_{A0}$
$U_A = -\{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} \text{color{blue}\{I_R\} \, dt + U_{A0}$	mit VI. und II.	$\text{color{blue}\{I_R\} = \{ U_R \text{ over } R \} = \{ U_E \text{ over } R \}$
$U_A = -\{ 1 \text{ over } C \} \cdot \int_{t_0}^{t_1} \text{color{blue}\{1 \text{ over } R\} \, dt + U_{A0}$	Konstante vorziehen	
$U_A = -\{ 1 \text{ over } R \cdot C \} \cdot \int_{t_0}^{t_1} U_E \, dt + U_{A0}$		

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