

rechnung_umkehrintegrator

Student Group

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

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