

rechnung_umkehrintegrator

Student Group

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$U_A = f(U_E)$	mit III.	
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = \frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	mit II. und I.	$U_D = \frac{1}{A_D} \int_{t_0}^{t_1} I_D dt + Q_0(t_0)$
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = \frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	mit V.	$U_C = \frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = \frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	mit IV.	$U_C = I_R$
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = \frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	Ausklammern	
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = -\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	Integrationskonstante betrachten	$U_C(t_0) = -U_{A0}$
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = -\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	mit VI. und II.	$U_R = \frac{U_C}{R} = \frac{U_E}{R}$
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = -\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	Konstante vorziehen	
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = -\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$	Zeitkonstante $\tau = R \cdot C$ einfügen	
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		
$U_A = -\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0)$		
$\frac{d}{dt} \left(\frac{1}{C} \int_{t_0}^{t_1} I_C dt + Q_0(t_0) \right) = \frac{1}{C} \int_{t_0}^{t_1} \frac{dI_C}{dt} dt + \frac{dQ_0(t_0)}{dt}$		

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