

rechnung_umkehrintegrator

Student Group

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$U_A = f(U_E)$	mit III.	
$\frac{1}{C} \int U_A dt = \frac{1}{C} \int U_E dt$		$U_D = \frac{1}{A_D} \int U_A dt \rightarrow \infty$
$U_A = U_D - U_C$	mit II. und I.	
$\frac{1}{C} \int U_A dt = \frac{1}{C} \int (U_D - U_C) dt$		$U_C = \frac{1}{C} \int U_D dt - \frac{1}{C} \int U_A dt$
$U_A = 0$	mit V.	
$\frac{1}{C} \int U_A dt = \frac{1}{C} \int U_D dt$		$U_C = \frac{1}{C} \int U_D dt$
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int U_C dt$	mit IV.	$U_C = I_R$
$\frac{1}{C} \int U_A dt = \frac{1}{C} \int U_D dt - \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int U_C dt$	Ausklammern	
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$	Integrationskonstante betrachten	$U_C(t_0) = U_C(t_0) = -U_{A0}$
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$	mit VI. und II.	$U_R = \frac{U_D}{R} = \frac{U_E}{R}$
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$	Konstante vorziehen	
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$	Zeitkonstante $\tau = R \cdot C$ einfügen	
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		
$U_A = -\frac{1}{C} \int U_D dt + \frac{1}{C} \int I_R dt + \frac{1}{C} \int U_C dt$		

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