

rechnung_signalzeitverlauf_umkehrintegrator

Student Group

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\$I.\quad\$ Am Punkt \$t_1\$

$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E \, dt + U_A(t_0)$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$
$U_A(t_1) = -\frac{1}{5k\Omega} \int_0^{10ms} U_E \, dt + 0V$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$
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$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$
$U_A(t_1) = -\frac{1}{5k\Omega} \int_0^{10ms} U_E \, dt = -2V$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$

\$I.\quad\$ Am Punkt \$t_2\$

$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E \, dt + U_A(t_0)$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$
$U_A(t_1) = -\frac{1}{5k\Omega} \int_0^{10ms} U_E \, dt + 2V = 0V$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$

\$I.\quad\$ Am Punkt \$t_3\$

$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E \, dt + U_A(t_0)$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$
$U_A(t_1) = -\frac{1}{5k\Omega} \int_0^{10ms} U_E \, dt + 0V = -2V$	
$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$	$\frac{1}{5k\Omega} \frac{dU_A}{dt} = -\frac{1}{5k\Omega} \frac{dU_E}{dt}$

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