

rechnung_signalzeitverlauf_umkehrintegrator

Student Group

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At the point t_1

$U_A(t_1) = \frac{1}{\tau} \int_{t_0}^{t_1} U_E dt + U_A(t_0)$	
$U_A(t_1) = -\left\{ \frac{1}{5 \text{ k}\Omega \cdot 1 \mu\text{F}} \right\} \int_{t_0}^{10\text{ms}} 1V dt + 0V$	
$U_A(t_1) = \frac{1}{5 \text{ ms}} \int_{t_0}^{10\text{ms}} 1V dt$	
$U_A(t_1) = \frac{1}{5 \text{ ms}} \int_{t_0}^{10\text{ms}} 1V dt = -2V$	

At the point t_2

$U_A(t_1) = \frac{1}{\tau} \int_{t_0}^{t_1} U_E dt + U_A(t_0)$	
$U_A(t_1) = -\left\{ \frac{1}{5 \text{ ms}} \right\} \int_{10\text{ms}}^{20\text{ms}} (-1V) dt + 2V = 0V$	

At the point t_3

$U_A(t_1) = \frac{1}{\tau} \int_{t_0}^{t_1} U_E dt + U_A(t_0)$	
$U_A(t_1) = -\left\{ \frac{1}{5 \text{ ms}} \right\} \int_{10\text{ms}}^{20\text{ms}} (-2V) dt + 0V = -2V$	

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