

rechnung_signalzeitverlauf_umkehrintegrator

Student Group

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

$$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E dt + U_A(t_0)$$

$$U_A(t_1) = -\frac{1}{5 \text{ k}\Omega \cdot 1 \mu\text{F}} \int_0^{10\text{ms}} 1V dt + 0V$$

$$U_A(t_1) = -\frac{1}{5 \text{ ms}} \int_0^{10\text{ms}} 1V dt$$

$$U_A(t_1) = -\frac{1}{5 \text{ ms}} \int_0^{10\text{ms}} 1V dt = -2V$$

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

$$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E dt + U_A(t_0)$$

$$U_A(t_1) = -\frac{1}{5 \text{ ms}} \int_0^{20\text{ms}} (-1V) dt + 2V = 0V$$

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

$$U_A(t_1) = -\frac{1}{\tau} \int_0^{t_1} U_E dt + U_A(t_0)$$

$$U_A(t_1) = -\frac{1}{5 \text{ ms}} \int_0^{20\text{ms}} (-2V) dt + 0V = -2V$$

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