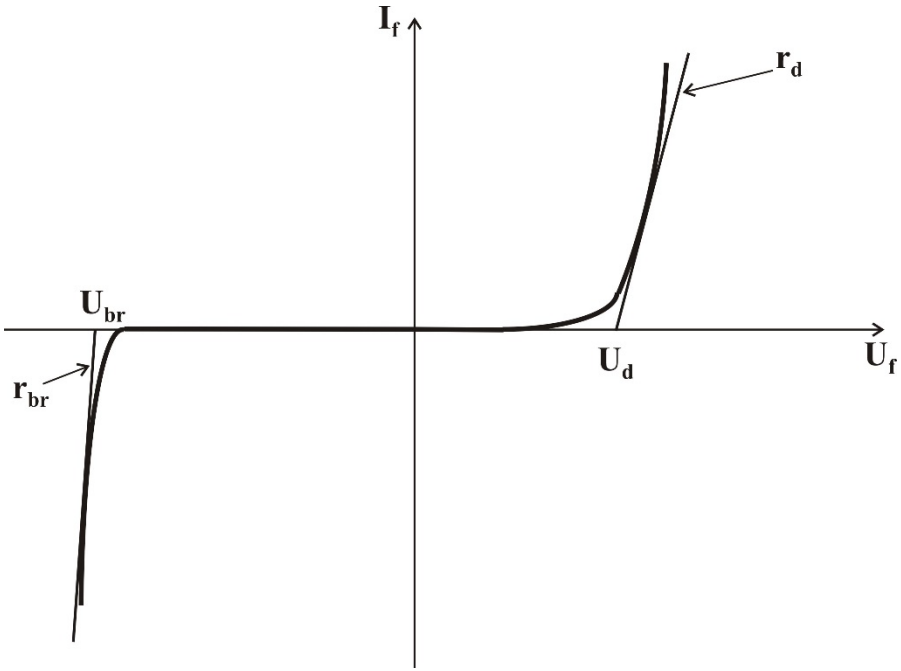
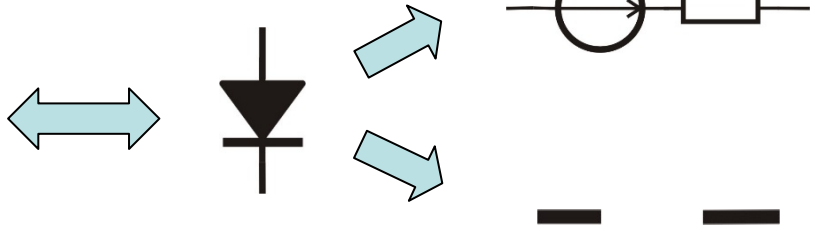
Семинарно занятие No: 4

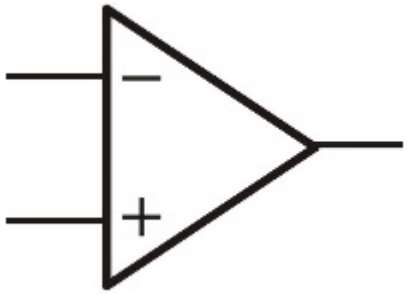
АКТИВНИ ДИОДНИ ОГРАНИЧИТЕЛИ

Цел на занятието:

Дефиниране, определяне, математически и логически анализ на предавателните функции в активните нелинейните вериги, взаимната връзка в развитието на процесите между входа и изхода във времето.



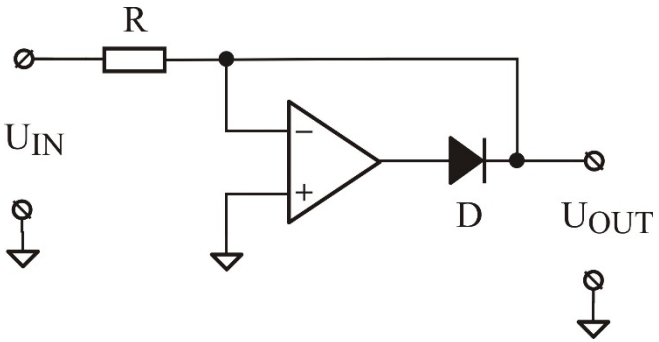


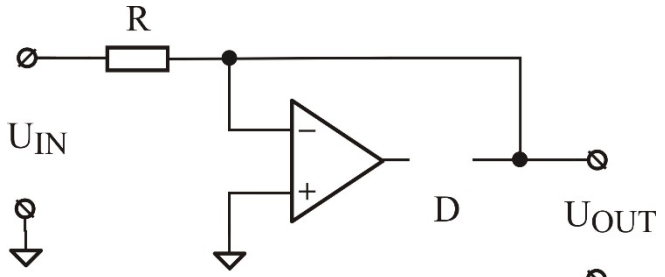


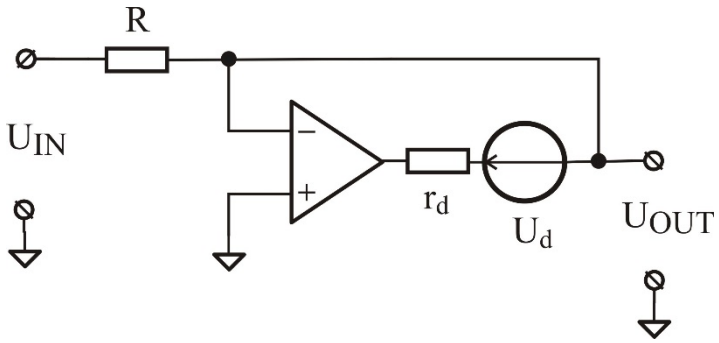
$$A \Rightarrow \infty$$

$$R_{IN} \Rightarrow \infty$$

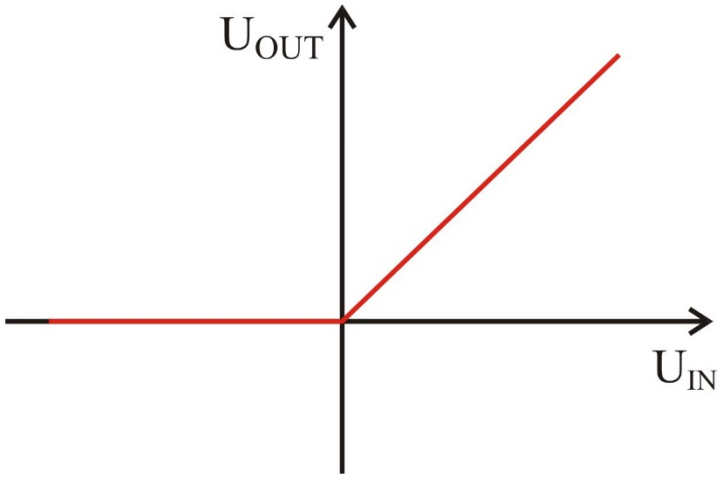
$$R_{OUT} \Rightarrow 0$$

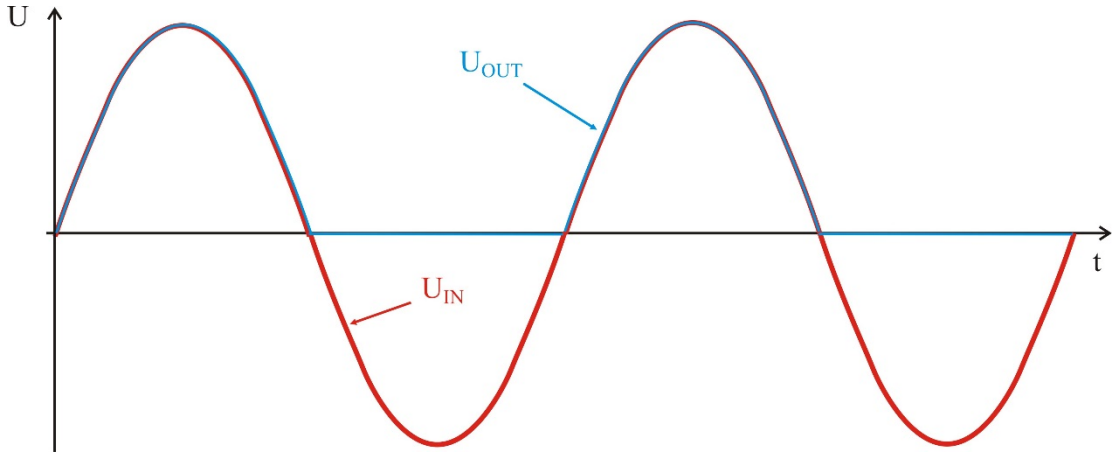


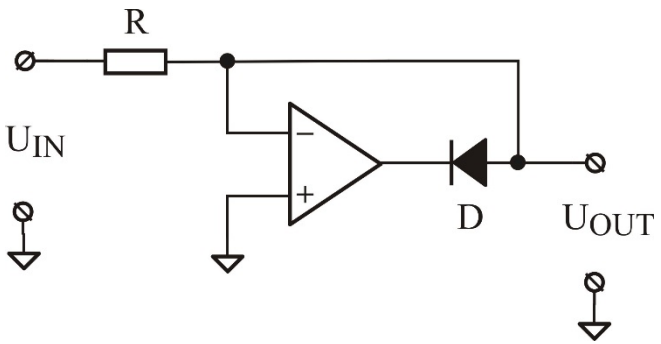


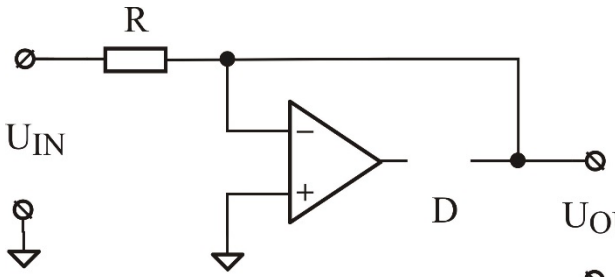


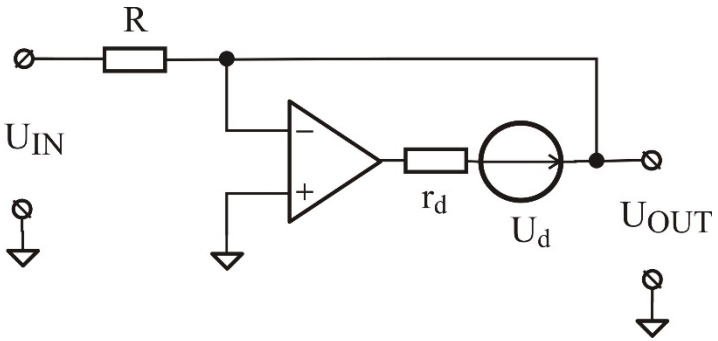
$$U_{OUT} = \begin{cases} 0 & \text{za } U_{IN} \le 0 \\ U_{IN} & \text{za } U_{IN} > 0 \end{cases}$$



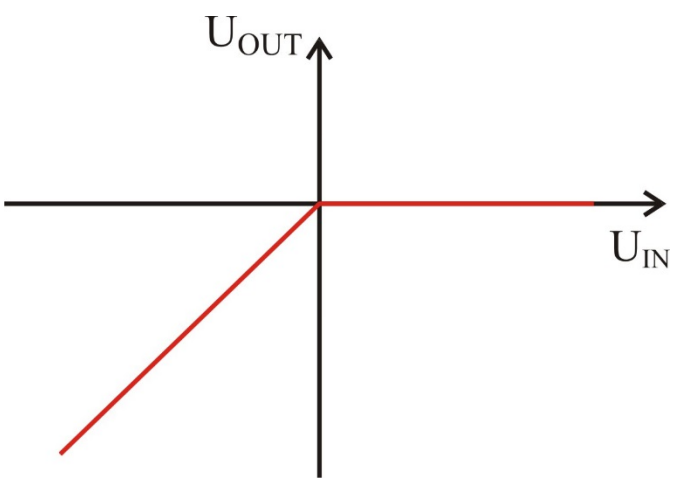


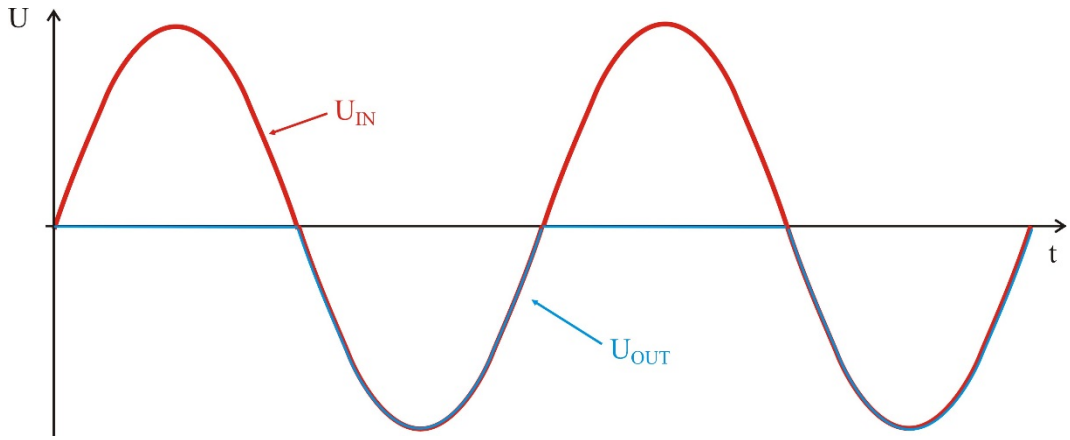


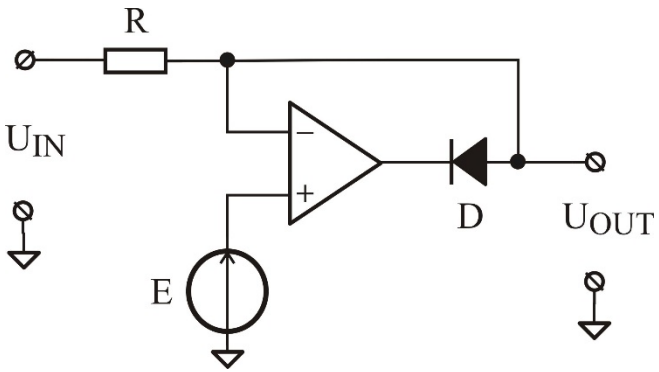


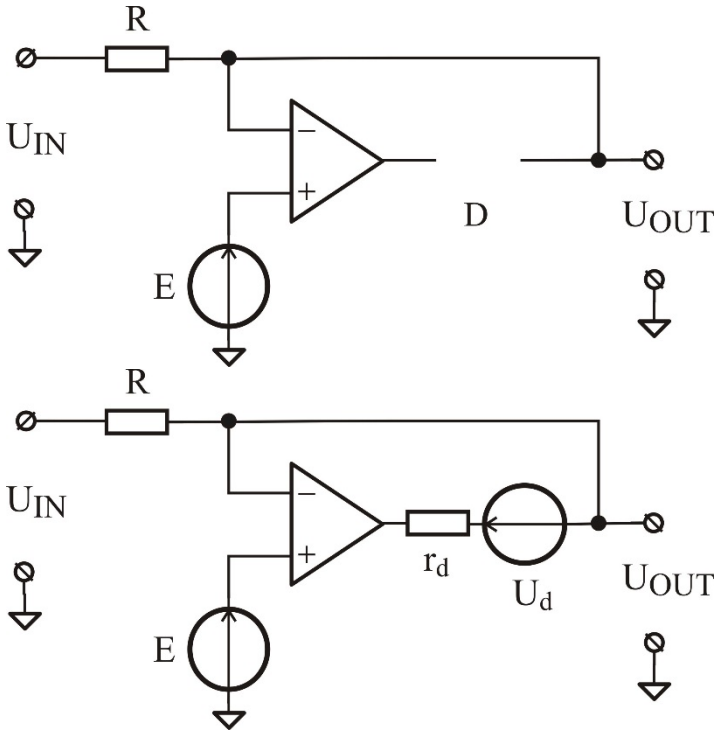


$$U_{OUT} = \begin{cases} 0 & \text{за} \quad U_{IN} \geq 0 \\ U_{IN} & \text{за} \quad U_{IN} < 0 \end{cases}$$

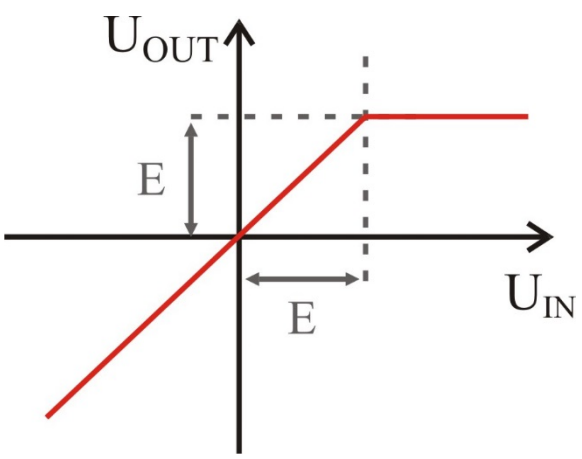


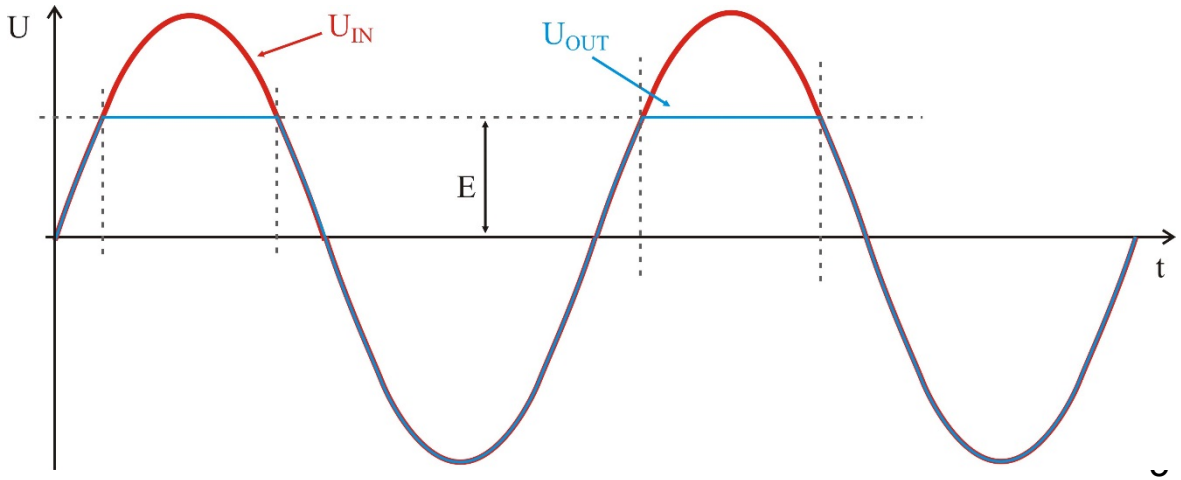


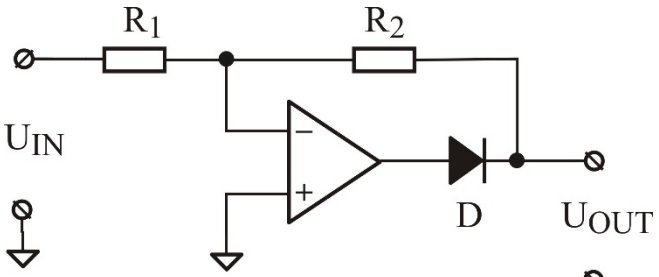




$$U_{OUT} = \begin{cases} U_{IN} & \text{за} \quad U_{IN} < E \\ E & \text{за} \quad U_{IN} \geq E \end{cases}$$

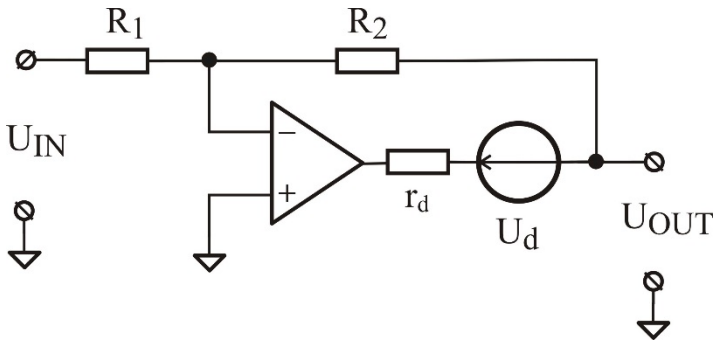


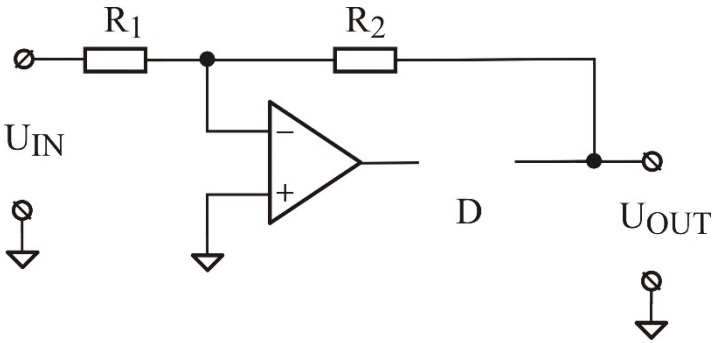


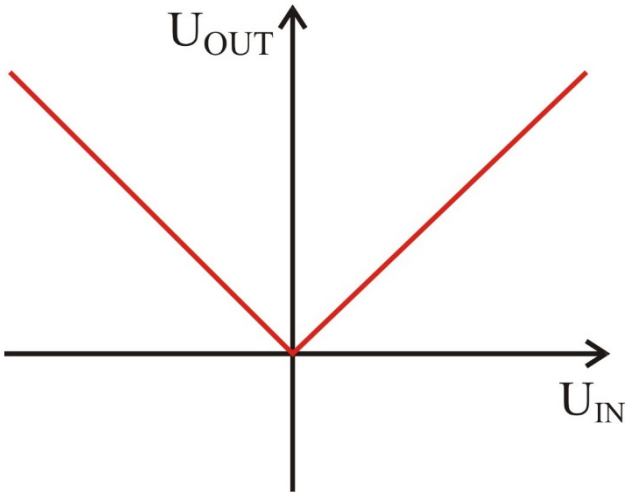


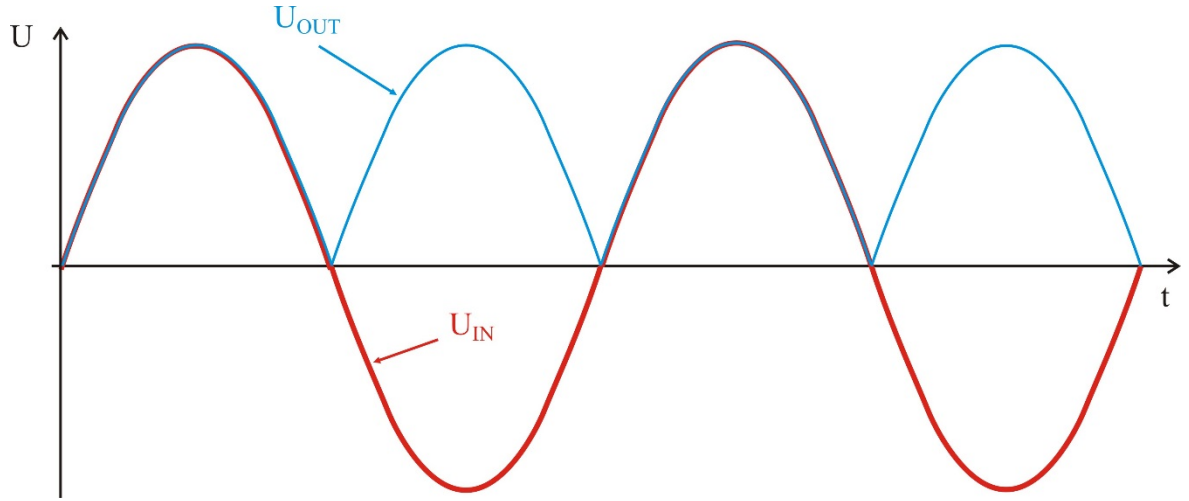
$$R_1 = R_2$$

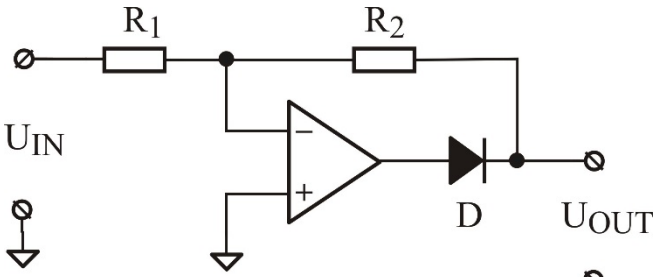
$$U_{OUT} = \begin{cases} -U_{IN} & \text{за} \quad U_{IN} \le 0 \\ U_{IN} & \text{за} \quad U_{IN} \ge 0 \end{cases}$$





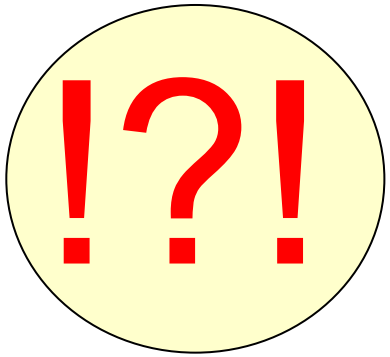


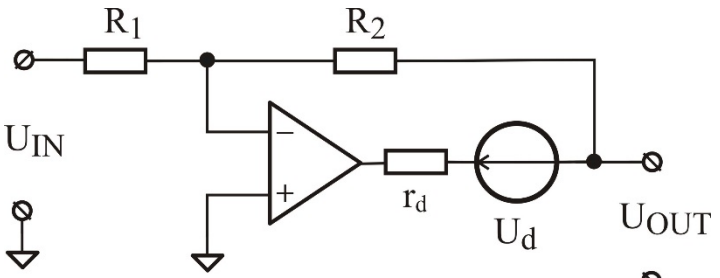


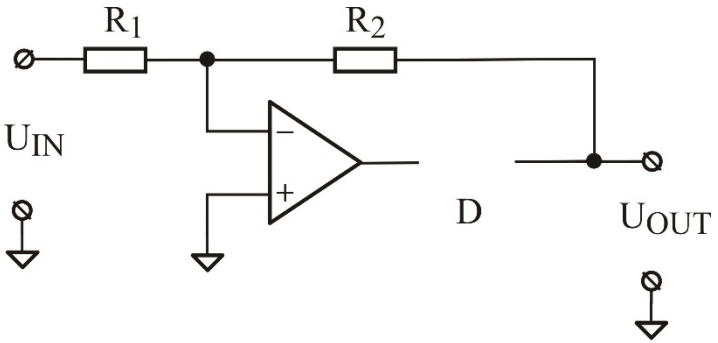


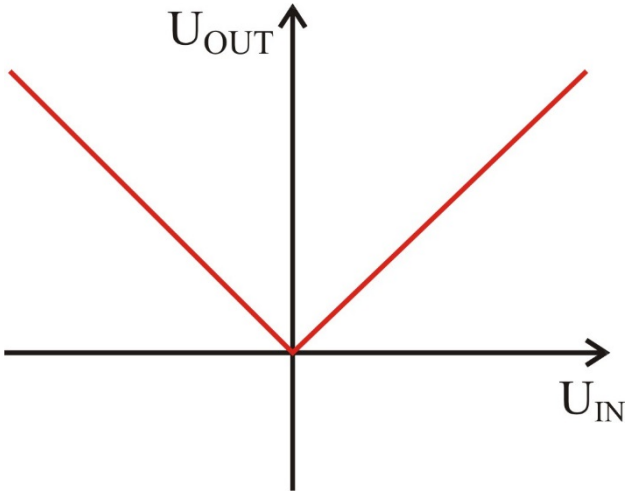
$$R_1 = R_2$$

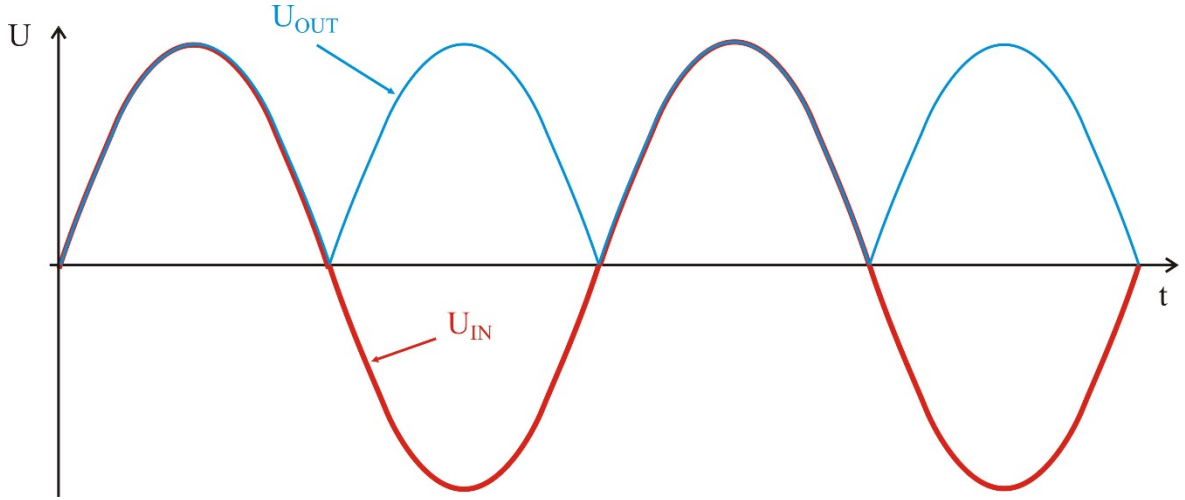
$$U_{OUT} = \begin{cases} -U_{IN} & \text{за } U_{IN} \le 0 \\ U_{IN} & \text{за } U_{IN} \ge 0 \end{cases}$$

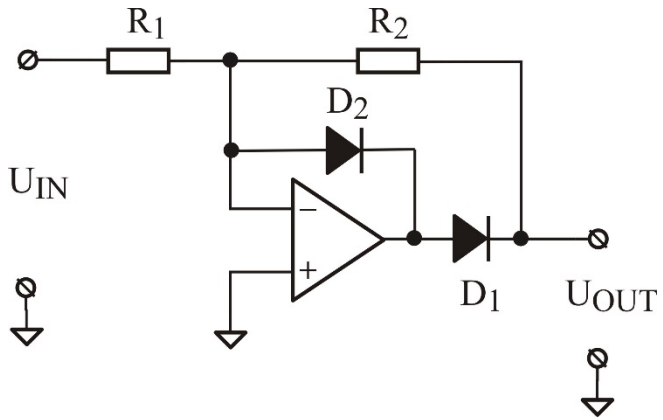


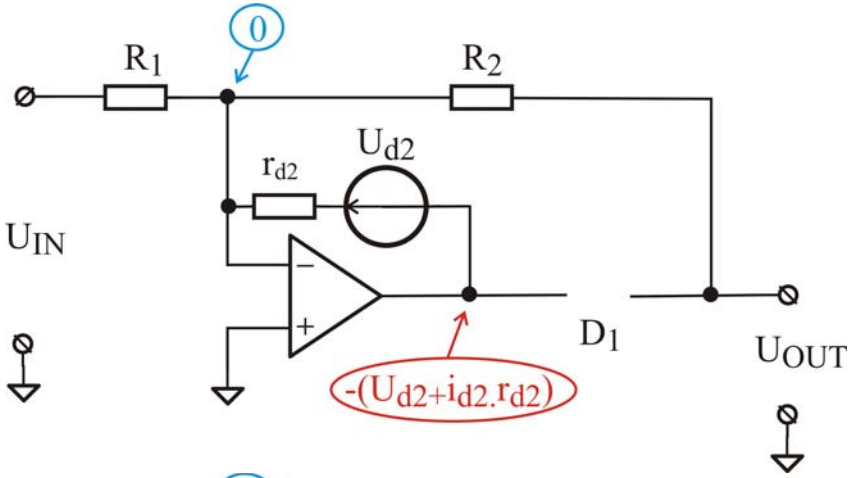


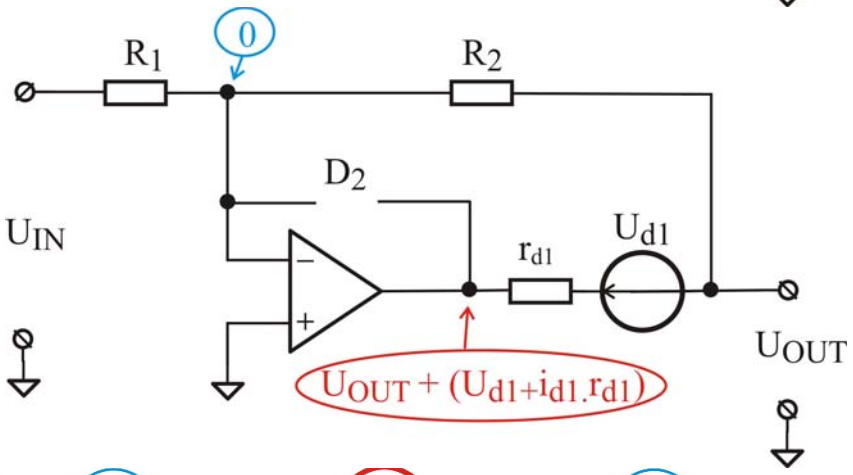




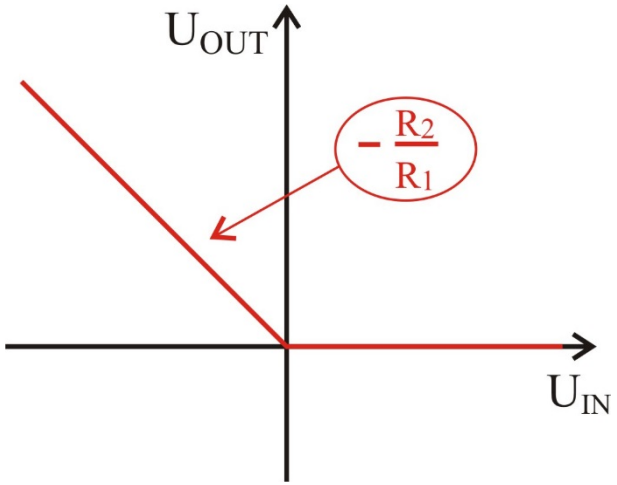


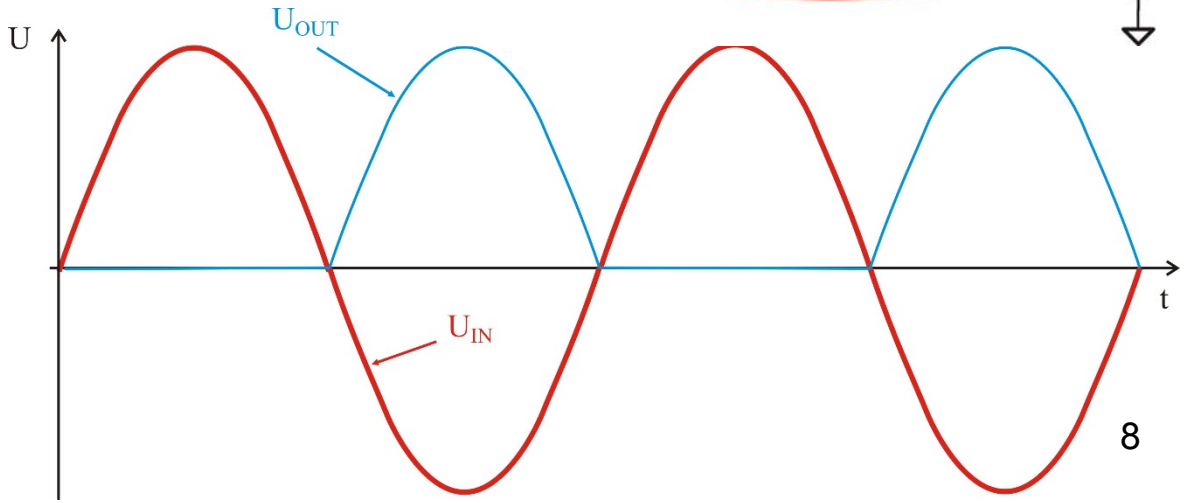


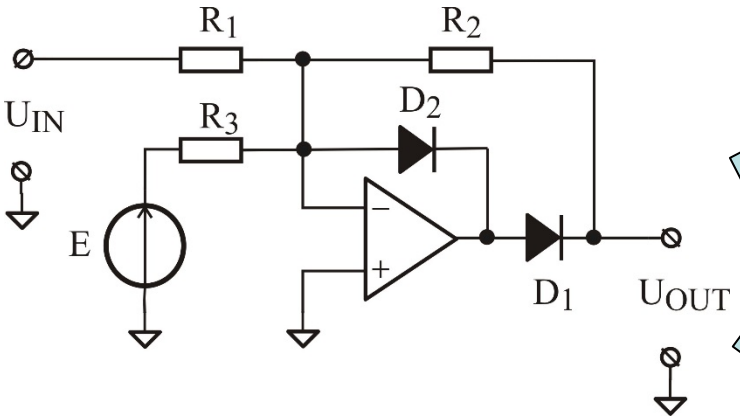


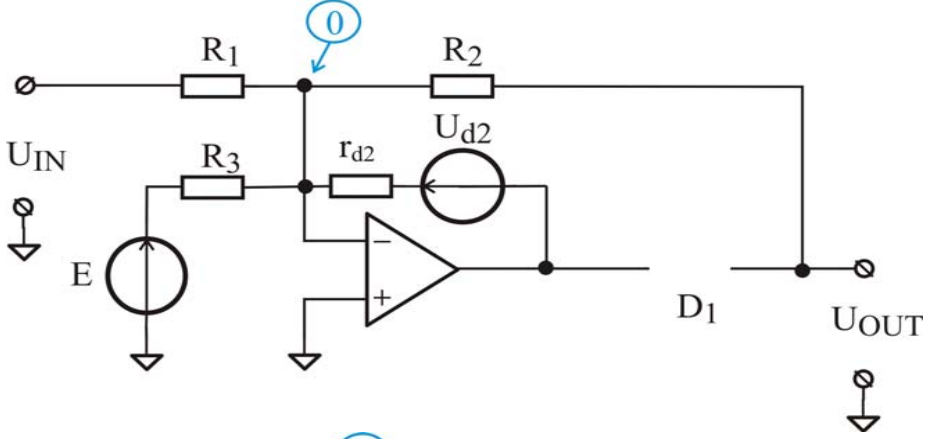


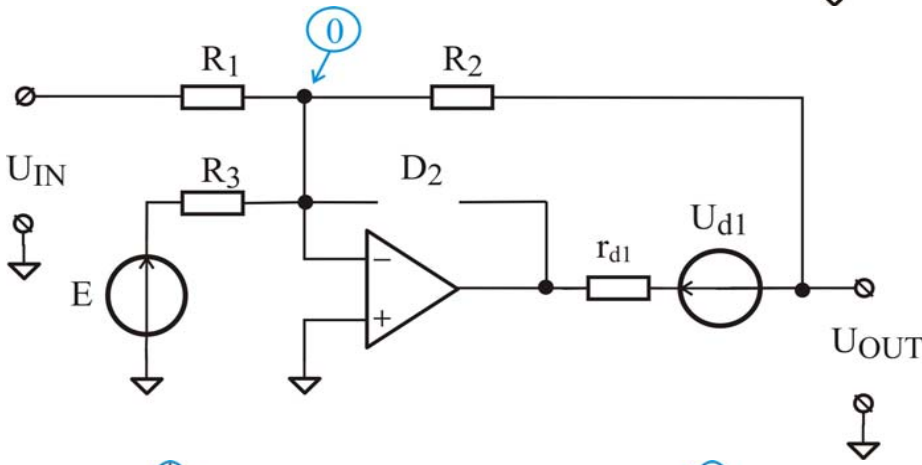
$$U_{OUT} = \begin{cases} 0 & \text{za} \quad U_{IN} \geq 0 \\ -U_{IN} \cdot \dfrac{R_2}{R_1} & \text{za} \quad U_{IN} < 0 \end{cases}$$



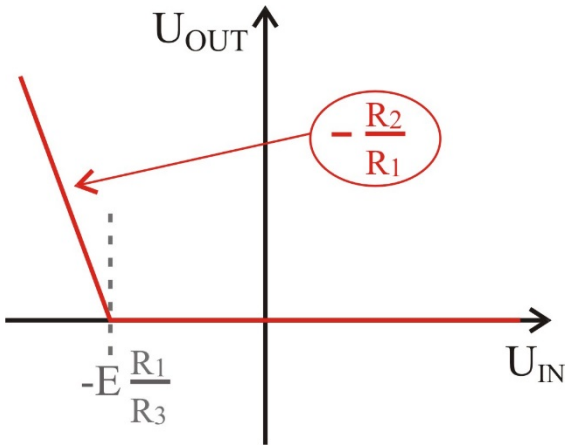


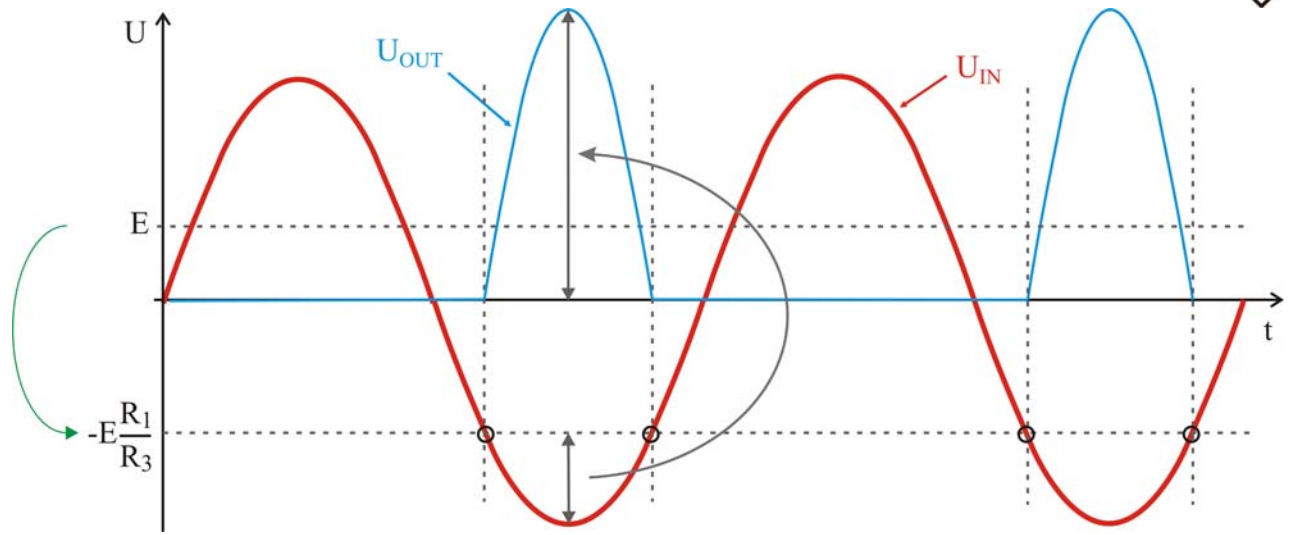


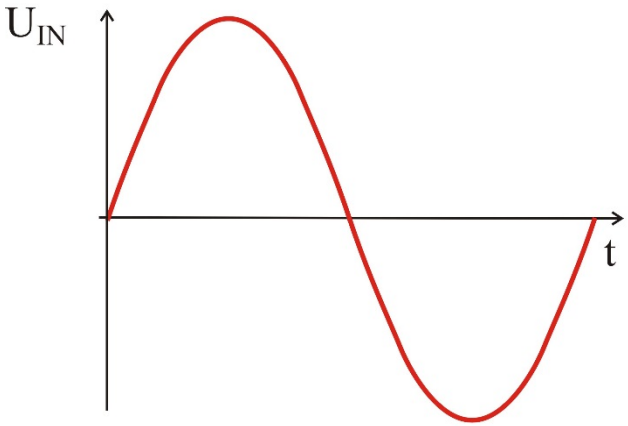




$$U_{OUT} = \begin{cases} 0 & \text{за} \quad U_{IN} \geq E.\frac{R_1}{R_3}.(-1) \\ -\left(U_{IN}.\frac{R_2}{R_1} + E.\frac{R_2}{R_3}\right) & \text{за} \quad U_{IN} < E.\frac{R_1}{R_3}.(-1) \end{cases}$$



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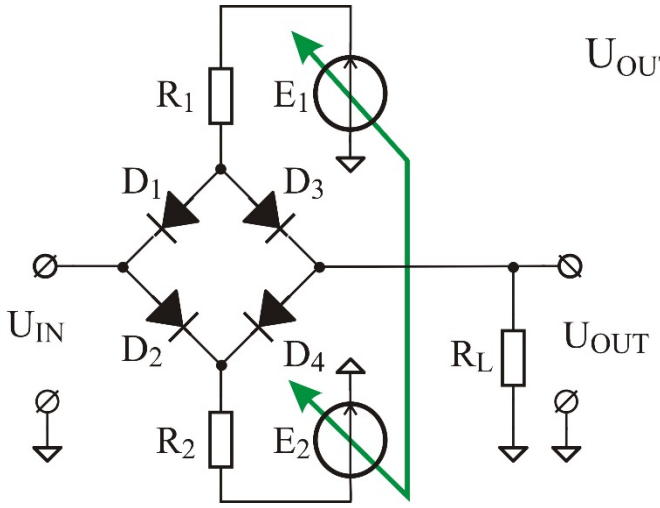
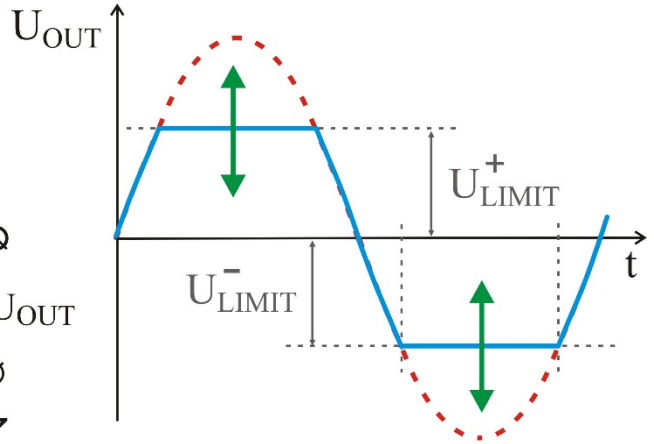

R1
E1
D1
D3
U_IN
D2
D4
R_L
U_OUT
R2
E2


U_OUT
U+_LIMIT
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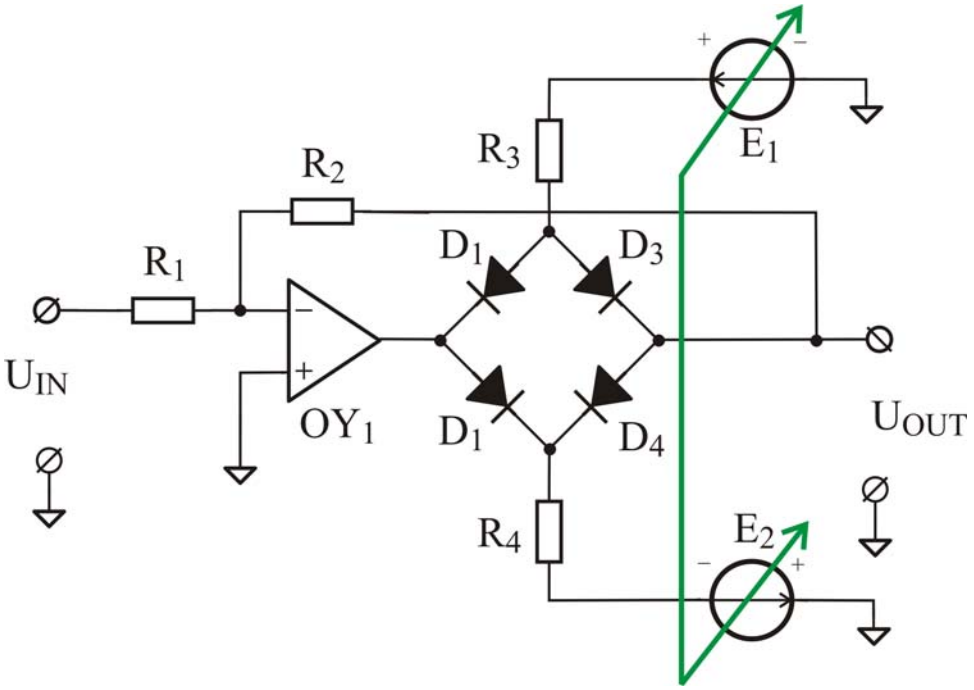
t


R3
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R2
D1
D3
R1
U_IN
OY1
D1
D4
U_OUT
R4
E2