

Ex 13

$$N = 16$$

$$V = (2^N - 1)U_0$$

$$U = 5$$

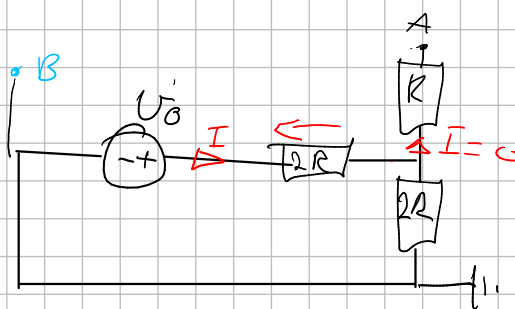
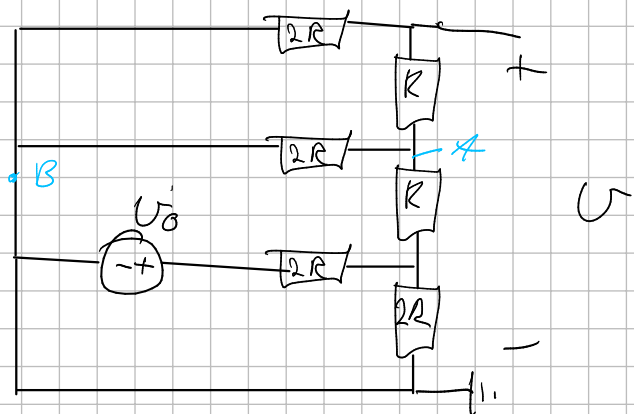
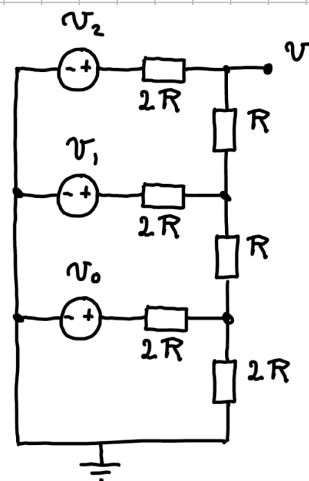
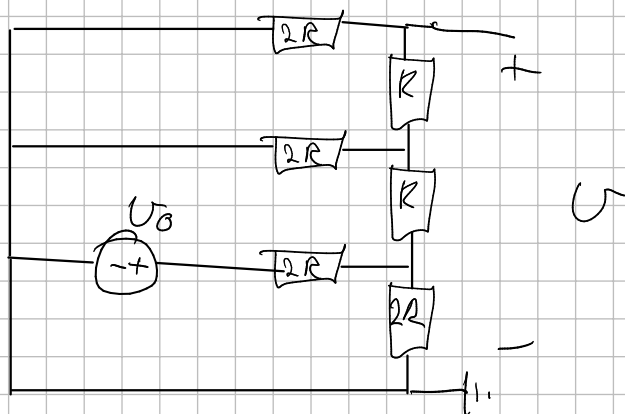
$$V = (2^{16} - 1)U_0$$

$$U_0 = \frac{5}{2^{16} - 1} = 7,63 \cdot 10^{-5}$$

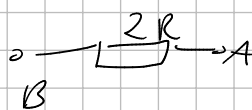
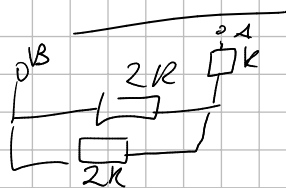
Ques ?

$$U_1 = 0$$

$$U_2 = 0$$



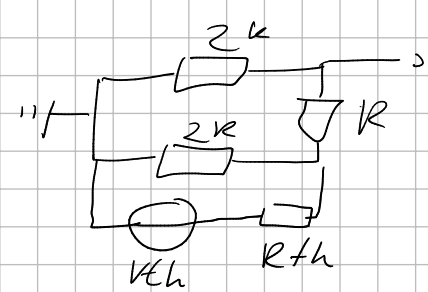
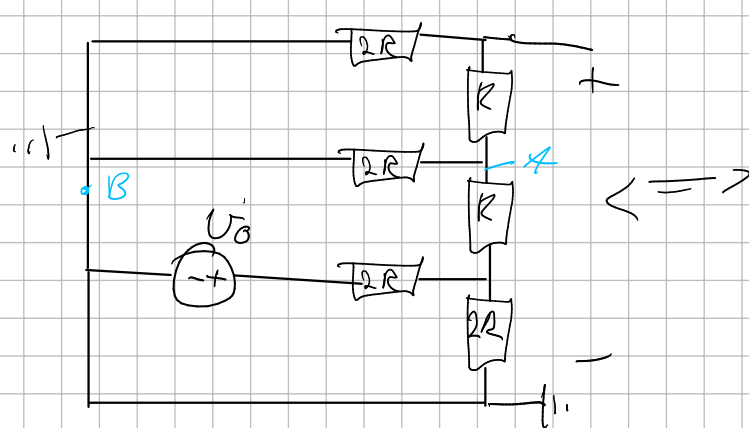
$R_{th}$ :

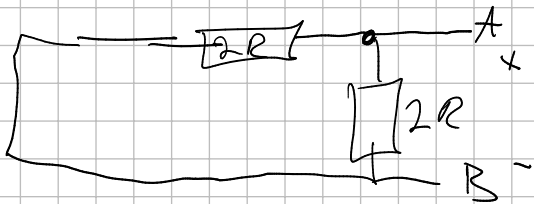
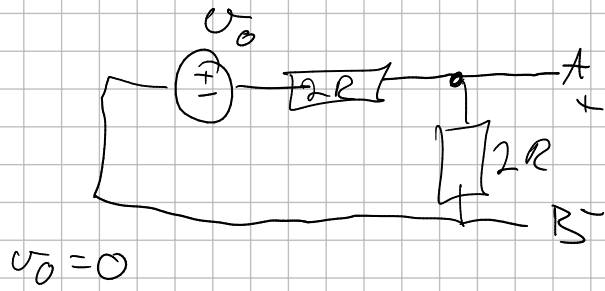
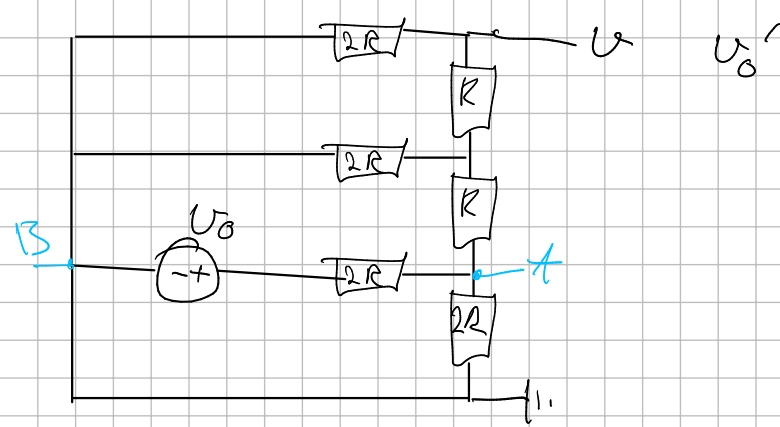


$$R_{th} = 2k$$

$$V_{th} = \frac{U_0}{4R} \cdot 2k$$

$$V_{th} = \frac{U_0}{2}$$





$$R_{th} = 1R$$

$$U_{th} = \frac{1}{2} U_0$$

$$U = 3 \cdot 2R + U_{ab}$$

$$U_{ab} = U - 3 \cdot 2R$$

$$U_{ab} = 3 \cdot 4R - 3 \cdot 2R$$

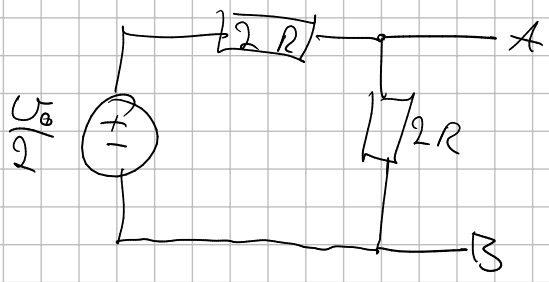
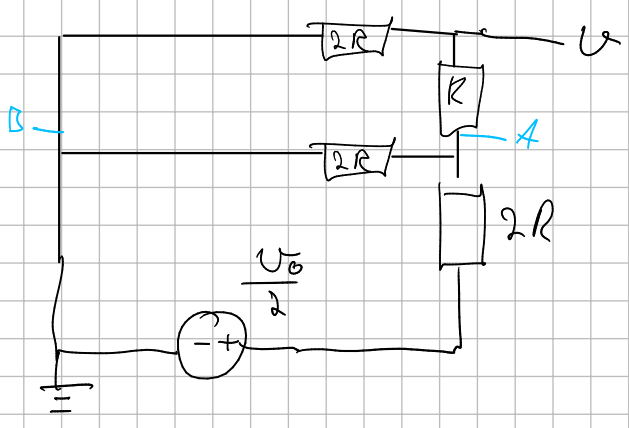
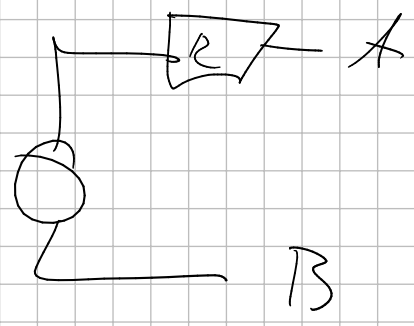
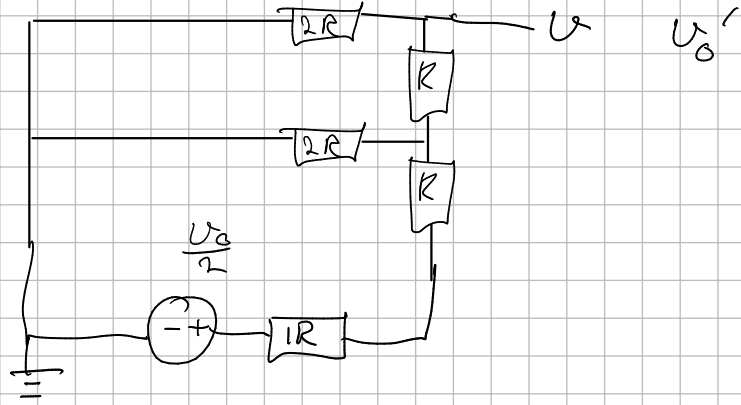
$$= 3 \cdot 2R$$

$$= U_0 \frac{2R}{4R}$$

$$= \frac{U_0}{2}$$

$$I = \frac{U_0}{4R}$$

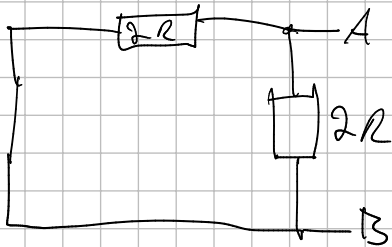
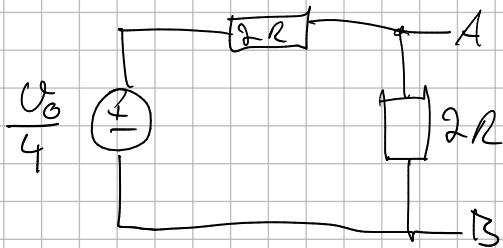
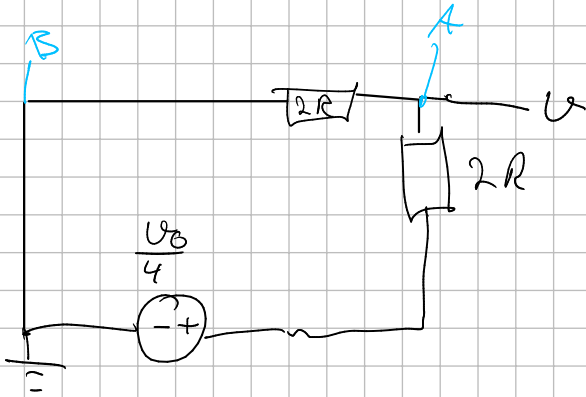
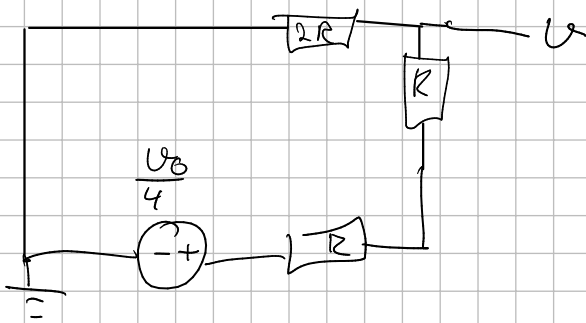
$$A = U_0 \frac{z}{x+z}$$



$$\frac{U_0}{2} = 0 \quad R_{\text{Th}} = 1R$$

$$U_{ab} = \frac{U_0}{2} \cdot \frac{2R}{4R}$$

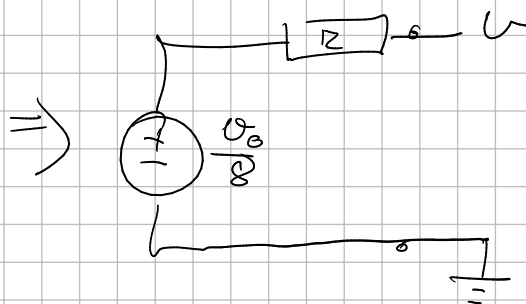
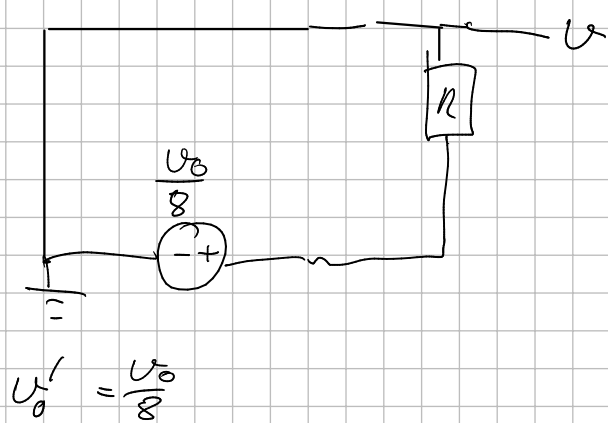
$$U_{ab} = \frac{U_0}{4}$$



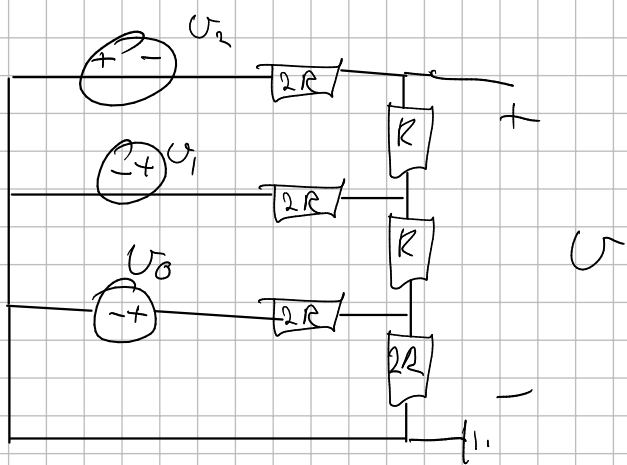
$$R_{th} = 1 R$$

$$U_{ab} = \frac{U_0}{4} \cdot \frac{2R}{4R}$$

$$= \frac{U_0}{8}$$



0



$$u_{\text{out}} = \frac{2}{3} u_{\text{in}} + 1$$

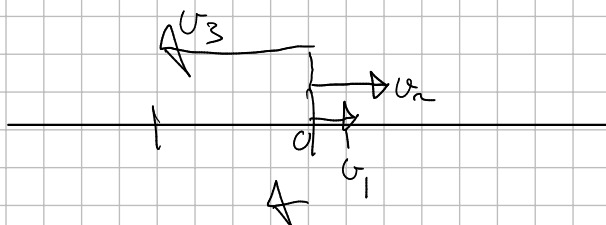
$u_{\text{in}}$   
 10  
 01010

-10

10101

10110

$$-16 + 4 + 2 = -10$$



$111$   
 $2^2 2^1 2^0$

-1

