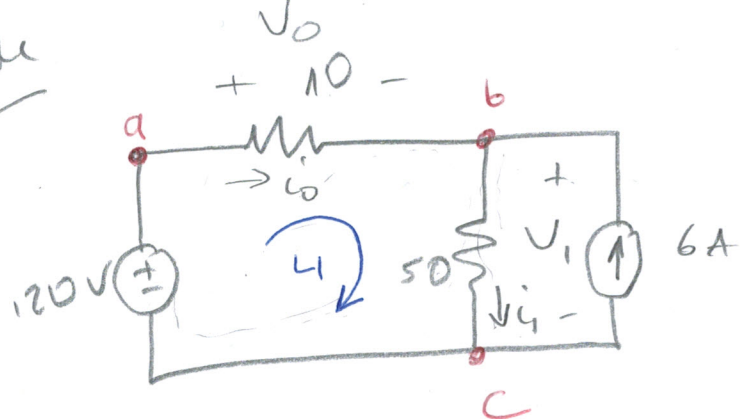


Örnekle

5-1



$$i_o = ?$$

giren -  
çıkan +

KCL

düğüm b :  $-i_o + i_1 - 6 = 0$

$$i_1 = 6 + i_o$$

$$V_1 = i_1 \cdot 50$$

KVL

$L_1$  döngüsü için :  $-120 + i_o \cdot 10 + V_1 = 0$

$$-120 + 10i_o + 50i_1 = 0$$

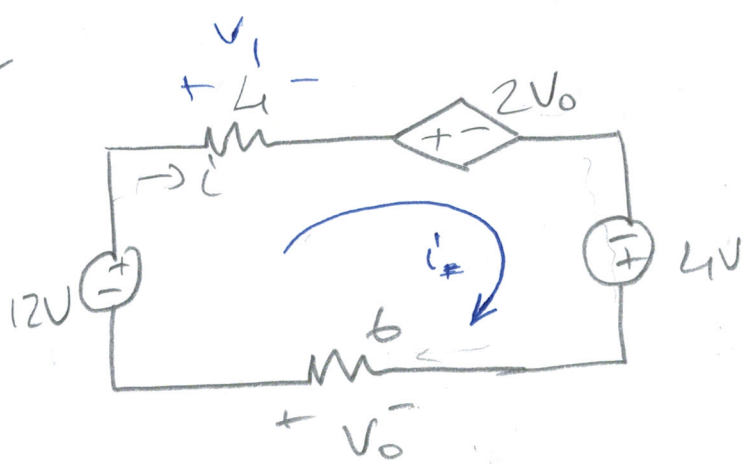
$$i_o + 5i_1 = 12$$

$$i_o + 5(6 + i_o) = 12$$

$$i_o + 5i_o = -18$$

$$i_o = \frac{-18}{6} = -3A$$

Order



$V_0, i = ?$

i)

$$V_1 = 4i$$

$$V_0 = -6i$$

$$-4 - V_0 - 12 + V_1 + 2V_0 = 0$$

$$V_1 + V_0 = 16$$

$$4i - 6i = 16$$

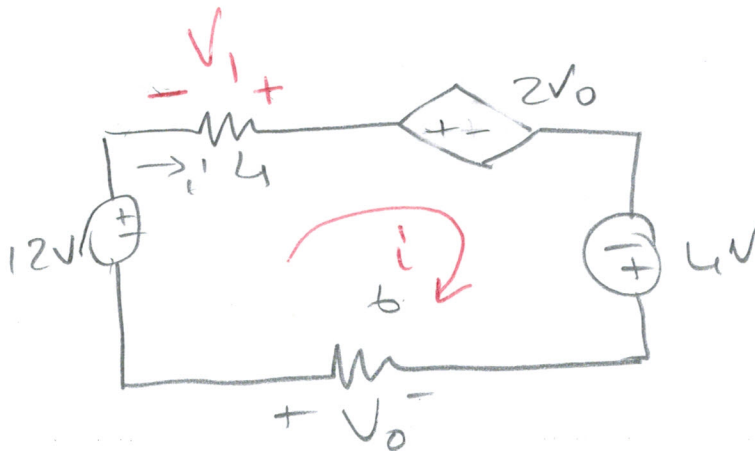
$$-2i = 16$$

$$i = -8 \text{ A}$$

$$V_0 = -6i$$

$$= -6 \cdot (-8) = 48 \text{ V}$$

ii)



$$-4 - V_0 - 12 - V_1 + 2V_0 = 0$$

$$V_0 = -6i$$

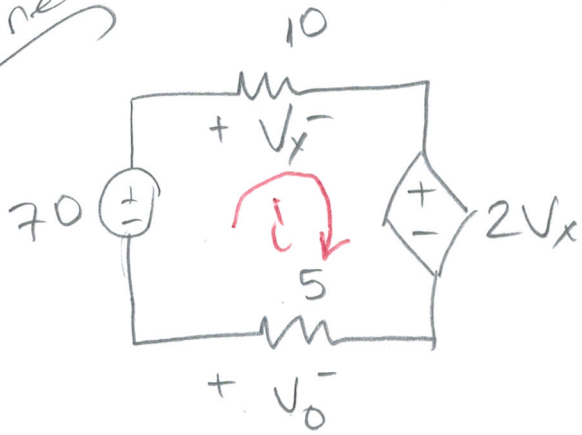
$$V_1 = -4i$$

$$V_0 - V_1 = 16$$

$$-6i - (-4i) = 16$$

$$-2i = 16$$

$$i = -8 \text{ A}$$

Örnek $V_o, V_x = ?$ 

$$-70 + V_x + 2V_x - V_o = 0$$

$$3V_x - V_o = 70$$

$$3 \cdot 10i - (-5i) = 70$$

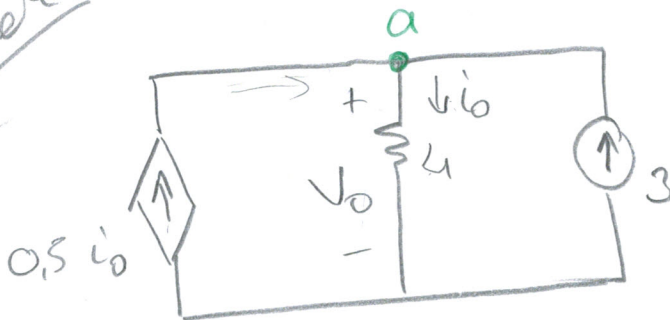
$$30i + 5i = 70$$

$$i = 2A$$

$$\left. \begin{array}{l} V_x = 10i \\ V_o = -5i \end{array} \right\} \rightarrow$$

$$V_x = 10 \cdot 2 = 20V$$

$$V_o = -5 \cdot 2 = -10V$$

Örnek $i_o$  ve  $V_o = ?$ 

düğüm a:  $-0.5i_o + i_o - 3 = 0$

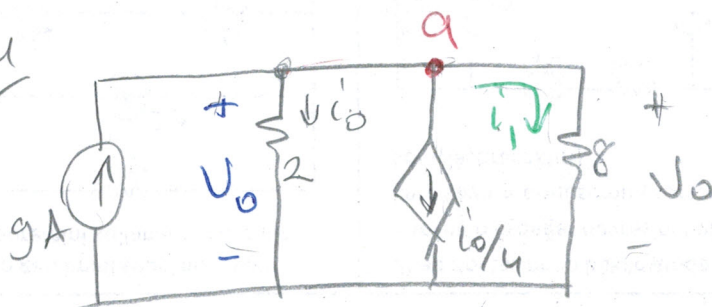
$$0.5i_o = 3$$

$$i_o = 6A$$

$$V_o = i_o \cdot 4$$

$$= 6 \cdot 4$$

$$V_o = 24V$$

Örnek $V_o, i_o = ?$ 

düğüm a:

$$-9 + i_o + \frac{i_o}{4} + i_1 = 0$$

$$5i_o + 4i_1 = 36$$

$$5i_o + 4i_1 = 36$$

$$V_o = i_o \cdot 2 = 4 \cdot 1.8$$

$$i_o = 4i_1$$

$$20i_1 + 4i_1 = 36$$

$$24i_1 = 36$$

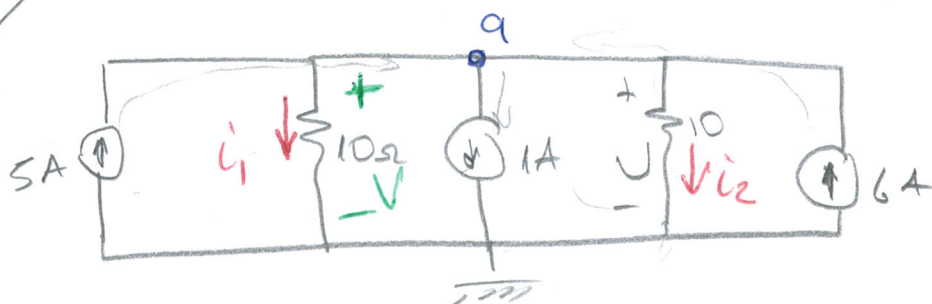
$$i_1 = \frac{6}{4}$$

$$i_o = 4i_1 = 4 \cdot \frac{6}{4} = 6A$$

$$V_o = 2i_o = 2 \cdot 6 = 12V$$

Örnekle

i)



$$V = ?$$

Doğru a:  $-5 + i_1 + 1 + i_2 - 6 = 0 \Rightarrow i_1 + i_2 = 10A$

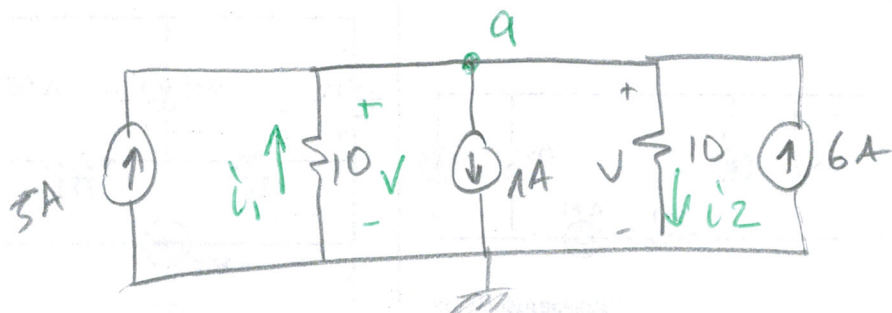
$$i_1 = i_2 = 5A$$

$$V = 10i_1 = 10i_2$$

$$i_1 = i_2$$

$$V = i_1 \cdot 10 = 50V$$

ii)



$$V = -10i_1 = 10i_2$$

$$-i_1 = i_2$$

Doğru a:  $-5 - i_1 + 1 + i_2 - 6 = 0$

$$i_2 - i_1 = 10A$$

$$i_2 + i_2 = 10A$$

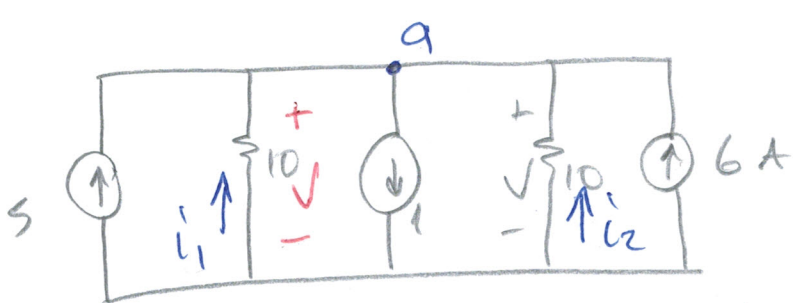
$$i_2 = 5A$$

$$V = 50$$

$$V = -i_1 \cdot 10 = -(5) \cdot 10$$

$$i_1 = -5A \Rightarrow V = 50V$$

iii)



$V=?$

S-5

Düğüm a:  $-5 - i_1 + 1 - i_2 - 6 = 0$

$V = IR$

$i_1 + i_2 = -10 \text{ A}$

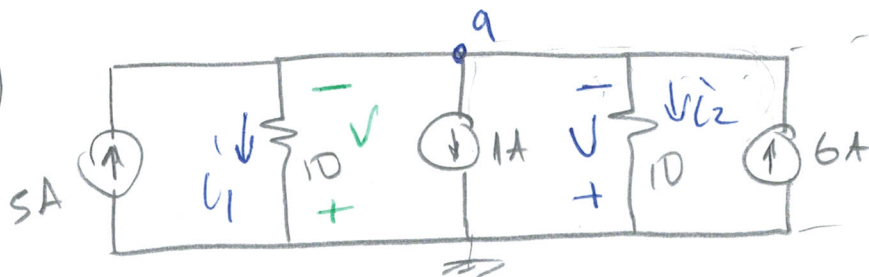
$i_1 = i_2 = -5 \text{ A}$

$V = -i_1 \cdot 10 = -i_2 \cdot 10$

$i_1 = i_2$

$V = -i_1 \cdot 10 = -(-5) \cdot 10 = 50 \text{ V}$

iv)



Düğüm a:  $-5 + i_1 + 1 + i_2 - 6 = 0$

$i_1 + i_2 = 10 \text{ A}$

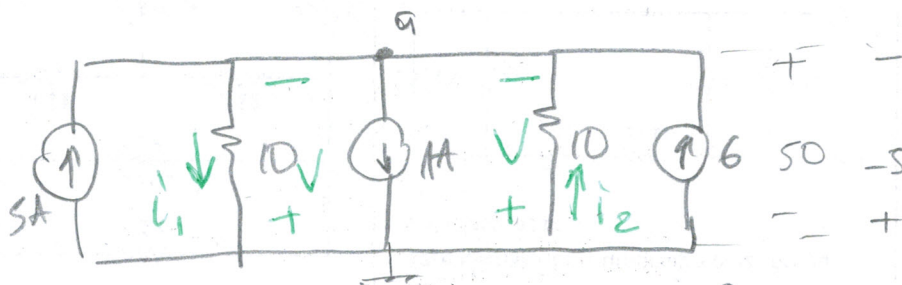
$i_1 = i_2 = 5 \text{ A}$

$V = -i_1 \cdot 10 = -i_2 \cdot 10$

$i_1 = i_2$

$V = -i_1 \cdot 10 = -5 \cdot 10 = -50 \text{ V}$

v)



Düğüm a:  $-5 + i_1 + 1 - i_2 - 6 = 0$

$i_1 - i_2 = 10 \text{ A}$

$i_1 - (-i_1) = 10$

$V = -i_1 \cdot 10 = i_2 \cdot 10$

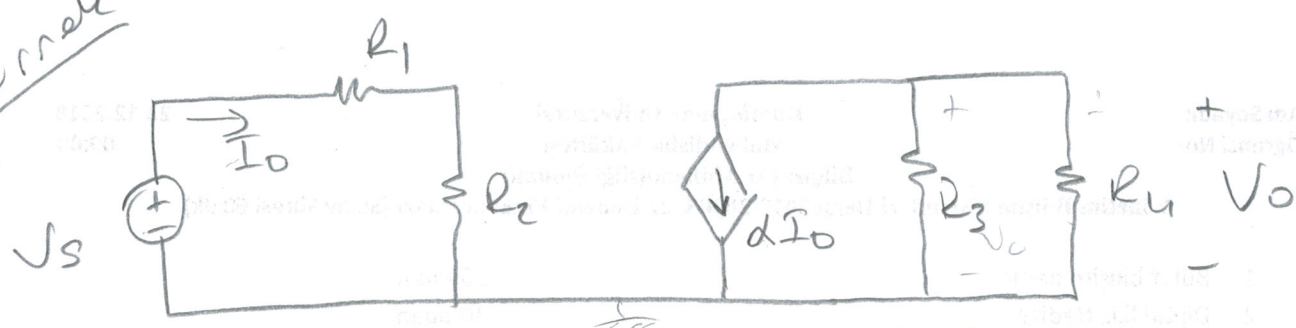
$-i_1 = i_2$

$V = -i_1 \cdot 10 = -50 \text{ V}$

$V = i_2 \cdot 10 = -50 \text{ V}$

$i_1 = 5 \text{ A} \quad i_2 = -5 \text{ A}$

Örnek

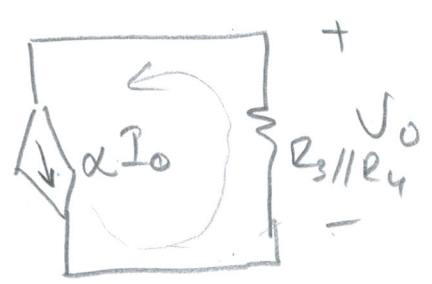


$\frac{V_o}{V_s}$  değeri  $R_1, R_2, R_3, R_4$  cinsinden bulunuz

$$V_s = I_o \cdot R_2$$

$$V_s = I_o \cdot (R_1 + R_2)$$

$$I_o = \frac{V_s}{R_1 + R_2}$$

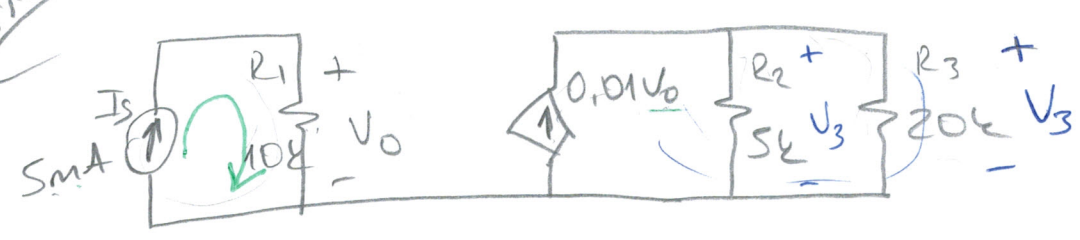


$$V_o = -(\alpha I_o) \cdot \frac{R_3 \cdot R_4}{R_3 + R_4}$$

$$V_o = -\alpha \cdot \frac{V_s}{R_1 + R_2} \cdot \frac{R_3 R_4}{R_3 + R_4}$$

$$\frac{V_o}{V_s} = -\alpha \frac{R_3 R_4}{(R_1 + R_2)(R_3 + R_4)}$$

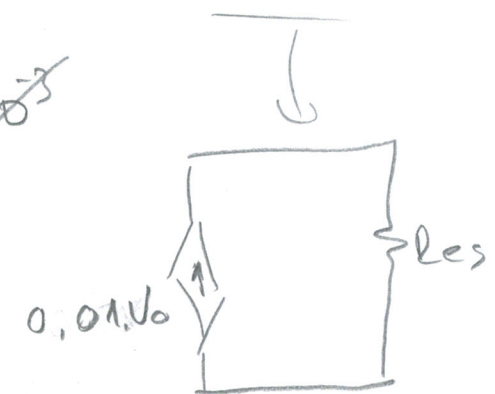
Örnek



$$V_o = R_1 \cdot I_s$$

$$= 10 \cdot 10^3 \cdot 5 \cdot 10^{-3}$$

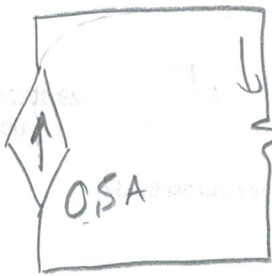
$$= 50 \text{ V}$$



$R_3$  direnci üzerindeki gerilim, üzerinden geçen akım ve harcanan güç bul

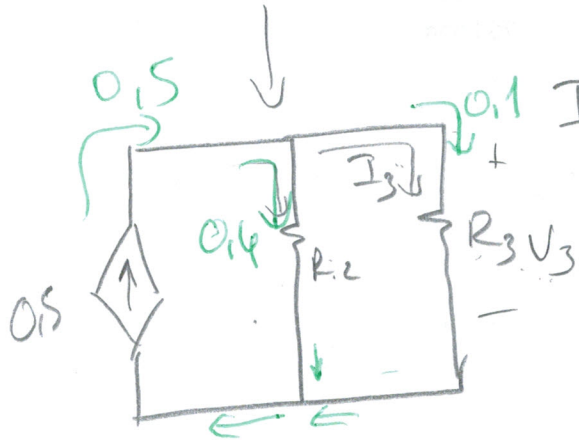
$$R_{es} = \frac{R_2 \cdot R_3}{R_2 + R_3} = 20 \cdot 10^3$$





$$R_{eq} = \frac{20 \cdot 10^3 \cdot 8 \cdot 10^3}{28 \cdot 10^3} = 4 \cdot 10^3 = 4k$$

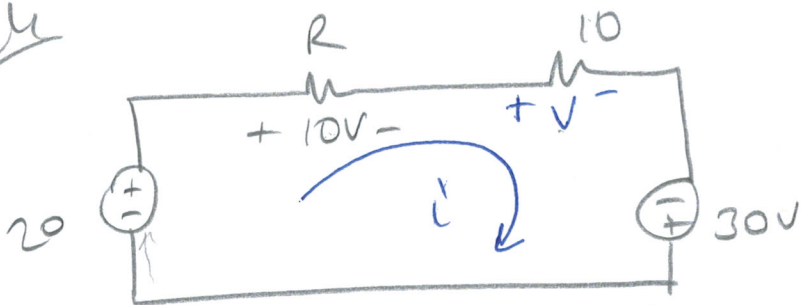
$$V_3 = 0.5 \cdot 4 \cdot 10^3 = 2 \cdot 10^3 = 2kV$$



$$I_3 = \frac{V_3}{R_3} = \frac{2 \cdot 10^3}{20 \cdot 10^3} = 0.1 A$$

$$P_3 = V_3 \cdot I_3 = 2 \cdot 10^3 \cdot 0.1 = 200 W$$

Örnekle



$$-20 + 10 + V - 30 = 0$$

$$V = 40 V$$

$$R = ?$$

$$V = IR$$

$$40 = i \cdot 10$$

$$i = 4 A$$

$$V = i \cdot R$$

$$10 = 4 \cdot R$$

$$R = 2.5 \Omega$$