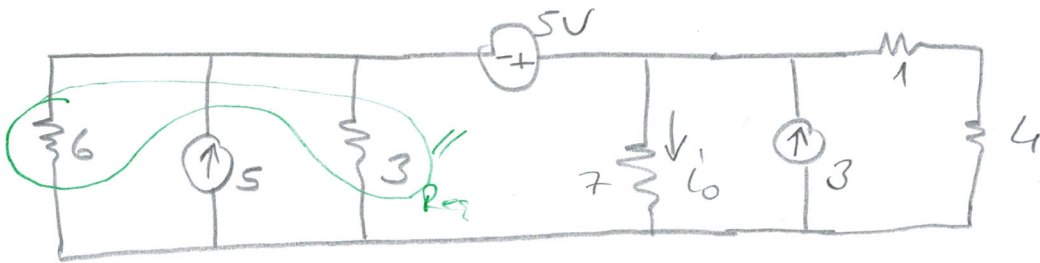
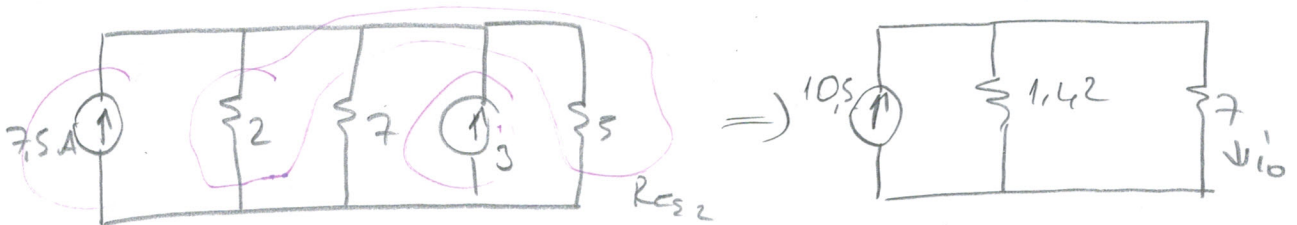
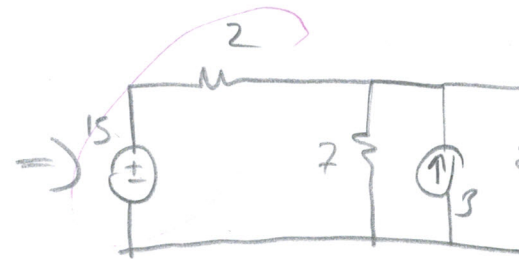
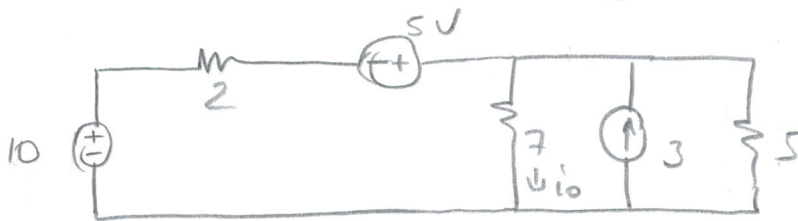
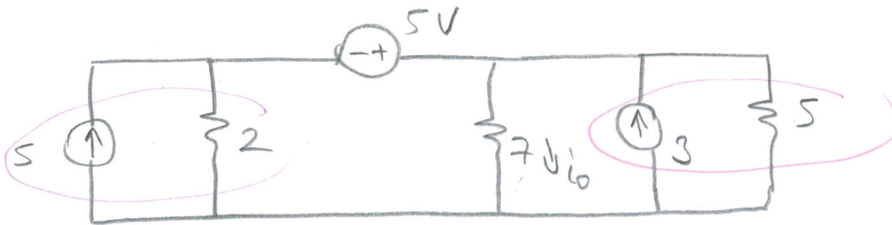


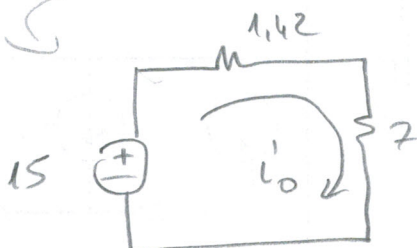
Örnek

Kaynak denetimini kullanarak  $i_o = 5$ 

$$R_{es1} = \frac{6 \cdot 3}{3} = 2 \Omega$$

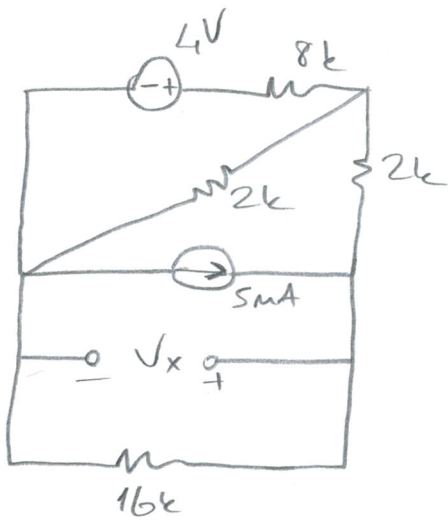


$$R_{es2} = \frac{5 \cdot 2}{7} = 1,42 \Omega$$

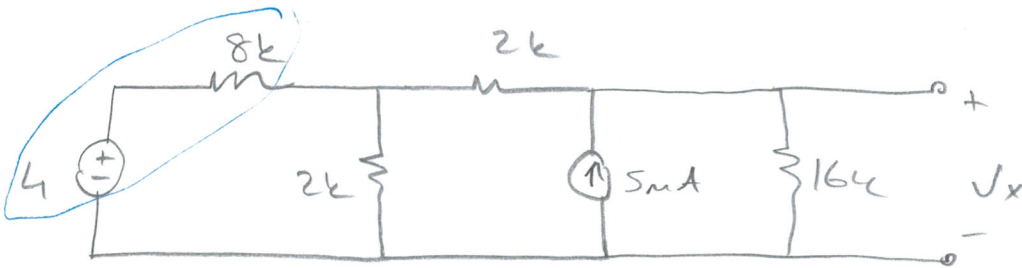


$$i_o = \frac{15}{(1,42 + 7)} = 1,78 \text{ A}$$

Cnnel

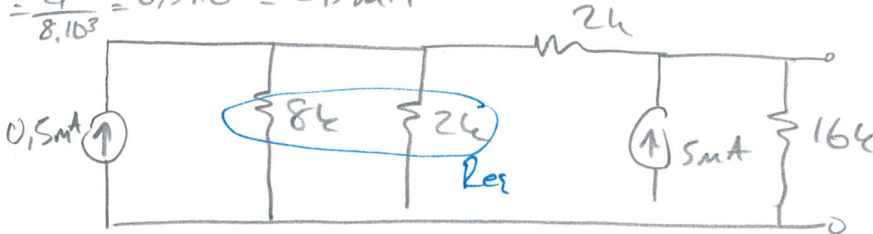


En az 3 tane  
kaynağı dönüştürüp  
uygulayıp  $V_x$ 'i bulun



$$V = IR$$

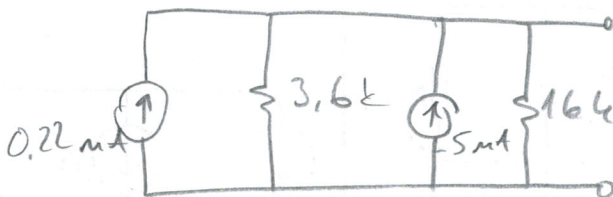
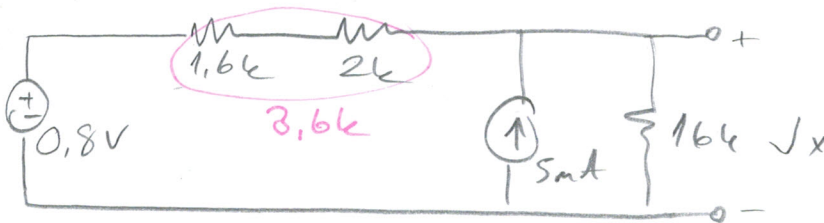
$$I = \frac{V}{R} = \frac{4}{8 \cdot 10^3} = 0,5 \cdot 10^{-3} = 0,5 \text{ mA}$$



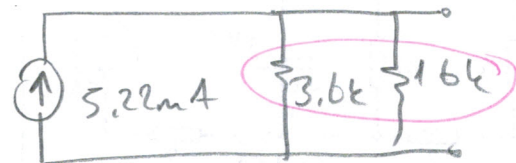
$$R_{eq} = \frac{8 \cdot 10^3 \cdot 2 \cdot 10^3}{10 \cdot 10^3} = 1,6 \text{ k}\Omega$$

$$V = 0,5 \cdot 10^{-3} \cdot 1,6 \cdot 10^3 =$$

$$= 0,8 \text{ V}$$

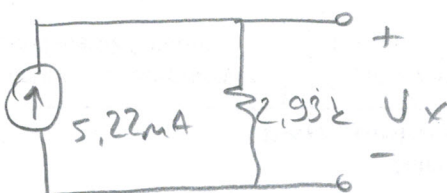


→



$$R_{eq1} = \frac{3,6 \cdot 10^3 \cdot 16 \cdot 10^3}{19,6 \cdot 10^3}$$

$$= 2,93 \text{ k}\Omega$$

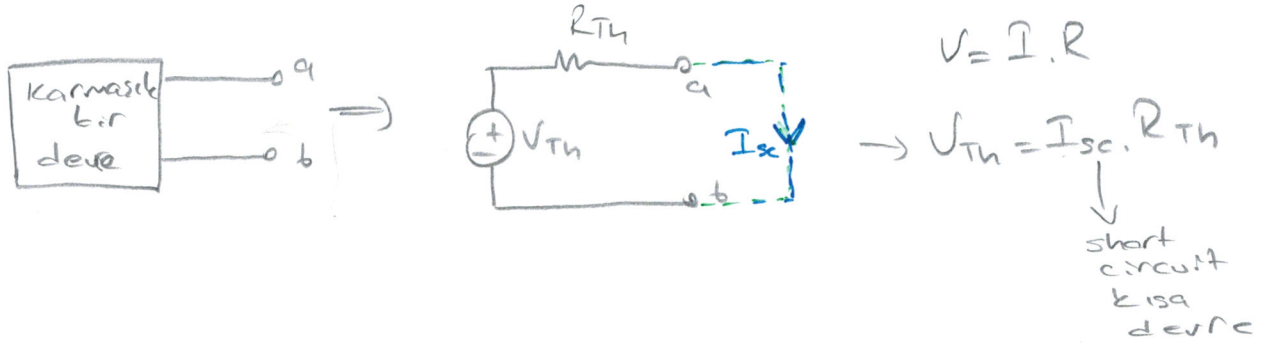


$$V_x = 5,22 \cdot 10^{-3} \cdot 2,93 \cdot 10^3 = 15,29 \text{ V}$$

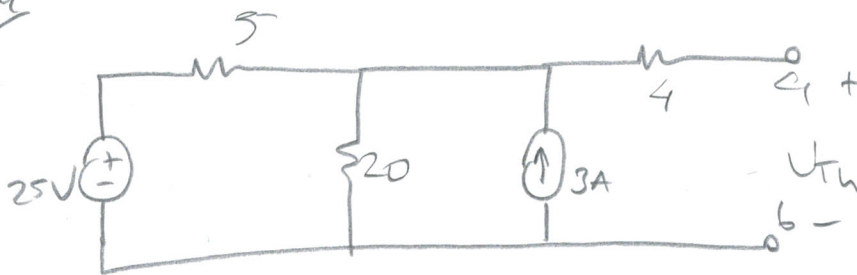
### 3.4) Thevenin ve Norton Eşdeğer Devreleri:

11.3

#### 3.4.1) Thevenin Eşdeğer Devresi:

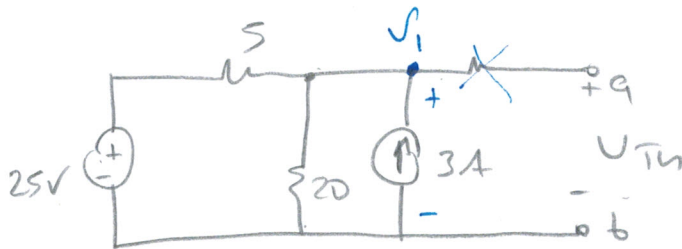


Örnek



ab uçundan bakıldığında  
Thevenin  
eşdeğer  
devresi

d) ab ucu açık devre iken görünen gerilim  
 $V_{ab} = V_{TH}$



Düğüm analiz:

$$\frac{V_1 - 25}{5} + \frac{V_1}{20} - 3 = 0$$

$$4V_1 - 100 + V_1 = 60$$

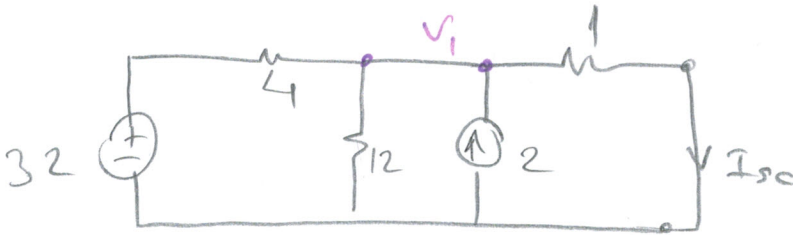
$$5V_1 = 160$$

$$V_1 = 32V = V_{TH}$$

e) ab ucu kısa devre yapılarak akıdan geçen akım  
 $I_{sc}$  bulunur.



ii)  $R_{Th} \rightarrow I_{sc}$



$$\frac{V_1 - 32}{4} + \frac{V_1}{12} - 2 + \frac{V_1}{1} = 0$$

(3)

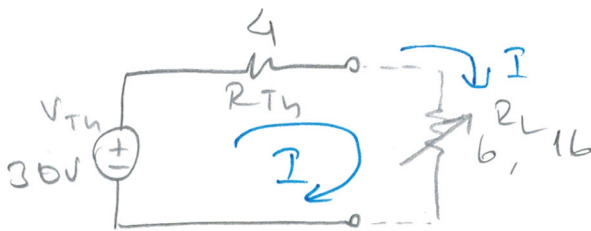
$$3V_1 - 96 + V_1 + 12V_1 = 24$$

$$16V_1 = 120$$

$$V_1 = 7.5V$$

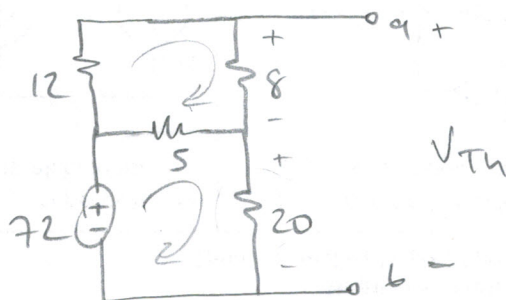
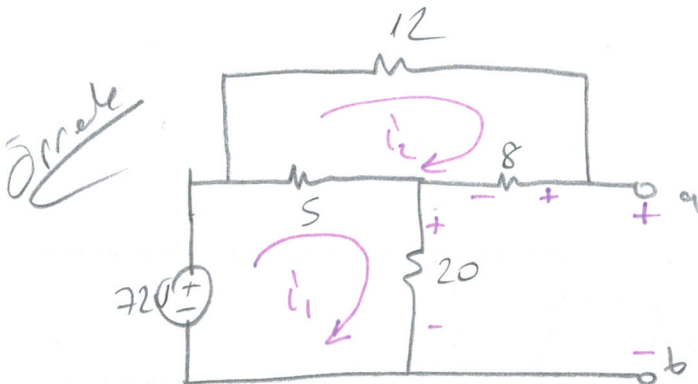
$$I_{sc} = \frac{V_1}{1} = 7.5A$$

$$R_{Th} = \frac{V_{Th}}{I_{sc}} = \frac{30}{7.5} = 4 \Omega$$



$$R_L = 6 \Rightarrow \frac{V_{Th}}{R_{eq}} = I = \frac{30}{4+6} = 3A$$

$$R_L = 16 \Rightarrow \frac{V_{Th}}{R_{eq}} = I = \frac{30}{20} = 1.5A$$



ab uçlarından bakıldığında  
görünen Thevenin eşdeğer  
devresini çiziniz.

$$-72 + 5(i_1 - i_2) + 20i_1 = 0$$

$$12i_2 + 8i_2 + 5(i_2 - i_1) = 0$$

$$25i_1 - 5i_2 = 72$$

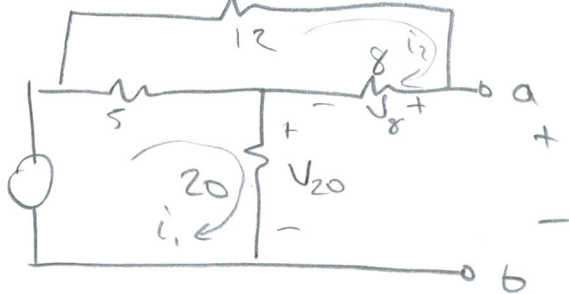
$$5i_1 = 25i_2$$

$$i_1 = 5i_2$$

$$24i_1 = 72$$

$$i_1 = 3A$$

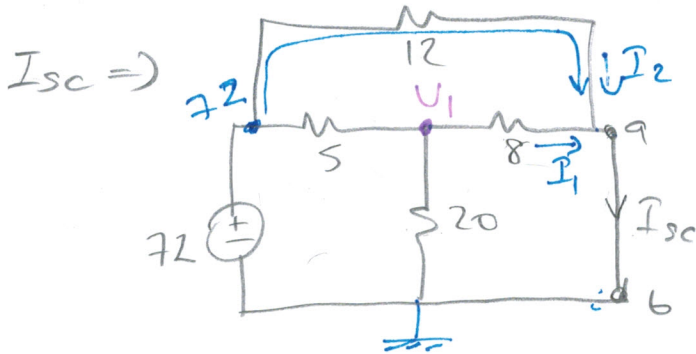
$$i_2 = 0.6A$$



$$V_{20} = 3,20 = 60V$$

$$V_8 = 0,6 \cdot 8 = 4,8V$$

$$V_{ab} = V_{20} + V_8 = 64,8V$$



$$\frac{V_1 - 72}{5} + \frac{V_1}{20} + \frac{V_1}{8} = 0$$

$$8V_1 - 576 + 2V_1 + 5V_1 = 0$$

$$15V_1 = 576$$

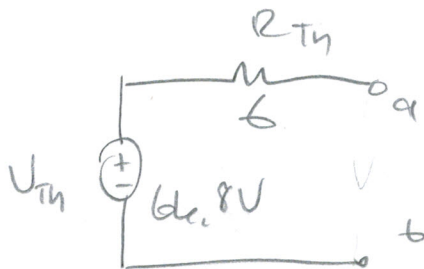
$$V_1 = 38,4V$$

$$I_1 = \frac{V_1}{8} = \frac{38,4}{8} = 4,8A$$

$$I_2 = \frac{72}{12} = 6A$$

$$I_{sc} = I_1 + I_2 = 10,8A$$

$$R_{Th} = \frac{V_{Th}}{I_{sc}} = \frac{64,8}{10,8} = 6\Omega$$



$$V_{Th} = ?$$

$$R_{Th} = ?$$

$$I_{sc}$$