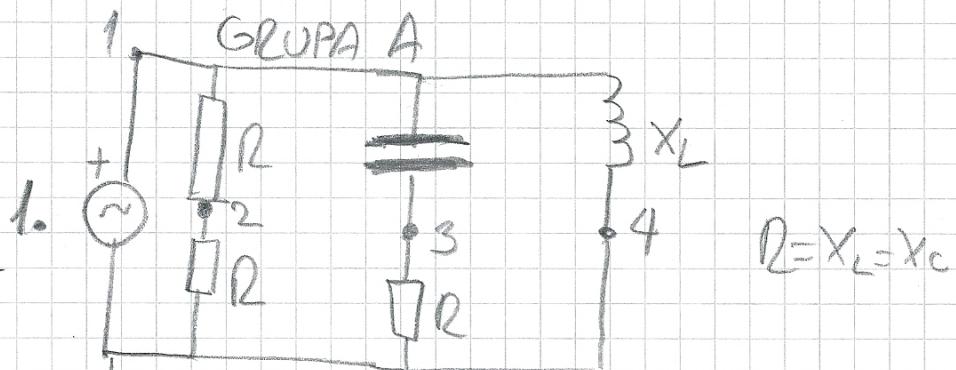
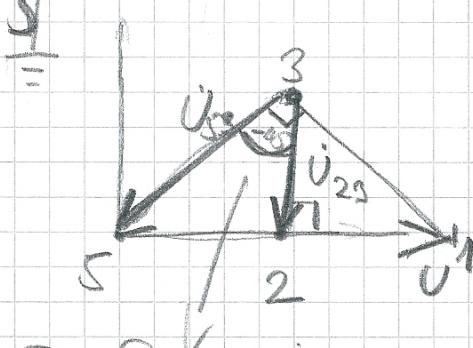


ZI 2011./2012.



$$R = X_L = X_C$$



- Na kond.

struja prethodi
napon za 90° ,
na zadnjici
kasnji.

(B) Fazor U_{35} zaustavlja Paralela je, što
za 45° . znači da je napon
u svakoj granici
napon izvora.

2. $P_{max} = 1600 \text{ VA}$

$$P_{min} = -400 \text{ VA}$$

$$Q = ?$$

$$Q^2 = S^2 - P^2$$

$$S = ? \quad P = ?$$

Sredina između

(B),

$$Q = 800 \text{ VAr}$$

$$P_{min} : P_{max} = P$$

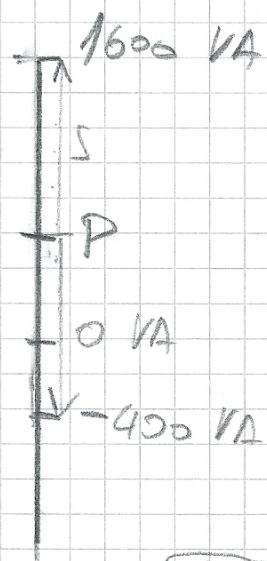
$$P = \frac{1600 - 400}{2} = 600 \text{ W}$$

$$P_{max} - P = S$$

$$Q = \sqrt{S^2 - P^2} = \sqrt{1000^2 - 600^2}$$

$$S = 1000 \text{ VA}$$

$$Q = 800 \text{ VAr}$$



3.

$$\underline{Z}_1 \parallel \underline{Z}_2, Q_{uk} = 100 \text{ VA} \text{ (ind.)}$$

$$\underline{Z}_1 = 3 + j4 \Omega$$

$$\underline{Z}_2 = 4 - j3 \Omega$$

$$\underline{Z}_1 \parallel \underline{Z}_2 = \frac{1}{\frac{1}{Z_1} + \frac{1}{Z_2}} = \dots$$

calculator

$$\underline{Z}_1 \parallel \underline{Z}_2 = \underline{3.5 + j0.5 \Omega}$$

$$Q_{uk} = I_{uk}^2 \cdot \text{Im}\{\underline{Z}_1 \parallel \underline{Z}_2\}$$

$$100 \text{ VA} = I_{uk}^2 \cdot 0.5$$

$$I_{uk}^2 = \frac{100}{0.5} \text{ A}^2 = 200 \text{ A}^2$$

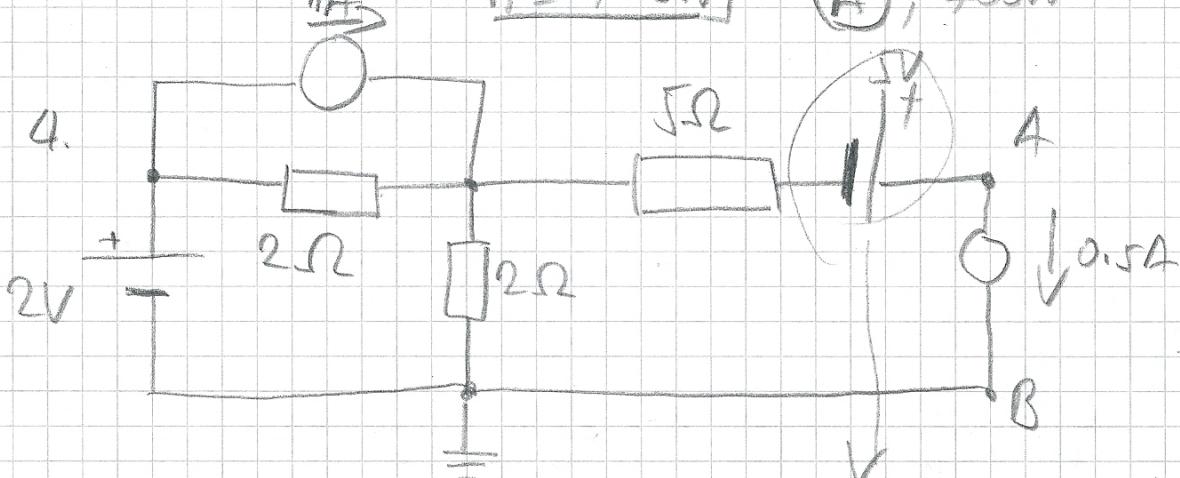
$$P = ? \quad P = I_{uk}^2 \cdot \text{Re}\{\underline{Z}_1 \parallel \underline{Z}_2\}$$

$$P = 200 \text{ A}^2 \cdot 3.5 \Omega$$

$$\boxed{P = 700 \text{ W}}$$

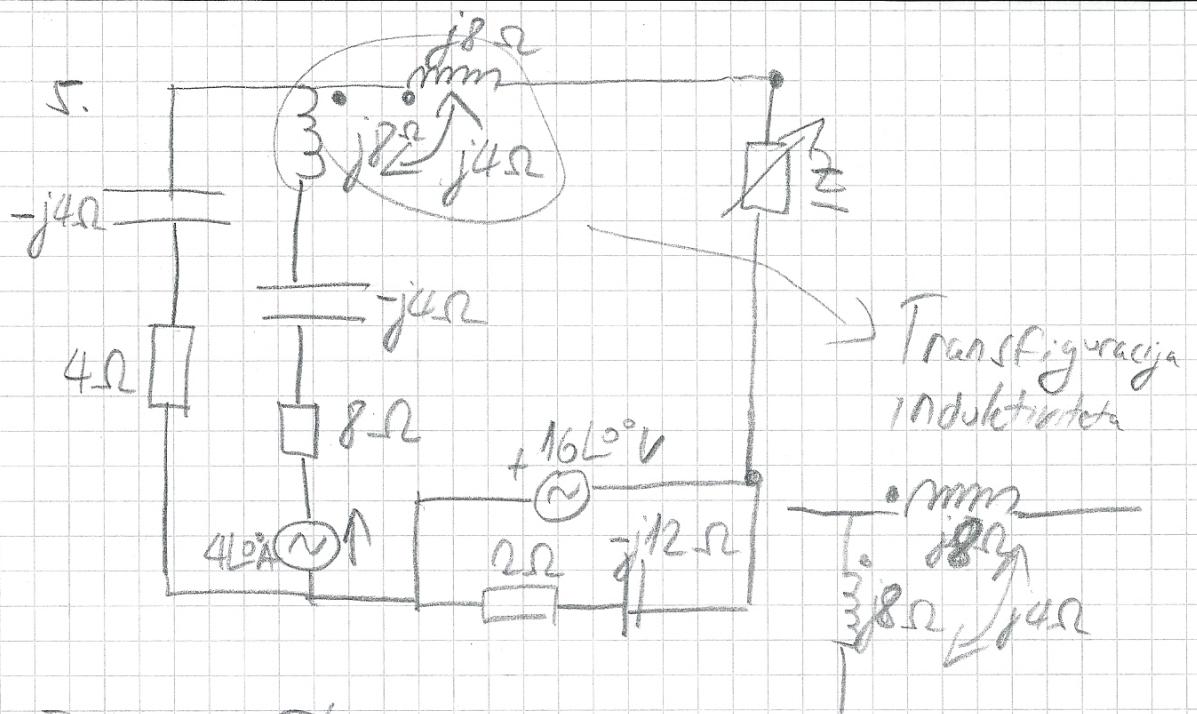
$$\boxed{A, 700 \text{ W}}$$

4.

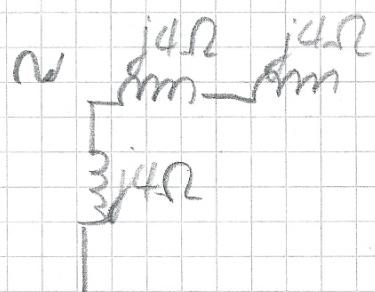
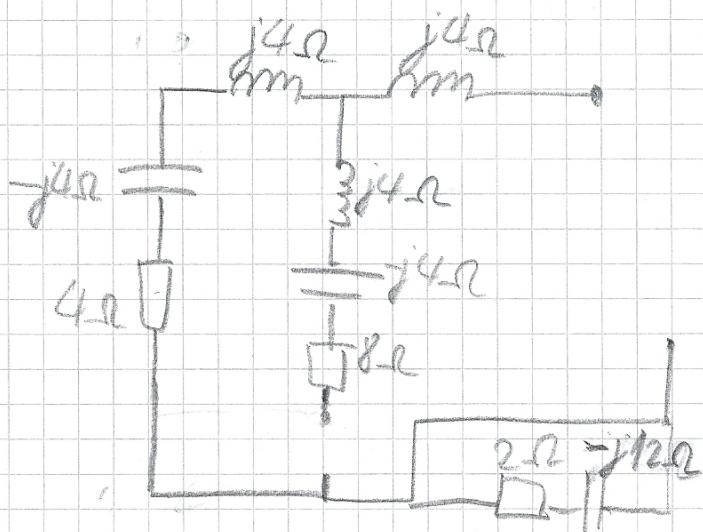


Ovaj izvor ne utječe
na ulazni struju

jedino na napon struje
u njegovoj granici definirajući
struju 1200 od 0.5A



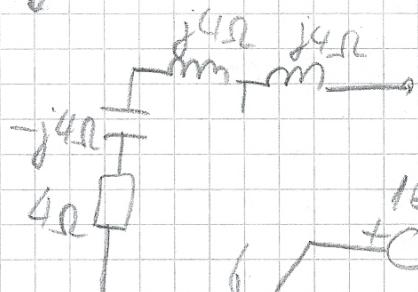
I Tražimo Theveninov otpor



II Theveninov napon \rightarrow
SUPPLY DODA UOBA
br. ①

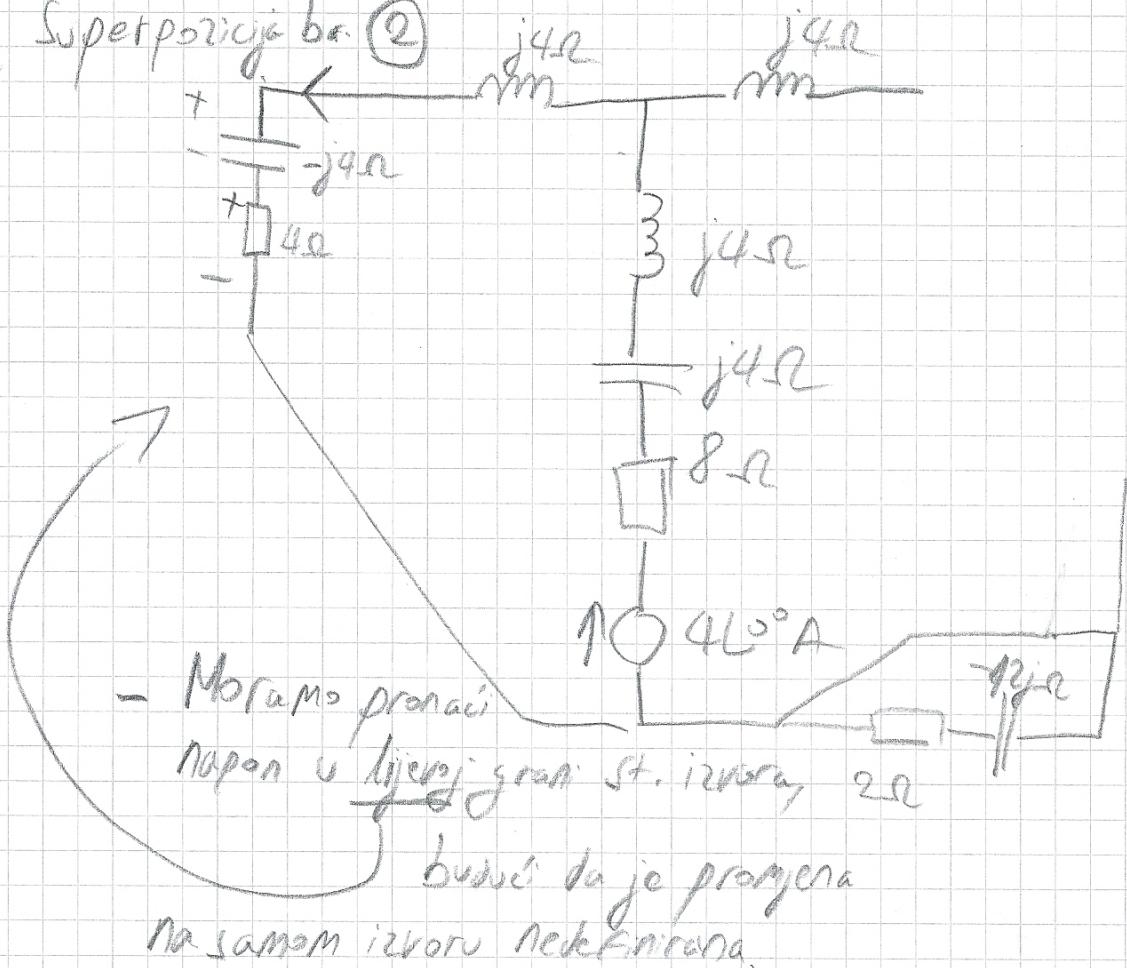
$$Z_{TH} = 4\Omega - j4\Omega + j8\Omega$$

$$\underline{\underline{= 4 + j4\Omega}}$$



$$U_1 = +16\angle 0^\circ V$$

5.1
nastavak Superpozicija b.a. ②



$$U_2 = I \cdot (4\Omega + j4\Omega - j4\Omega)$$

$$U_2 = 16L^0 V$$

$$U_{TH} = U_1 + U_2 = 32L^0 V$$

$$\underline{Z}_{TH} = 4+j4\Omega$$

kognitivno \hookrightarrow Teorem Max. snage za promjenu \underline{Z} :

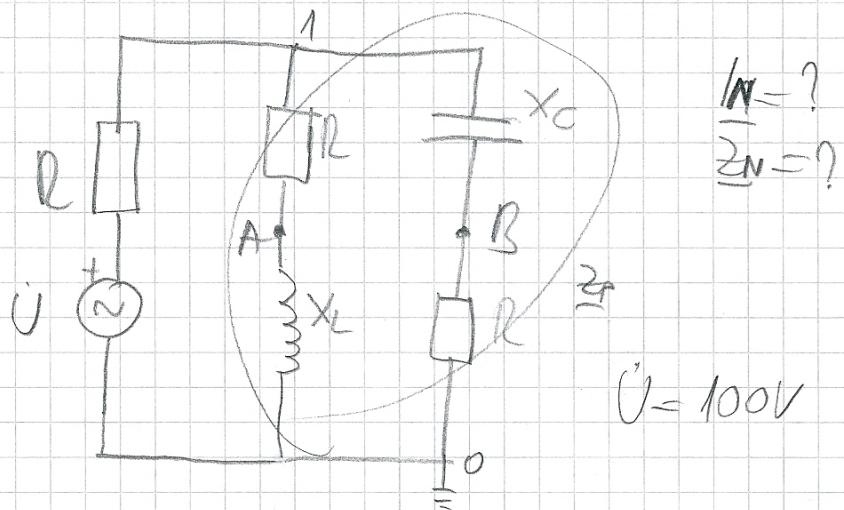
$$\underline{Z}_{MAX} = \underline{Z}_{TH} = 4-j4\Omega$$

$$I = \frac{32L^0 V}{4+4-j4+j4} = \boxed{4A} \quad \textcircled{B}, 64W$$

$$P = \boxed{4A \cdot \text{Re}\{\underline{Z}_{MAX}\}}$$

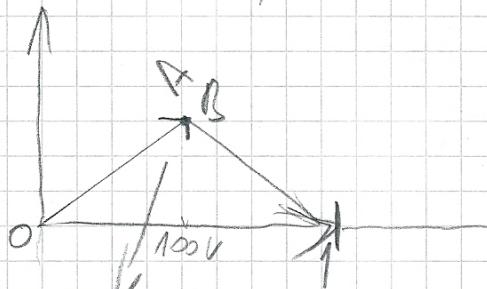
$$= 16A \cdot 4\Omega = \boxed{64W}$$

$$6. R = X_L = X_C = 10\Omega$$



Za obbiti hv. Moramo odrediti
Napon U_{AB} .

Biće da je Z_p (z paralele) = 10Ω ,
Može se zaključiti da će na njih
biti $\frac{1}{2}$ napona izvora ($50V$)



A i B su na istoj točki;
Struja u granu sa zavisnošću

za 45° ; $R = X_L$

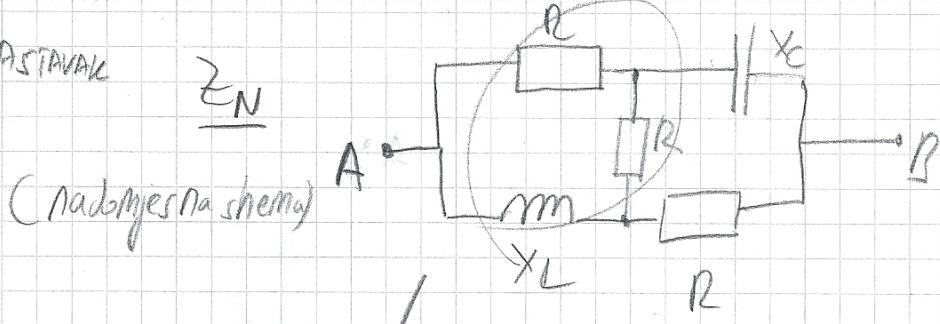
husni, što znači da napon na
 X_L prethodi naponu ojedeljene

za 45° . Struja u grani s X_C

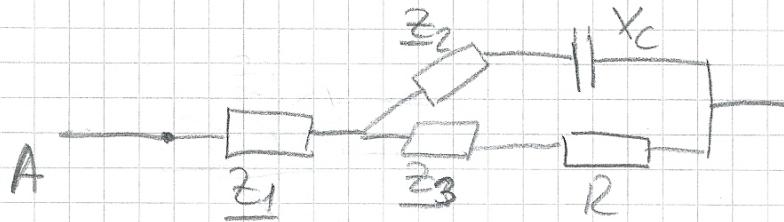
prethodi naponu za 45° , a u fazi

je s naponom na R , što znači
da je $U_{AB} = 0V$

6. NASTAVAK



Transformovat označení trojúhelníku v zájedu



$$Z_1 = \frac{R \cdot X_L}{(R+R_j)X_L} = 2+j4 \Omega$$

$$Z_3 = Z_1 = 2+j4 \Omega$$

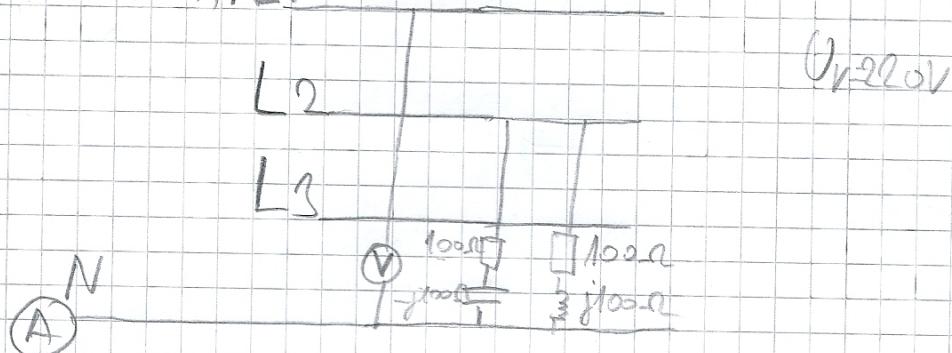
$$Z_2 = \frac{R \cdot R}{(R+R_j)X_L} = 4-j2 \Omega$$

$$\begin{aligned} Z_N &= Z_1 + (Z_2 - jX_C) \parallel (Z_3 + R) \\ &= (2+j4) \parallel (8-j4) \end{aligned}$$

$$\boxed{Z_N = 10 \Omega}$$

D) $I_N = 0A, Z_N = 10 \Omega$

2. L1



Napon izmedju NULE (nultovje spojen izravnivo
nulu) i fazu L₁, u pravom smjeru je
FAZNI NAPON..

$$U_1 = 220 \angle 0^\circ V$$

$$U_2 = 220 \angle -120^\circ V$$

$$U_3 = 220 \angle -240^\circ V$$

$$I = \frac{220 \angle -120^\circ V}{100 - j100\Omega} + \frac{220 \angle -240^\circ V}{100 + j100\Omega}$$

$$I = 1.5556 \angle -75^\circ A + 1.5556 \angle 20^\circ A$$

$$\boxed{I = 0.805 \angle 0^\circ A}$$

D, 0.8A

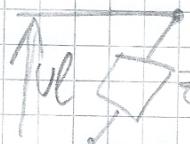
8. $Z = 80 - j60 \Omega \Rightarrow 100 \angle -36.8^\circ$

$U_L = 380V$, trokut - spj

Trokut ima 3 stranice.

Izračunamo par sujaku u 1 str.: $\frac{380}{100} = k \quad (k = 3.8A)$

$P_h = 3.8^2 \cdot R_{\{2\}} = 3.8^2 \cdot 80 = 1155.2 \quad P_m = 3 \cdot P_h = 3465.6W$



D, 3465.6W

9. Po formuli za izračun EFEKTIVNE

vrijednosti, izračunati efektivni napon grafa.

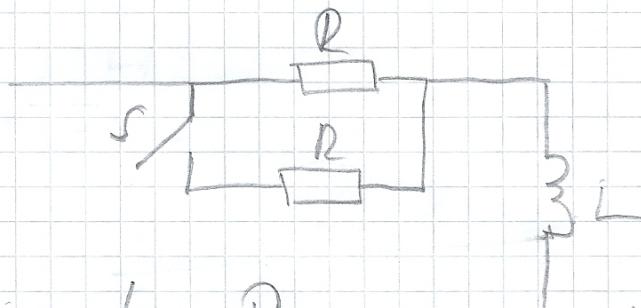
Dobivenu vrijednost

množiti s $\sqrt{2}$, za
dobiti maksimum
sinusoidalnog

napon koji će ravnati
istu toplinu je u biti
baš efektivni napon

(B) 110.6 V

10.



$T = \frac{L}{R}$. Prije zatvaranja sklopice je

$$T_0 = \frac{L}{R}, \text{ a nakon se može } R \parallel R$$

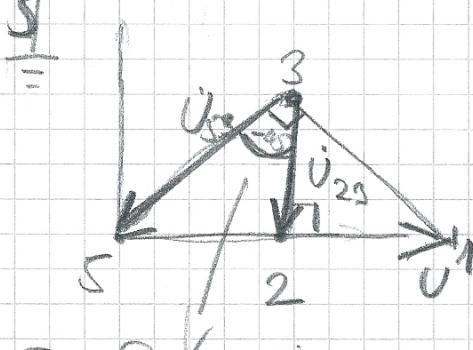
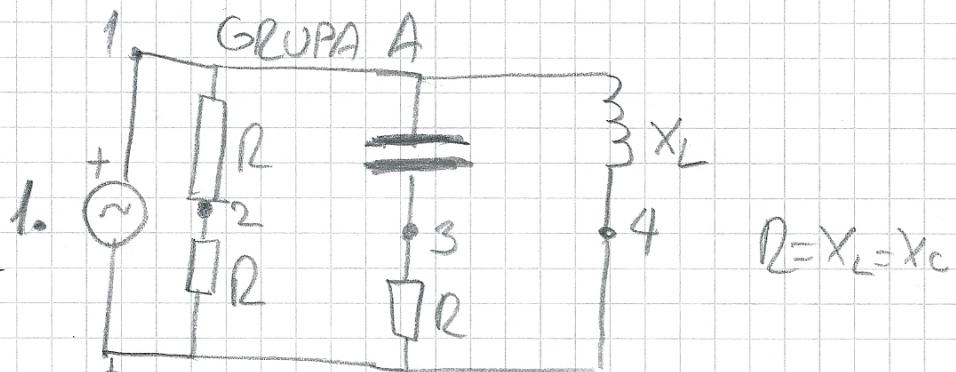
nabrojiti je $\frac{R}{2}$, što znači

$$\text{da } T = \frac{L}{\frac{R}{2}} = \frac{2L}{R} = 2 \cdot T_0$$

Udvostruči se.

(B) poraste dva puta

ZI 2011./2012.



- Na kond.
struja prethodi
napon za 90° ,
na zadnjici
kasni.

(B) Fazor U_{13} zaustavlja Paralela je, što
za 45° . znači da je napon
u svakoj granici
napon izrora.

2. $P_{max} = 1600 \text{ VA}$

$P_{min} = -400 \text{ VA}$

$Q = ?$

$Q^2 = S^2 - P^2$

$S = ? \quad P = ?$

Sredina između

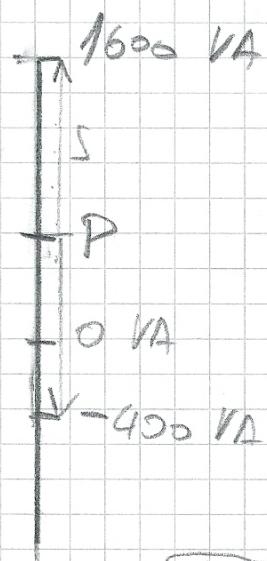
$P_{min} : P_{max} = P$

$P = \frac{1600 - 400}{2} = 600 \text{ W}$

(B),

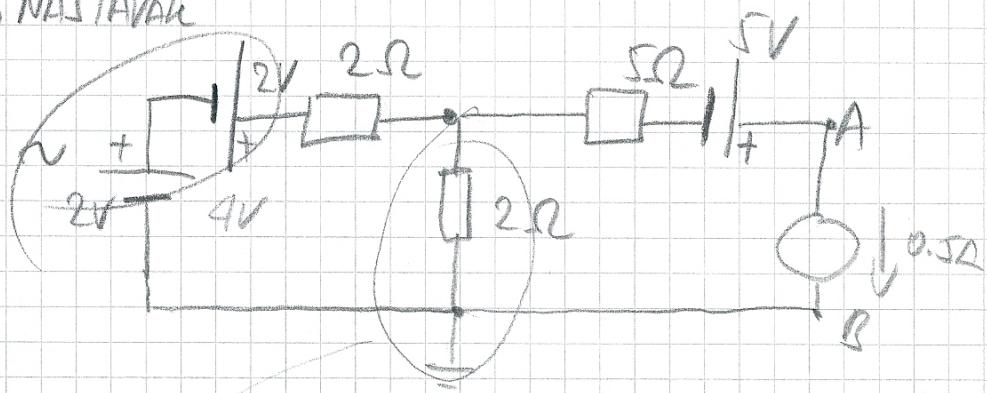
$Q = 800 \text{ VAr}$

$P_{max} - P = S$

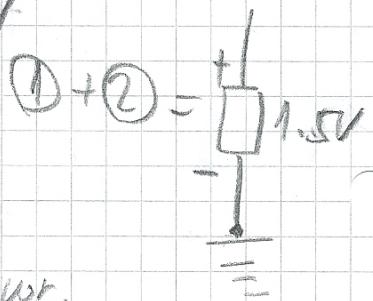
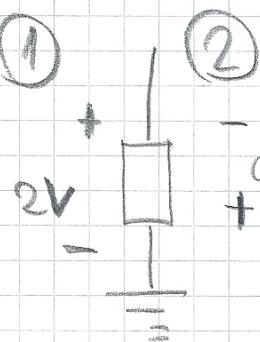


$Q = \sqrt{S^2 - P^2} = \sqrt{1600^2 - 600^2}$
 $S = 1000 \text{ VA}$
 $Q = 800 \text{ VAr}$

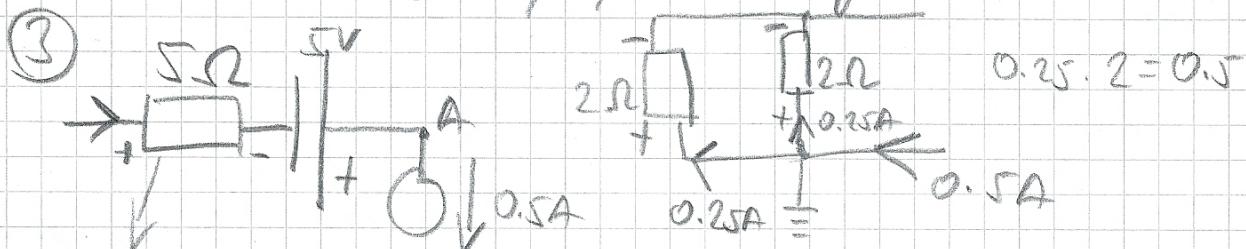
4. → NASTAVAK



① Superponirati 2 izvora od 2V, kao jedan od 4V. Pritom je grana s A i B odspojena, zbog strujnog izvora. Tako se dobije dio napona na otporniku, znat uvećanje.

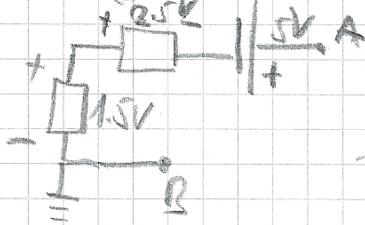


② Superponirati strujni izvrt.



$$U = 5\Omega \cdot 0.5A \\ = 2.5V$$

④ Krećemo se od B do A



$$U_{AB} = 1.5V - 2.5V + 5V \\ U_{AB} = 4V \\ A) 4V$$