

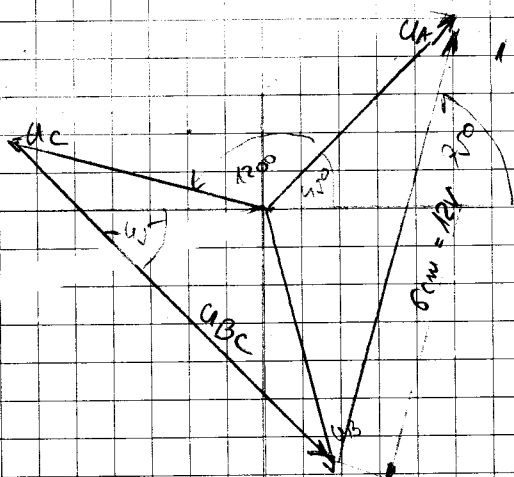
1.1. $U_{fA} = 7 \angle 45^\circ \text{ V}$

U_{AB} i $U_{BC} = ?$

$1V = 0,5 \text{ cm}$

$U_{AB} = 12 \angle 75^\circ \text{ V}$

$U_{BC} = 12 \angle -45^\circ \text{ V}$



1.2. Δ spoj

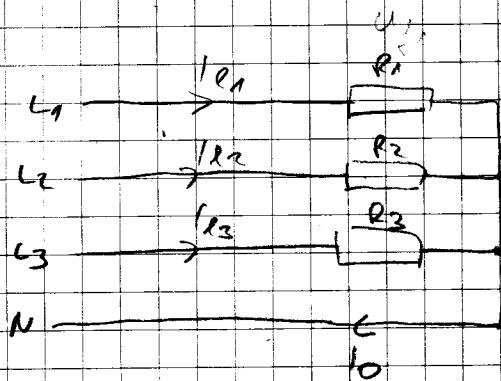
$R_1 = R_2 = R_3 = 150 \Omega$

$U_{line} = 12 \text{ V}$

a.) $I_0 = ?$ u norm. režimu roba

b.) $I_0 = ?$ priključ h.n. vodič L1

c.) magu štost'ca



$I = \frac{U_{line}}{\sqrt{3}} = 0,08 \text{ A}$

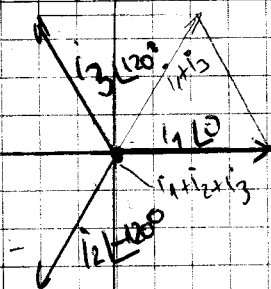
$\sin(\phi) = 0$

c.)

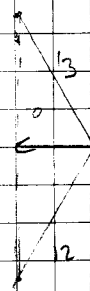
$P = \sqrt{3} U_{line} \cdot I \cdot \cos \phi$

$P = 1,653 \text{ W}$

a.)



b.)



$I_0 = 0,046 \text{ A}$

$I_0 = I_1 \angle 0 + I_2 \angle 120 + I_3 \angle 240 = 0$

1.3. NE 91 m Δ

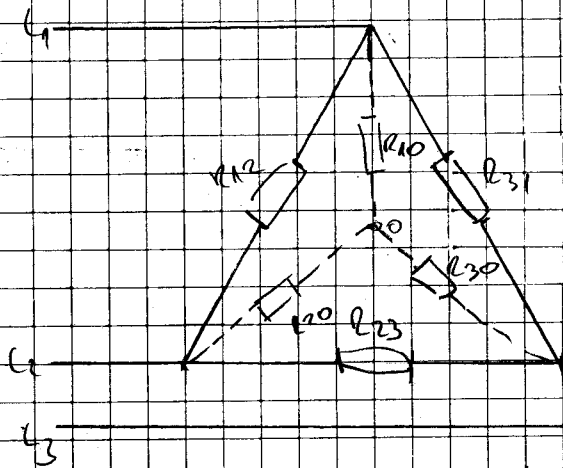
$$R_{12} = 220 \Omega$$

$$R_{31} = 150 \Omega$$

$$R_{23} = 330 \Omega$$

a.) Handl. u. l.

b.) Mogo ako je $U_e = 12V$.



$$a.) R_{10} = \frac{R_{12} R_{31}}{R_{12} + R_{23} + R_{31}} = \frac{220 \cdot 150}{700} = 47,142852 \Omega$$

$$R_{20} = \frac{R_{12} R_{23}}{R_{12} + R_{23} + R_{31}} = 103,7143 \Omega$$

$$R_{10} = 47,142852 \Omega$$

$$R_{30} = \frac{R_{23} R_{31}}{R_{12} + R_{23} + R_{31}} = 70,7143 \Omega$$

b.) $P = ?$, $U_e = 12V$

$$P_{02} = P_1 + P_2 + P_3$$

$$P_e = \frac{U_{e1}^2}{R_{12}} \cos \phi_1 + \frac{U_{e2}^2}{R_{23}} \cos \phi_2 + \frac{U_{e3}^2}{R_{31}} \cos \phi_3$$

$$P_{02} = 2,05W$$

1.4. $U_e = 12V$
 $R_1 = 220 \Omega$
 $R_2 = 330 \Omega$
 $R_3 = 150 \Omega$

$$U_1 = \frac{12}{\sqrt{3}} = 6,93V$$

$$U_{L1} = 6,93V$$

$$U_{L2} = -3,464 - j6V$$

$$U_{L3} = -3,464 + j6V$$

MILIMAN.

$$U_{00} = \frac{\left(\frac{U_{L1}}{R_1} + \frac{U_{L2}}{R_2} + \frac{U_{L3}}{R_3} \right)}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}} = -0,14A + j1,53A$$

$$U_{00} = 1,54V$$

2.1

$$U = 100\sqrt{2} \text{ mV BILU}$$

$$R = 600 \Omega$$

$$R_L = 30 \Omega$$

PAR.

$$Z_L = 30 + j628 \Omega$$

$$L = 2 \text{ mH} \Rightarrow X_L = \omega L = 628 \Omega$$

$$P, Q = ?$$

$$U_{eff} = \frac{100\sqrt{2}}{\sqrt{2}} = 100$$

$$Z_{eff} = \frac{R Z_L}{R + Z_L} = \frac{600 + j628}{630 + j628} = 313,37 + j285,71 \Omega$$

$$P = \frac{U_{eff}^2}{Z} \cdot \cos \varphi$$

$$Q = \frac{U_{eff}^2}{Z_L} \cdot \sin \varphi$$

$$\varphi = 62,35^\circ$$

$$P = 12,316 \text{ W}$$

$$Q = 10,722 \text{ VAR}$$

2.2

$$Z_0 = 2 + j3$$

$$U = 20 \text{ V}$$

$$I_N = 4 \text{ A}$$

$$|Z_0| = 3,61 \Omega$$

$$Z_L = 2 + j8 = 5,61 + j3$$

$$|Z_{eff}| = 6,358 \Omega$$

$$I = \frac{U}{|Z_{eff}|} = 3,146 \text{ A}$$

$$U = I \cdot R = 11,34 \text{ V}$$

$$P_{max} = I^2 \cdot R = 35,68 \text{ W}$$

2.3

$$T = 3 \cdot 10^{-3} \text{ (Hz approx)}$$

$$f = \frac{1}{T} = 333,33 \text{ Hz}$$

$$I_{eff} = \sqrt{\frac{1}{3} \cdot \left[\int_0^2 2^3 dt + \int_2^3 (-1)^2 dt \right]}$$

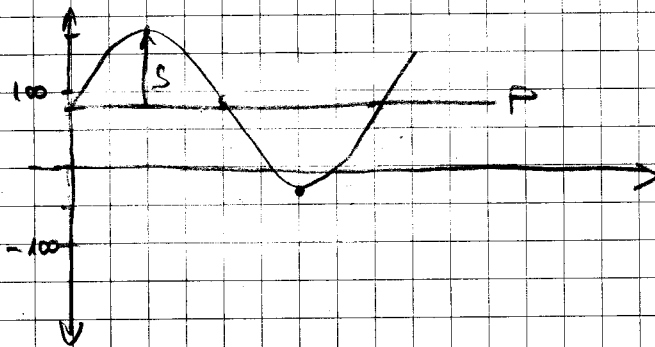
$$I_{eff} = 1,73 \text{ A}$$

$$2.5. \quad I_A = 1A$$

$$\frac{P_W = 80W}{U = 100V}$$

$$R = \frac{U}{I} = \boxed{100 \Omega}$$

$$S = U \cdot I = \boxed{100VA}$$



$$3.1. \quad \text{ser.}$$

$$t = 0$$

$$R = 1k\Omega$$

$$C = 2\mu F$$

$$U = 6V$$