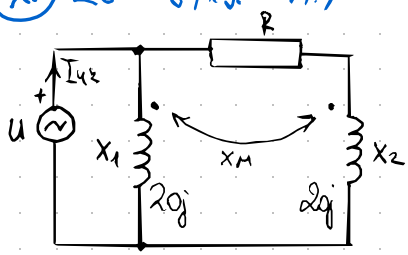
ZADACI

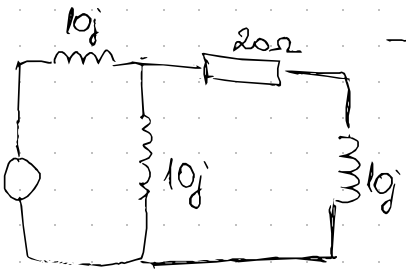
1. LJ - 18/19. 14.)



$I_{ef} = ?$ $\quad R = X_1 = X_2 = 20\,\Omega$

$U = 25\,V$ $\quad X_M = 10\,\Omega$

$\longrightarrow$ prema čvoru "1"



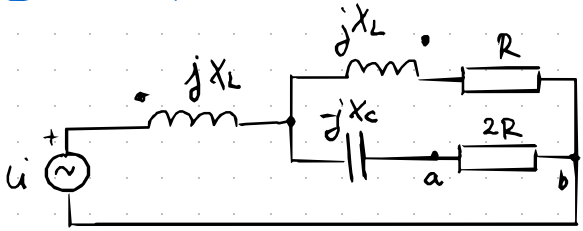
$$\longrightarrow Z_{uk} = \left(\frac{1}{10j+20} + \frac{1}{10j}\right)^{-1} + 10j$$

$$I_{uk} = \frac{U_{uk}}{Z_{uk}} = \frac{25\,V}{2{,}5 + 17{,}5i}$$

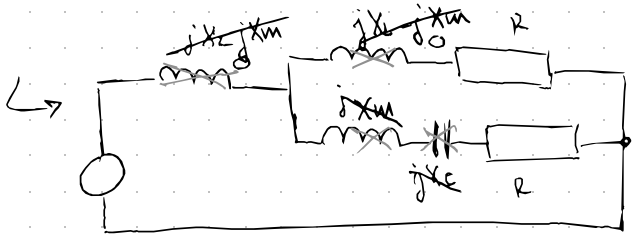
$$I_{uk} = \sqrt{2}\,\angle -81{,}87°$$

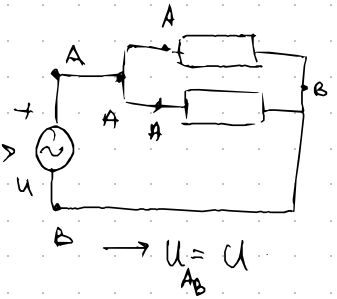
$$I_{ef} = 1{,}41\,A$$

2. LJ 19./20. 3.)



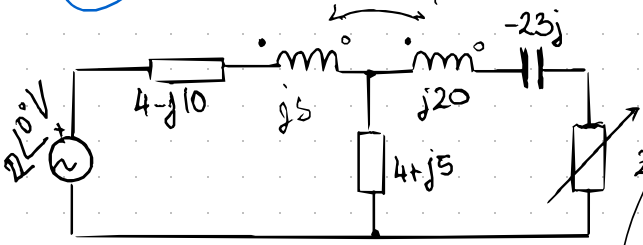
$R = X_L = X_C = X_M$





$\longrightarrow U = U_{AB}$

③ Z1 - 20./21. 6)

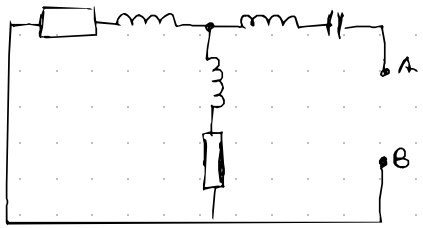


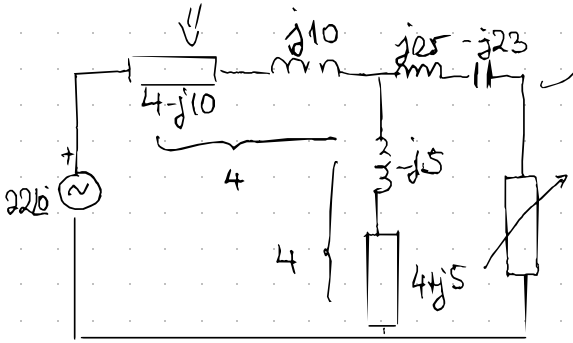
$X_m = k\sqrt{X_{L1}X_{L2}} = 0{,}5 \cdot 10$

$X_m = j5$

Preko Thevenina:

1)

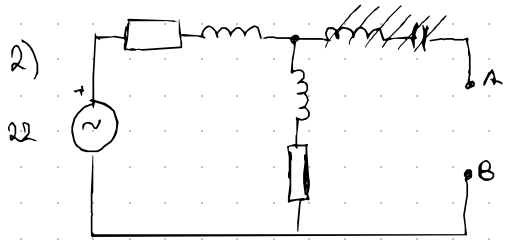




$\left(\frac{1}{4} + \frac{1}{4}\right)^{-1} + 2j = Z_{TH}$

$Z_{TH} = 2 + 2j$

2)



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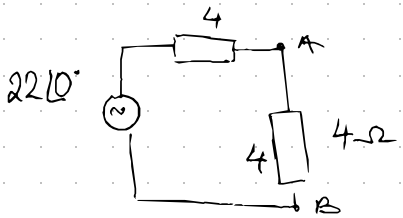
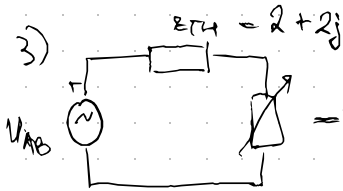


$U_{AB} = \cancel{22}\,\frac{\cancel{4}\,\Omega}{\cancel{8}_{2}} = 11\ V$

3)



$\Rightarrow Z = Z_{TH}^*$

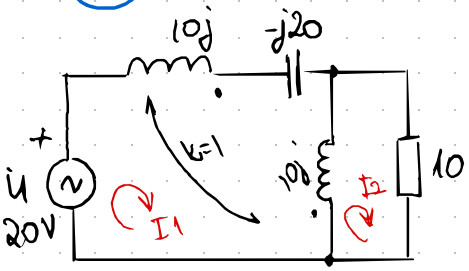
$Z = 2 - 2j$

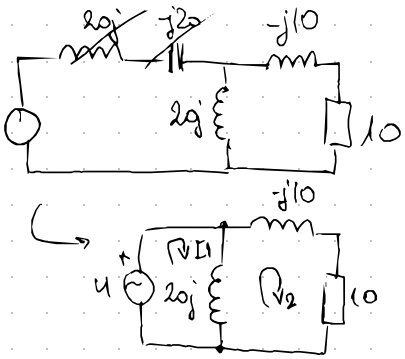
$I = U_{AB} \cdot \frac{1}{Z + Z_{TH}} = \frac{11}{4} = 2{,}75$

$\boxed{P = I^2 \cdot Z = 15{,}125\,W}$

4. ZI 18./19. 2.)

$X_M = 1 \cdot \sqrt{100} = 10j \rightarrow -X_M = -j10$





$$I_1(20j) - I_2(20j) = 20V$$
$$-I_1(20j) + I_2(10+10j) = 0 \quad / +$$

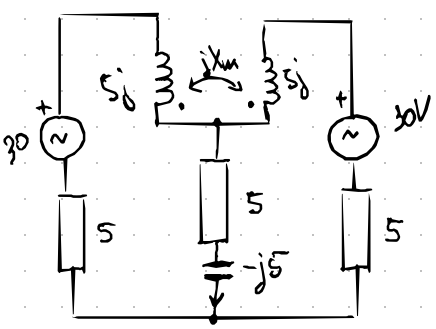
$$I_1(20j - 20j) - I_2(20j - 10 - 10j) = 20V$$

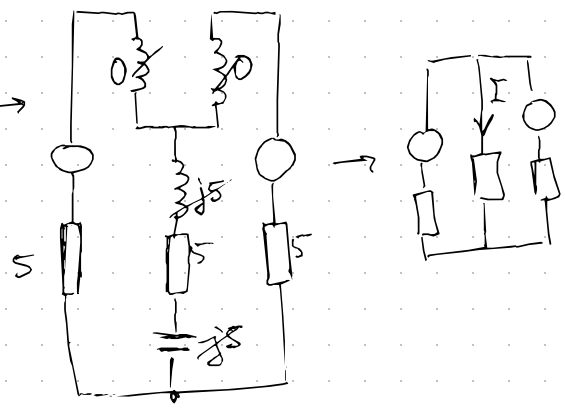
$$-I_2(10j - 10) = 20V \rightarrow I_2 = \frac{20}{10 - 10j} = \boxed{1+jA} \checkmark$$

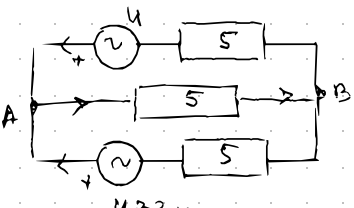
$$I_1 \cdot 20j - (1+j)(20j) = 20 \quad / :20$$

$$I_1 \cdot j - (1+j)j = 1 \rightarrow I_1 = \frac{1 + (1+j)j}{j} = \boxed{1A}$$

5. JES 19./20. 16)





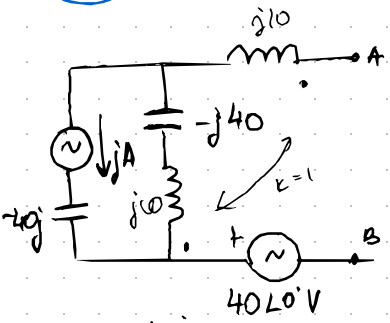


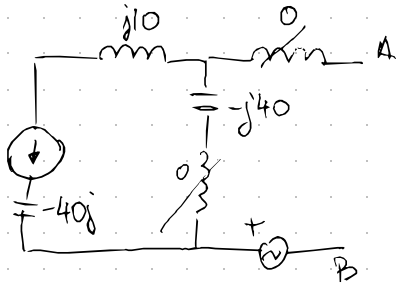
Millman $\rightarrow$

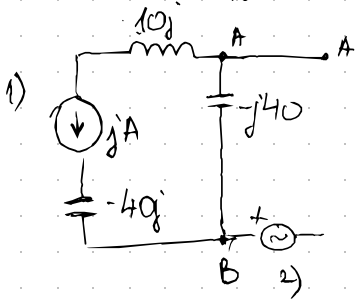
$$U_{AB} = \frac{\frac{U_1}{R_1} + \frac{U_2}{R_2}}{\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_5}}$$

$U_{AB} = 20V \rightarrow \frac{20}{5} = \boxed{4A}$

(6.) JES 18.19. 20.)



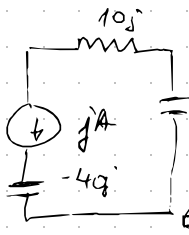




$X_m = j10$

$U_{AB} - ?$

1)



$= U_{AB}' = -40V$

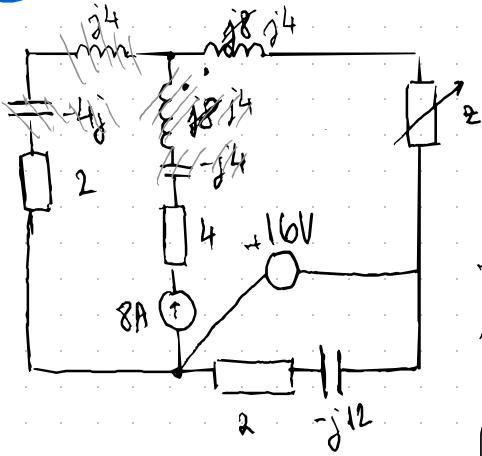
2)

$\rightarrow U_{AB}'' = U_{izvor} = 40\angle 0°V$

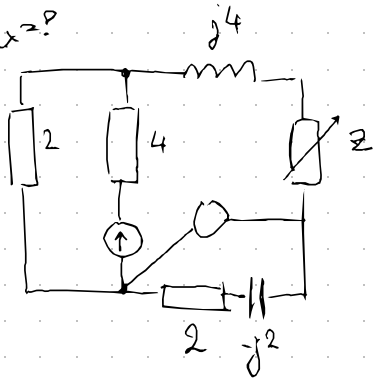
$\Rightarrow U_{AB} = 0V$

(7.) DEK 18.19. 15.)

$X_m = j4$

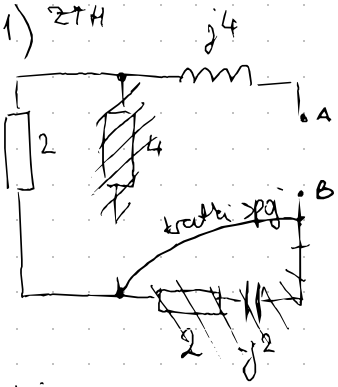


$P_{max} = ?$



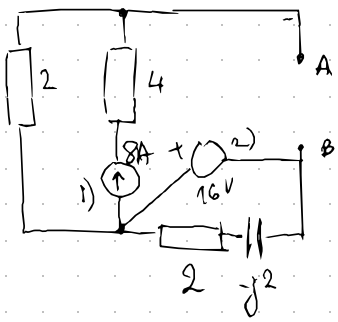
thevenin:

1) Z_{TH}



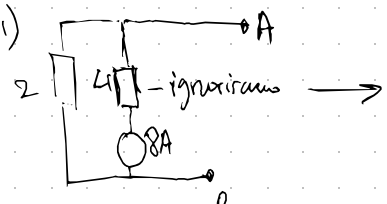
$Z_{TH} = 2 + j4$

2)



- superpozicija

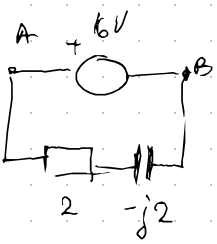
1)



$\rightarrow U_{AB} = 8A \cdot 2\Omega$

$U_{AB} = 16V$

2)



$U_{AB}'' = 16V$

$\Rightarrow U_{AB} = 32V$