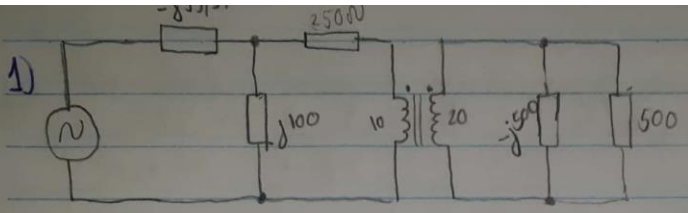
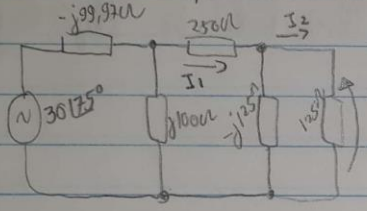
1)



$X_{C1} = (2\pi \cdot 200\times10^3 \cdot 7{,}96\times10^{-9})^{-1} = 99{,}97$

$X_{L1} = 2\pi \cdot 200\times10^3 \cdot 79{,}58\times10^{-6} = 100\,\Omega$

$X_{C2} = (2\pi \cdot 200\times10^3 \cdot 1{,}59\times10^{-9})^{-1} = 500{,}49\,\Omega$



$R_S' = \left(\frac{N_p}{N_s}\right)^2 \cdot R_S$

$\frac{|V_p|}{|V_s|} = \frac{N_p}{N_s} \Rightarrow \frac{|V_p|}{|V_s|} = \frac{N_s}{N_p}$ logo: $|V_s| = |V_p| \cdot \frac{2}{1}$

$|V_s| = 2|V_p|$

$R_S'(X_{C2}) = \left(\frac{10}{20}\right)^2 \cdot -j500 \Rightarrow \frac{500\angle 90^\circ}{4\angle 0^\circ} \Rightarrow 125\angle -90^\circ \Rightarrow -j125$

$R_S'(R_2) = \left(\frac{10}{20}\right)^2 \cdot 500 \Rightarrow \frac{500}{4} \Rightarrow 125\,\Omega$

$Z_1 = R_1 // Z_{C2} \quad \frac{125 \cdot -j125}{125 - j125} = \frac{15625\angle -90^\circ}{176{,}7\angle -45^\circ} \Rightarrow 88{,}39\angle -45^\circ \Rightarrow 62{,}5 - j62{,}5$

$Z_2 = Z_1 + R_1 \quad 250 + 62{,}5 - j62{,}5 \Rightarrow 312{,}5 - j62{,}5 \Rightarrow 318{,}68\angle -11{,}31^\circ$

$Z_3 = Z_2 // Z_{L1} = \frac{j100 \cdot (312{,}5 - j62{,}5)}{312{,}5 - j62{,}5 + j100} = \frac{100\angle 90^\circ \cdot 318{,}68\angle -11{,}3^\circ}{314{,}79\angle 6{,}89^\circ} \Rightarrow 101{,}25\angle 74{,}85^\circ = 31{,}54 + j96{,}21$

$Z_T = Z_3 + Z_{C1} = -j99{,}97 + 31{,}54 + j96{,}21 \Rightarrow Z_T = 31{,}51 - j3{,}76 = 31{,}76\angle -6{,}79^\circ$

$I_T = \frac{V}{Z_T} \Rightarrow I_T = \frac{30\angle 75^\circ}{31{,}76\angle -6{,}79^\circ} \Rightarrow I_T = 0{,}94\angle 81{,}79^\circ\ A$

$I_1 = \frac{j100}{250+j100} \cdot 0,9\angle 81,7° \Rightarrow I_1 = \frac{100\angle 90}{269,25\angle 21,8°} \cdot 0,9\angle 81,7° = 0,3\angle 149,9° A$

$I_2 = \frac{-j125}{125-j125} \cdot 0,35\angle 149,9° \Rightarrow \frac{125\angle -90°}{176,77\angle -45°} \cdot 0,3\angle 149,9° = 0,21\angle 104,9° A$

$V_p = 0,21\angle 104,9° \cdot 125\angle 0° \Rightarrow V_p = 26,25V$

$V_S = 2 \cdot 26,25 \Rightarrow 52,5 V$ $\quad V_S = 52,5V$