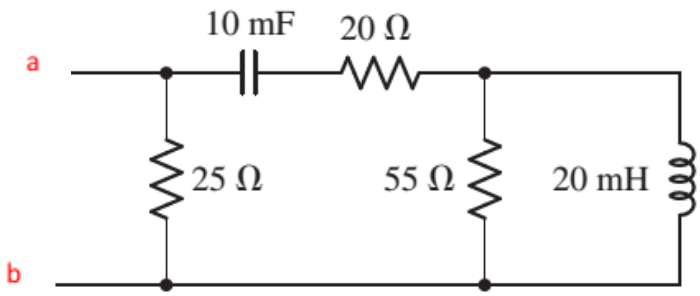
Lista de Exercícios 1 – Circuitos Elétricos

1. Considere o circuito representado a seguir e determine a impedância equivalente entre os terminais a e b indicados, sendo (a) ω=1rad/s; (b) ω=10rad/s; (c) ω=100rad/s.



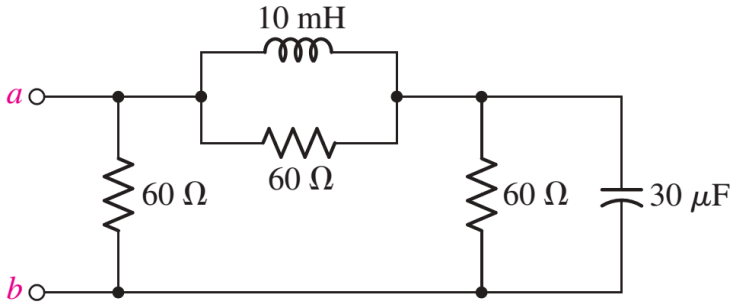
Resposta:

a) $\boxed{23.24\angle -12.9^\circ\ \Omega}$

b) $\boxed{12.08\angle -13.78^\circ\ \Omega}$

c) $\boxed{11.14\angle -1.54^\circ\ \Omega}$ Corrigido: 11.54<1.57º

2. Considere o circuito representado a seguir e determine a impedância equivalente entre os terminais a e b indicados, sendo a frequência de operação do circuito: (a) 1 Hz; (b) 1 kHz; (c) 1 MHz; (d) 1 GHz; (e) 1 THz.



Resposta:

(a) $\boxed{30 - j0.154\ \Omega}$

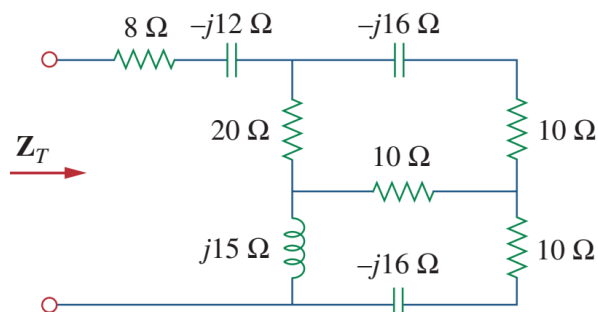
(b) $\boxed{23.5 + j9.83\ \Omega}$

(c) $\boxed{30 + j0.013\ \Omega}$

(d) $\boxed{30 + j1.3\times10^{-5}\ \Omega}$

(e) $\boxed{30 + 1.3\times10^{-8}\ \Omega}$

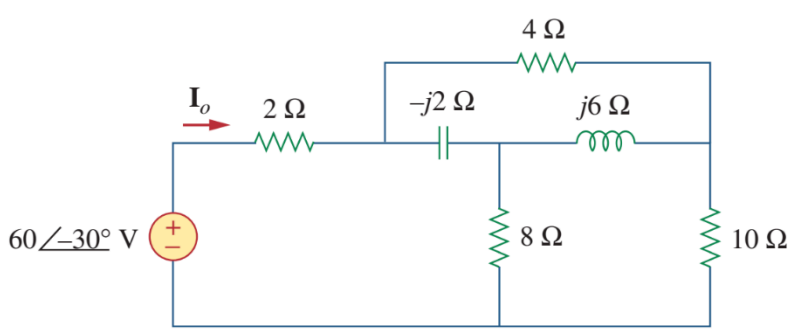
3. Determine $\mathbf{Z}_T$ no circuito a seguir.



Resposta:

34.69 – j6.93

4. Determine $\mathbf{I}_0$ no circuito a seguir.



Resposta:

8.873∠-21.67º