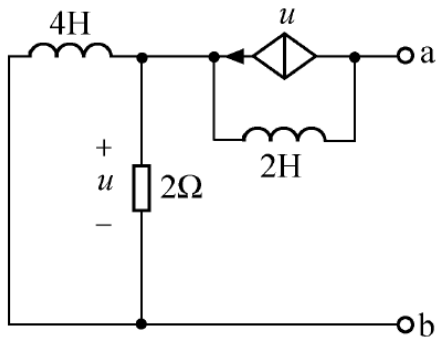
正弦激励下电路的稳态分析

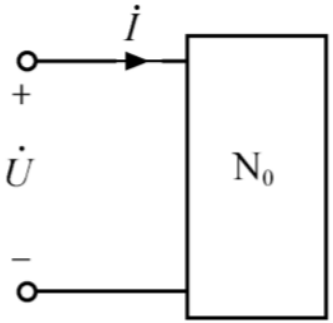
习题讲解(一)

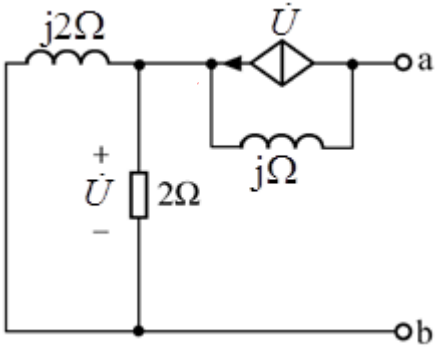
1. 试求题图所示二端网络的等效阻抗（$\omega=0.5\text{rad/s}$）。

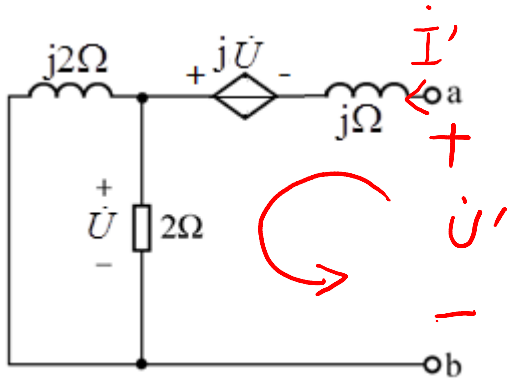


$$\dot{U}'=\mathrm{j}\dot{I}'-\mathrm{j}\dot{U}+\dot{U}$$

$$\dot{U}=\frac{\mathrm{j}2\times 2}{\mathrm{j}2+2}\dot{I}'$$



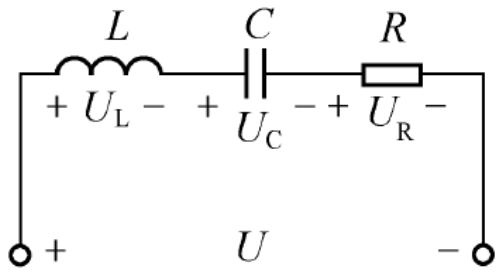


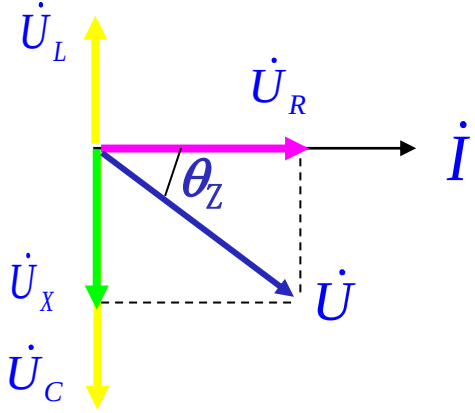


$$\dot{U}'=(2+\mathrm{j})\dot{I}'$$

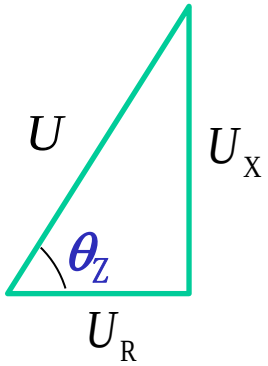
$$Z=2+\mathrm{j}\,\Omega$$

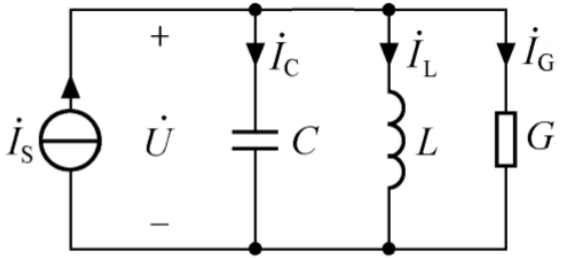
2.在题图所示电路中，已知 $U_C=15\text{V},U_L=12\text{V},U_R=4\text{V}$，求电压$U$的值。

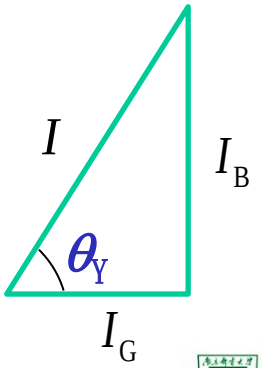


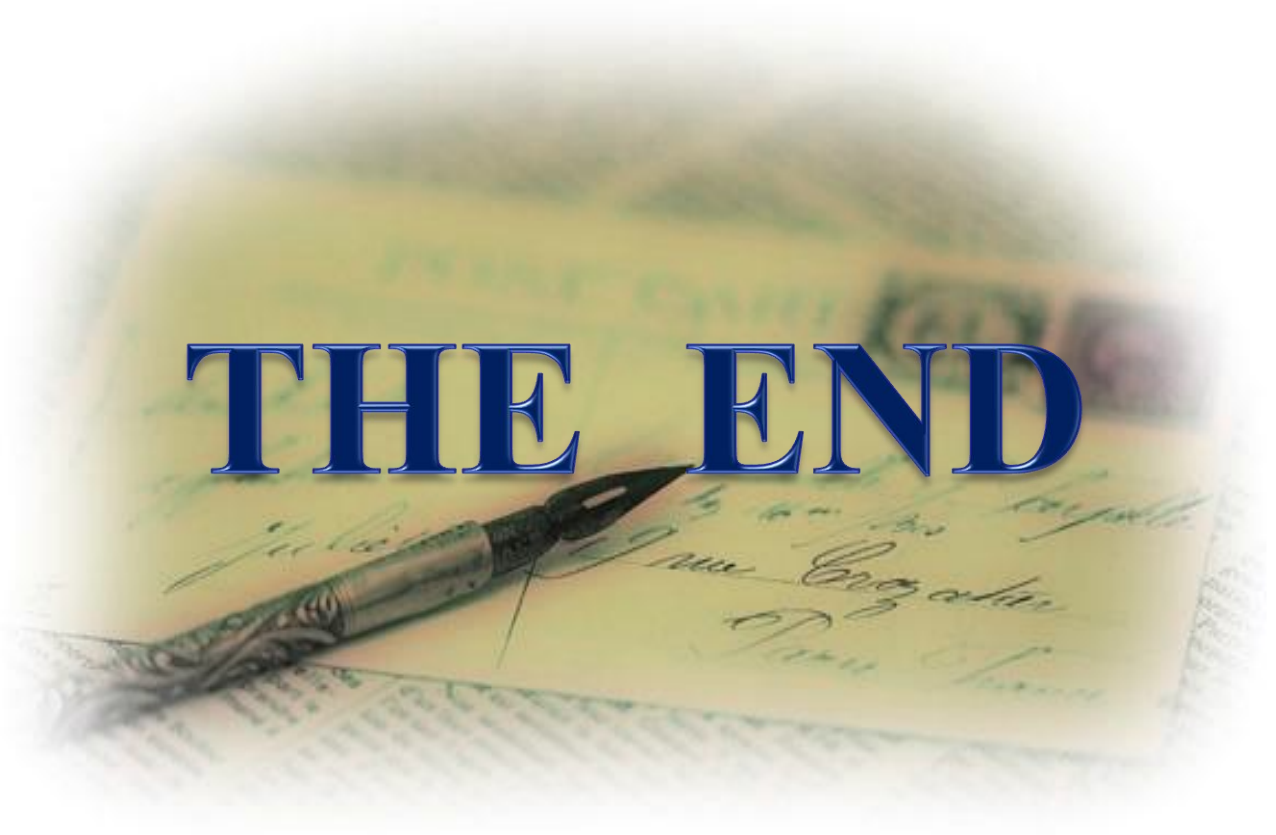


$$U=\sqrt{(15-12)^2+4^2}=5\text{V}$$





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