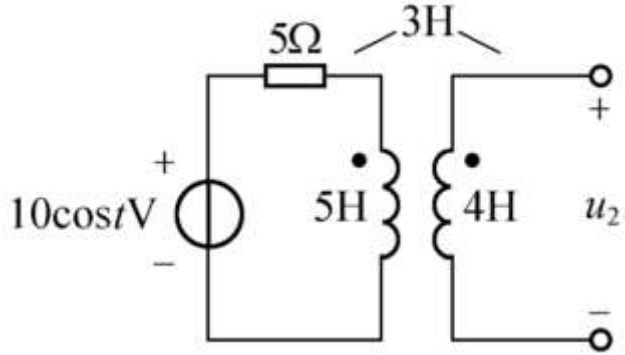
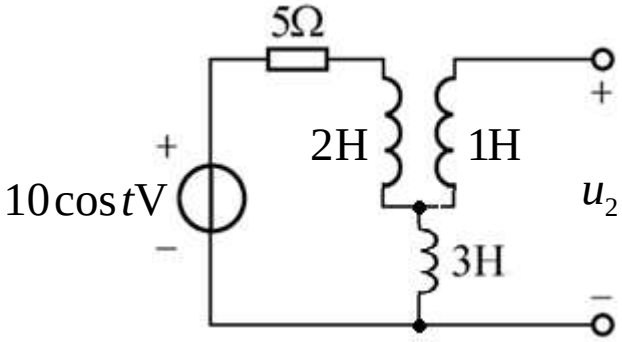
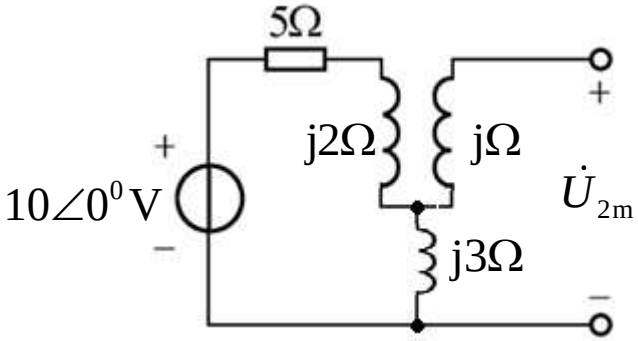
耦合电感和变压器

习题讲解（一）

1. 试求图示电路的电压u_2。



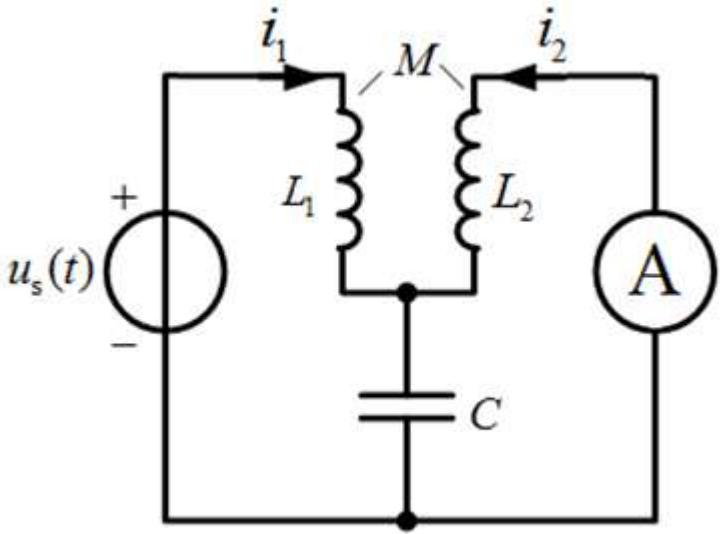




$$\dot{U}_{2m} = 10\angle 0^0 \times \frac{\mathrm{j}3}{5+\mathrm{j}2+\mathrm{j}3} = 3\sqrt{2}\angle 45^0 \mathrm{V}$$

$$u_2 = 3\sqrt{2}\cos(\mathrm{t}+45^0)\mathrm{V}$$

2. 已知 $u_S(t)=U_m\cos\omega t$ ， C、M 也已知。试求在什么条件下，安培表读数为零，并标出同名端。



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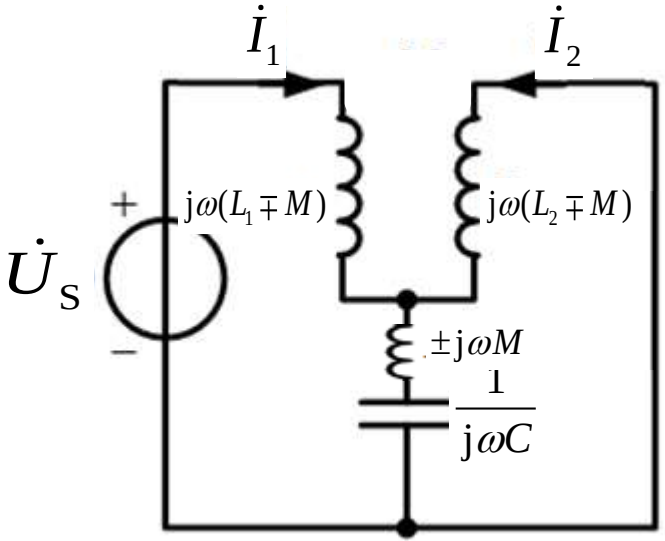
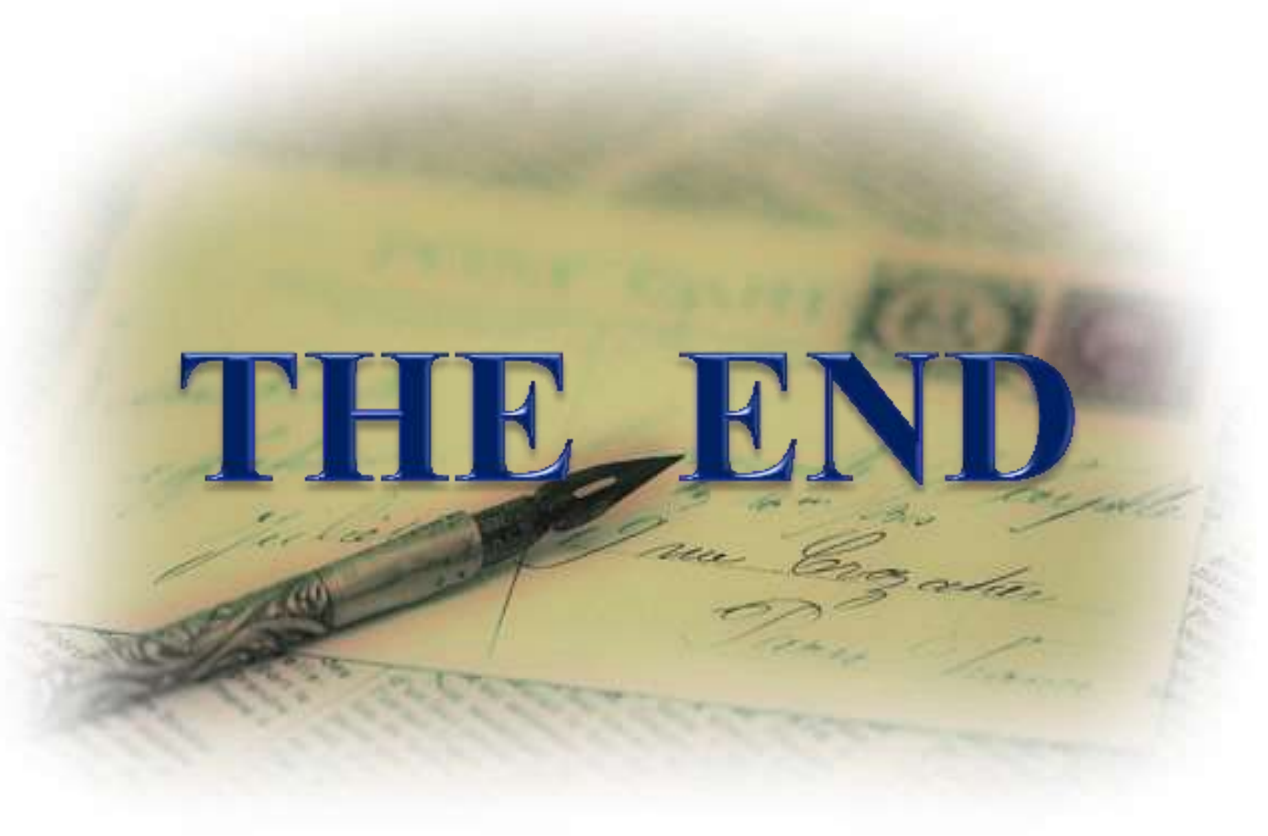


$$(\pm j\omega M+\frac{1}{j\omega C})\dot{I}_1=0$$

$$\pm j\omega M=-\frac{1}{j\omega C}$$

$$\omega^2=\frac{1}{MC}$$

$$\omega=\frac{1}{\sqrt{MC}}$$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