

Electrical Power Engineering Fundamentals

Departamento de Ingeniería Eléctrica. Universidad Carlos III de Madrid

Module 3. Analysis of AC Circuits. Week 7.

Exercise 1. In the circuit below, find $u_1(t)$, $u_2(t)$ and check the power balance:

$$U_g(t) = 180\sqrt{2}\cos(1000t) \text{ V}$$

$$I_g(t) = 12\sqrt{2}\cos(1000t) \text{ A}$$

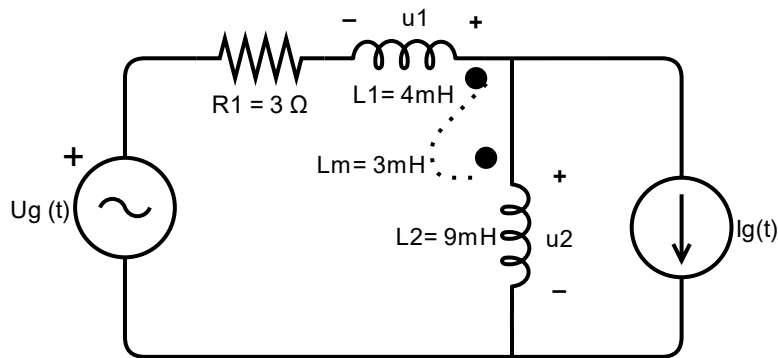


Figure 1 AC circuit 1

Exercise 2. In the circuit below, find $u_1(t)$, $u_2(t)$ and $U_{ig}(t)$:

$$U_g(t) = \sqrt{2}\cos(2t+180^\circ) \text{ V}$$

$$I_g(t) = 2\sqrt{2}\sin(2t) \text{ A}$$

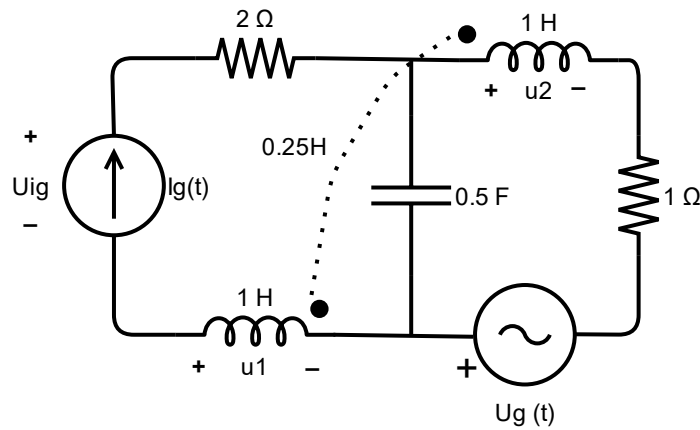


Figure 2 AC circuit 2

Exercise 3. In the circuit below:

a) Find the current $i(t)$ using a Thevenin equivalent circuit:

$$U_g(t) = \sqrt{2} \sin(1000t) \text{ V}$$

$$I_g(t) = \sqrt{2} \cos(1000t) \text{ A}$$

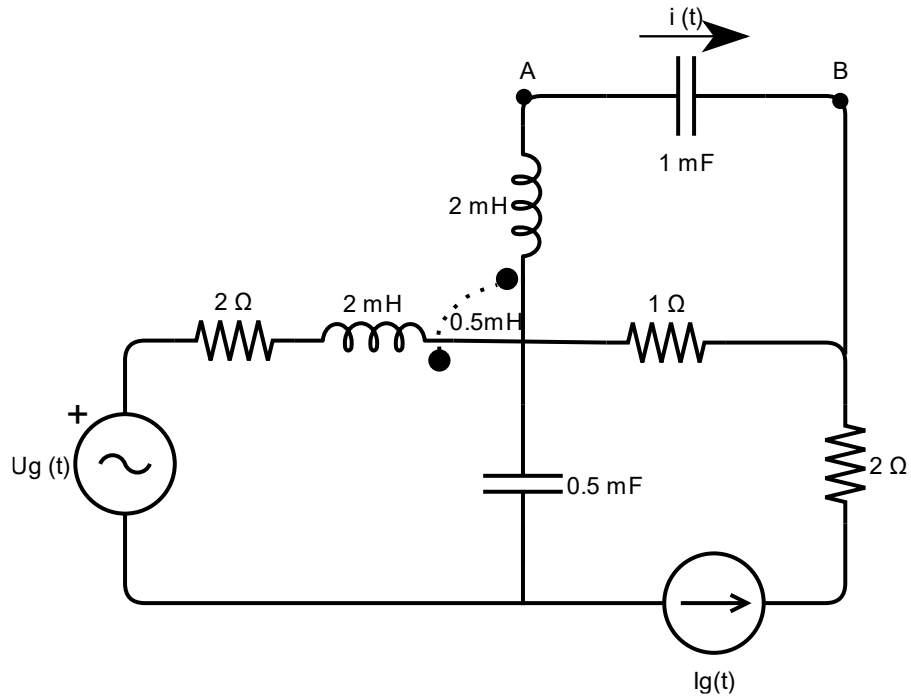


Figure 3. AC circuit 3