

Electrical Power Engineering Fundamentals

Departamento de Ingeniería Eléctrica. Universidad Carlos III de Madrid

Module 3. Analysis of AC Circuits. Week 8.

Exercise 1. In the circuit below, find the measures by the ammeter A and the voltmeter VR, respectively.

$$V_S = 70.71V; V_C = 50V; W = 10W$$

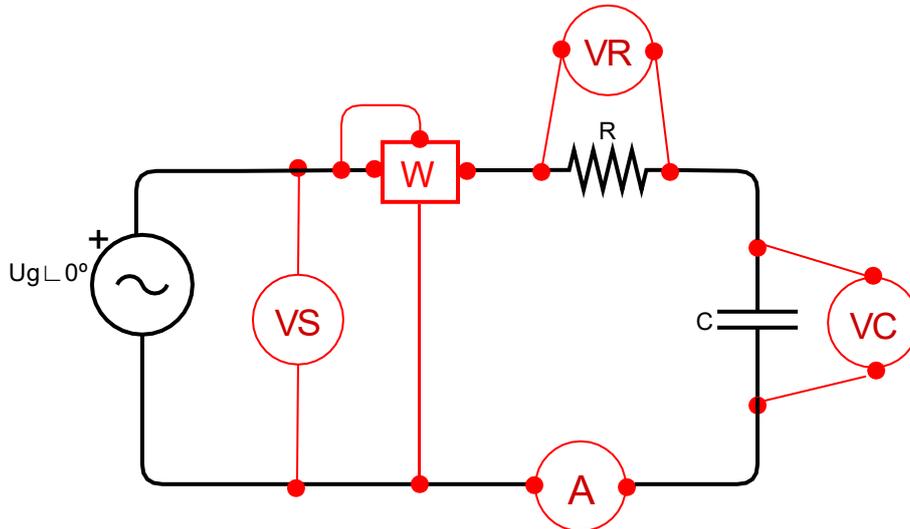


Figure 1 AC circuit 1

Solution: $A = 0.2A; V_R = 50V;$

Exercise 2. In the circuit below:

- Find the measures by the ammeters A, A2 and the voltmeter VR, respectively. (Please, note that $R_1 = R_2 = R$).
- Find the power absorbed by each passive element and the power generated by the voltage source.

$$A_1 = 10A; A_3 = 5A; V_L = 50V; V_C = 30V$$

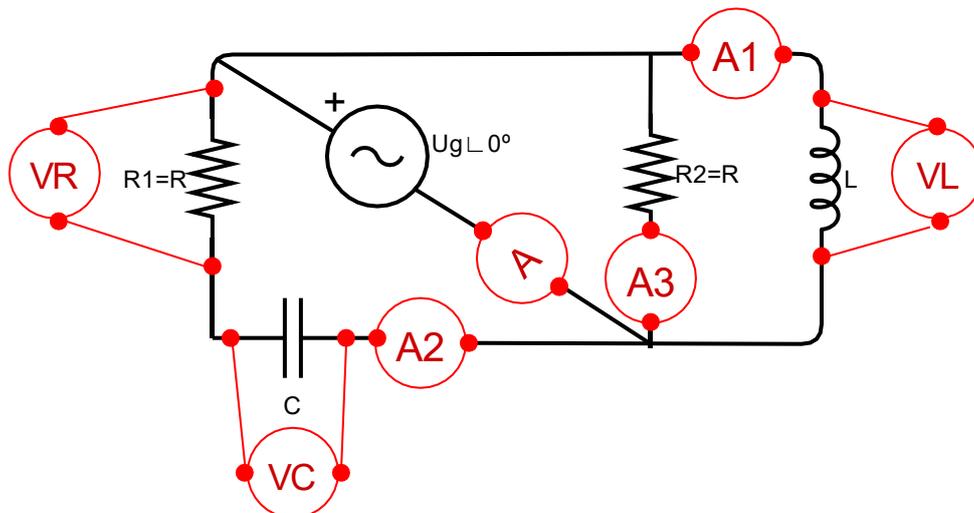


Figure 3. AC circuit 3

Solution: $A = 11.18A; A_2 = 4A; V_R = 40V; P_{R1} = 160W; P_{R2} = 250W; Q_L = 500\text{var}; Q_C = -120\text{var}; S_{U_g} = 410 + j380\text{VA}$