Electrical Power Engineering Fundamentals

Departamento de Ingeniería Eléctrica. Universidad Carlos III de Madrid

Module 1. Basic Concepts. Week 2

Exercise 1. In the following circuit:
  a) Find U_{AB} and U_X when I_g=2 A.
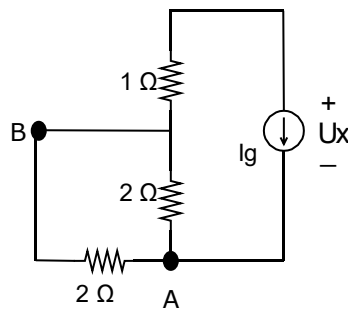 b) Find U_{BA} and U_X when I_g=1 A

Figure 1. DC circuit 1

Exercise 2. In the following circuit:
  a) Find I_1 and I_T when U_g= 2 V
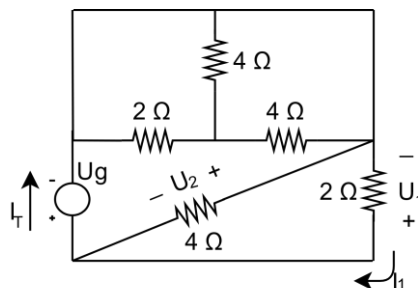 b) Find U_1 and U_2 when U_g= -1 V

Figure 2. DC circuit 2

Exercise 3. Using resistor association techniques and real source equivalences simplify the circuit below to a real voltage source:
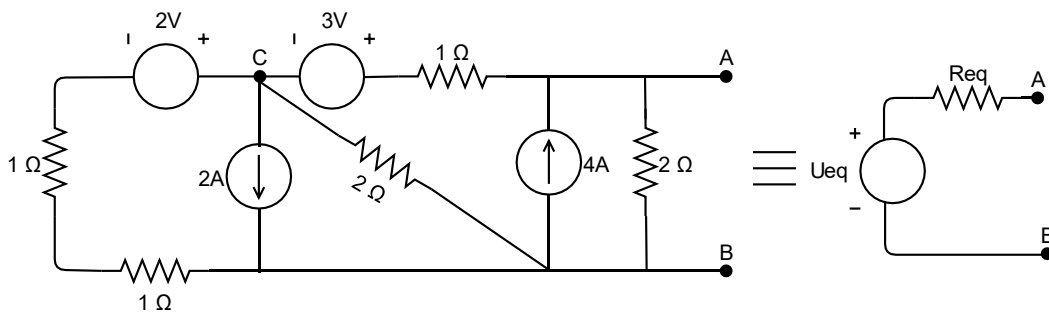

Figure 3. DC circuit 3

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Exercise 4. In the circuit below:
   a) Find U_{BC} and IR1
   b) Find the power generated by each power source.
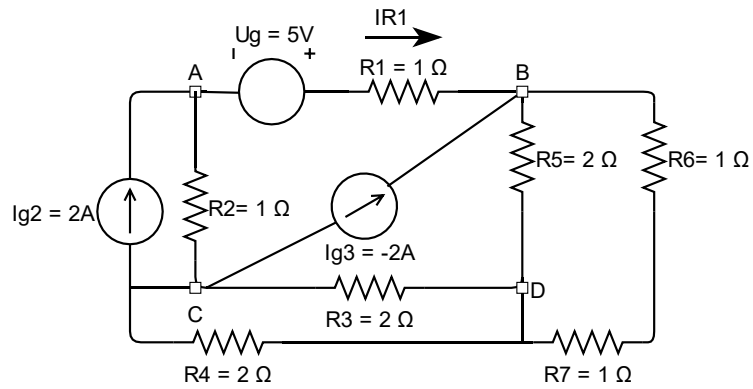   **c)** Check the power balance

Figure 4. DC circuit 4

Exercise 5. In the circuit below, calculate the power consumed by the resistors P_{R1}, P_{R2}, P_{R3}, and P_{R4} and the power generated by the sources P_{Ug} and P_{Ig}.
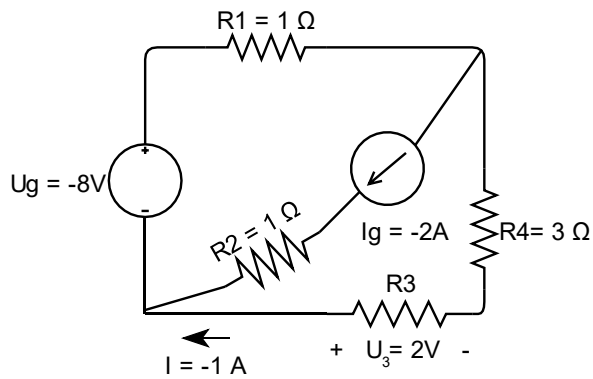

Figure 5. DC circuit 5

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