EEE 31 Problem Set 1
Due: December 12, 2011 (10am)

1. Find the total current supplied by the source and the power dissipated in the 5Ω resistor in the circuit given in Fig. 1.1.

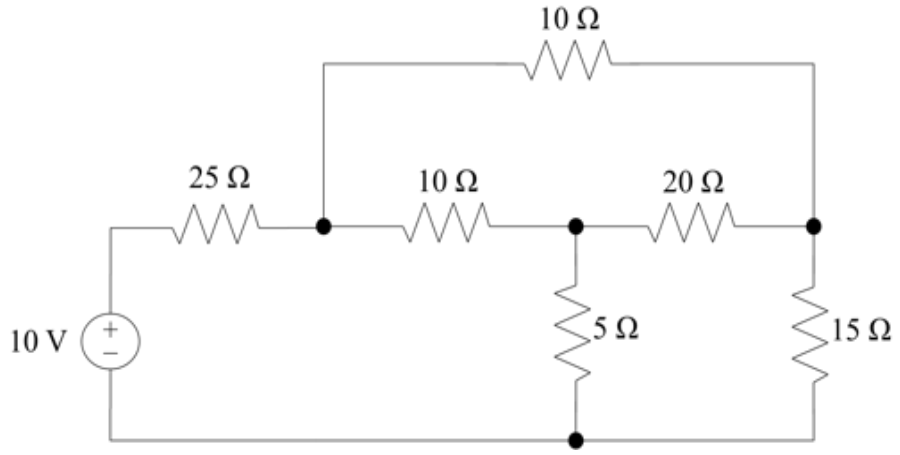

Figure 1.1. Resistor Network with 10V supply

2. Consider the network given below. Determine the equivalent resistance seen across a-b if R_1=10Ω and the circuit element A is defined by $v=i^2$. Show your answer in graphical form.

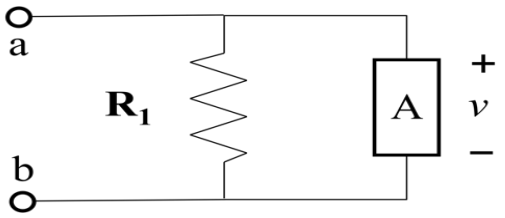

Figure 1.2. A network with linear and nonlinear elements

3. Use current and voltage division to help obtain an expression for v_5.

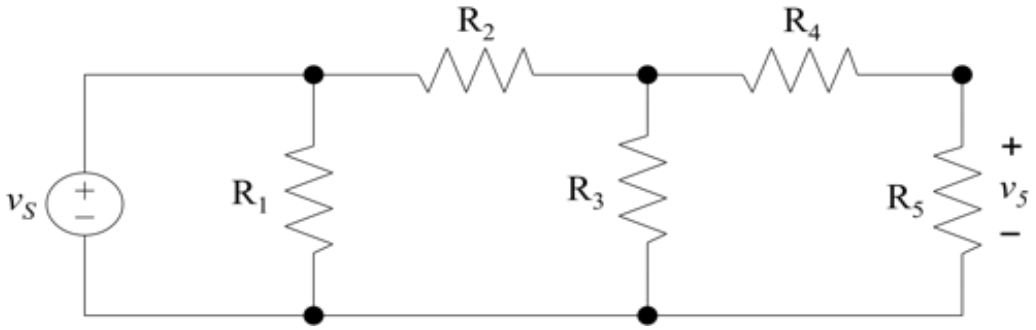

Figure 1.3. A resistive circuit

4. Compute the value of R if R_{eq}=9Ω.

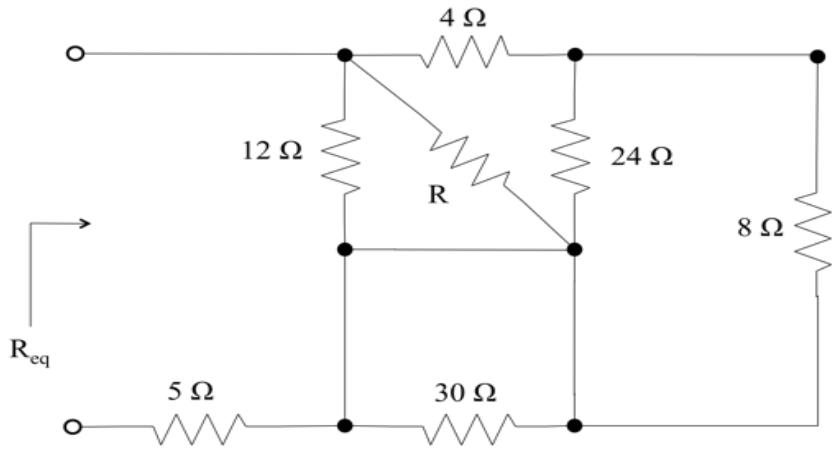

Figure 1.4. Solving for R

5. Determine the resistance R and the power received/supplied by each element if the voltage across the 0.5 A source is 2 V.

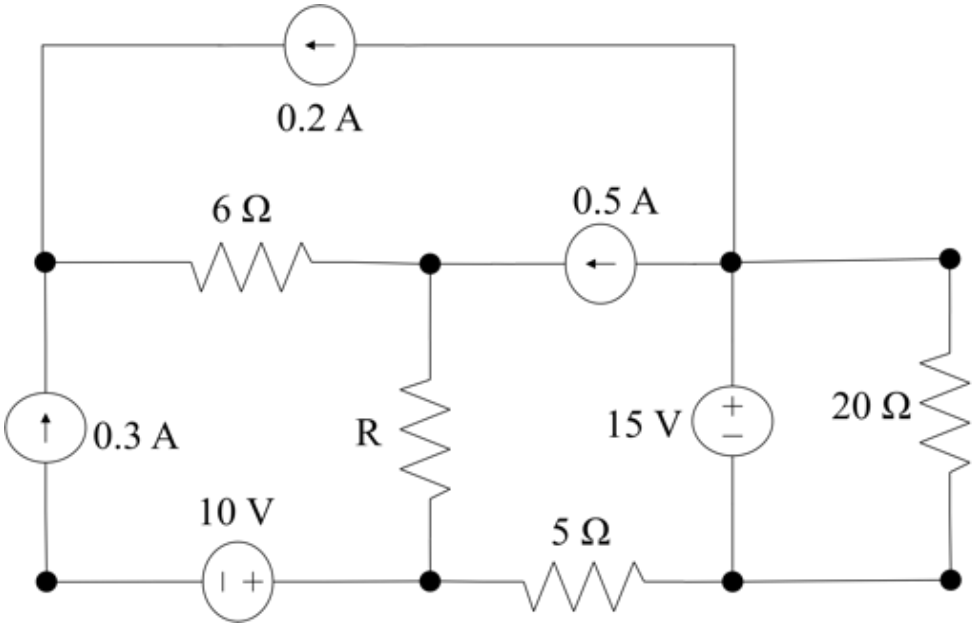

Figure 1.5. Solving for R and power