VE215
Assignment #3
Fall 2016

Problem 1

Calculate the current *io* in the current of Fig. 1. What does this current become when the input voltage is raised to 10 V?

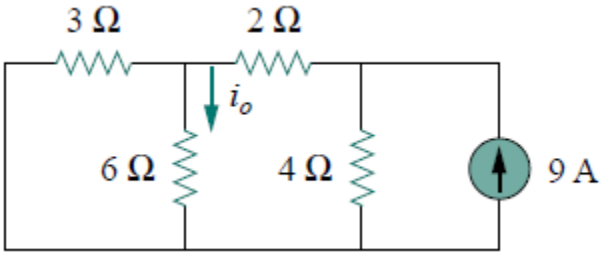

Figure 1

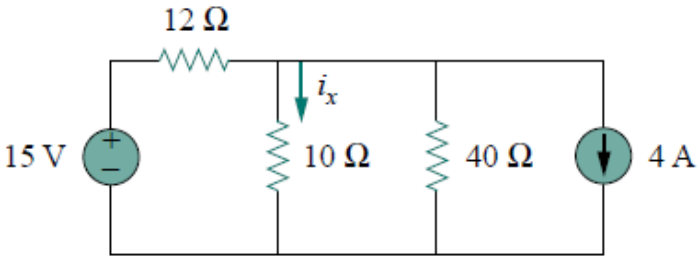

Figure 2

Problem 2

Given the circuit in Fig. 2 , calculate ix and the power dissipated by the 10Ω resistor using superposition.

Problem 3

For the circuit in Fig. 3, use source transformation to find i.

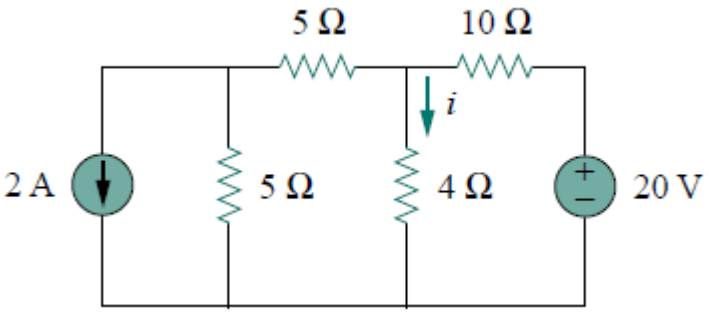

Figure 3

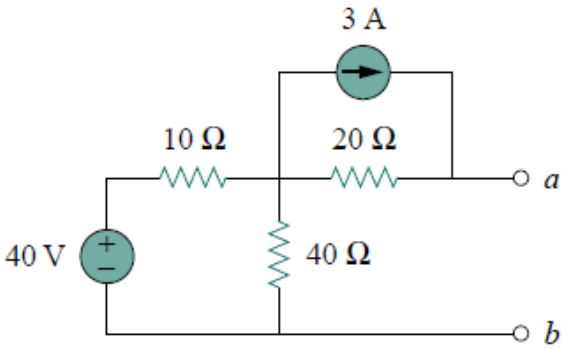

Figure 4

Problem 4

Find the Thevenin equivalent at terminals a-b of the circuit in Fig. 4.

Problem 5

Compute the value of R that results in maximum power transfer to the 10Ω resistor in Fig. 5. Find the maximum power.

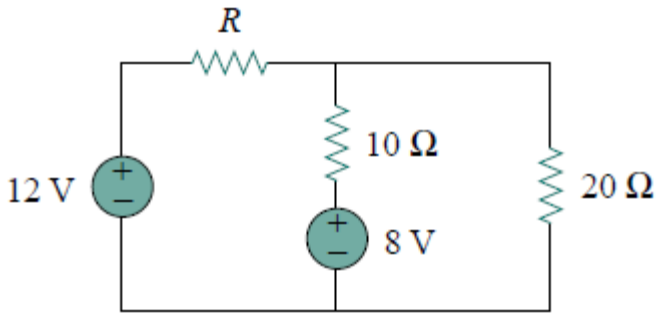

Figure 5

Problem6

A black box with a circuit in it is connected to a variable resistor. An ideal ammeter (with zero resistance) and an ideal voltmeter (with infinite resistance) are used to measure current and voltage as shown in Fig. 6. The results are shown in the table below.

(a) Find i when R = 4 Ω.

(b) Determine the maximum power from the box.

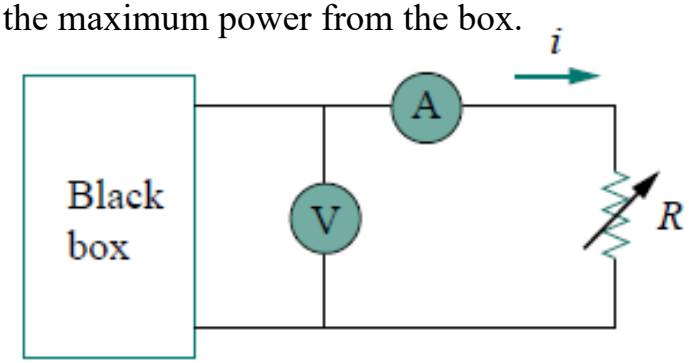

Figure 6

$R(\Omega)$	V(V)	i(A)
2	3	1.5
8	8	1.0
14	10.5	0.75