Important Remarks

- Homework is due on March 6 at the beginning of class.

1. Problem 3.39
2. Problem 3.50
3. Problem 3.61
4. Problem 3.69

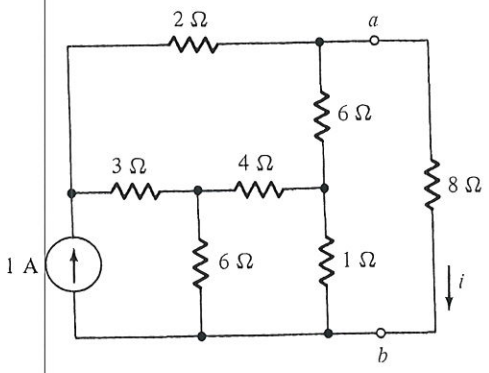

Fig. P3.29

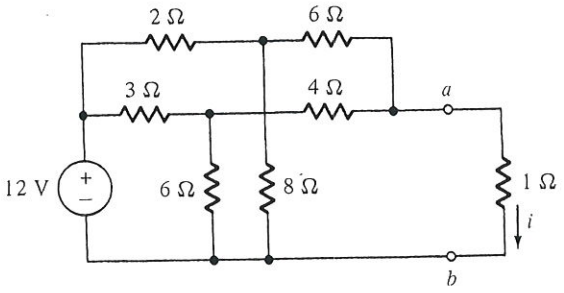

Fig. P3.30

3.29 Repeat Problem 3.25 for the circuit shown in Fig. P3.29.

3.30 Repeat Problem 3.25 for the circuit shown in Fig. P3.30.

3.31 Find the Thévenin equivalent of the circuit shown in Fig. P3.31.

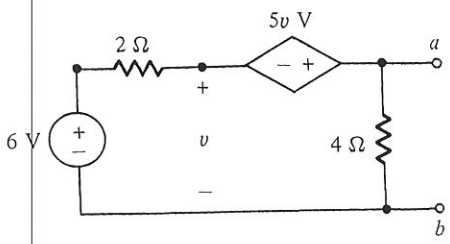

Fig. P3.31

3.32 Find the Thévenin equivalent of the circuit shown in Fig. P3.32.

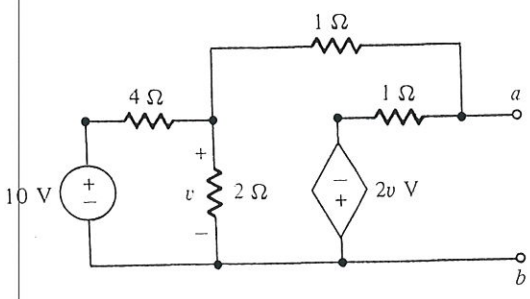

Fig. P3.32

3.33 For the circuit given in Fig. 3.35 (p. 126), change the 2-Ω resistor to a 1-Ω resistor. Find the Thévenin equivalent of the resulting circuit.

3.34 Find the Thévenin equivalent of the circuit shown in Fig. P3.34.

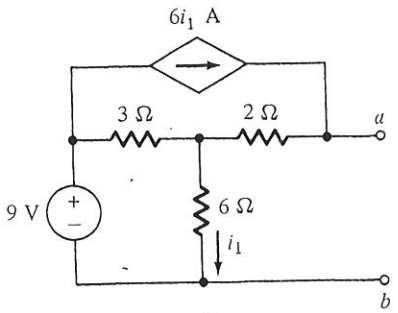

Fig. P3.34

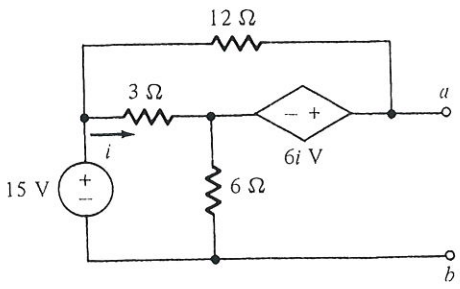

Fig. P3.35

3.35 Find the Thévenin equivalent of the circuit shown in Fig. P3.35.

3.36 Find the Thévenin equivalent of the circuit shown in Fig. P3.36. (*Hint:* Use a current source i_o to determine R_o.)

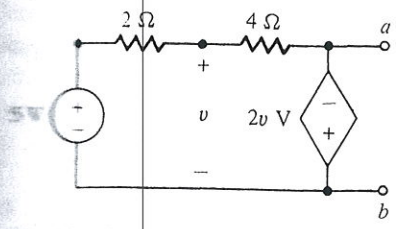

Fig. P3.36

3.37 Repeat Problem 3.36 for the circuit shown in Fig. P3.37.

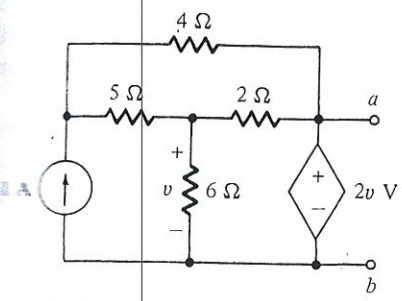

Fig. P3.37

3.38 Find the Thévenin equivalent of the op-amp circuit shown in Fig. P3.38.

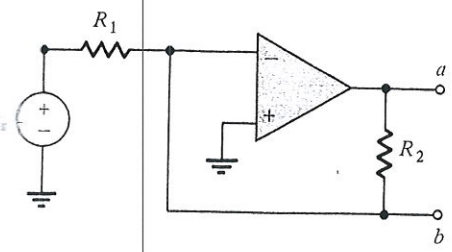

Fig. P3.38

3.39 Find the Thévenin equivalent of the op-amp circuit shown in Fig. P3.39.

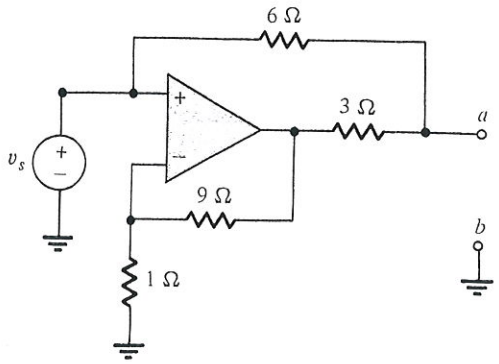

Fig. P3.39

3.40 For the circuit shown in Fig. 3.25 (p. 122), $v_{oc} = 9$ V. If the voltage across the load is 4 V when $R_L = 2\ \Omega$, find the output resistance R_o of the circuit.

3.41 For the circuit shown in Fig. 3.25 (p. 122), when $R_L = 1\ \Omega$ the voltage across R_L is 4 V, and when $R_L = 4\ \Omega$ the voltage across it is 8 V. Find the voltage across R_L when $R_L = 3\ \Omega$.

3.42 For the circuit given in Fig. P3.25, (a) find the Norton equivalent of the circuit to the left of terminals a and b and (b) use the Norton-equivalent circuit to determine i.

3.43 Repeat Problem 3.42 for the circuit shown in Fig. P3.26.

3.44 Repeat Problem 3.42 for the circuit shown in Fig. P3.27.

3.45 Repeat Problem 3.42 for the circuit shown in Fig. P3.28.

3.46 Repeat Problem 3.42 for the circuit shown in Fig. P3.29.

3.47 Repeat Problem 3.42 for the circuit shown in Fig. P3.30.

3.48 Find the Norton equivalent of the circuit shown in Fig. P3.31.

3.49 Find the Norton equivalent of the circuit shown in Fig. P3.32.

3.50 Find the Norton equivalent of the circuit shown in Fig. P3.34.

3.51 Find the Norton equivalent of the circuit shown in Fig. P3.35.

3.52 Find the Norton equivalent of the circuit shown in Fig. P3.38.

3.53 Find the Norton equivalent of the circuit shown in Fig. P3.39.

3.54 Find the Norton equivalent of the circuit shown in Fig. P3.54.

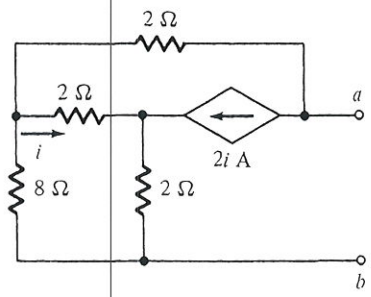

Fig. P3.54

3.55 Find the Norton equivalent of the circuit shown in Fig. P3.55.

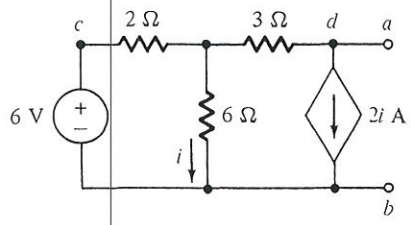

Fig. P3.55

3.56 For the circuit given in Fig. P3.55, connect a 4-Ω resistor between nodes c and d, and change the value of the dependent current source to $5i$ A. Find the Norton equivalent of the resulting circuit.

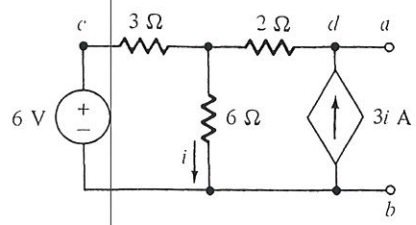

Fig. P3.57

3.57 Find the Norton equivalent of the circuit shown in Fig. P3.57. (*Hint:* Use a voltage source v_o to determine R_o.)

3.58 For the circuit given in Fig. P3.57, connect a 4-Ω resistor between nodes c and d, and change the value of the dependent current source to $6i$ A. Find the Norton equivalent of the resulting circuit. (*Hint:* Use a voltage source v_o to determine R_o.)

3.59 For the circuit given in Fig. P3.27, to what value should the 5-Ω resistor be changed such that this new resistor will absorb maximum power? Determine this maximum power.

3.60 For the circuit given in Fig. P3.29, to what value should the 8-Ω resistor be changed such that this new resistor will absorb maximum power? Determine this maximum power.

3.61 Place a load resistor R_L between terminals a and b for the circuit given in Fig. P3.31. What value of R_L will absorb maximum power? Determine this power.

3.62 Repeat Problem 3.61 for the circuit given in Fig. P3.32.

3.63 For the circuit shown in Fig. P3.19, (a) use the principle of superposition to find i and (b) show that the principle of superposition does not hold for power.

3.64 Use the principle of superposition to find v_1 and v_2 for the circuit shown in Fig. P3.20.

3.65 Use the principle of superposition to find i for the circuit shown in Fig. P3.21.

3.66 Use the principle of superposition to find v for the circuit shown in Fig. P3.24.

3.67 For the circuit shown in Fig. P3.67 use the principle of superposition to find i and v.

3.68 Repeat Problem 3.67 for the circuit given in Fig. P3.68.

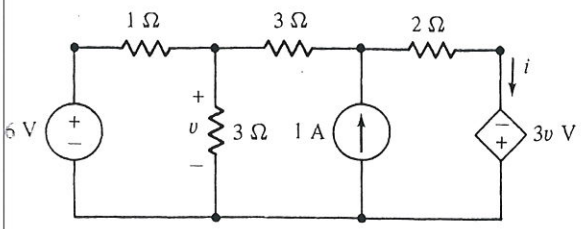

Fig. P3.67

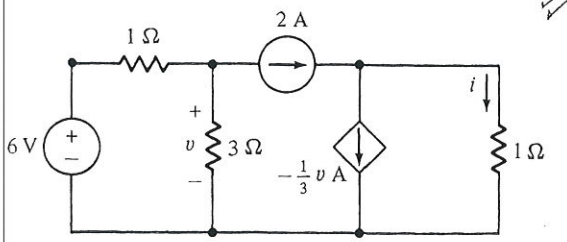

Fig. P3.68

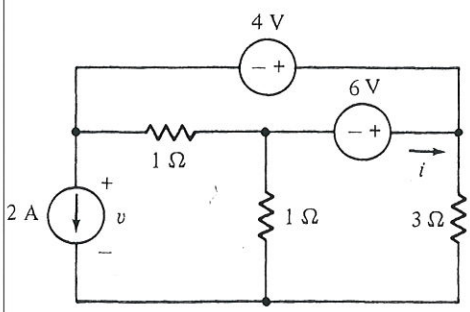

Fig. P3.69

3.69 Repeat Problem 3.67 for the circuit shown in Fig. P3.69.

3.70 Repeat Problem 3.67 for the circuit shown in Fig. P3.70 when (a) $i_s = 4$ A; (b) $i_s = 12$ A.

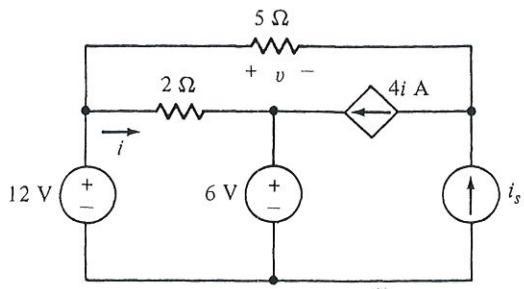

Fig. P3.70