Lecture 13
Node Analysis – 6 of 7

examples

Example: find v_o

800 Ω

$v_o = 40\ V$

20 Ω
b
40 Ω
c
a
V_o
75 V
50 Ω
6 A
200 Ω
d
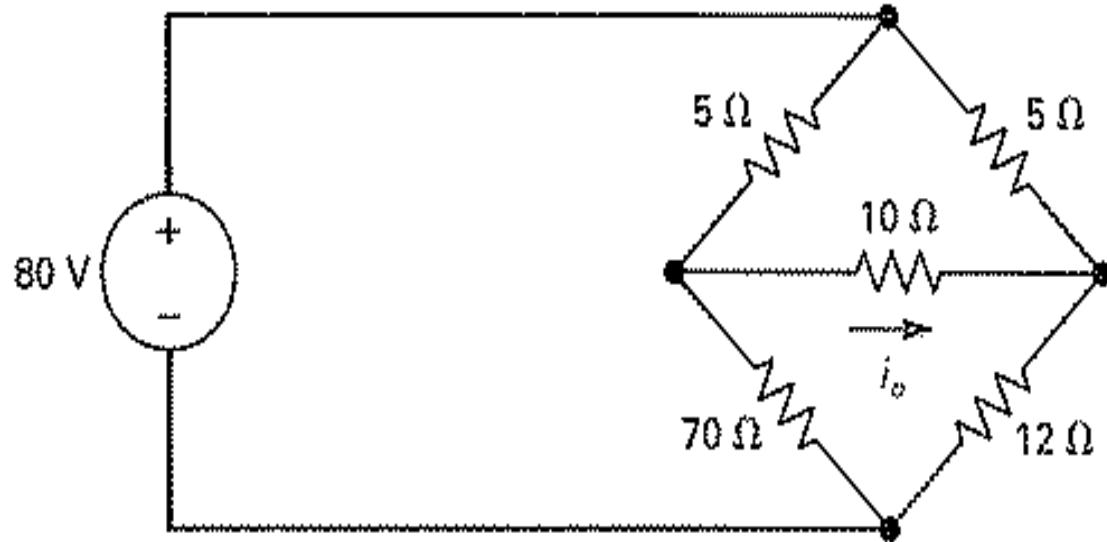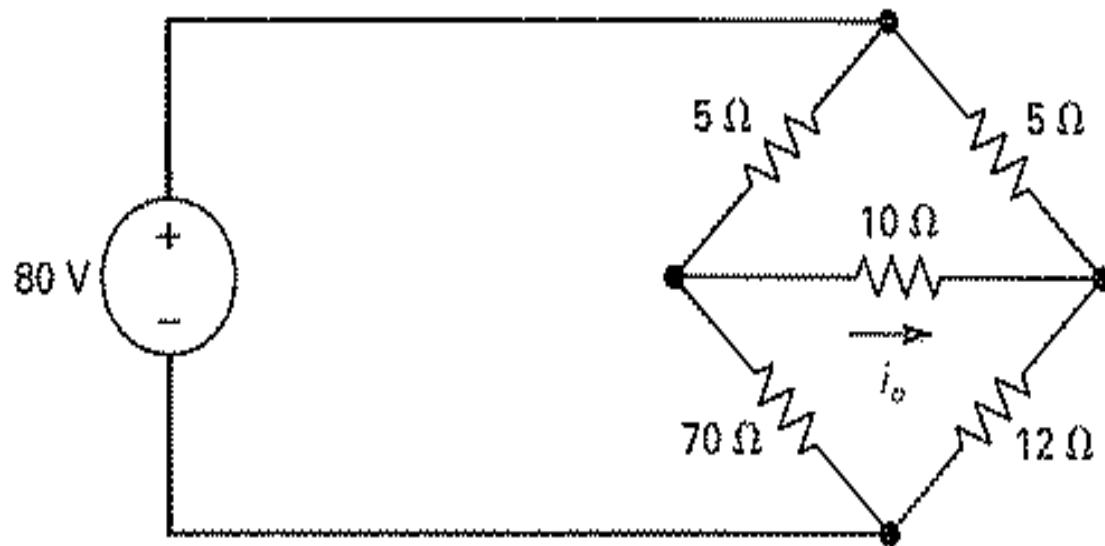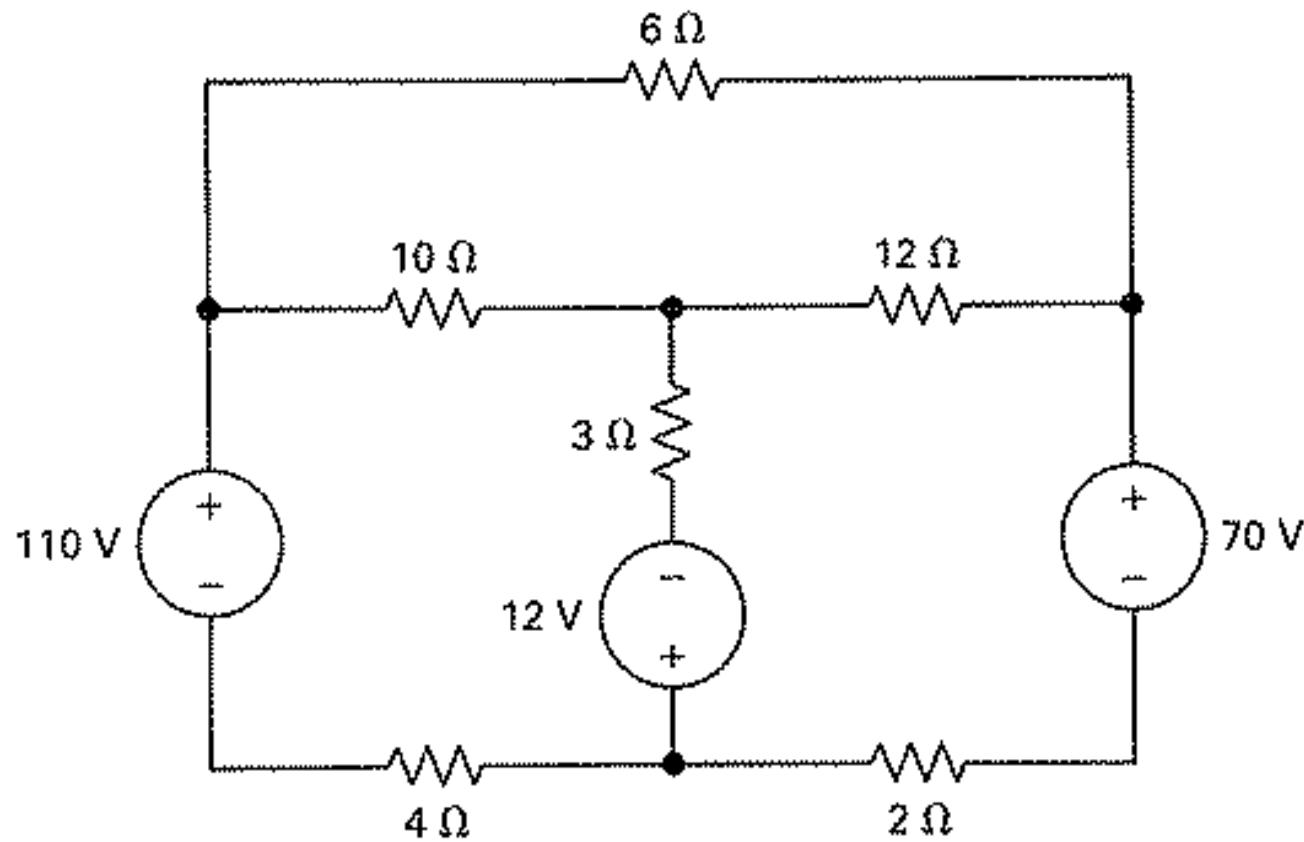
Example: find i_0

$i_0 = 1\ A$

80 V

5 Ω

5 Ω

10 Ω

i_o

70 Ω

12 Ω
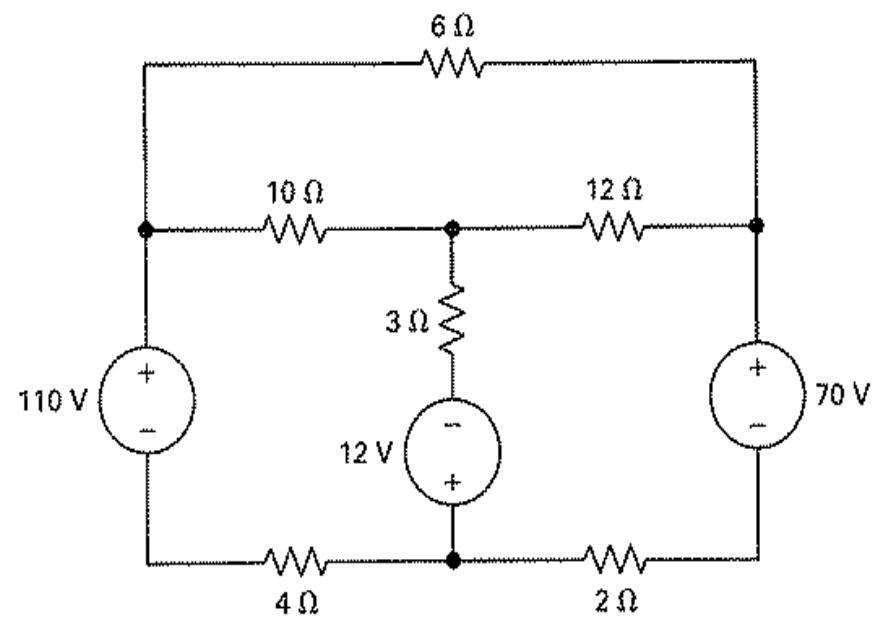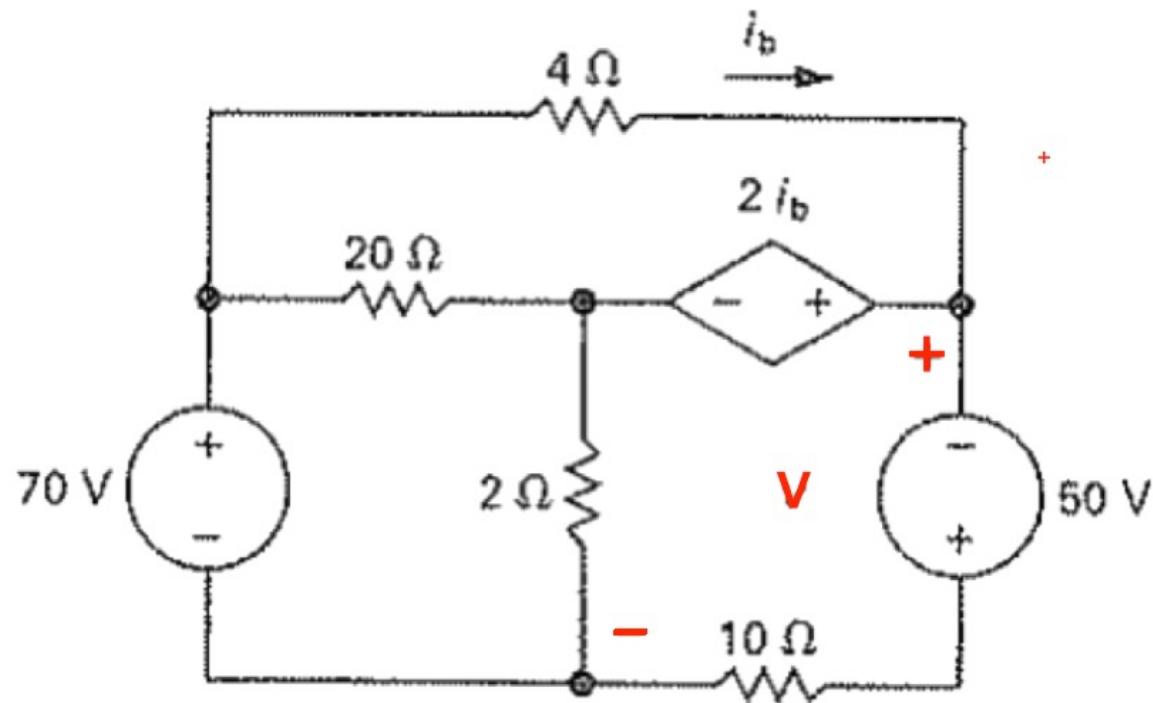
Example: find the power of the 10 Ω resistor

6 Ω

P = 360 W

10 Ω   12 Ω

3 Ω

110 V   70 V

12 V

4 Ω   2 Ω
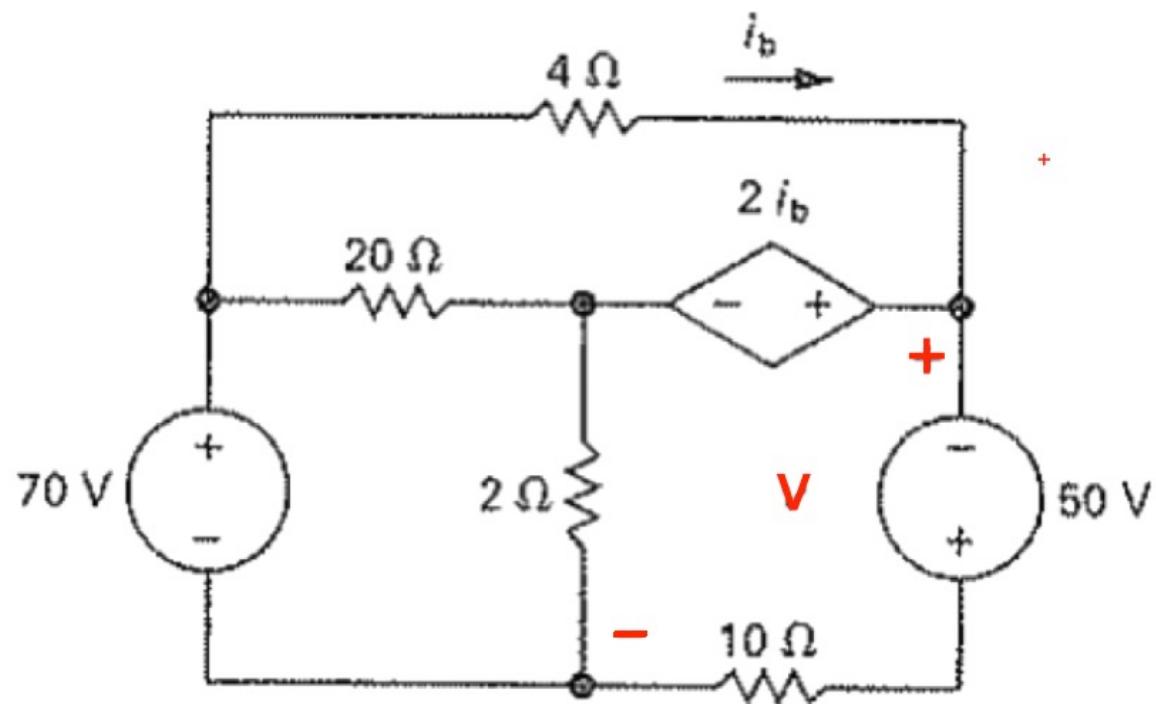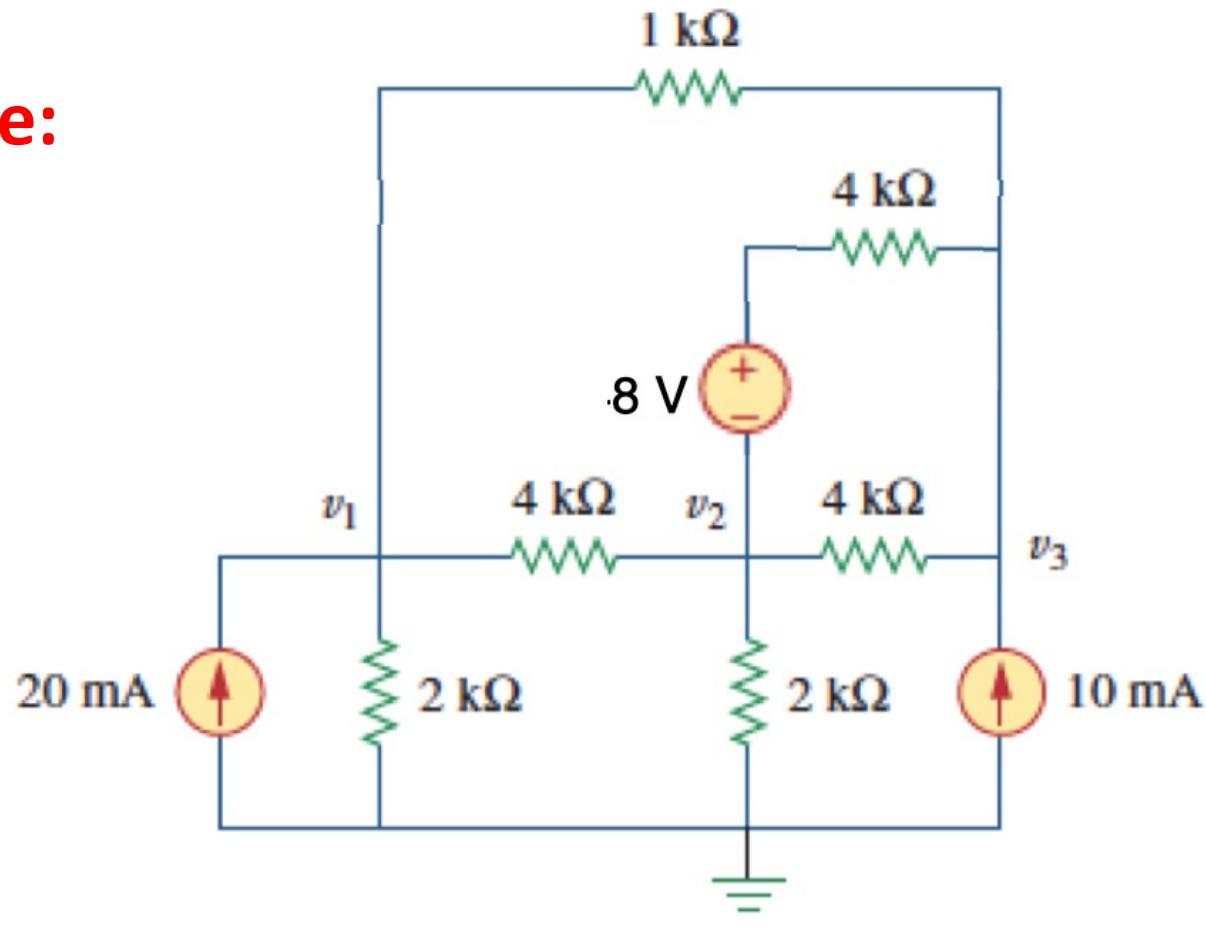
Example: find v

$v = 30\ V$

Example:

1 kΩ

4 kΩ

8 V

v_1 4 kΩ v_2 4 kΩ v_3

20 mA   2 kΩ   2 kΩ   10 mA

1 kΩ

4 kΩ

8 V

v_1 4 kΩ v_2 4 kΩ v_3

20 mA   2 kΩ   2 kΩ   10 mA
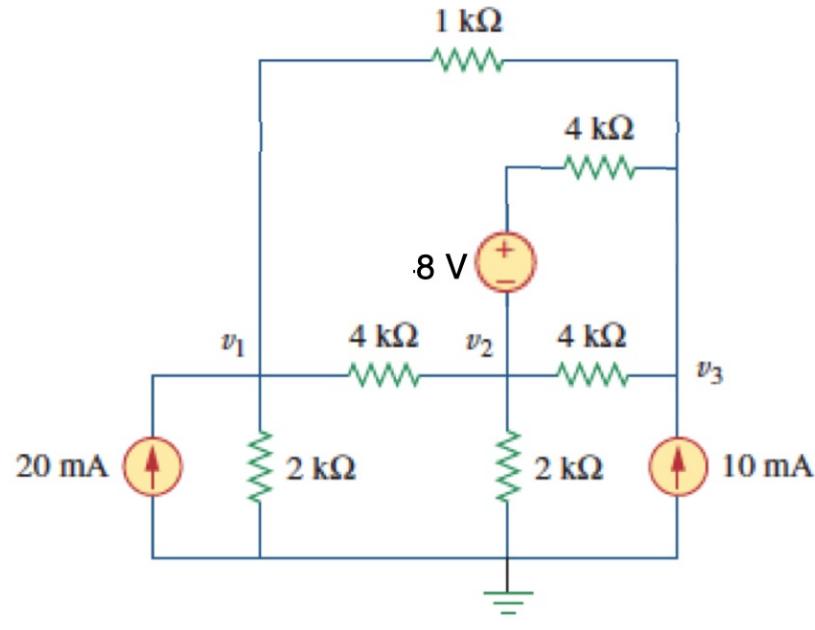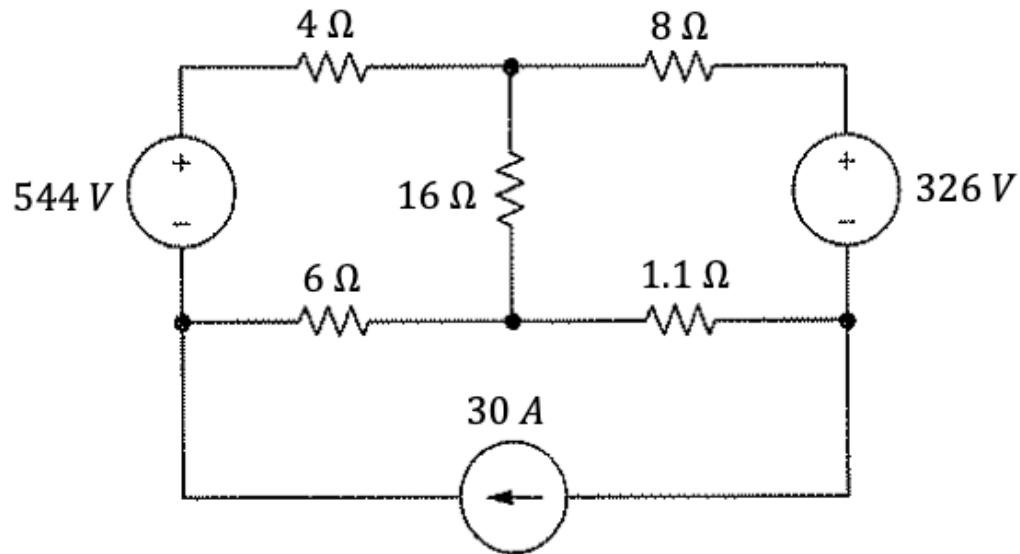
$v_1 = 37.8\ V$
$v_2 = 22.2\ V$
$v_3 = 40.6\ V$
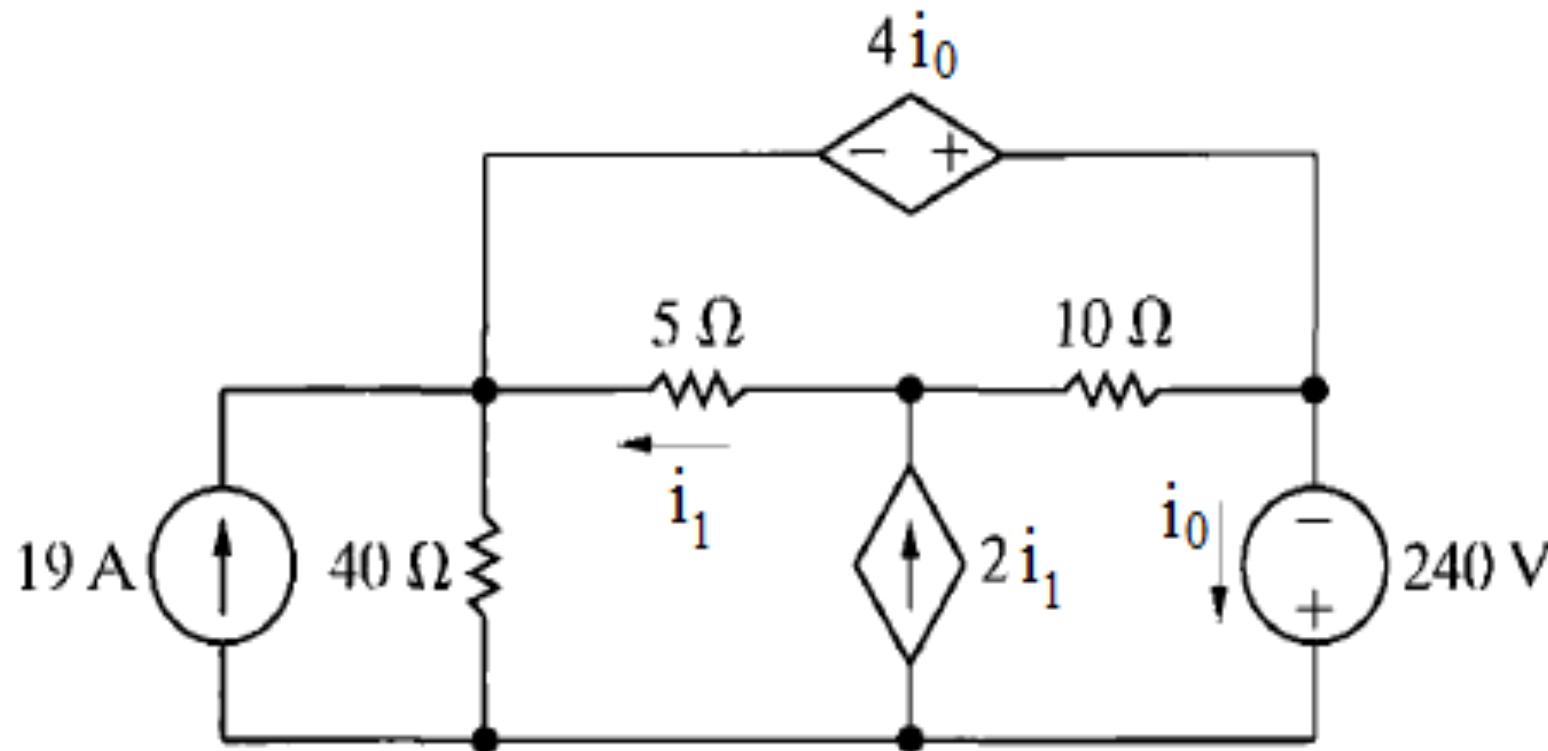
**Practice problem:** find the power of the current source

Practice problem: find i_0 and i_1

$i_0 = 10\ A$

$i_1 = -8\ A$

Practice problem: The variable voltage source shown in the circuit below (the source with the diagonal line through it) is adjusted so that the power absorbed by the 5 Ω resistor is 5 watts. Find the value of $v_{DC.}$