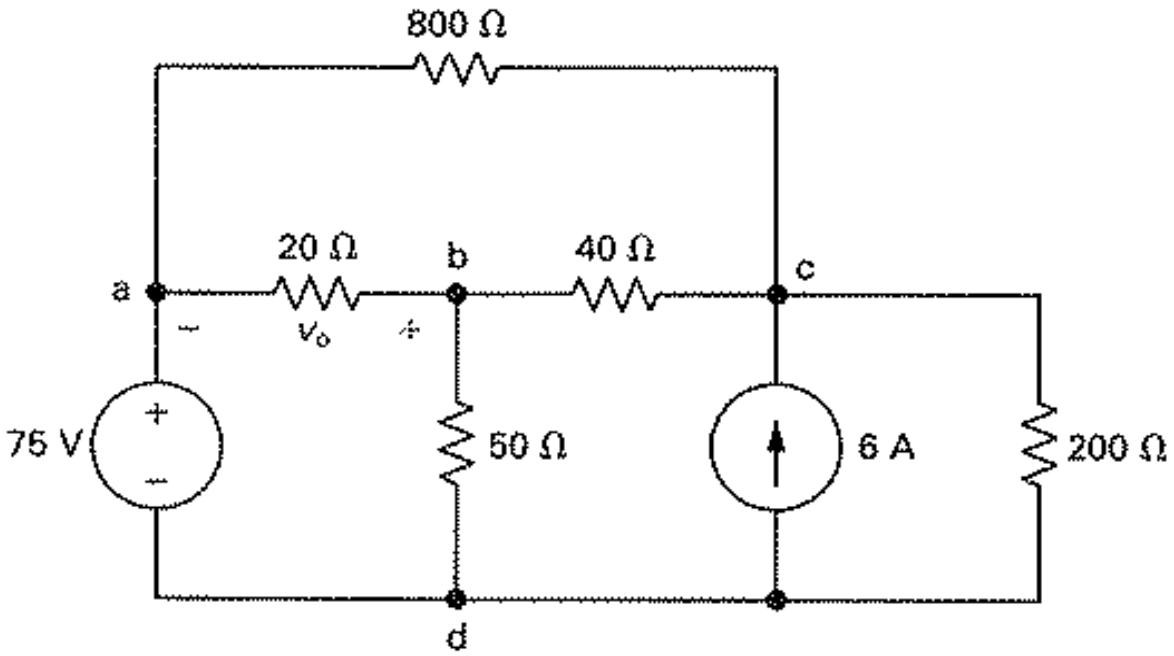
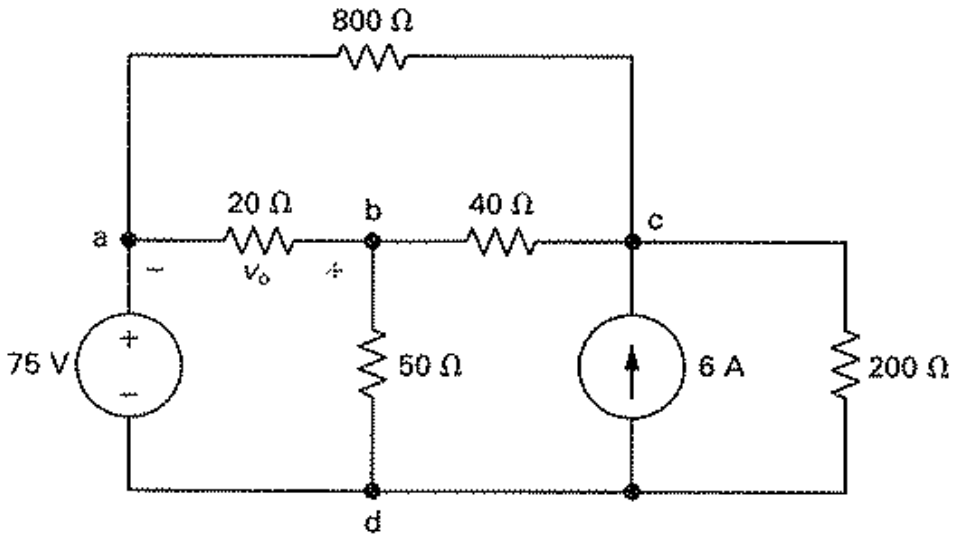
Lecture 13
Node Analysis – 6 of 7

examples

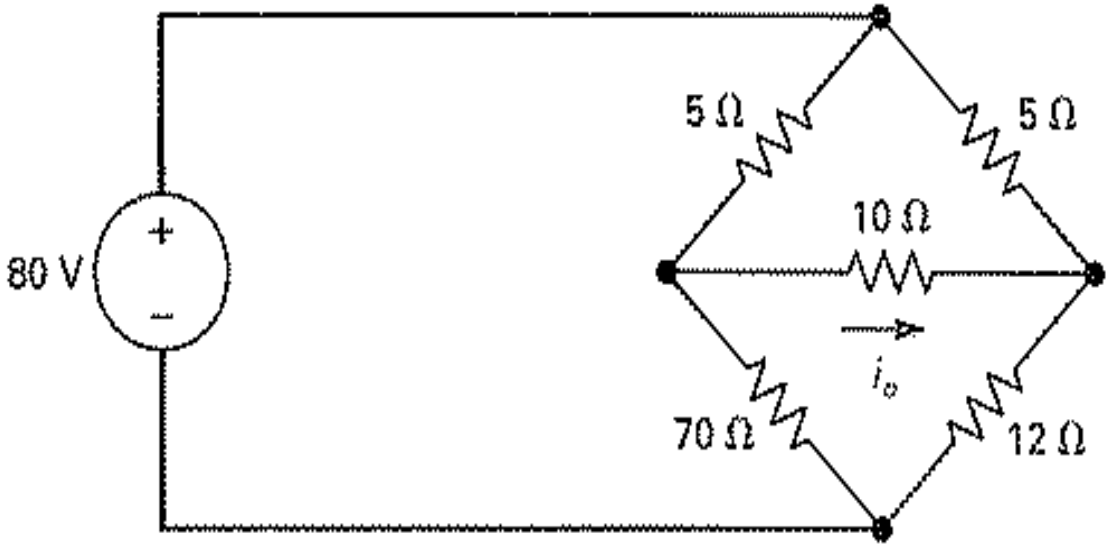
Example: find v_o



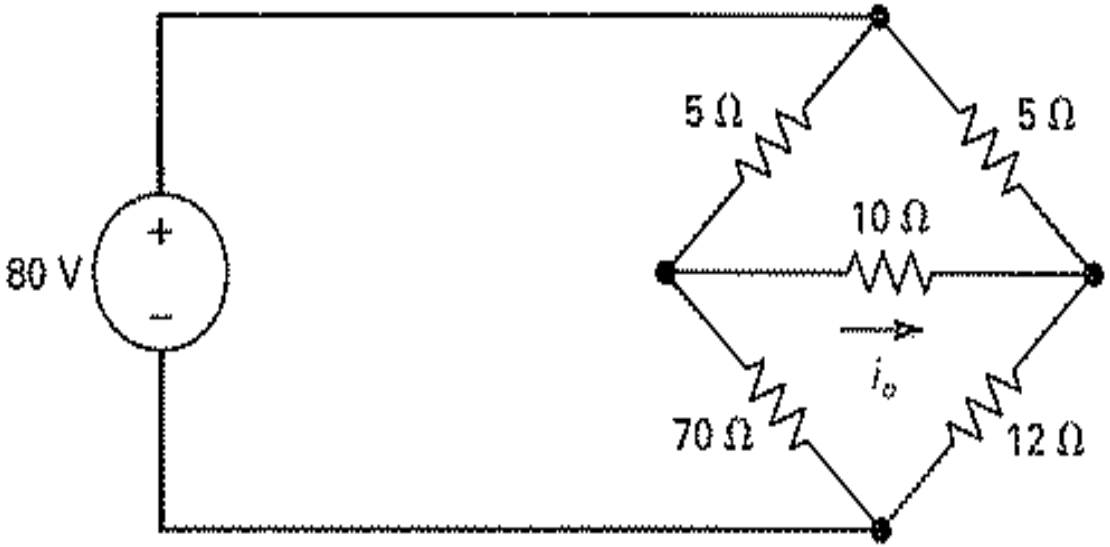


$v_o = 40\ V$

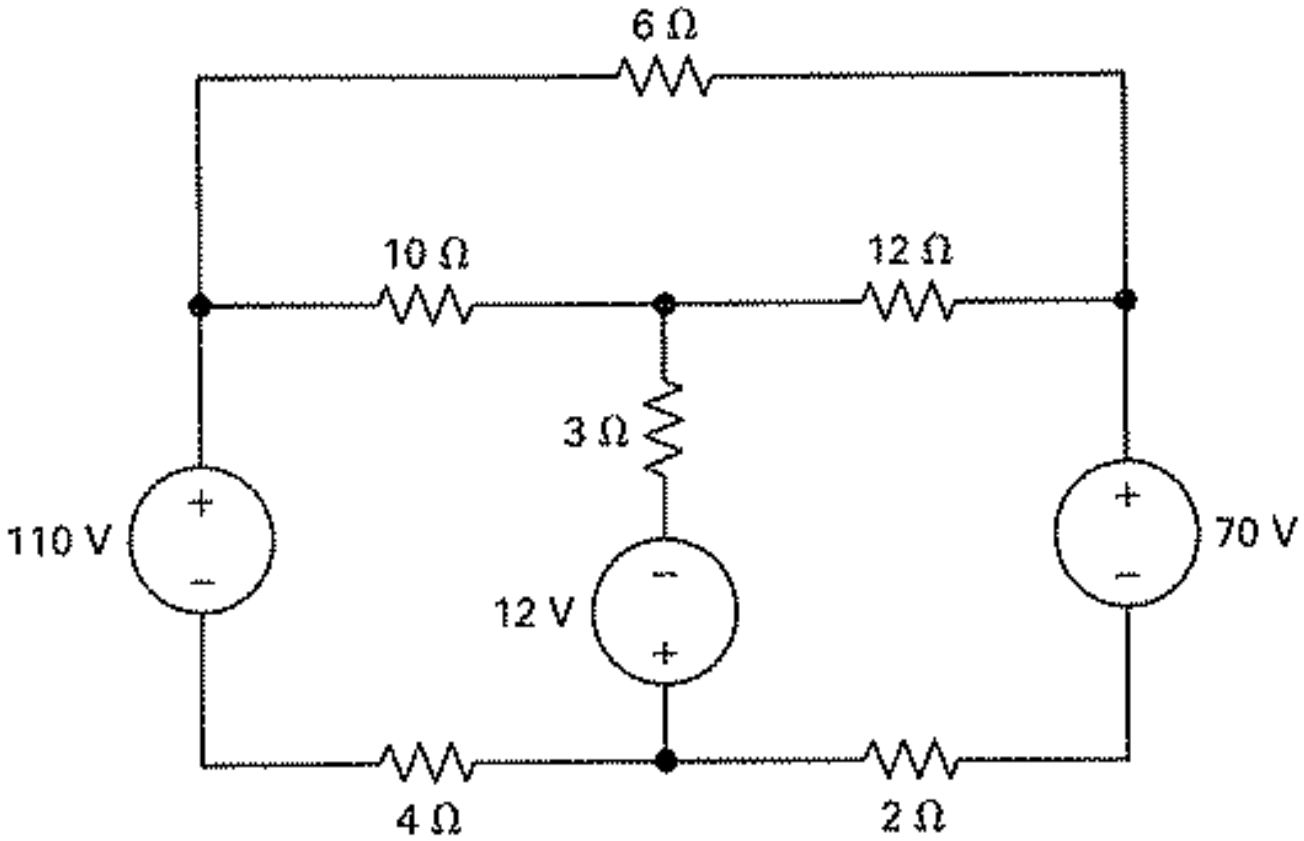
Example: find i_0

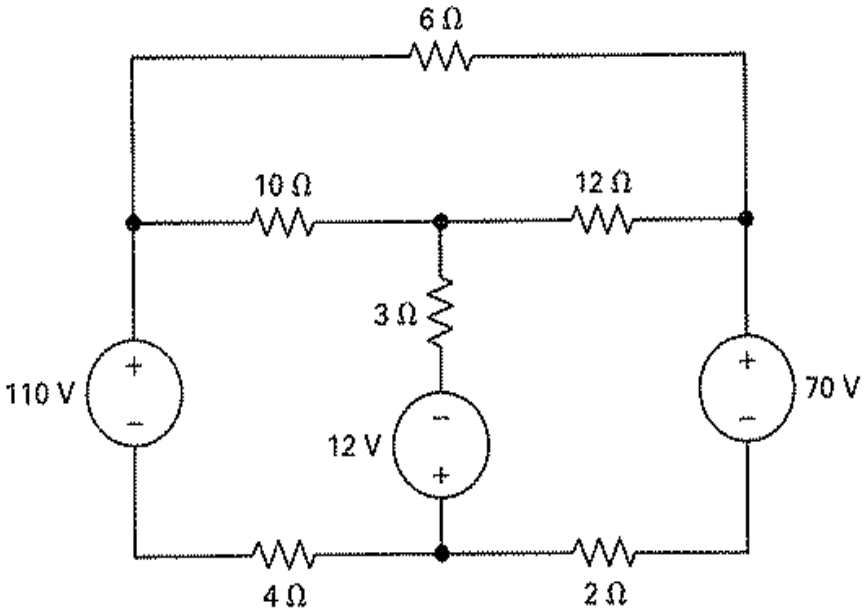


$i_0 = 1\ A$



Example: find the power of the 10 Ω resistor

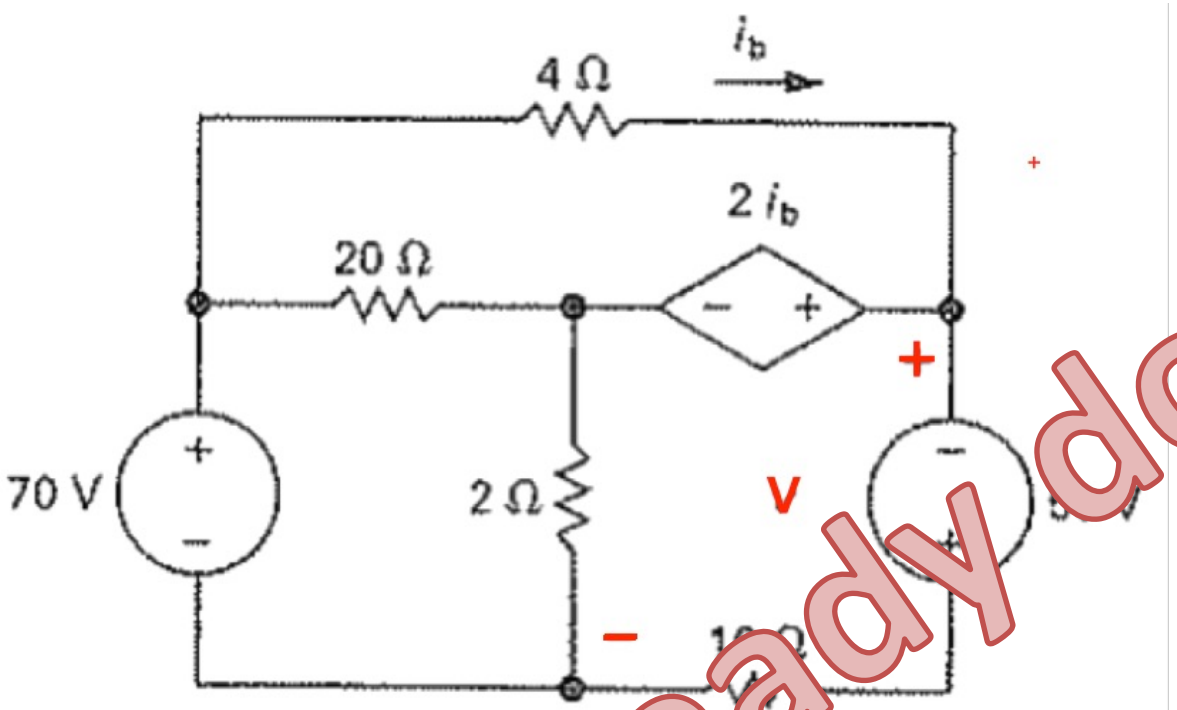




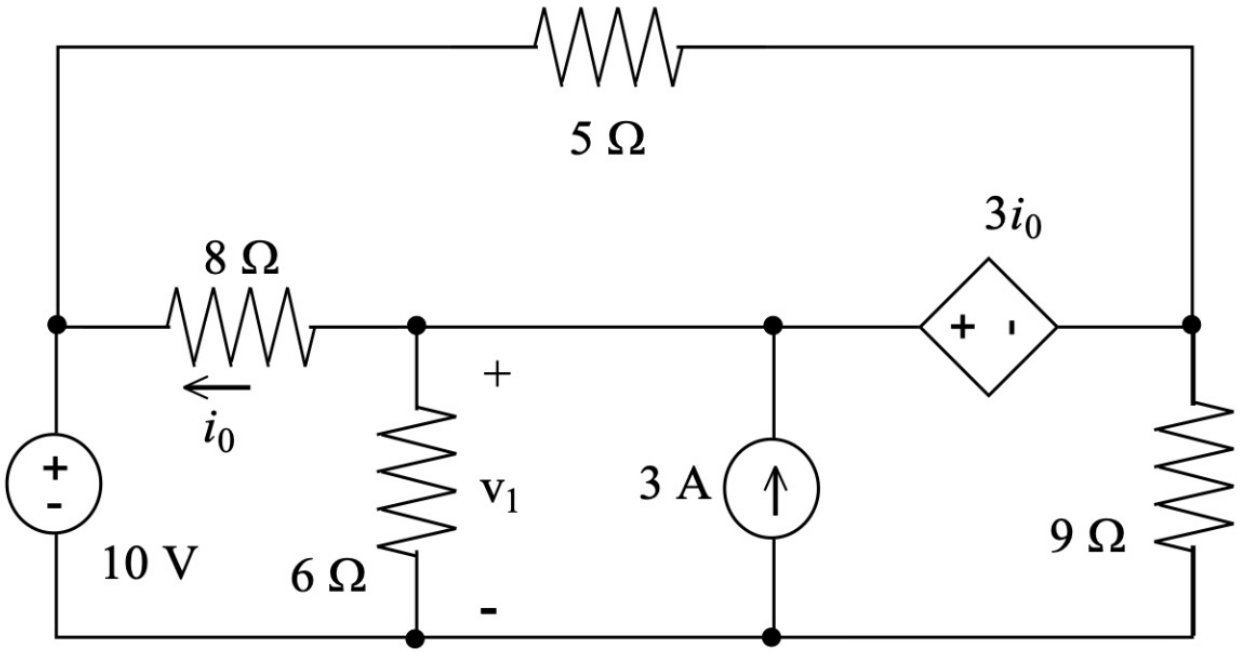
$P = 360\ W$

$v = 30\ V$

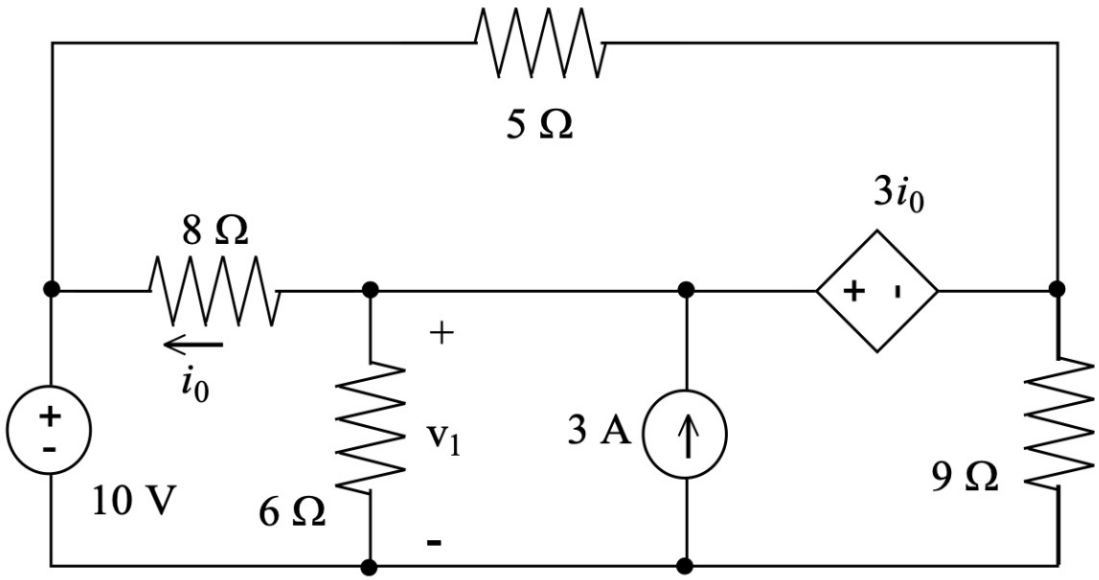
Example: find v

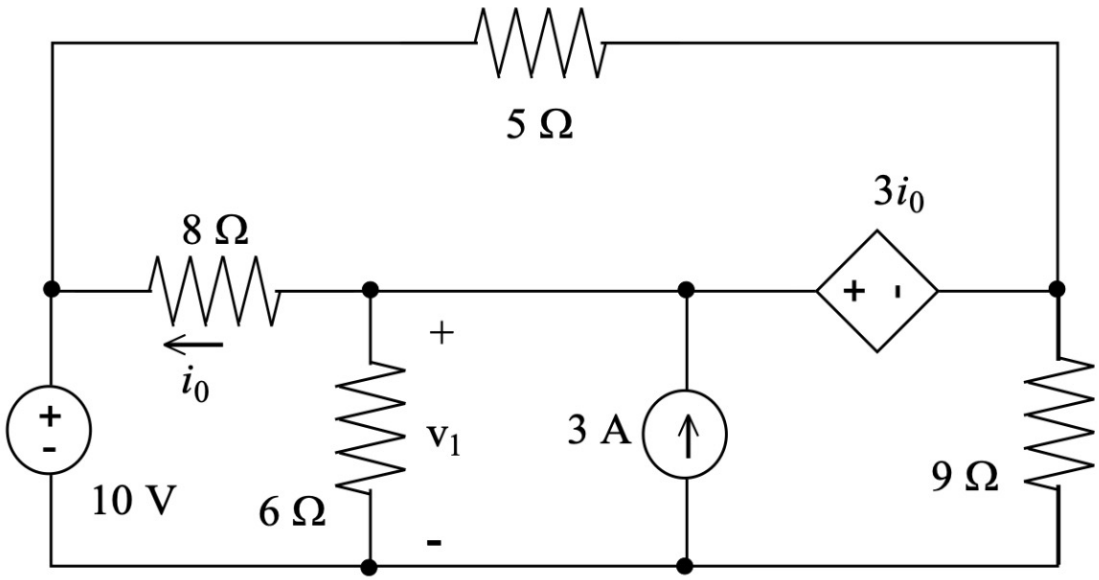


2. For the circuit shown below, find v_1. How much power is supplied by the current source?

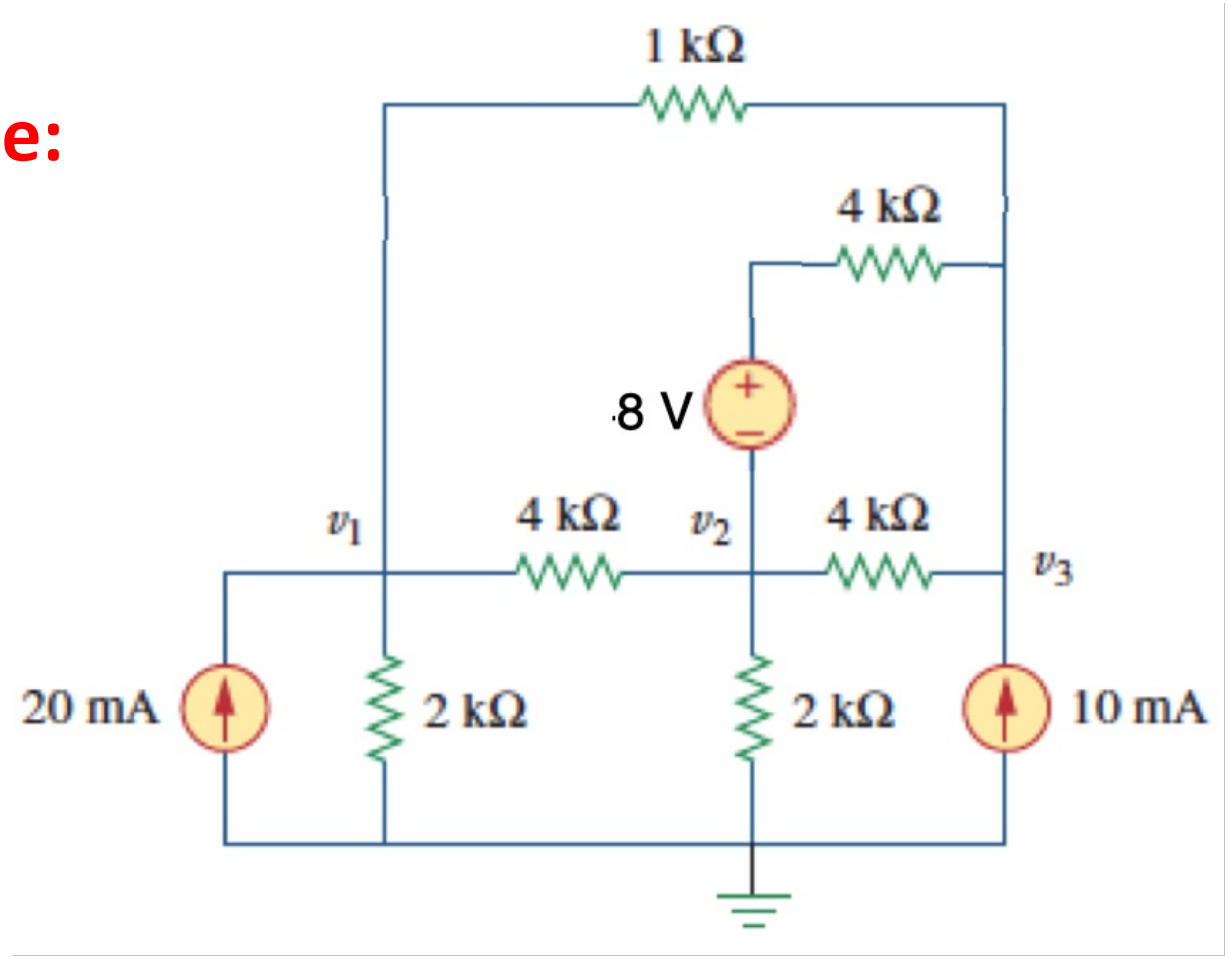


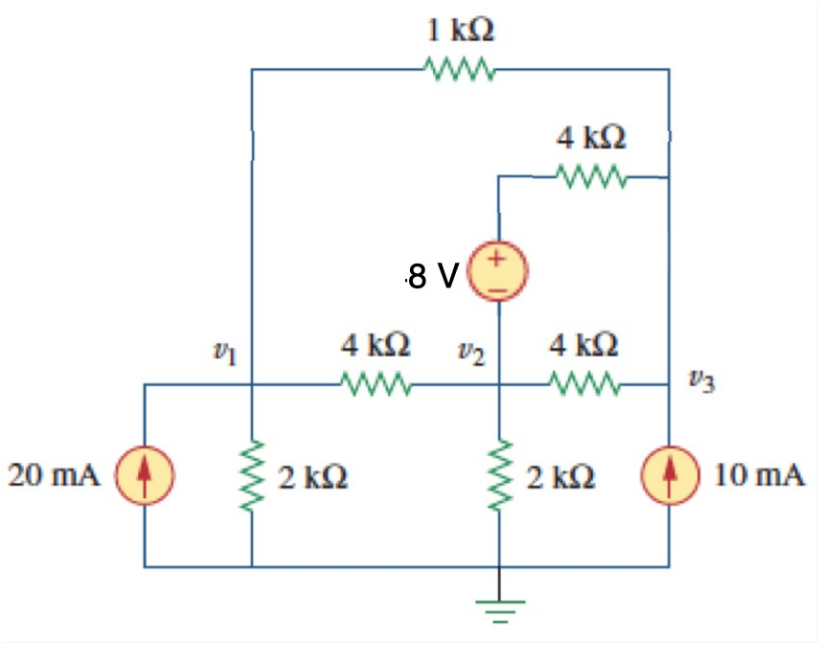
v_1 = _____ Power = _____


5 Ω
8 Ω
$3i_0$
i_0
+
v_1
-
10 V
6 Ω
3 A
9 Ω


5 Ω
8 Ω
$3i_0$
i_0
+
v_1
-
10 V
6 Ω
3 A
9 Ω

Example:

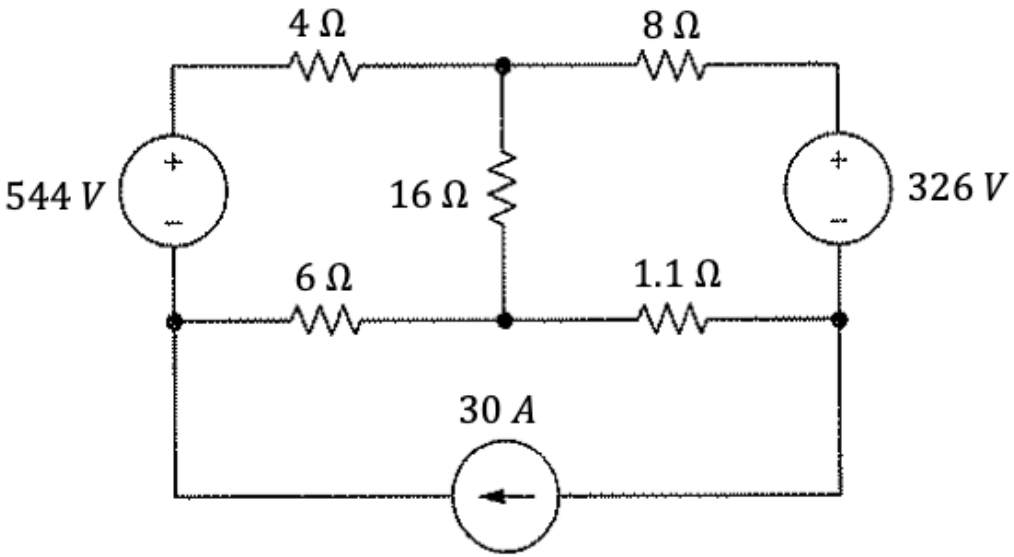




$v_1 = 37.8\ V$
$v_2 = 22.2\ V$
$v_3 = 40.6\ V$

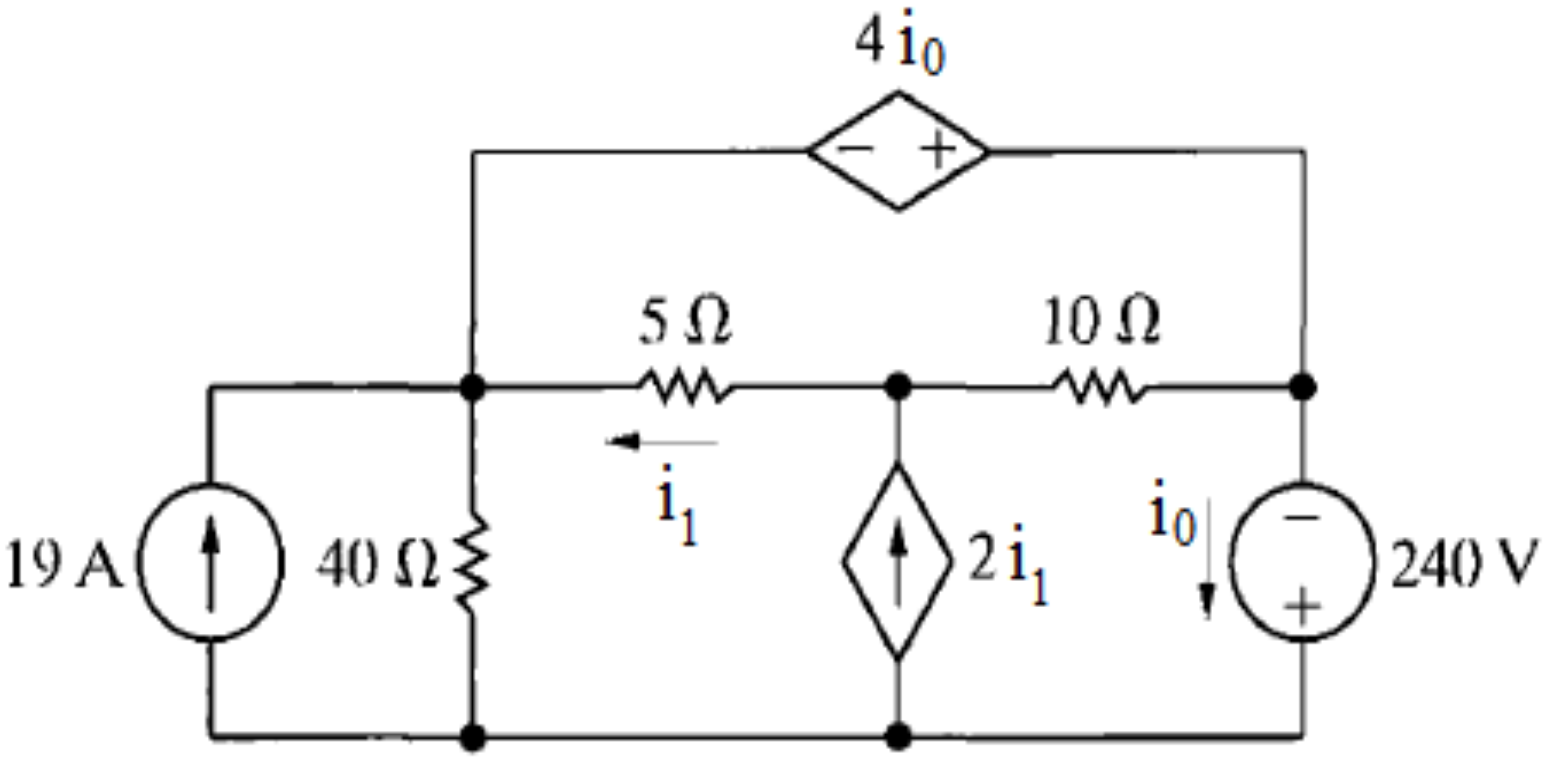
$60\ W$

Practice problem: find the power of the current source



$i_0 = 10\ A$
$i_1 = -8\ A$

Practice problem: find i_0 and i_1



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 $v_{DC.}$