

ECE 201 – Spring 2010

Exam #2

Tuesday, March 9, 2010

Division 0101: Prof. Capano (9:30am)

Division 0201: Prof. Tan (10:30 am)

Division 0301: Prof. Jung (7:30 am)

Division 0401: Prof. Capano (11:30am)

Instructions

1. DO NOT START UNTIL TOLD TO DO SO.
2. Write your Name, division, professor, and student ID# (PUID) on your scantron sheet.
3. This is a CLOSED BOOKS and CLOSED NOTES exam.
4. There is only one correct answer to each question.
5. Calculators are allowed (but not necessary).
6. If extra paper is needed, use back of test pages.
7. Cheating will not be tolerated. Cheating in this exam will result in an F in the course.
8. If you cannot solve a question, be sure to look at the other ones and come back to it if time permits.
9. As described in the course syllabus, we must certify that every student who receives a passing grade in this course has satisfied each of the course outcomes. On this exam, you have the opportunity to satisfy outcomes i, iii, iv and viii. (See the course syllabus for a complete description of each outcome.) On the chart below, we list the criteria we use for determining whether you have satisfied these course outcomes. If you fail to satisfy any of the course outcomes, don't panic. There will be more opportunities for you to do so.

Course Outcome	Exam Questions	Total Points Possible	Minimum Points required to satisfy course outcome
i	7-8	14	7
iii	1-5, 14	42	21
iv	9-14	42	21
viii	6	7	7

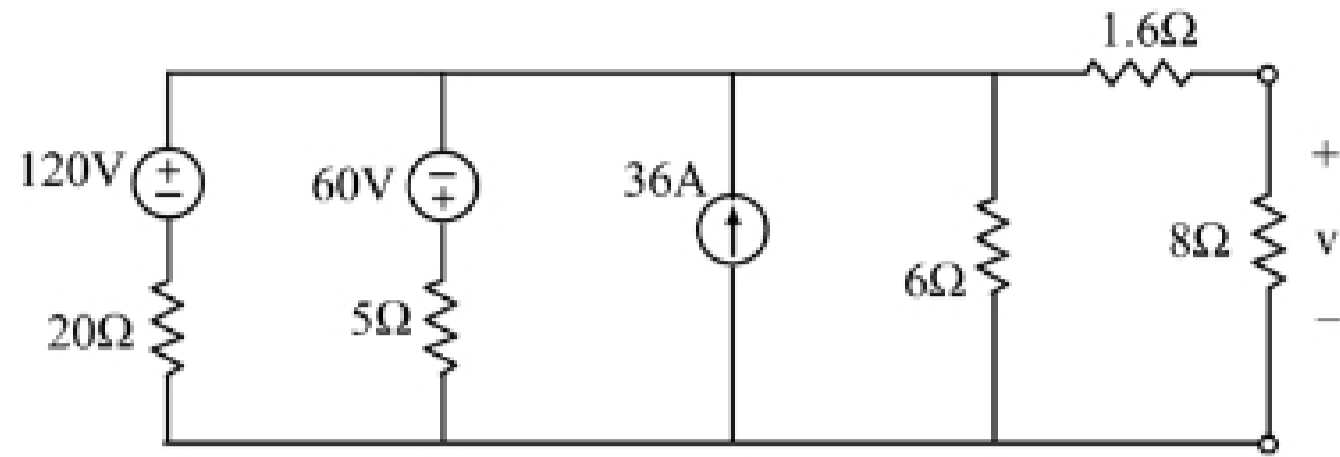
Potentially useful formula:

$$\mathbf{x}(t) = \mathbf{x}(\infty) + \left[\mathbf{x}(t_0^+) - \mathbf{x}(\infty) \right] e^{-(t-t_0)/\tau}$$

$$\tau = L/R$$

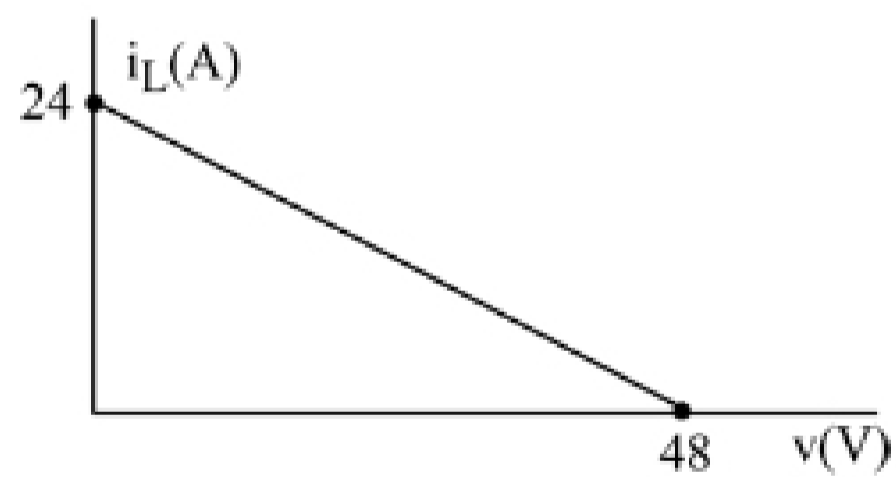
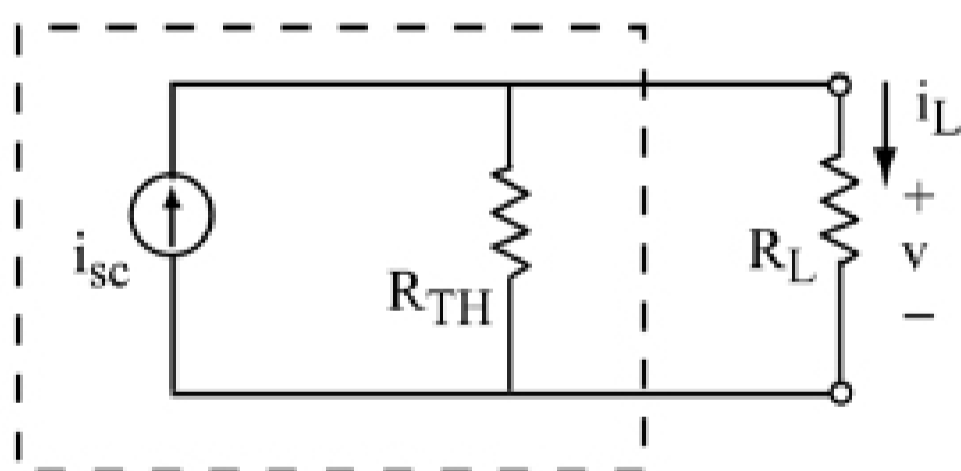
$$\tau = RC$$

1. Using source transformations, find the voltage “v” (in V):



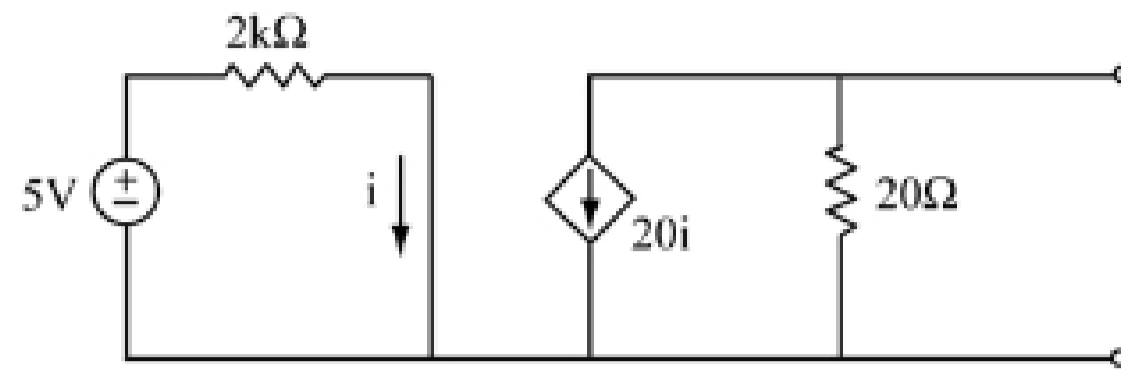
- (1) 12 (2) 24 (3) 36 (4) 48
 (5) 56 (6) 60 (7) 72

2. The Norton equivalent network for a more complicated circuit has a load resistor (R_L) attached to it as shown. A plot of $i_L - v$ relationship is also given. Find V_{OC} and R_{TH} for the corresponding Thevenin equivalent network.

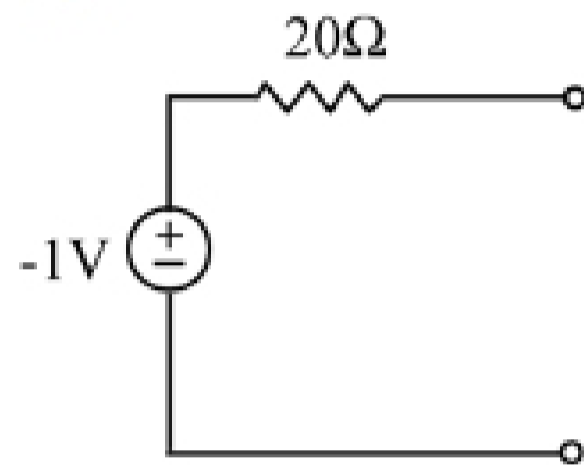


- (1) 12V; 6Ω (2) 24V; 4Ω (3) 36V; 6Ω (4) 48V; 4Ω
 (5) 24V; 8Ω (6) 48V; 2Ω (7) 60V; 5Ω

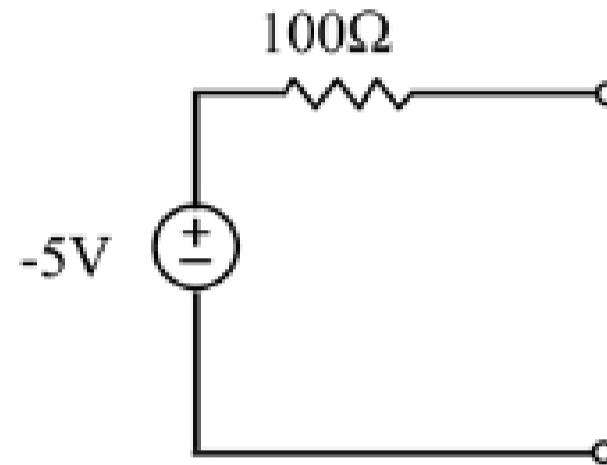
3. Find the correct Thevenin equivalent network for the circuit shown below.



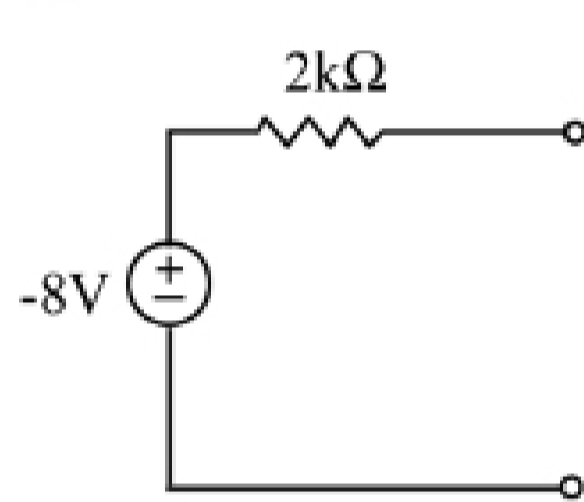
(1)



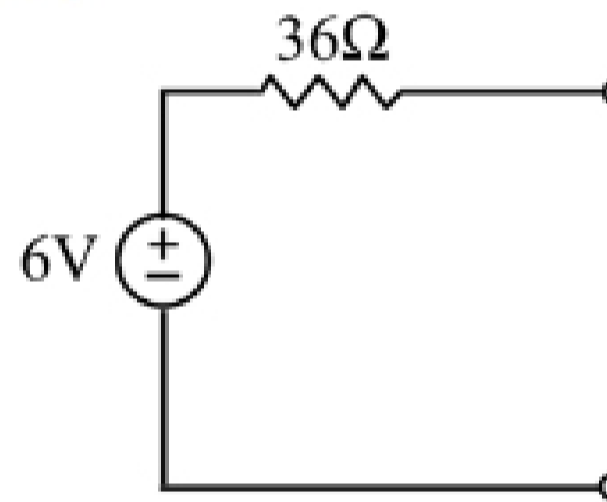
(2)



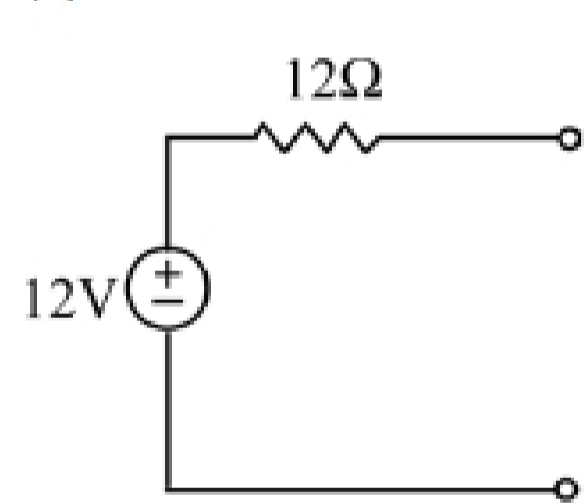
(3)



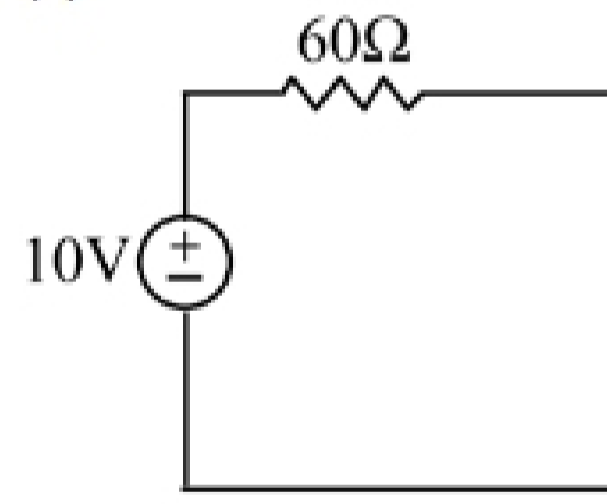
(4)



(5)



(6)



(7)

