

KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS

ELECTRICAL ENGINEERING DEPARTMENT

FIRST SEMESTER 2007/2008

EE 201 MAJOR EXAM I

DATE: TUESDAY 30-10-2007

TIME: 7:00-8:30 PM

Locations:

- Dr. Samir Abdul-Jauwad (Section 04): Building 59, Room 1016.
- Dr. Abdallah Al-Ahmari (Sections 02 & 05): Building 19, Room 416.
- Dr. Adel Balghonaim (Section 07): Building 59, Room 1017.
- Dr. Husain Masoudi (Sections 06 & 08): Building 14, Room 108.
- Dr. Husain Al-Jamid (Section 01): Building 14, Room 108.

Student's Name:.....

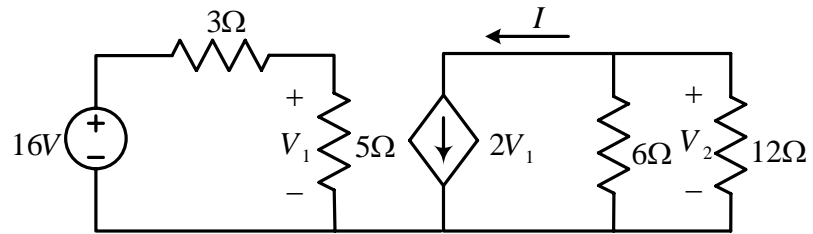
Student's I.D. Number:.....

Section Number:

	Maximum Score	Score
Problem 1 (a)	10	
Problem 1 (b)	10	
Problem 2 (a)	8	
Problem 2 (b)	12	
Problem 3	20	
Total	60	

Problem 1 (a) [10 pts]

In the circuit shown below, calculate I and V_2 .



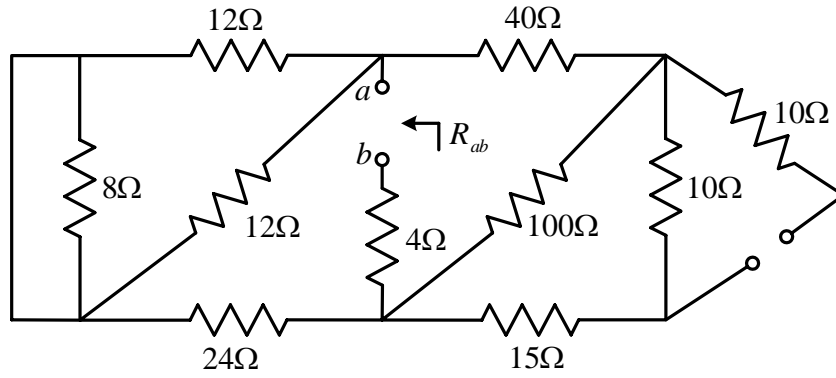
Answers:

$$I =$$

$$V_2 =$$

Problem 1 (b) [10 pts]

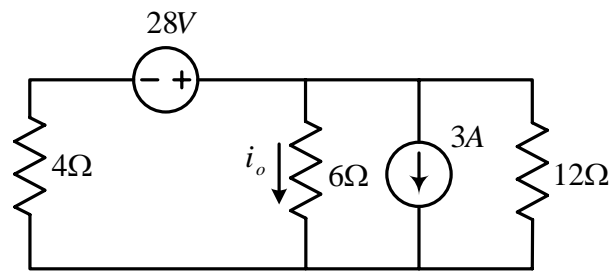
Calculate the resistance between a & b (R_{ab}) in the given circuit:



Answer:

$R_{ab} =$

Problem 2 (a) [8 pts]



The current i_o in the above circuit equals (select an answer):

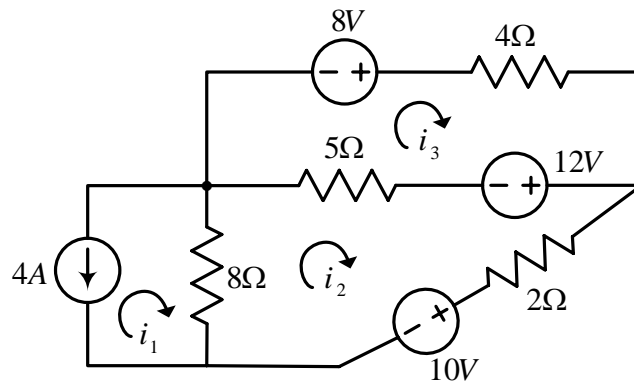
- a) $-10/3 A$
- b) $+10/3 A$
- c) $-4/3 A$
- d) $+4/3 A$
- e) $-5 A$
- f) $+5 A$

[Hint: Use *Source Transformation*].

Problem 2 (b) [12 pts]

i) In the circuit shown below, use **Mesh Analysis** to calculate the mesh currents i_1, i_2, i_3 .

ii) Calculate the power absorbed by the 12V source (i.e. P_{12V}).



Answers:

i)

$$i_1 =$$

$$i_2 =$$

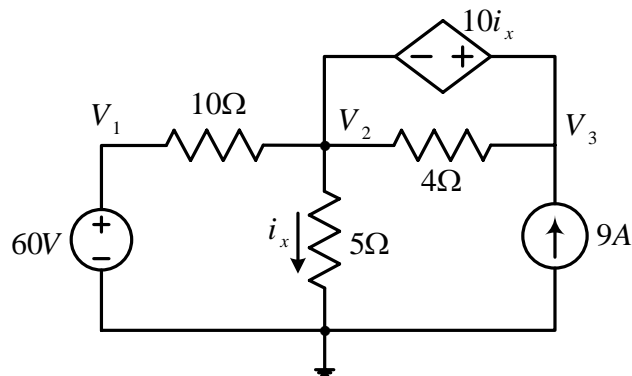
$$i_3 =$$

ii) $P_{12V} =$

Problem 3 [20 pts]

In the circuit shown below:

- Use **Node Analysis** to calculate the node voltages V_1, V_2, V_3 .
- Calculate the power absorbed by the $60V$ source (i.e. P_{60V}).
- Is the power found in part (b) **actually absorbed** or **actually delivered** by the source?



Answers:

a) $V_1 =$

$V_2 =$

$V_3 =$

b) $P_{60V} =$

c) Actually absorbed

Actually delivered