

Name: \_\_\_\_\_

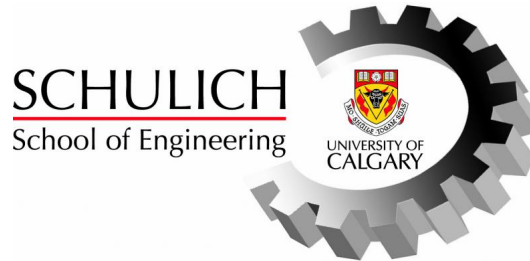
Lecture Section: \_\_\_\_\_

**L01** - *Pouyan (Yani) Jazayeri*

**L02** - *Norm Bartley*

**L03** - *Anis Haque*

**L04** - *Martin Mintchev*



## ENGG 325 - Electric Circuits and Systems

### Midterm Examination

Monday, October 26, 2009

Time: 6:30 - 8:00 PM

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#### Instructions:

- Time allowed is 90 minutes.
  - The examination is closed-book.
  - Only calculators sanctioned by the Schulich School of Engineering are permitted in the examination.
  - The maximum number of marks is 50, as indicated; please attempt all questions. The midterm examination counts 25% toward the final grade.
  - Please use a pen or heavy pencil to ensure legibility.
  - Please answer questions in the spaces provided; if space is insufficient, please use the back of the pages.
  - Please show your work; where appropriate, marks will be awarded for proper and well-reasoned explanations.
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UCID: \_\_\_\_\_

1. Consider the circuit in Fig. Q1.

- (a) Determine the three mesh currents. **[8 marks.]**  
 (b) Using your answers to part (a), determine all the node voltages. **[4 marks.]**

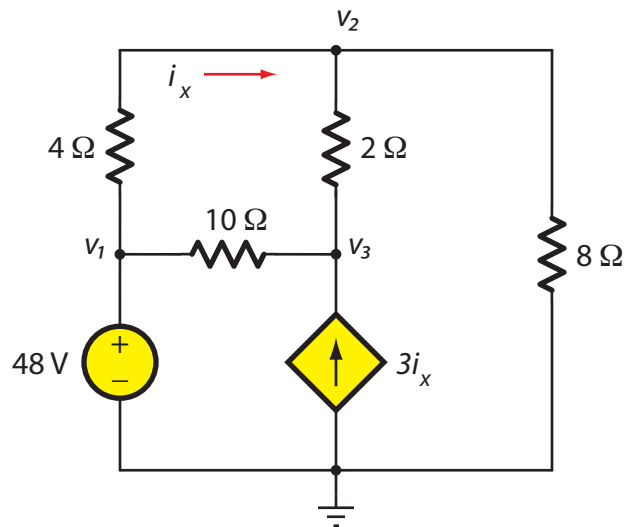


Fig. Q1. Find mesh currents and use them to find node voltages.

**[12 marks total.]**

*(Question 1, additional workspace ...)*

2. Consider the circuit in Fig. Q2.

(a) Choose a reference node, and then find all of the node voltages. **[9 marks.]**

(b) Find the power in the 100 V voltage source, indicating if it is absorbed or supplied.

**[3 marks.]**

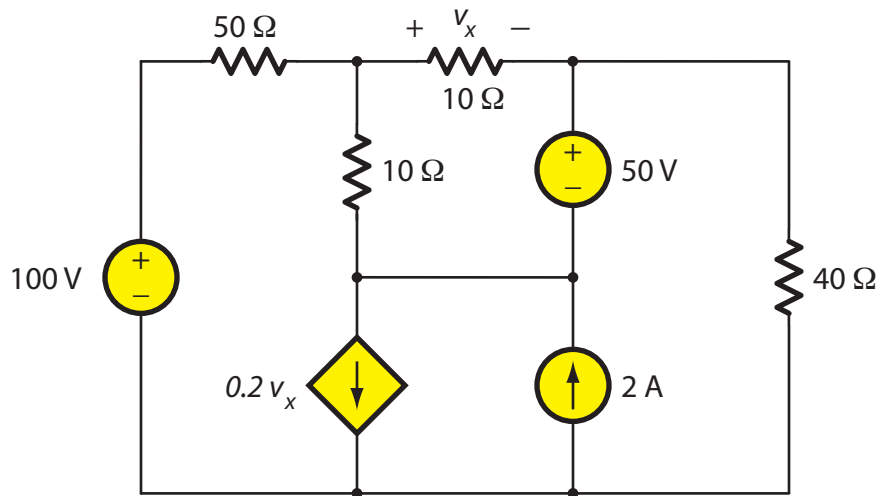


Fig. Q2. Find the node voltages, power in the 100 V source.

**[12 marks total.]**

*(Question 2, additional workspace ...)*



*(Question 3, additional workspace ...)*

4. For the circuit given in Fig. Q4, find  $v_x$  using the principle of superposition.

[13 marks.]

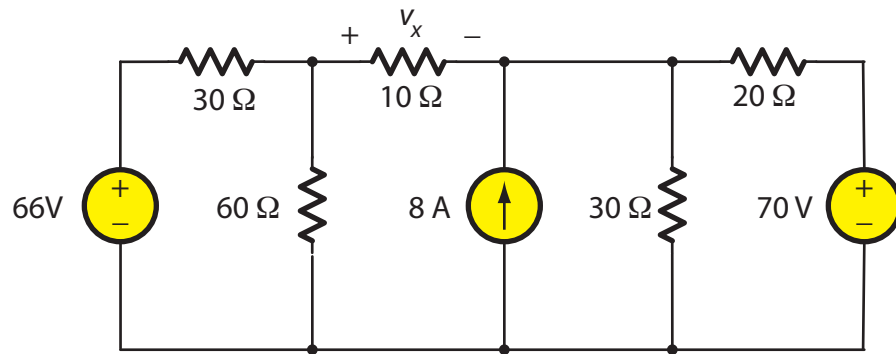


Fig. Q4. Find  $v_x$  by superposition.



*(Question 4, additional workspace ...)*