

Initials _____

Last 4 digits ID _____

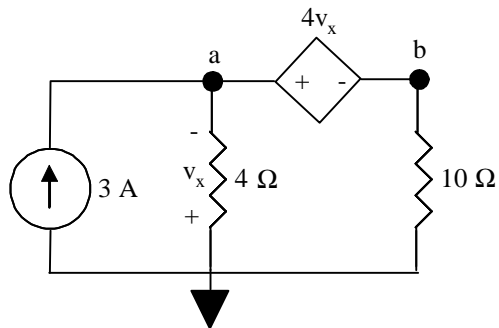
Section 060

November 16, 2005

Nayda G. Santiago,

100 points

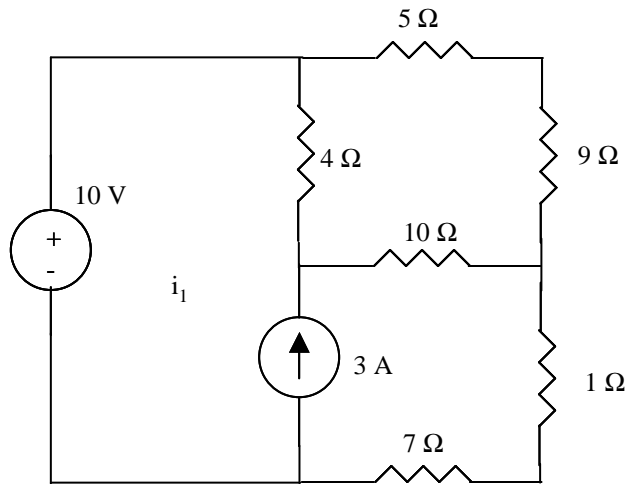
Problem 1 (25 points) Determine the node voltages for the following circuit.

 $V_a = \underline{\hspace{2cm}}$ $V_b = \underline{\hspace{2cm}}$

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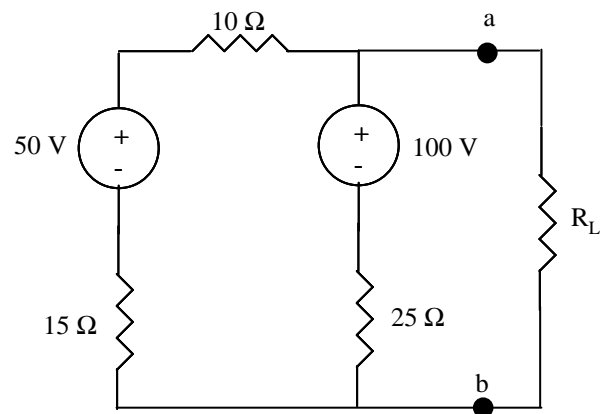
Problem 2 (25 points). Mesh-current analysis

Use mesh-current analysis to determine the current i_1 in the following circuit. Do not simplify the circuit.

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Problem 3 (25 points) Maximum power transfer
For the following circuit:



- (15 points) Find the Thevenin equivalent at terminals a-b for the circuit shown.
- (5 points) What is the value of R_L for maximum power transfer?
- (5 points) What is the maximum power that could be dissipated in R_L ?

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Problem 4 (25 points) Source transformations

Use source transformations and resistance combinations to simplify the circuit until only two elements remain to the left of terminals a and b .

