

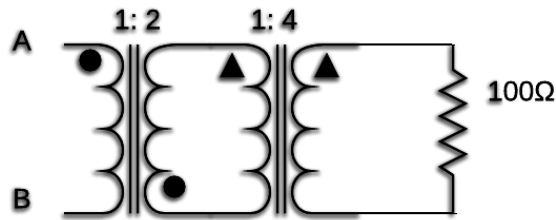
ECE100 Practice Midterm I

Department of Electrical and Computer Engineering, UCLA

Instructor: Prof. Gupta

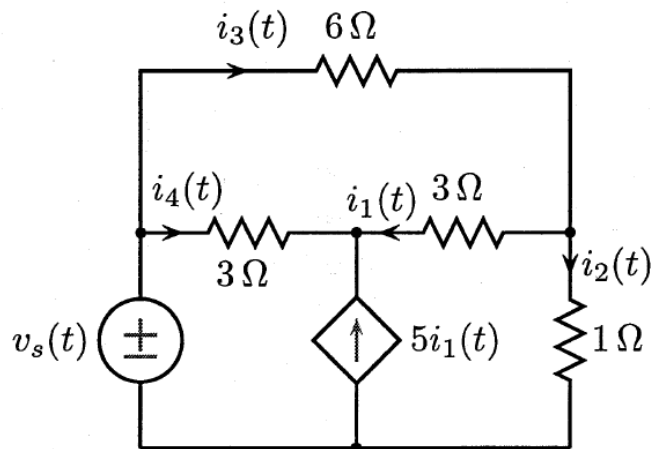
1. Exam is closed book. Calculator and one double sided cheat-sheet is allowed.
2. Cross out *everything* that you don't want me to see. Points will be deducted for everything wrong!
3. No points will be given without proper explanations
4. Time allotted: 60 minutes

Q1. Find the Thevenin Equivalent between A and B. (8 points)



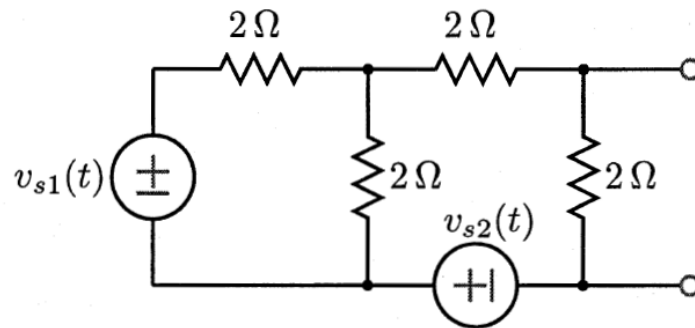
Q2. 8 points

Find i_1 in terms of v_s using source transformations.



Q3. 10 points

Find the thevenin equivalent of the circuit below at the two nodes on the right using superposition.

**Q4. (4 points)**

You solved some circuit using loop method and after an hour of calculations, you wrote down the matrix equations corresponding to it but unfortunately you spilled coffee on the piece of paper. As a result only part of the equations is visible:

$$\begin{bmatrix} v1 \\ v2 \\ v3 \\ v4 \end{bmatrix} = \begin{bmatrix} 1 & -3 & -8 & -2 \\ & 4 & & -7 \\ & -1 & 9 & \\ & & -5 & 2 \end{bmatrix} \begin{bmatrix} i1 \\ i2 \\ i3 \\ i4 \end{bmatrix}$$

What do you need to assume to fill in the remaining entries in the matrix? In this case, fill in the remaining entries.