EECS/CSE 70A Network Analysis I
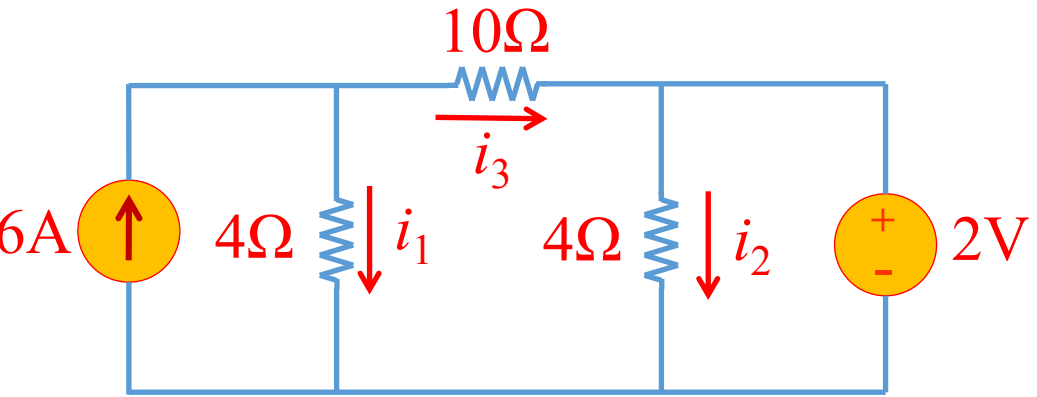
Homework #3

Due on or before
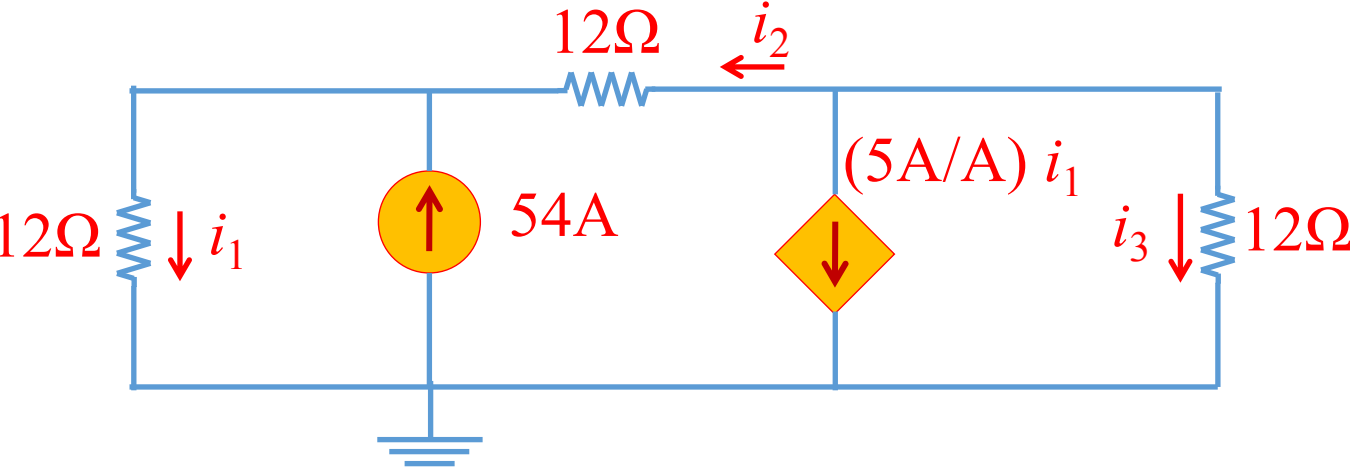5/2/2017, Tuesday 6pm
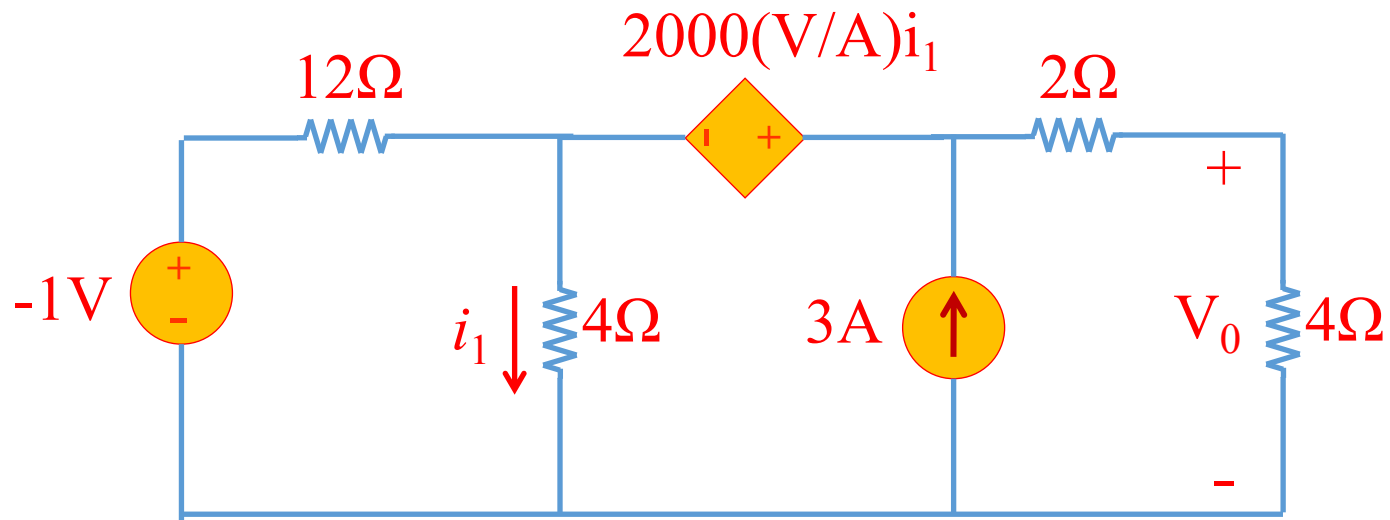(online on the designated EEE dropbox)

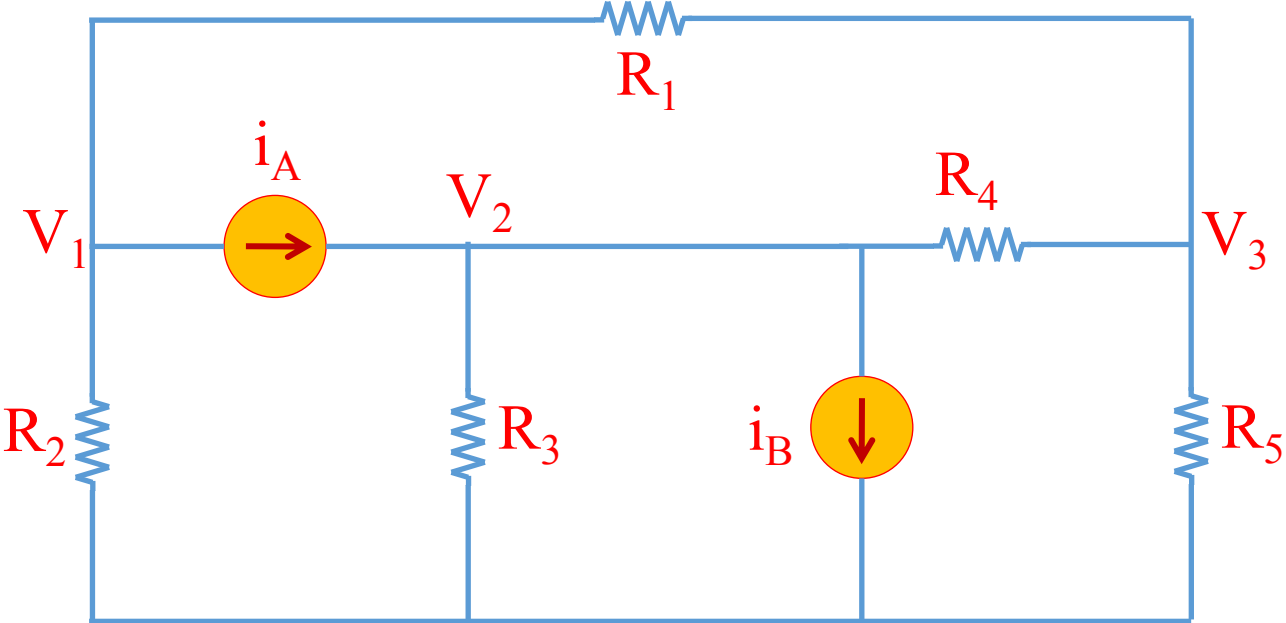Problem 1: (KCL, KVL, Ohm's Law) Find currents i_1, i_2, i_3. (10pts.)

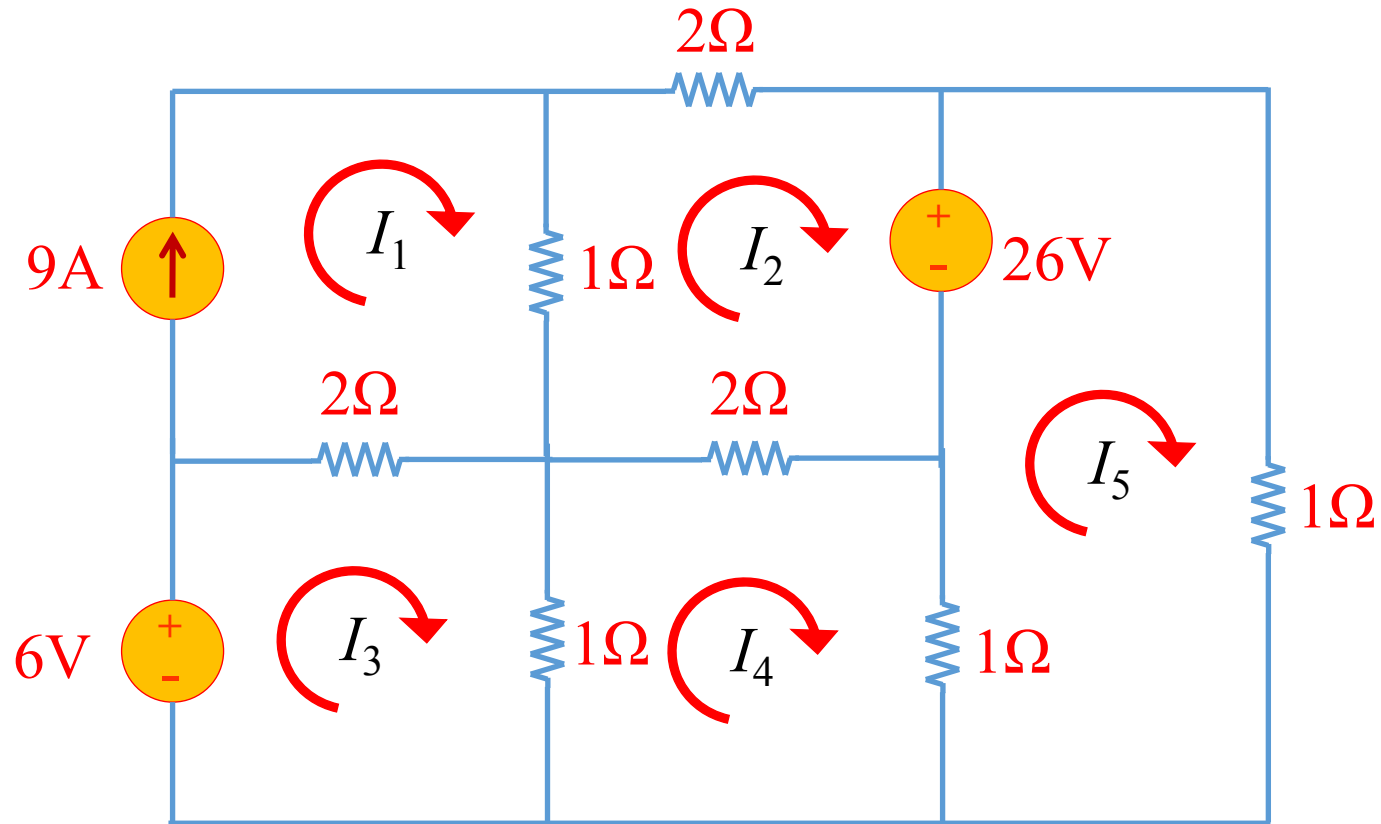# Problem 2: Use nodal analysis and find i_3. (10pts.)

12Ω i_2

$(5A/A)\ i_1$

12Ω ↓i_1 54A i_3 ↓12Ω

Problem 3: Use nodal analysis and find V_0. (10pts.)

$2000(V/A)i_1$

12Ω

2Ω

$-1V$
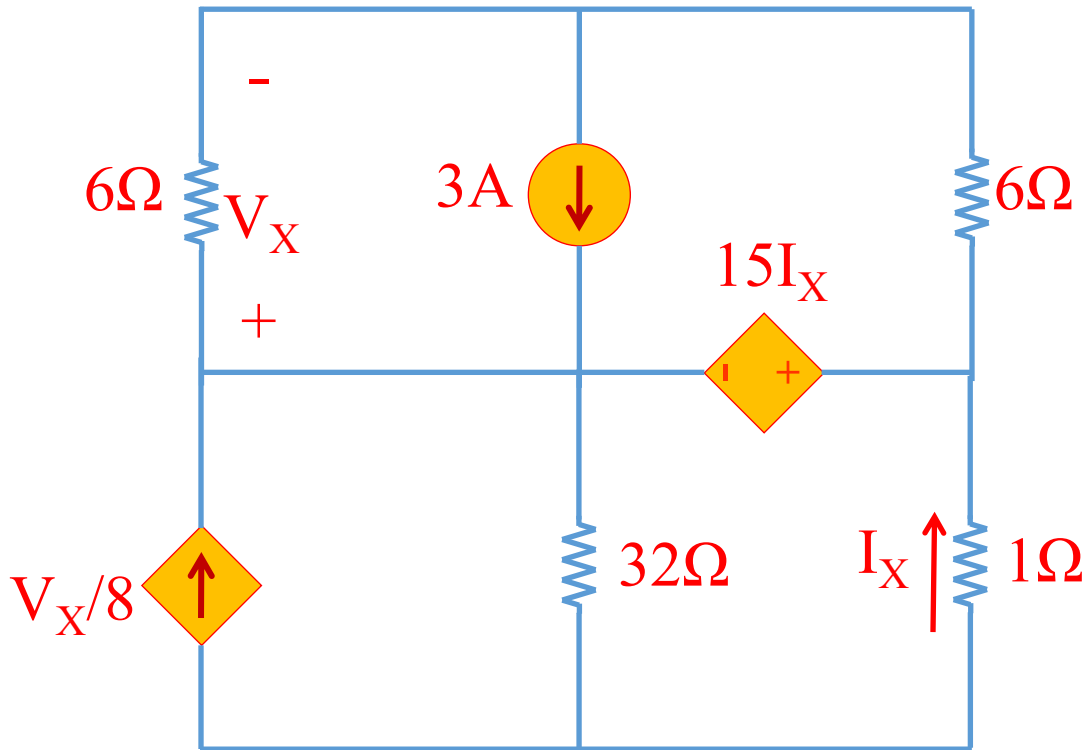
i_1 4Ω

$3A$

V_0 4Ω

Problem 4: Write all nodal voltage equations and put them in the matrix form. (You do not need to solve.) (10pts.)
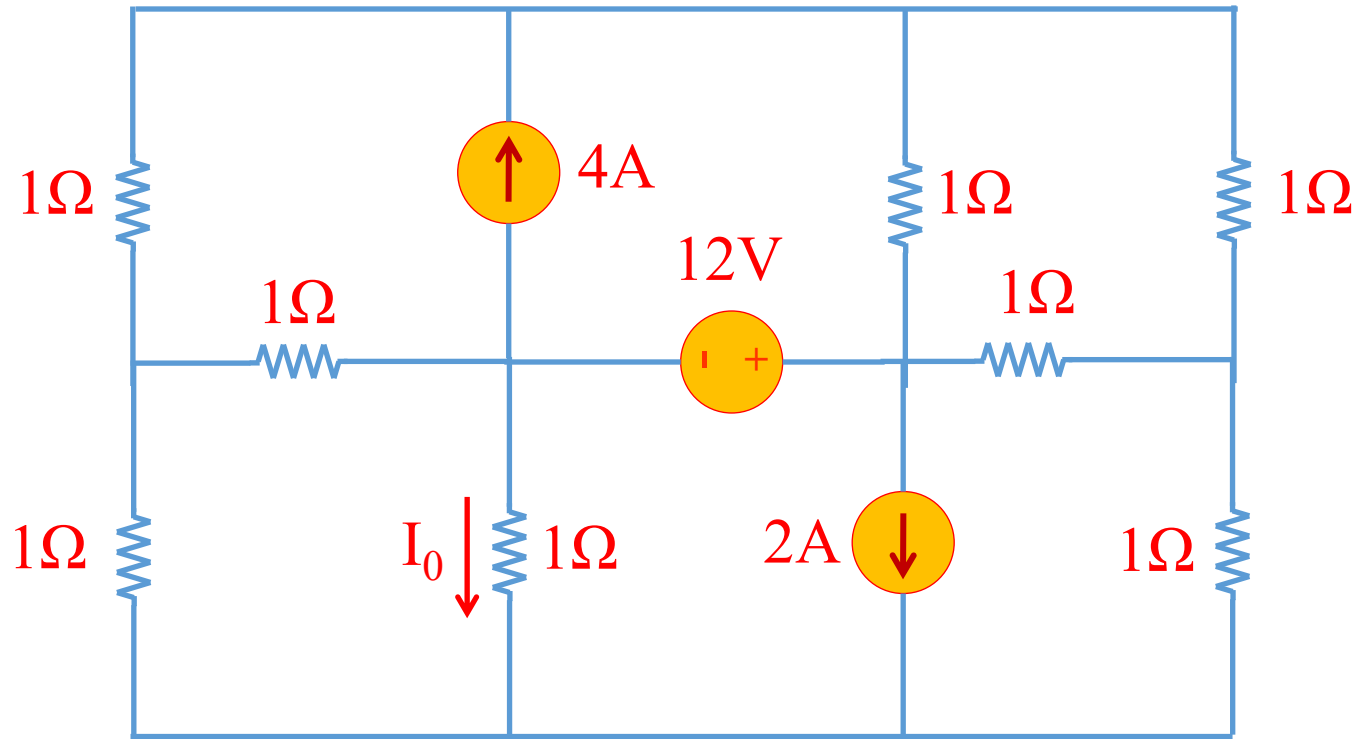
Problem 5: Write all mesh current equations and put them in the matrix form. (You do not need to solve.) (10pts.)
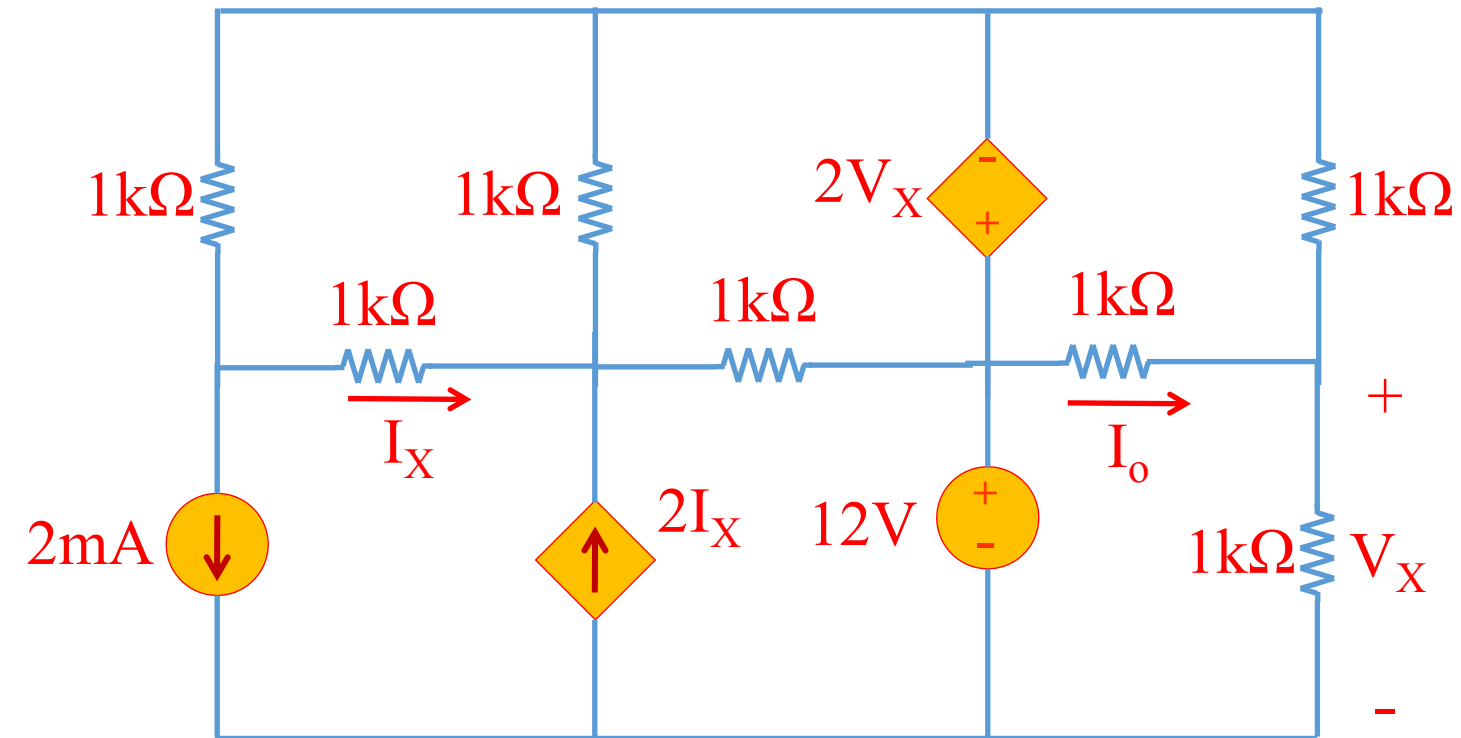
Problem 6: Use mesh analysis to find the power delivered/consumed by the CCVS (10pts.)
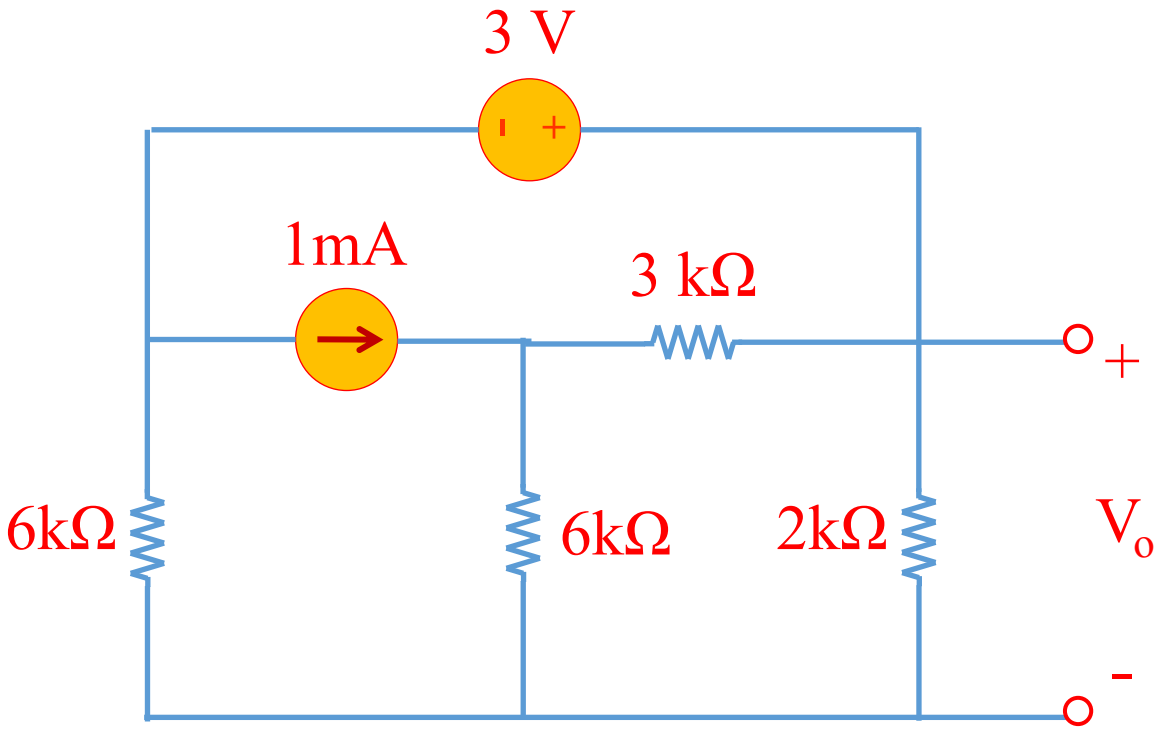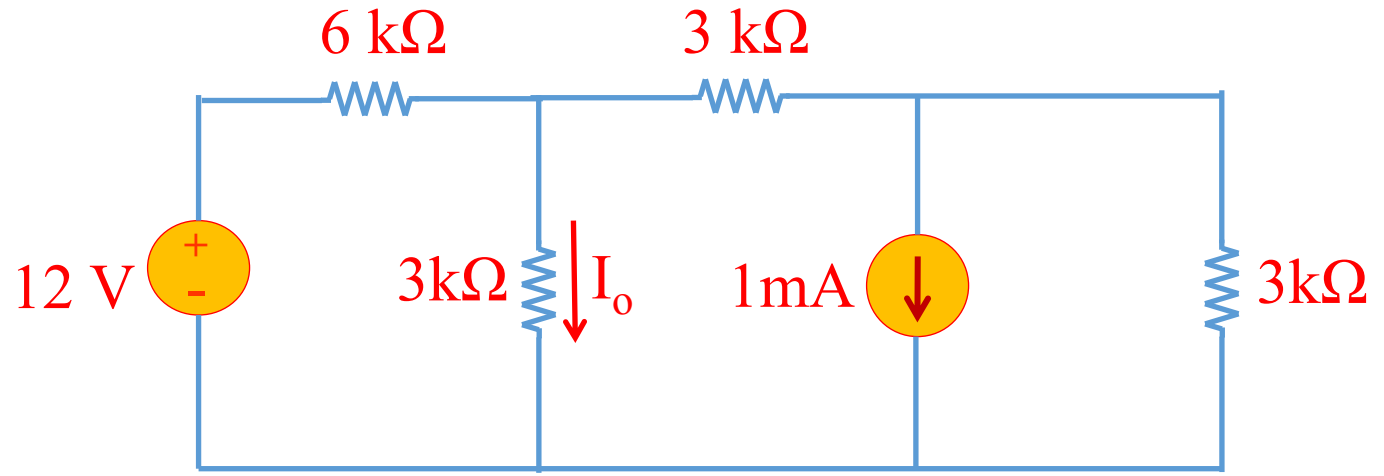
Problem 5: Use mesh analysis to find I_0 (10pts.)

Problem 8: Use both nodal and mesh analyses to find I_o (10pts.)

Problem 9: Find V_o using Thévenin theorem. (10pts.)

Problem 9: Find I_o using Norton theorem. (10pts.)

Problem 10: Obtain the Thévenin and Norton equivalent network representations as seen from the terminals a-b. (10pts.)