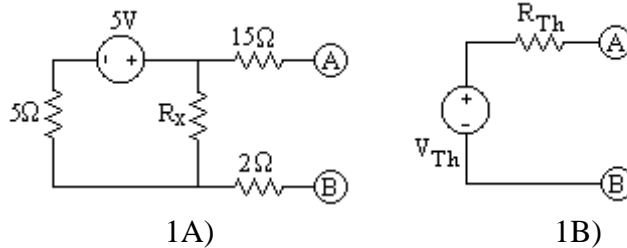
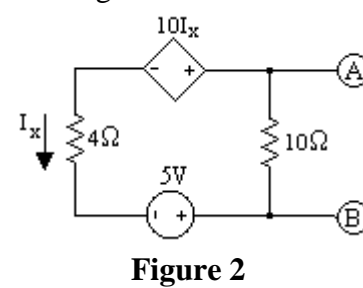


1. The circuit shown below in Figure 1A has a Thevenin equivalent circuit shown in Figure 1B. Find the value of R_x so that $R_{Th} = 20\Omega$. Also find the value of V_{Th} . Show all of your work.



2. Find the Thevenin equivalent circuit for the circuit shown in Figure 2. Show all work.



3. Answer the questions below about the circuit shown.

A) Find the value of R_x needed so that the power in R_x is maximized.

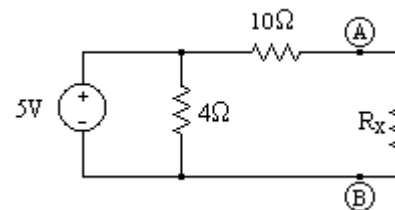


Figure 3

B) If $R_x = 10\Omega$, what is the power dissipated by R_x ?

4. Answer the questions below about the op amp circuit shown. Take the input voltage V_i to be 1,0 volts

A) Will the output voltage be positive or negative?

B) What will be the voltage at node A?

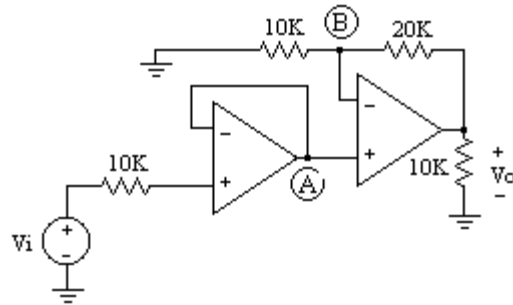


Figure 4

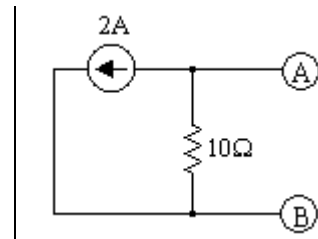
C) What will be the voltage at node B?

D) What is the output voltage.

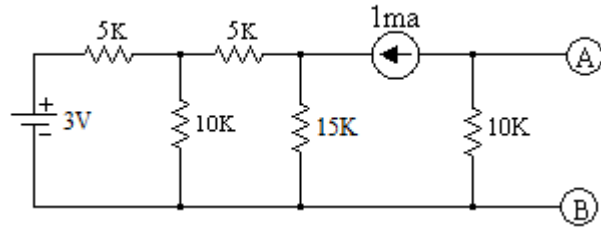
5. You are given a circuit which has 5 nodes. If you use nodal analysis and write the equations describing the circuit in matrix form how many rows and how many columns will the \bar{A} matrix have?

_____ rows x _____ columns

6. The circuit below is the Norton equivalent circuit for a particular problem. What is the Thevenin equivalent circuit for the same problem?



7. Find the Thevenin equivalent circuit for the circuit below at A-B. Show all work.



8. Write the nodal equations for the following circuit. Note that there is a voltage source between nodes A and B so you will need at least one super-node. You do not need to solve the equations.

