1. (3.3) Use nodal analysis to determine the current I_x and amount of power supplied by the voltage source in the circuit of Fig. P3.3.
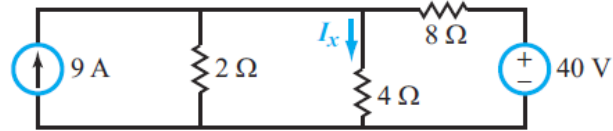

Figure P3.3: Circuit for Problem 3.3.

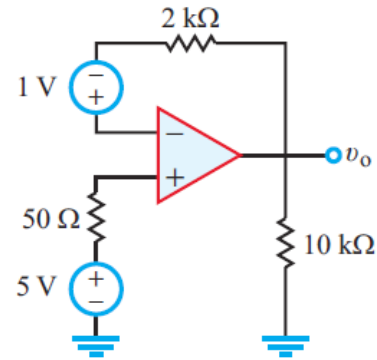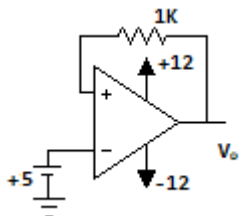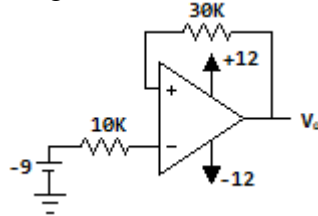2. (4.17) Determine v_o across the 10 k resistor in the circuit of Fig. P4.17.
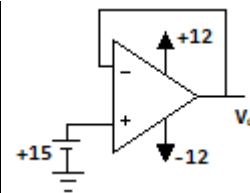

Figure P4.17: Circuit for Problem 4.17.

3. Find V_o for each of the following.

| $V_o =$ _____ | $V_o =$ _____ | $V_o =$ _____ |

4. For the node voltage method, how do you determine how many equations and how many unknowns you will have by examining the circuit?

5. With regard to op amps, what is saturation.

6. Answer the questions below about the circuit shown.
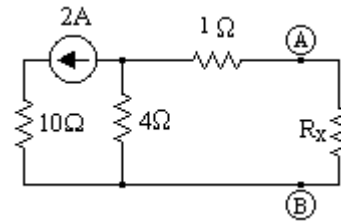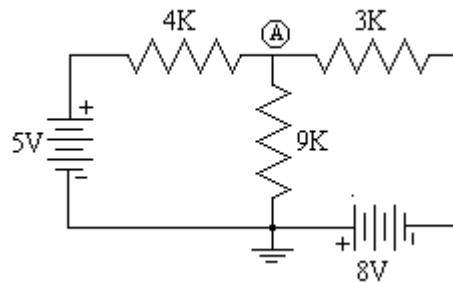   A) Find the value of R_x needed so that the power in R_x is maximized.
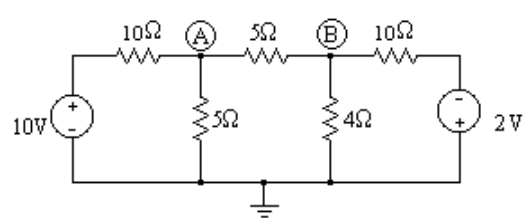

Figure 3

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

7. Find V_A using nodal analysis for the following circuit. Show all work.
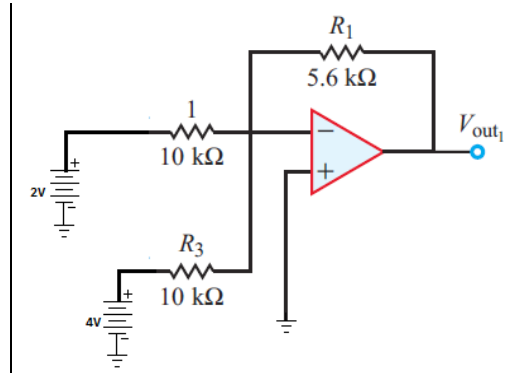

8. In the circuit below the nodal equations can be written in matrix form as
$$\overline{A} \bullet \begin{bmatrix} V_A \\ V_B \end{bmatrix} = \overline{b}. \text{ Find the } \overline{A} \text{ and } \overline{b} \text{ matrices. Show all work.}$$

9. Find the value of V_{out} in the circuit below. Show all work.

10. Find V_x. Show all work.