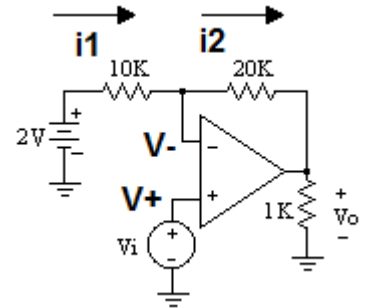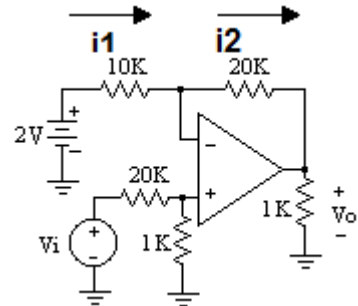1. In the circuit below Vi = 3 volts. What is the value of Vo. Show all work.

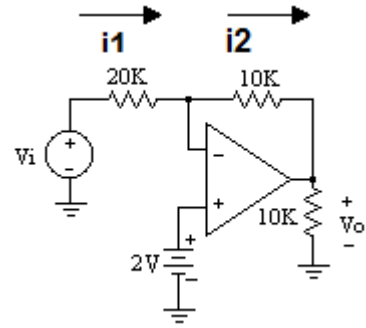2. For each circuit below determine the output voltage V$_o$ if V$_i$ = 3 volts.

A)	B)	C)
V$_o$ = _____	V$_o$ = _____	V$_o$ = _____

3. In the circuit below Vi = 30 volts. What is the value of Vo. Show all work.

4. In the op-amp circuit below $V_i = 4$ volts. What is the value of V_o. Show all work.

5. Answer the questions below about the op amp circuit shown. Take the input voltage V_i to be 0.4 volts

    A) Will the output voltage be positive
        or negative?

    B) What will be the voltage at node A?

    C) What will be the voltage at node B?

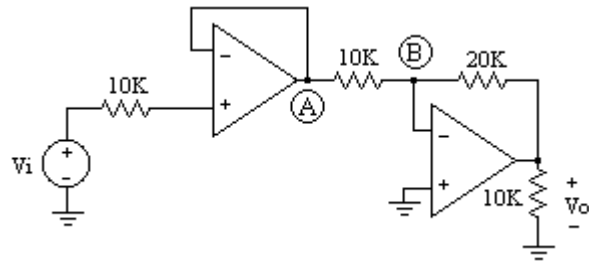   D) What is the output voltage.

Figure 5
Circuit for problem 5.

6. Find the relationship between Vo and Vi for the op amp circuit in Figure 6.
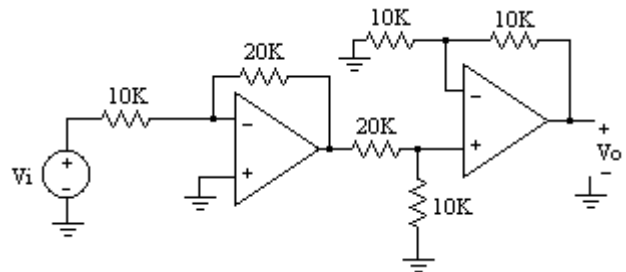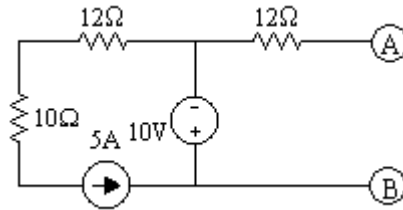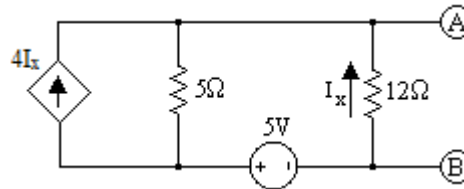

Figure 6
Op amp circuit for Problem 6

7. Find the Thevenin equivalent circuit at A-B

8. Find the value of the current I_x in the circuit below. Show all work.

9. Draw a circle around all of those equations listed below which correctly apply to the circuit shown in Figure 1.

A) $2I_1 + (I_1 - I_2) = -22$

B) $(I_2 - I_1) + 4I_2 = 14$

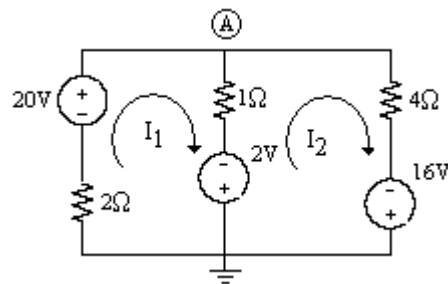C) $2V_A - 40 + 4V_A + 8 + V_A + 16 = 0$

D) $2I_1 + 4I_2 = -36$

Figure 1
Circuit for problem 1

10. Answer the questions below about the circuit shown.
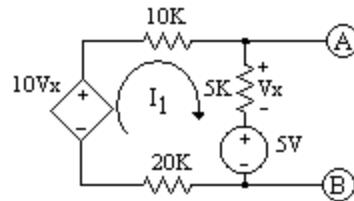
A) Write the mesh equation for I_1.

Figure 4
Circuit for problem 4

B) Find the value of V_x

C) Find the open circuit voltage at A-B

D) Find the short circuit current at A-B

E) Draw the Thevenin equivalent circuit.

11. Find the Thevenin equivalent circuit for the circuit shown in Figure 3. Show all work.