Homework 4

1. (4.31, p165) (a) Use the mesh-current method to find the branch currents $i_a$, $i_b$, and $i_c$ in the circuit in Fig. 1. (b) Repeat (a) if the polarity of the 60 V source is reversed.

2. (4.36, p166) (a) Use the mesh-current method to find $v_o$ in the circuit in Fig. 2. (b) Find the power delivered by the dependent source.

3. (3.49, p101) The bridge circuit shown in Fig. 3 is energized from a 6 V dc source. The bridge is balanced when $R_1 = 200\, \Omega$, $R_2 = 500\, \Omega$, and $R_3 = 800\, \Omega$.

   (a) What is the value of $R_1$?
   (b) How much current (in mA) does the source supply?
   (c) Which resistor in the circuit absorbs the most power? How much power does it absorb?
   (d) Which resistor in the circuit absorbs the least power? How much power does it absorb?
Fig. 3.