1. For the circuit shown, write three independent equations for the node-voltages, \(v_1, v_2,\) and \(v_3\). The quantity \(v_x\) must not appear in the equations.

2. Make at least one consistency check (other than a units check) on your expression for problem 1. In other words, choose component values that make the values of \(v_1, v_2,\) and \(v_3\) obvious, and verify that your answer to problem 1 gives these values. Specify your consistency check by listing a numerical value for every source and resistor.

3. For the circuit shown, write three independent equations for the three mesh currents, \(i_1, i_2,\) and \(i_3\). The quantity \(i_x\) must not appear in the equations.
4. Find the Thevenin equivalent circuit at terminals a-b. $v_x$ must not appear in your solution. **Hint:** use the node-voltage method to find $v_{\text{Thev}}$.

5. Calculate the power dissipated by the dependent current source, (labeled $2v_x$).