Indian Institute of Technology, Delhi
ELL112/EEL 202: Circuit Theory
Tutorial 2, August 4, 2014 (Revised Aug 6, 2014)

1. In Fig 1, the element X is a 2 Ω resistor. Find the power supplied by the 6 V source.

2. In Fig 1, the element X is a 6 A source with arrow to the right. Find the power supplied by the 6 V source.

3. In Fig 1, the element X is a dependent current source with its arrow to the right, and a current of $i/3$, where i is the upward current through the 6 V source. Find i.

4. In Fig 2, S_1, S_2, S_3 are 30, 14, and -2 V sources, all with positive reference symbols on top. Setup equations for i) mesh analysis, and ii) node analysis.

5. In Fig 2, S_1, S_2, S_3 are -9, -1.5, and 6 Amp current sources, all flowing upwards. Setup equations for i) mesh analysis, and ii) node analysis.

6. In Fig 3, compute the power supplied by the 24 V source and the 18 A source.

7. In Fig 4, when $R_L = 2$ Ω, v_1 is 8 V, i_1 is -2 A, v_L is 2 V. When $R_L = 4$ Ω, v_1' is 12 V, i_1' is -2.4 A. Compute v_L'.

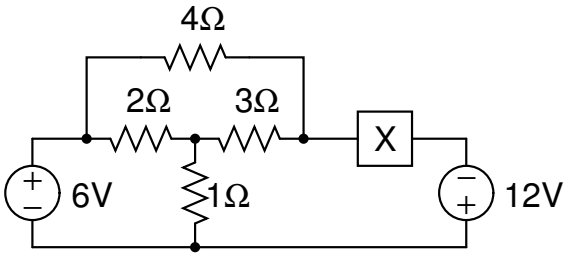

Figure 1

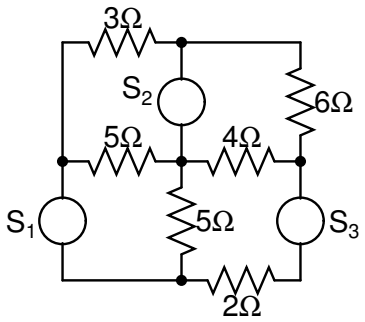

Figure 2

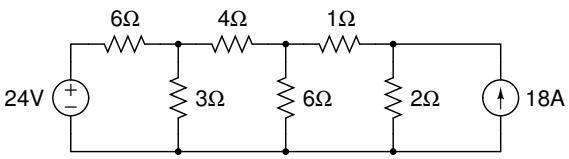

Figure 3

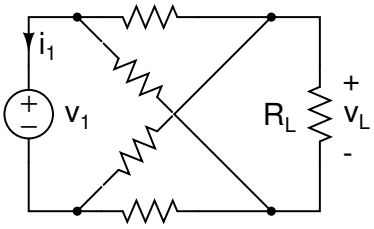

Figure 4