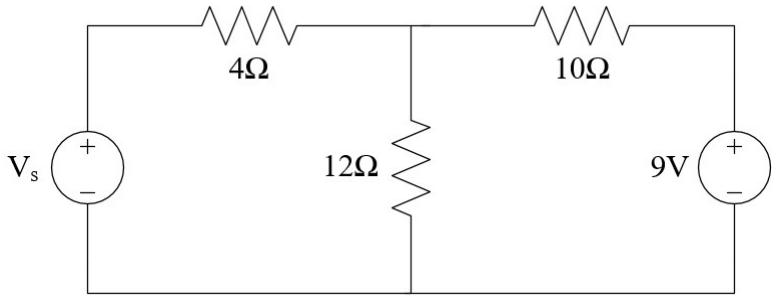
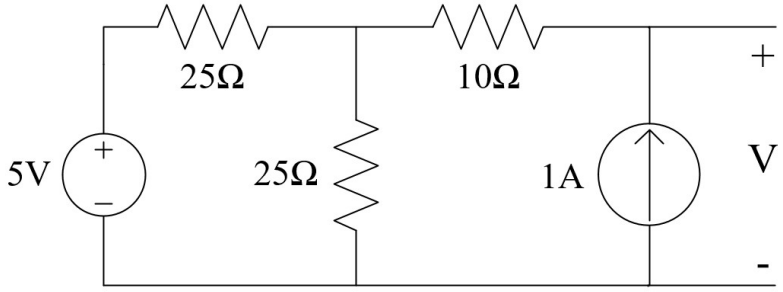
ECE 110 Exam 2 Review Worksheet

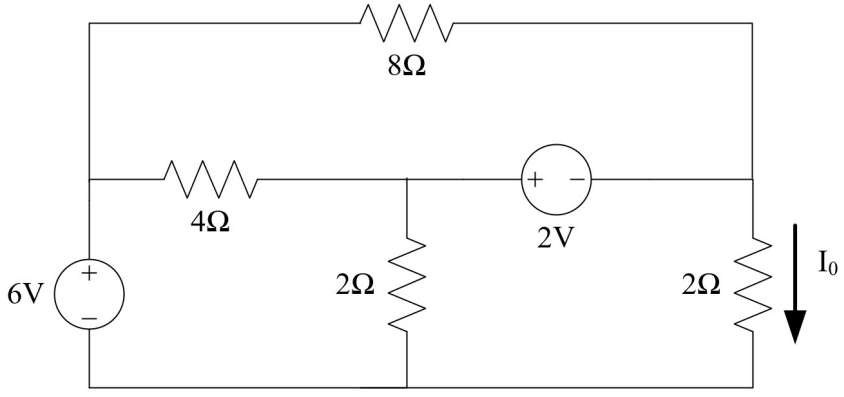
1. Find the value of the voltage source V_S such that the 9V source neither absorbs nor supplies power.



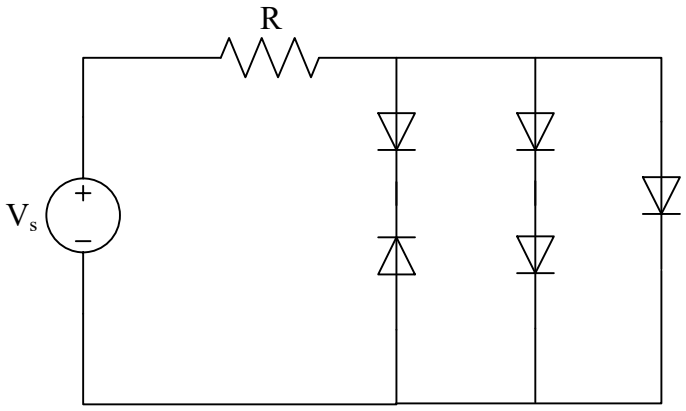
2. Obtain the Thevenin and Norton Equivalents for the following circuit. That is, find V_T, I_N, and R_T.



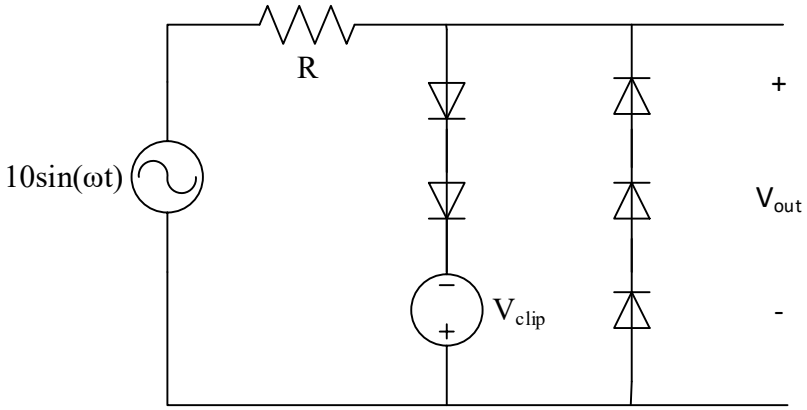
3. Find the labeled current, I_0, in the following circuit.



4. In the following circuit, $V_s = 5V$ and the V_{ON} for the diodes is 2V. Determine how many diodes are on.



5. In the following circuit, $V_{clip} = -3V$ and the V_{ON} for the diodes is 1.5V. Determine the minimum and maximum values of the output voltage, V_{out}, and sketch the output waveform.



6. For the following circuit, $V_{BE,ON} = 0.4V$, $V_{CE,SAT} = 0.2V$, $R_B = 20k\Omega$, $R_C = 2k\Omega$ and $\beta = 100$. Find V_{CE} for the following input voltages.

   a. $V_{in} = 0.3V$
   b. $V_{in} = 1.0V$
   c. $V_{in} = 1.4V$
   d. What is the smallest value of V_{in} that puts the transistor into saturation?