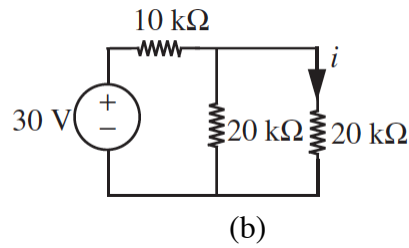
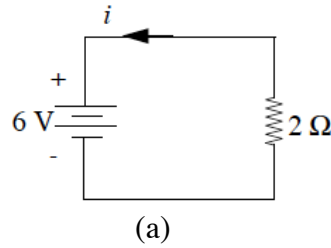


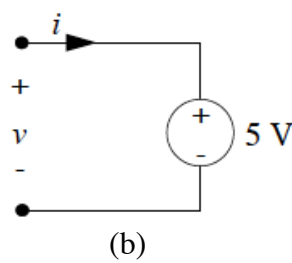
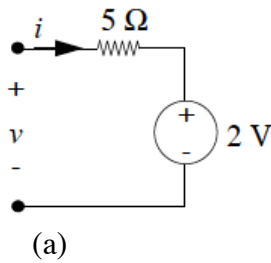
Quiz 1 (Total 120 points)

It is a closed-book, closed-note quiz. Calculator is allowed. Please show the process of thinking/calculation. Indicate your final answers clearly. Unit is needed if applicable.

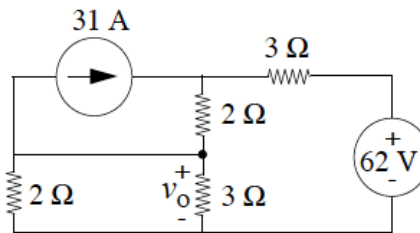
1. (i) Find the current  $i$  indicated in the network in the following figures. (14%)
- (ii) What is the power dissipated by the  $2\text{-}\Omega$  resistor in figure (a)? (5%)



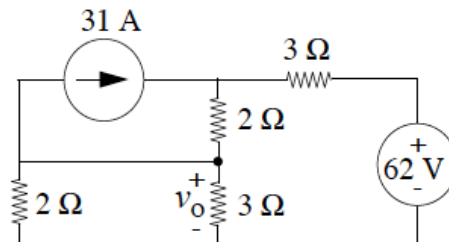
2. Sketch the  $i - v$  characteristics for the networks in the following figures. (16%)



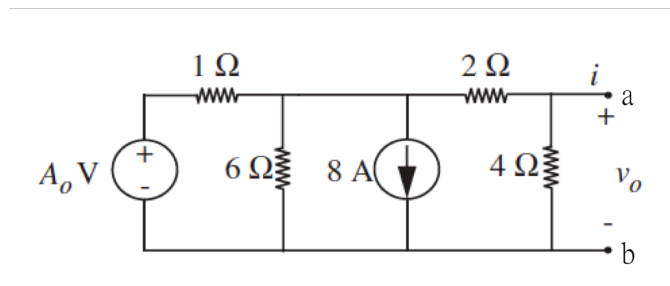
3. Find the voltage  $v_0$  in the network in the following figure using superposition. (15%)



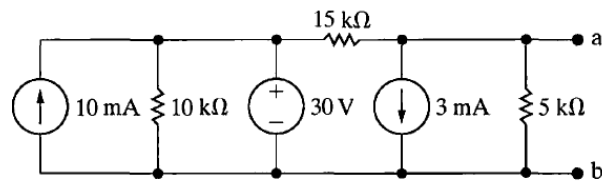
4. Find the voltage  $v_0$  in the network in the following figure using node method. (15%)



5. Find the Thevenin equivalent of the circuit at terminal ab in the following figure.  
Assume  $A_0 = 4$ . (20%)



6. Find the Norton equivalent of the circuit at terminal ab in the following figure. (20%)



7. Determine the values of the resistors  $R_1$ ,  $R_2$ , and  $R_3$  such that  $v_1 = 12$  V,  $v_2 = 5$  V,  $v_3 = -12$  V, and the total power dissipated by the circuit by the 24 V source is 80W in the following figure. (15%)

