EEE 31 Problem Set II-B

Deadline: March 24, 2014 12NN

Answer the following questions in a separate sheet. Provide your solution to each problem completely. State all your assumptions.

1. The circuit shown in Fig. 1 has an input current source i_s. Show that the output is proportional to this input.

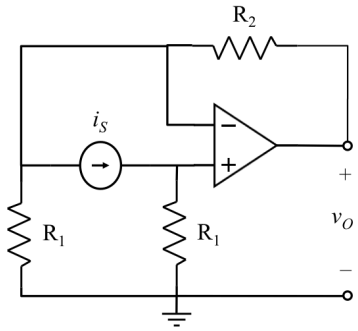

Figure 1

2. Find v_o and i_o for the circuit shown in Fig. 2.

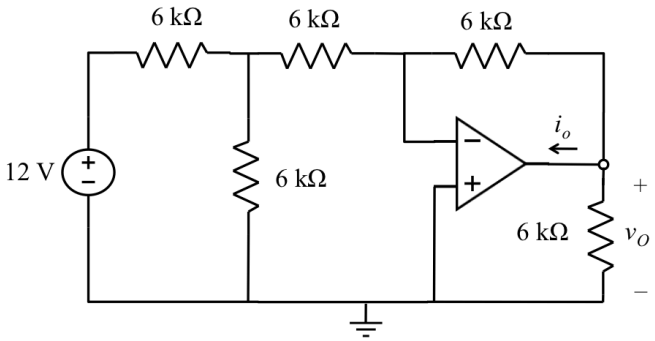

Figure 2

3. Design the circuit in Fig. 3 so that $v_o = 20v_s$.

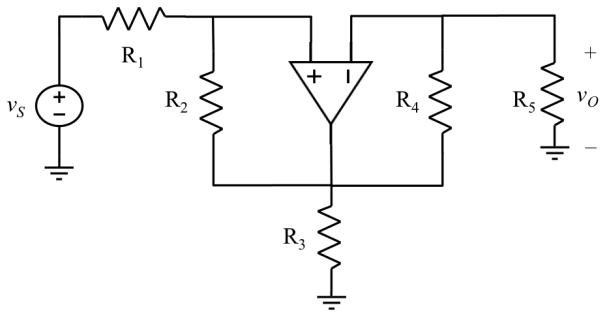

Figure 3

4. Find v_o/v_s in Fig. 4.

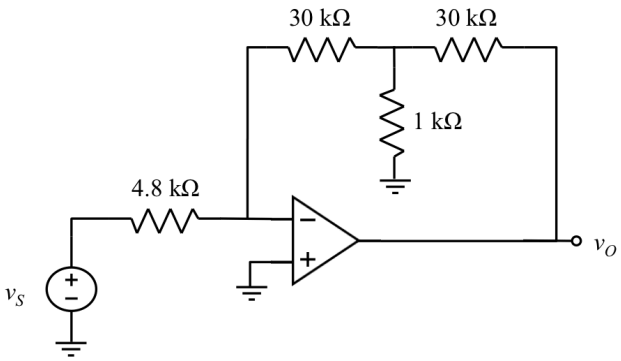

Figure 4

5. The capacitor volatge in the circuit shown below is:
   $v(t) = 2.4 + 5.6e^{-5t}$ V for t ≥ 0.
   Determine the voltage $i(t)$ t > 0.

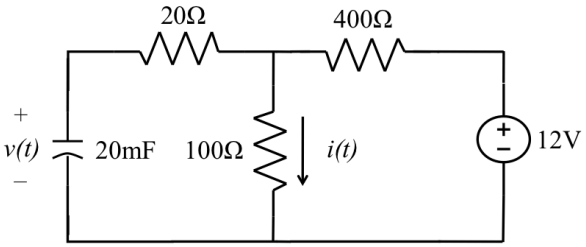

Figure 5

6. The inductor current in the circuit shown below is:
   $i(t) = 3 + 2e^{-3t}$ A for t ≥ 0.
   Determine the voltage $v(t)$ t > 0.

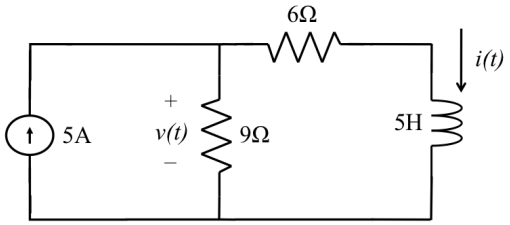

Figure 6