

**ECE 301**  
**Fall Semester, 2006**  
**HW Set #7**

Due: October 10, 2006  
 wlg

Name \_\_\_\_\_  
 Print(last, first)

circle:    2:10 section            3:40 section

Use Engineering Paper. Work only on one side of the paper. Use this sheet as your cover sheet, placed on top of your work and stapled in the top left-hand corner. Number the problems at the top of the page, in the center of the sheet. **Do neat work. Underline your answers. Show how you got your equations. Be sure to show how you got your answers.**

**Each problem counts 25 points.**

(1) You are given the circuit of Figure 7.1.  $v_c(0^-) = 8$  V. Find  $v_c(t)$  for  $t > 0$ .

Ans:  $12 - e^{-t}[4\cos 2t + 2\sin 2t]$  V

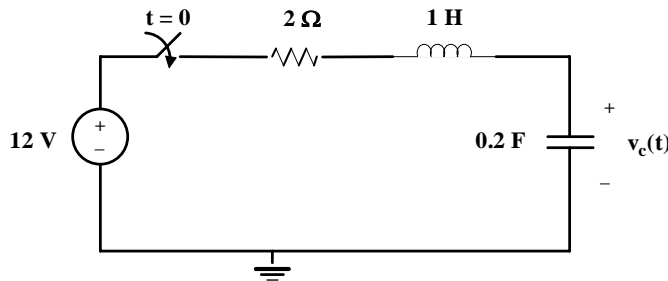


Figure 7.1: Circuit for problem 7.1

(2) You are given the circuit of Figure 7.2. Find  $v(t)$  for  $t > 0$ . Ans  $30 + 0.021e^{-47.83t} - 6.02e^{-0.167t}$  V

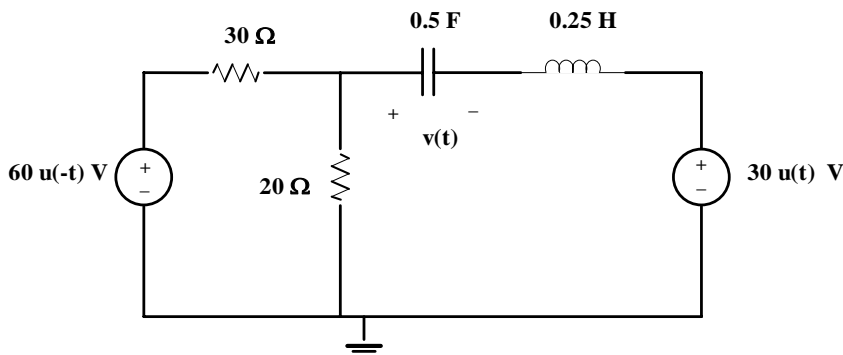


Figure 7.2: Circuit for problem 7.2

- (3) You are given the circuit of Figure 7.3.  
 (a) Find  $i(t)$  for  $t > 0$ . Ans:  $4 - 0.0655(e^{-0.522t} - e^{-11.98t})$  A  
 (b) Find  $i_R(t)$  for  $t > 0$ . Ans:  $0.785e^{-11.98t} - 0.0342e^{-0.522t}$  A

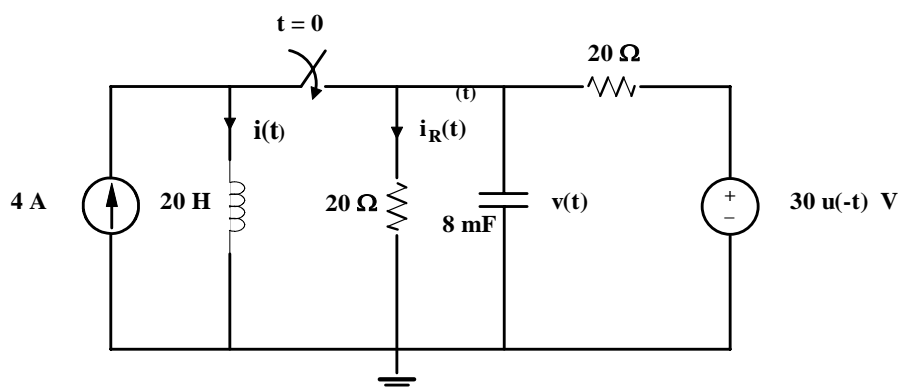


Figure 7.3: Circuit for problem 7.