

GEORGIA INSTITUTE OF TECHNOLOGY
School of Electrical and Computer Engineering

Course ECE 2040

Circuit Analysis

Assigned: March 24, 2000

Due: March 31, 2000

Problem Set #10

Reading: Read the following sections from the class notes:

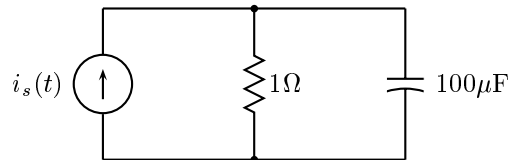
Chapter 8, Sections 8.1, 8.2

Reading: Read the following sections from Irwin and Wu:

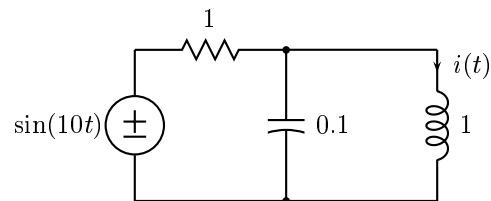
Chapter 8, Sections 8.1–8.5, 8.7

Reminder: Quiz # 3 will be held on Monday, March 27, 2000 during the class hour. The class will be *closed book, closed notes*, but you are permitted to bring a calculator and one 8.5 inch \times 11.0 in sheet of handwritten notes. Coverage will include material up to the lecture on March 17.

Problem 10.1: Calculate $v(t)$ for the circuit below if $i_s(t) = 10 \cos(2\pi(60)t + \pi/6)$.



Problem 10.2:



Determine $i(t)$ for all t .

Problem 10.3: Find $v_{out}(t)$ if $v_{in}(t) = 3 + 4 \sin(1000t)$. The terminals are *open-circuited*.

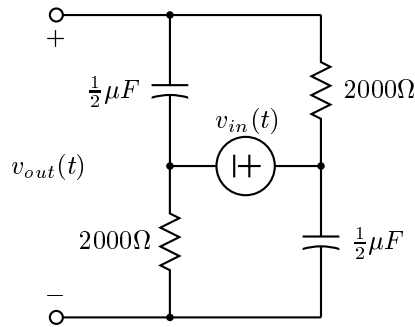


Figure 1: Circuit for Problem 10.3.

Problem 10.4: Find $v_{out}(t)$ for all t , if $v_s(t) = \cos(100t)$ for $-\infty < t < \infty$ in the circuit of Figure 2.

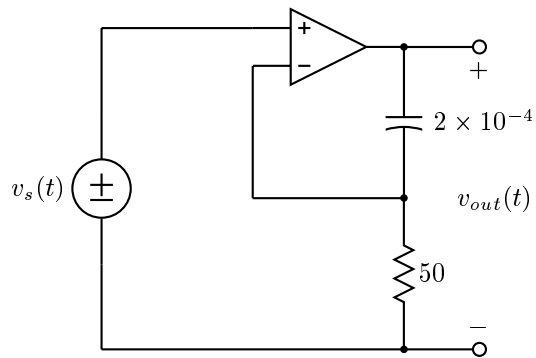


Figure 2: Circuit for Problem 10.4.

Problem 10.5: For the circuit in Figure 3 find $i(t)$ when $v_s(t) = \sin(\omega t)$.

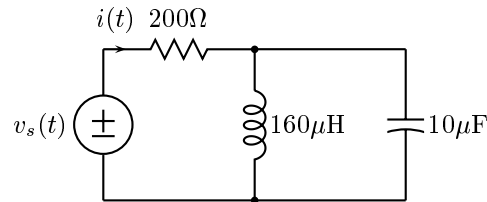


Figure 3: Circuit for Problem 10.5.