HW 6

Posted Wednesday March 14th

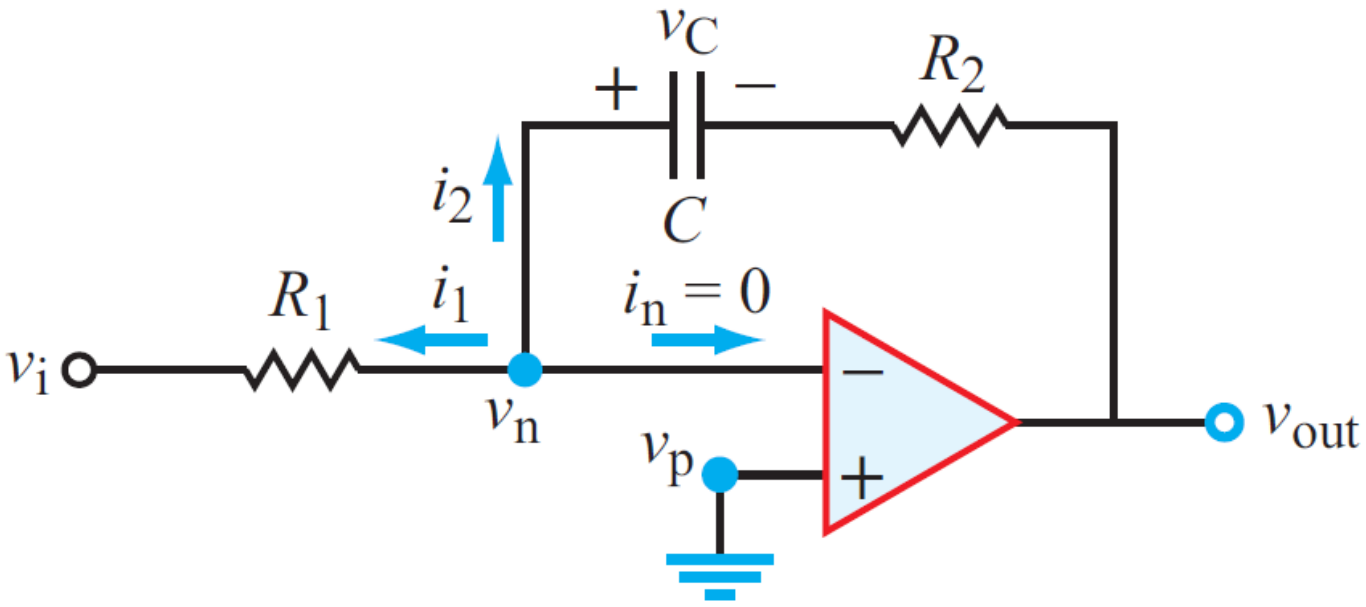
Due Monday March 19h

EE40

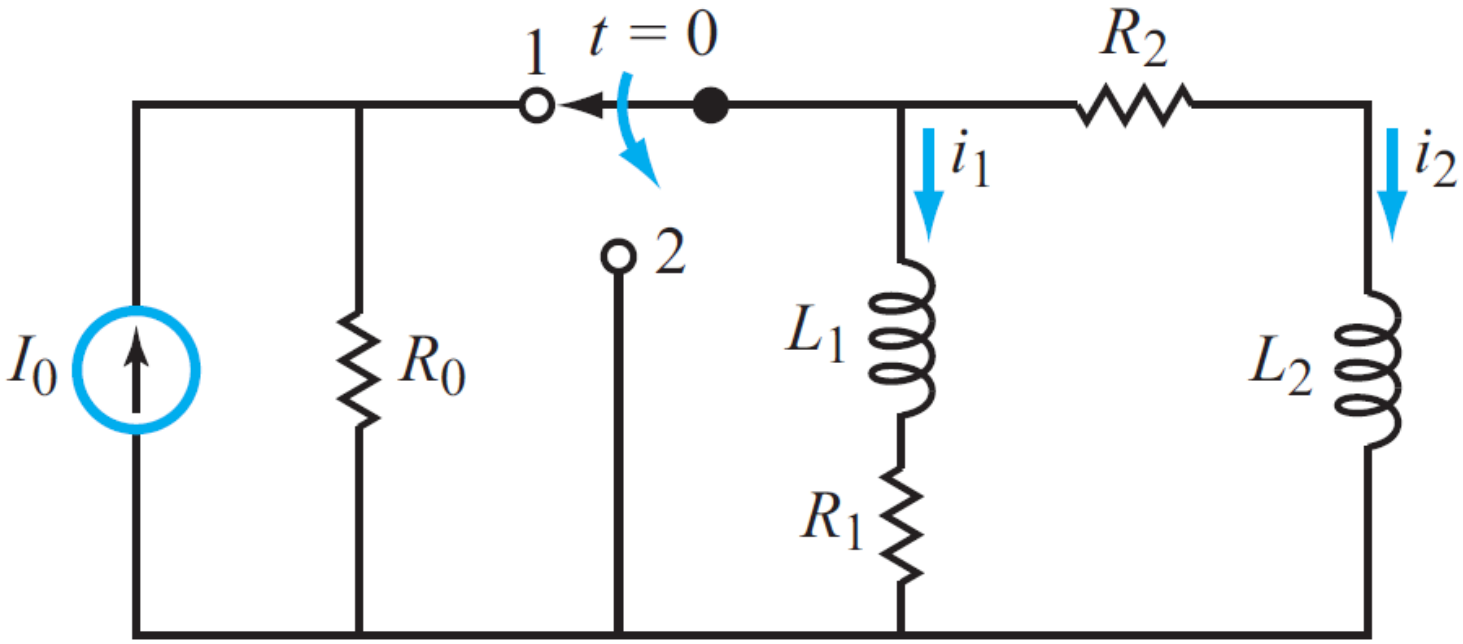
Maharbiz

Spring 2012

1. Relate v_{out} to v_i in the circuit below. Assume $v_C = 0$ at $t = 0$.



2. After having been in position 1 for a long time, the switch in the circuit below was moved to position 2 at $t = 0$. Determine $i_1(t)$ and $i_2(t)$ for $t \geq 0$ given that $I_0 = 6$ mA, $R_0 = 12\ \Omega$, R1 = 10 Ω, R2 = 40 Ω, L1 = 1 H, and L2 = 2 H.



3. Express the sinusoidal waveform $v(t) = -4\sin(8\pi \times 10^3 t - 45°)$ V in standard cosine form and then determine its amplitude, frequency, period, and phase angle.

4. Problem 7.11b and 7.11e in U&M

5. The circuit below is in the phasor domain. Determine the following:
   (a) The equivalent input impedance **Z** at terminals (a,b).
   (b) The phasor current **I**, given that **V**s = $25\angle 45°$ V.