ECE 2202 – CIRCUIT ANALYSIS II

HOMEWORK #4

1. The switch in the circuit below was in position a for a long time, and then moved to position b at *t* = 0.

1. Find *iX*(50[ms]).
2. Find *iQ*(50[ms]).



2) The inductor in the circuit shown below had no energy stored in its magnetic field at *t* = 0.
At *t* = 100[ns] the switch opened. Find *vX*(200[ns]).



3) For the circuit shown below, the switch had been in position A for a long time.

At *t* = 0 the switch moves to position B, and remains there for 0.1[s].

At *t* = 0.1[s] the switch moves to position C, and remains there.

For the time intervals 0 < *t* < 0.1[s] and *t* > 0.1[s], find the numerical equations for the current *i3(t)*, where *i3* is defined in the circuit shown.



4) Use the circuit below to solve. The switch was open for a long time before *t* = 0. Then, at
*t* = 0, the switch closed. Find *vX* (5[ms]).



5) The energy stored in the capacitor in this circuit was zero at *t* = 0. Then, 2[s] later, the switch closed. Find *iX*(4[s]).



Numerical Solutions:

1. a) -4.69[mA] ; b) 1.087[mA]

2. 403[V]

3. Solution omitted.

4. -8.50[V]

5. -23.5[mA]