Lab Exercise 2
Transient Analysis and Initial Conditions in LTSpice

1) Use LTSpice to find the current $i(t)$ in the circuit shown below. The initial inductor current is 5 A and the initial capacitor voltage is 20 V. Specify the initial conditions using an “IC=value” option after the inductance and capacitance values. Perform a Transient analysis and plot the current over a time interval of 8 time constants.

2) This circuit was analyzed during lecture and the solution was found to be:

$$i(t) = 5e^{-4t} \text{ A for } t>0.$$  

Plot this equation in LTSpice in the same plot pane as the simulated current. Refer to the “Waveform Viewer” section of the LTSpice Help Topics (under the LTSpice Help menu).

3) Copy and paste both the schematic and the plot into a word processing document. Print the page and hand it in.