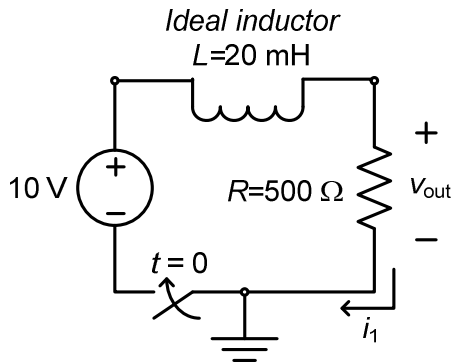


EE271 Quiz 8-Version II Spring 2013 Name\_\_\_\_Sample\_\_\_\_\_

You are allowed to use your lab manual and lab notebook during the quiz.

- (1) (Total: 50 points) The switch in the circuit shown closes at  $t = 0$ . Calculate the following for  $t > 0$ :



- (a) (20 pts.) The time constant of the circuit. (Show your work and provide appropriate units.)

- (b) (20 pts.) The approximate value of the output voltage  $v_{out}$  at  $t = 1$  ms. (Provide a justification for your answer based on the answer of part (a).)

- (c) (10 pts.) The steady-state value of the current  $i_1$ .

- (2) (50 pts.) The switch in the circuit shown closes at  $t = 0$ , after being open for a long time. Calculate the following: (a) time constant for  $t > 0$ ; (b) the approximate time at which the circuit reaches steady state; and (c) the approximate values of the currents  $i_1$  and  $i_2$  at  $t = 1$  ms. Please show your work and put each answer in a box.

