

Quiz 1 (20 minutes)

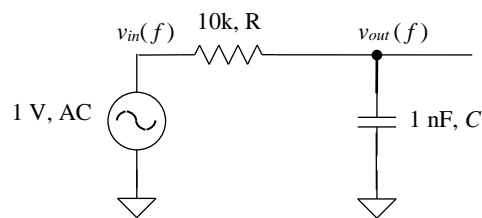
ECE 510/410 Integrated Physical Design

Name: _____

Fall 2015

1. For the circuit shown below:

a) Derive its transfer function. What is the 3-dB bandwidth ($f_{3\text{dB}}$) of the circuit?



b) Using the equations in part (a), sketch properly labeled Bode magnitude and phase plots.

c) A sinusoidal input of 1V amplitude and a frequency of 100 KHz is applied to the circuit. Sketch the properly labeled time-domain input and output waveforms (v_{in} and v_{out}) in the circuit.

d) Now, a unit step input is applied to the circuit as shown below. What is the delay (t_d , i.e. the time taken to reach 50% of the final output) of the circuit? Sketch input and output time-domain waveforms and show t_d on the plot.

