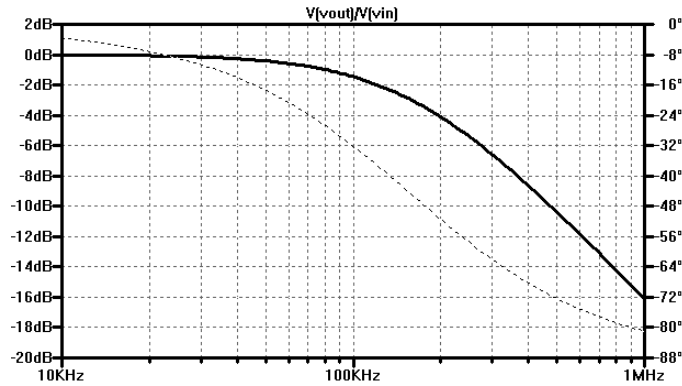# H.W. # 2 - Spring 2015 EE 320 Engineering Electronics I

1. Sketch the input and output of a circuit on the same plot against time if the circuit has the following frequency response. The input signal has an amplitude of 200 mV and is at a frequency of 200 kHz. (5 points)

2. Calculate, and sketch with the input, the output of the following circuit. Use simulations to verify your answer (It's OK from this point on to use LTspice's schematic editor). (5 points)
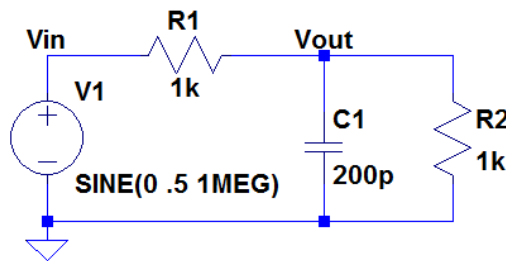
3. What is the phase-shift between the following sinusoids? (2 points)
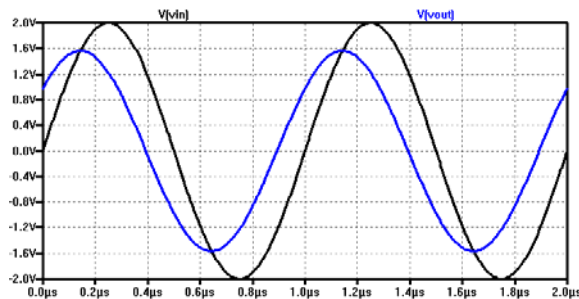
4. What is the frequency one decade below 1.2 kHz? What is the frequency one octave above 1.2 kHz? What is the magnitude of a transfer function rolling off at −20 dB/decade one decade below where the magnitude is 0 dB? (3 points, 1 point each)

5. Assuming an ideal op-amp (infinite open-loop gain) show how to calculate the output of the following circuit. Verify your answer with simulations. (5 points)