INEl 5207 Analog System Design with Operational Amplifiers
Fall 2005 Exam #2 Prof. Manuel Toledo
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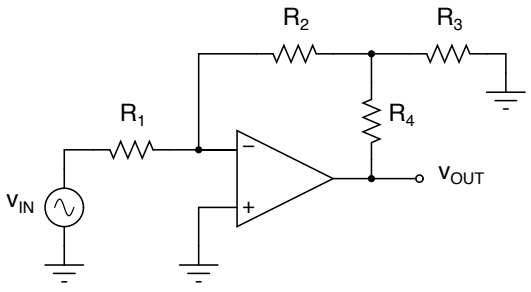
1. The following circuit's op amp has a constant GBP of 3MHz. and is otherwise ideal. Find the crcuit's closed-loop bandwidth, $f_{bw}$, if all resistors are $1M\Omega$. Notice that this is an inverting configuration. (25 pts)




2. Using uA741 op amps, design an amplifier with gain equal to $\pm 1000 V/V$ and a $44kHz$ bandwidth. Use as many inverting stages as needed. Besides the finite GBP, the op amp can be considered ideal. (25 pts)

3. For a single-stage non-inverting amplifier with a $100V/V$ gain, find the size of the largest step input that will not produce a slew-rate limited output if a uA741 op amp is used. Besides slew-rate limitations, the op amp can be considered ideal. (25 pts)

4. ~~An op-amp that has two poles at 100kHz and a unity-gain frequency of $1MHz$ is used to construct the circuit described in problem 3 . Find the phase margin of the circuit. (25 points)~~