INEl 5207 Analog System Design with Operational Amplifiers
Spring 2007 Exam #1 Prof. Manuel Toledo
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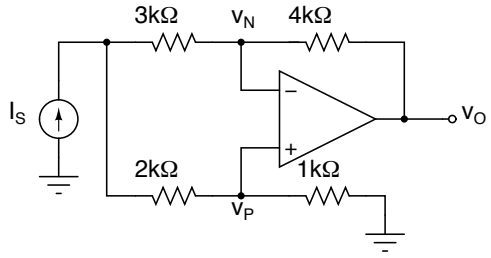
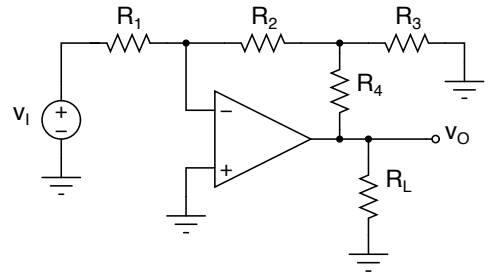
1. For the following circuit, find v_N, v_P and v_O if $I_S = 1mA$. Assume an ideal opamp. (25 pts)



2. Use the following circuit to design an amplifier with a gain of $-100V/V$. You should select the resistors so that the maximum opamp output sink/source current of 20mA is not exceeded when a $\pm 100mV$ input voltage is applied. The opamp can be assumed otherwise ideal. Use $R_L = 1k\Omega$. (40 pts)



3. ~~For the amplifier designed in problem 2, determine the actual gain if the opamp exhibits an open loop gain of $5,000V/V$. Otherwise the opamp can be considered ideal, with $r_O = 0$ and $r_d = \infty$. Use the resistor values that you found in problem 2. (35 pts)~~