Homework Assignment No. 12

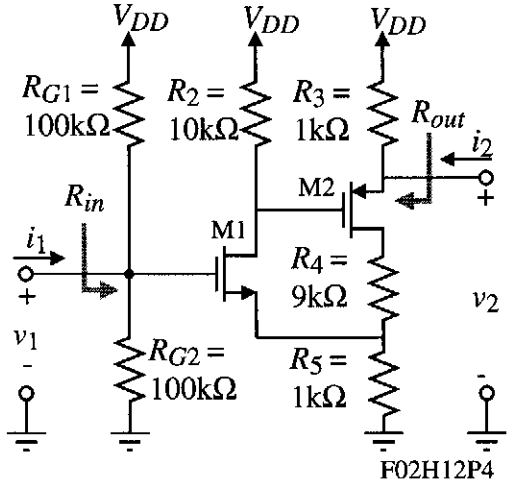
Due on Monday, November 11, 2002

1.) Problem 18.11 of the text.

2.) Problem 18.16 of the text.

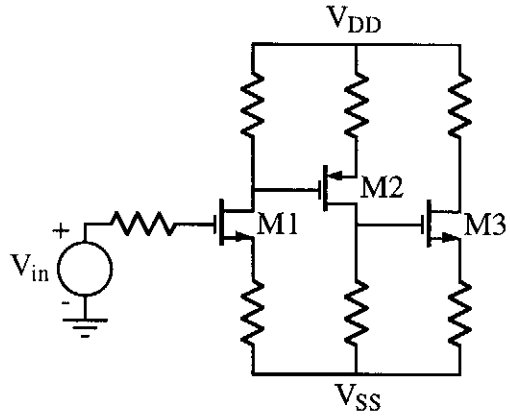
3.) Problem 18.22 of the text.

4.) Use the method of feedback analysis to find the numerical values of v_2/v_1, $R_{in} = v_1/i_1$, and $R_{out} = v_2/i_2$. Assume that all transistors are matched and that $g_{m1} = g_{m2} = 1\text{mS}$. Neglect r_{ds} of the transistors.

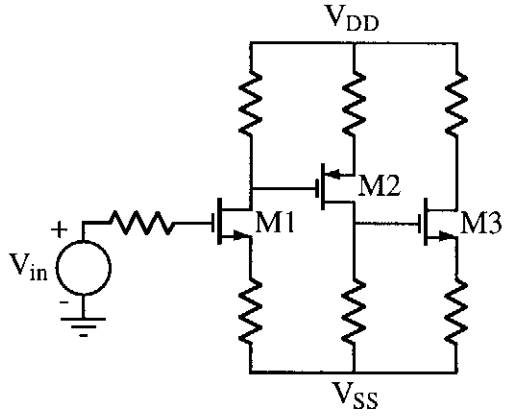


5.) For each of the MOSFET amplifiers shown below, show how to connect a single resistor from the output to the input that achieves a series-shunt, series-series, shunt-shunt and shunt-series negative feedback amplifier. For each of the four configurations, identify on the schematic the correct variables (voltage or current) for x_s, x_f, x_i, and x_o. The outputs should be at the drain or source of M3.

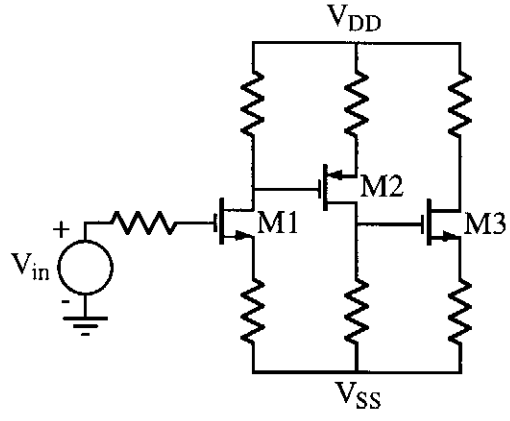
Series-Shunt



Series-Series



Shunt-Shunt



Shunt-Series