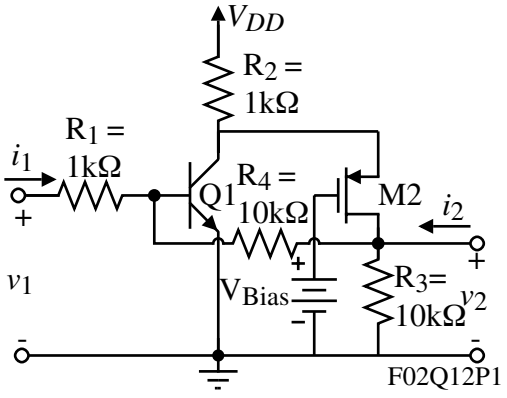
Homework Assignment No. 12

Due on Monday, April 5, 2004

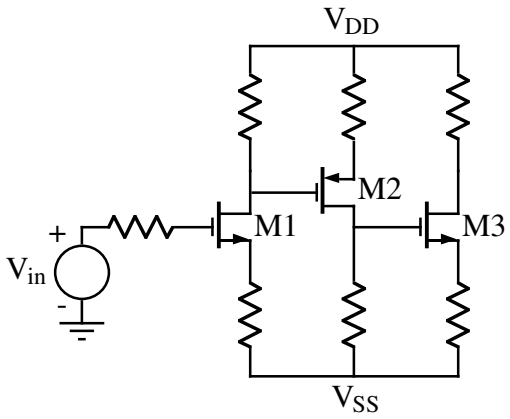
1.) Problem 18.23 (18.16) of the text.

2.) A shunt-shunt feedback amplifier is shown. Use the methods of feedback analysis to find the numerical values of v_2/v_1, v_1/i_1, and v_2/i_2. For Q1, assume that h_{fe} = 100, g_m = 50mS and $r_o = \infty$. For M2, assume that g_m = 1mS and $r_{ds} = \infty$.

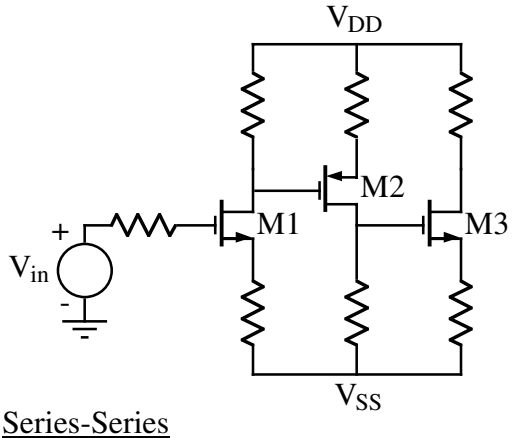


3.) For each of the MOSFET amplifiers shown below, show how to connect a single resistor from the output to the input that achieves a series-shunt, series-series, shunt-shunt and shunt-series negative feedback amplifier. For each of the four configurations, identify on the schematic the correct variables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

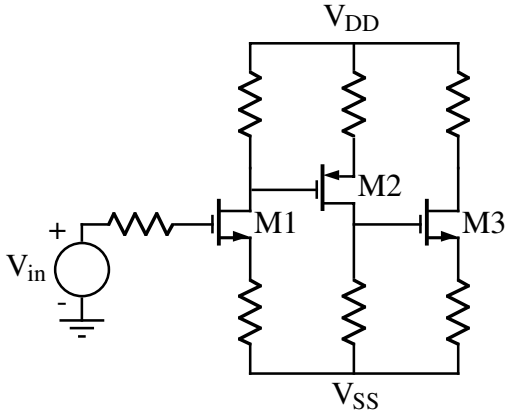
Series-Shunt



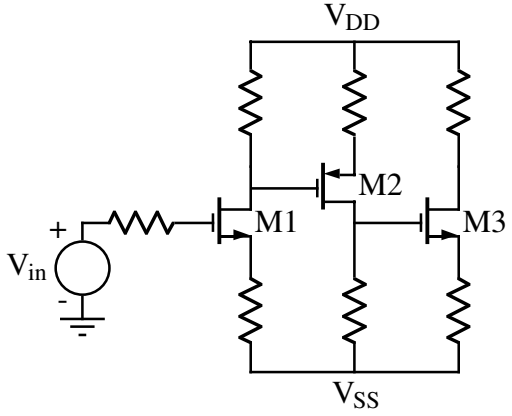
Shunt-Series



Shunt-Shunt



Series-Series



4.) Problem 18.29 (18.22) of the text.

Please note that there are numerous feedback problems you can work (answers only are provided) on the class website.