

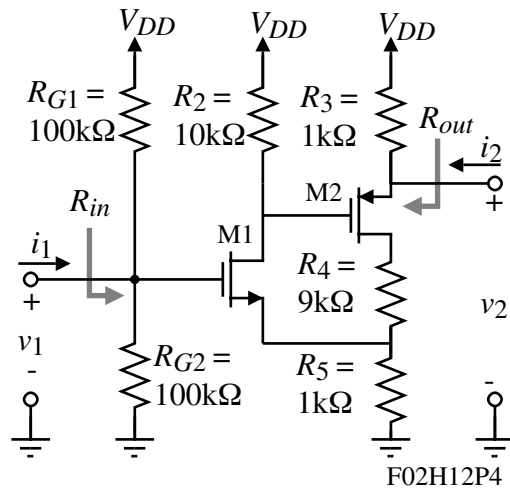
Homework Assignment No. 13

Due on Monday, November 15, 2004

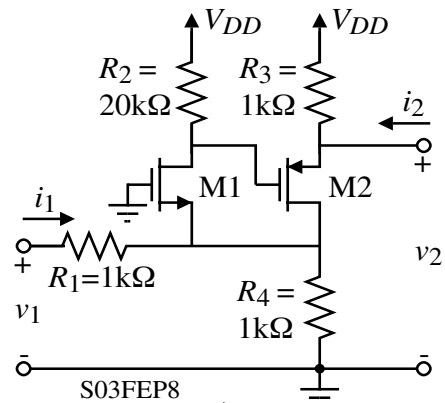
Problems in () correspond to the first edition.

1.) 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.

Ans. [$v_2/v_1 = -0.714\text{V/V}$, $v_1/i_1 = 50\text{k}\Omega$, and $v_2/i_2 = 857\Omega$]

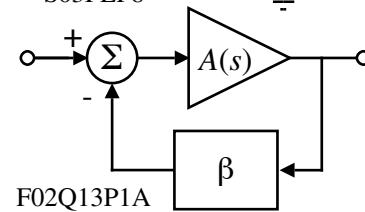


2.) A feedback amplifier is shown. Use the methods of feedback analysis to find the numerical values of v_2/v_1 , v_1/i_1 , and v_2/i_2 . Assume that all transistors are matched and that $g_m = 1\text{mS}$, and $r_{ds} = \infty$.



3.) The amplifier in the feedback circuit shown has a transfer function of

$$A(s) = \frac{100}{\frac{s}{10^5} + 1}$$



What value of β will increase the upper -3db frequency by a factor of 10 for the closed loop gain? What is the closed loop, low frequency gain?

4.) Problem 18.40 (18.35) of the text.

5.) Problem 18.59 (18.32 there is some difference between 1st and 2nd edition) of the text.

