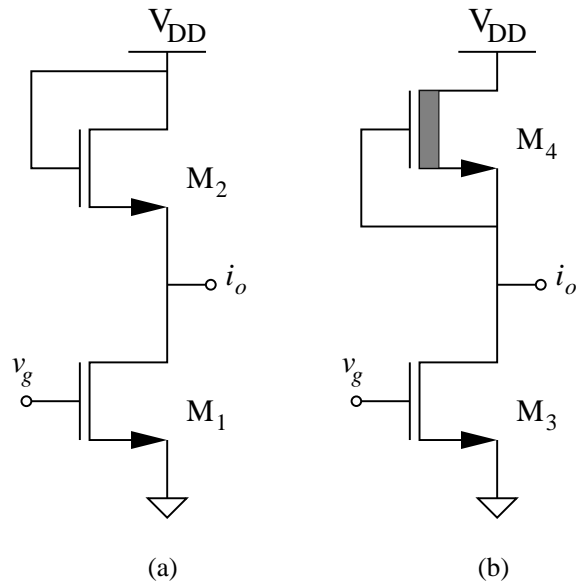


EE7331-501
Homework # 1

Due: Thursday, October 25



Using the circuit schematics above, derive the expression for the output current noise variance $\overline{i_o^2}$ for both amplifiers. Then derive the general input referred noise variance $\overline{v_g^2}$ for each case. Then write down the Thermal noise expression for each amp and algebraically manipulated the equation to find the Thermal resistance R_n . Then write down the $1/f$ noise expression for each amp and find the equation for the optimum input device channel length L_1 to minimize the $1/f$ noise.

State all assumptions you use in your work. Use the correct labels on the schematics in your equations. The final equations should not have g_m in them, but substitute the proper expression and get an equation with only physical constants, device dimensions and bias current.