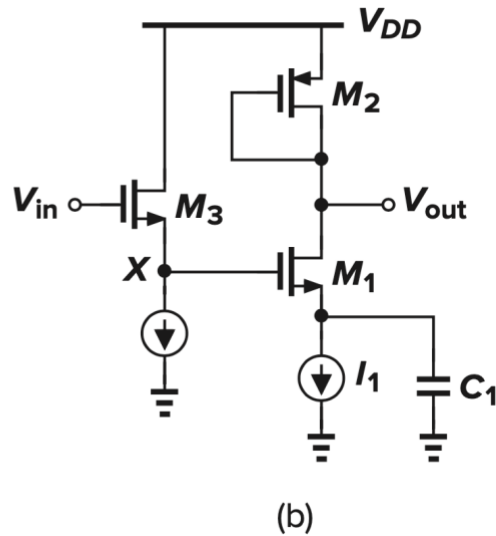
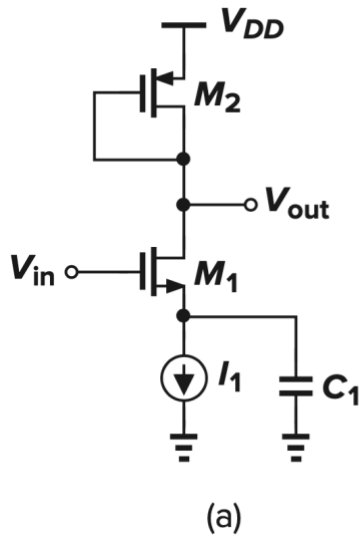


EE-320 Exercise 6

1. In (a), calculate the voltage gain if C_1 acts as an ac short at the frequency of interest and assume $\gamma = 0$. What is the maximum dc level of the input signal for which M_1 remains saturated?



To accommodate an input dc level close to V_{DD} , the circuit is modified as (b), where the source follower acts as a level shifter. What relationship between the gate-source voltages of M_2 and M_3 guarantees that M_1 is saturated?

2. Compare the gain of a source follower and a common-source stage when the load impedance is relatively low. For example, assume $R_L = 1/g_{m1}$ and $r_o \gg 1/g_{m1}$, and $\gamma = 0$.

