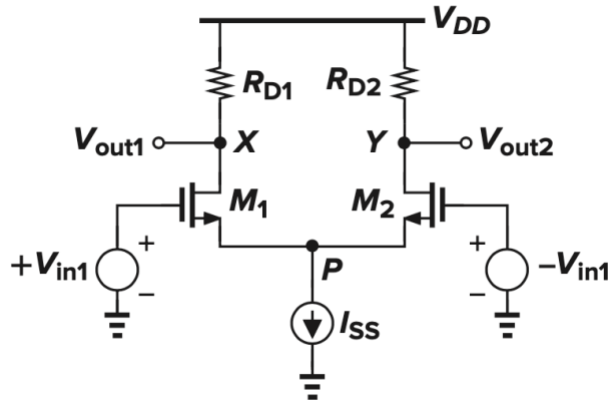
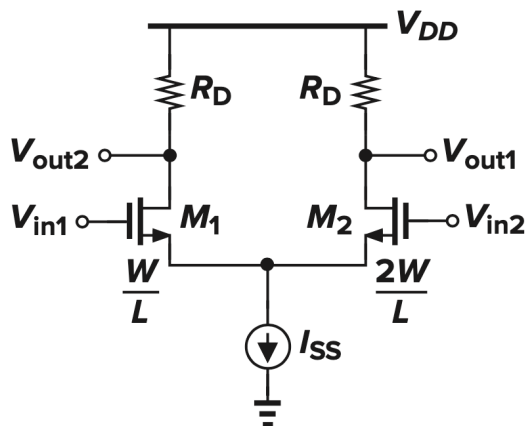


EE-320 Exercise 8

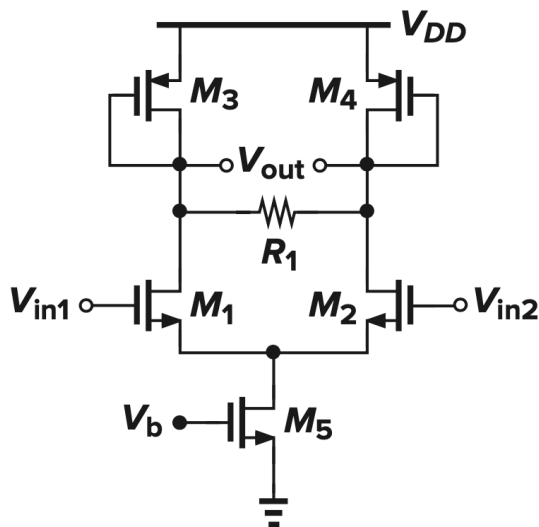
1. Calculate the differential gain of the circuit shown below, assuming it is symmetric, $R_{D1} = R_{D2} = R_D$, $\lambda \neq 0$ and $\gamma = 0$.



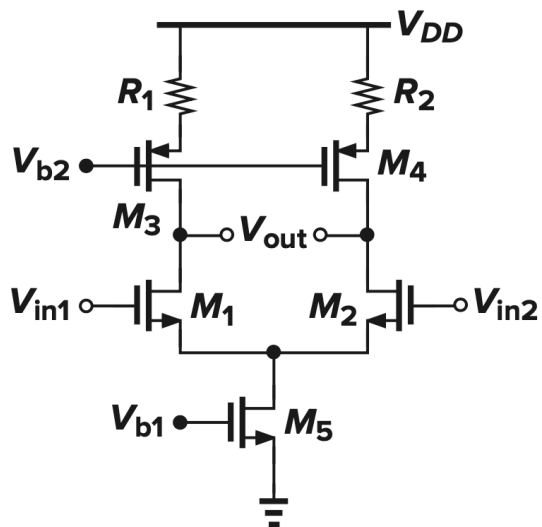
2. Due to a manufacturing error, in the differential pair shown below M_2 is twice as wide as M_1 . Calculate the small-signal gain if the dc levels of V_{in1} and V_{in2} are equal, $\lambda = \gamma = 0$.



3. Assuming that all transistors are saturated, and the circuits are symmetric, $\lambda \neq 0$, $\gamma = 0$ calculate the small-signal differential voltage gain of each circuit.



(a)



(b)