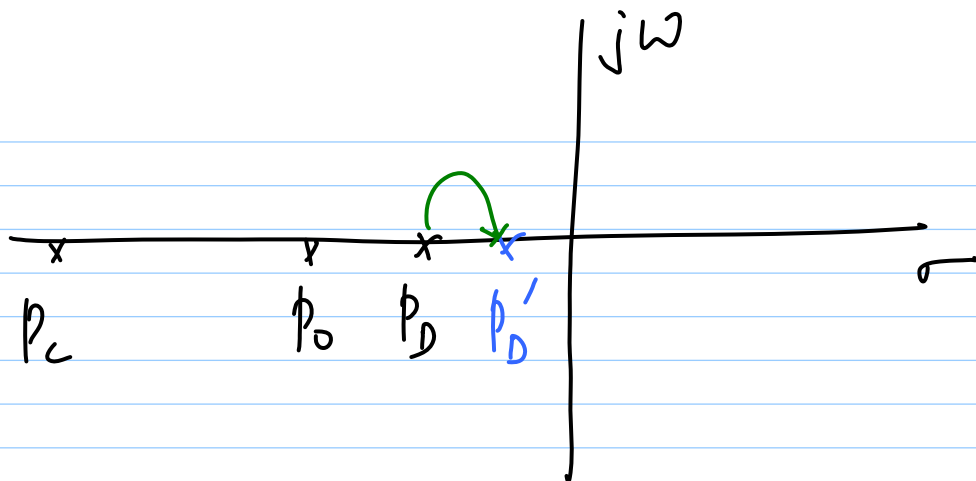
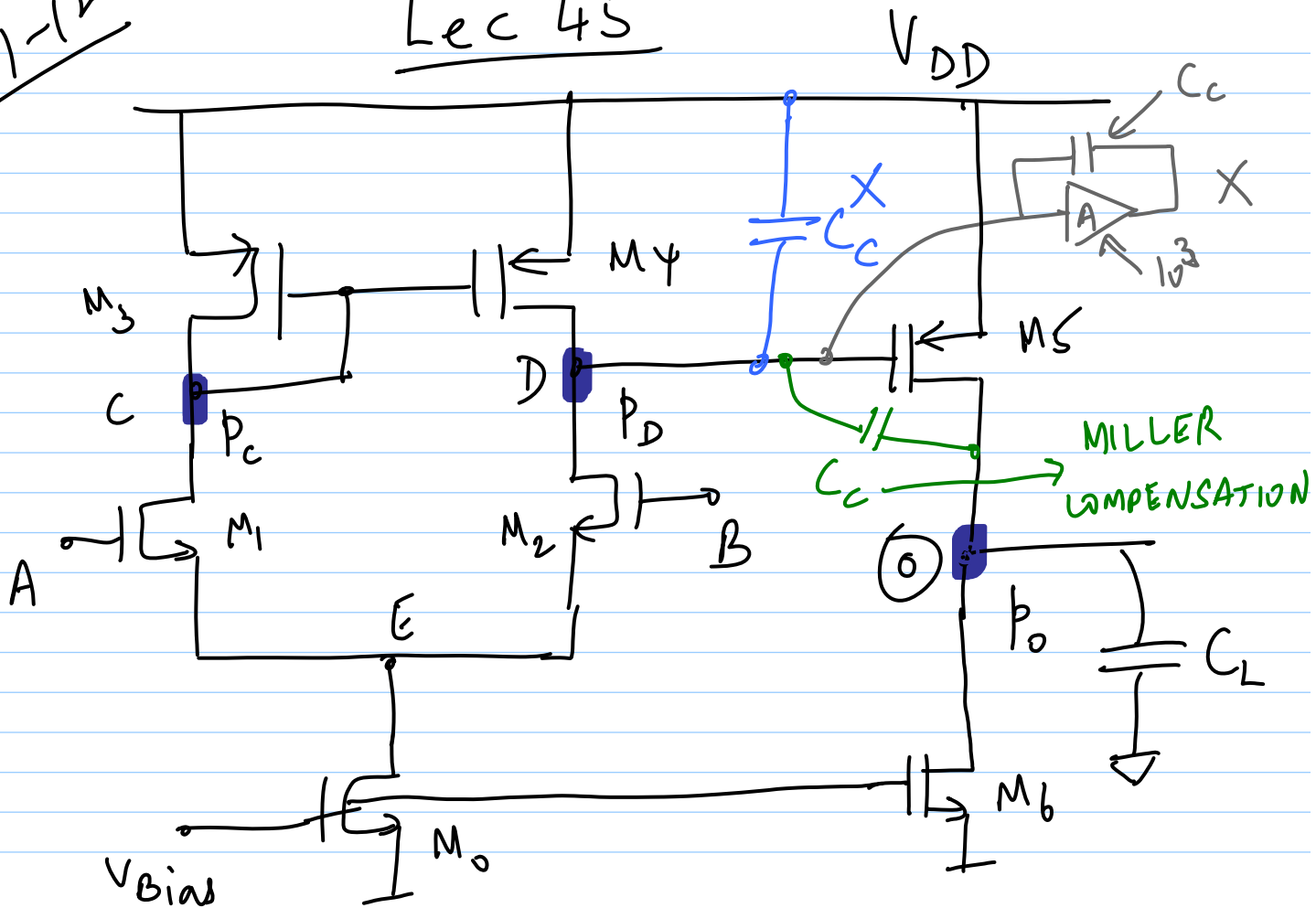


10-11-12

Lec 45



$$p'_D = \frac{p_D}{10^5} \Rightarrow C_c \sim \text{nF range}$$

$\Rightarrow$ place C_c between C & D
of $M_5 \Rightarrow$ Miller effect from
2nd stage

$$V_{DQ} = V_{DD} - V_{SQ3} \Big|_{I_{0/2}}$$

want

$$V_{DQ} = V_{DD} - V_{SQ5} \Big|_{I_6}$$

$$V_{SQ3} \Big|_{I_{0/2}} = V_{SQ5} \Big|_{I_6}$$

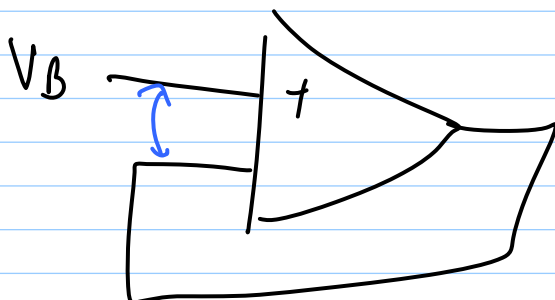
$\Rightarrow V_{Dsat}$ have to be equal

$$V_{SQ} = V_T + V_{Dsat}$$

$$\sqrt{\frac{2 \cdot I_{0/2}}{\mu_p \epsilon_{ox} \left(\frac{W}{L}\right)_3}} = \sqrt{\frac{2 I_6}{\mu_p \epsilon_{ox} \left(\frac{W}{L}\right)_5}}$$

$$\frac{I_{0/2}}{(W/L)_3} = \frac{I_6}{(W/L)_5}$$

$$\frac{I_D}{(W/L)} = \text{current density}$$



$V_B \pm \Delta V$
systematic offset

