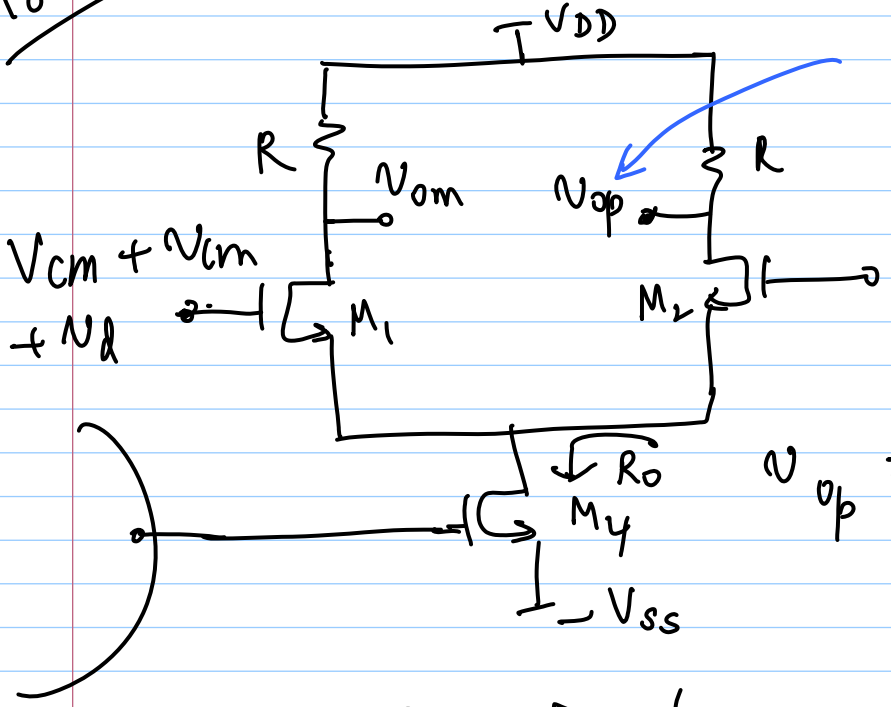
18-10-12

Lec 34



$$V_{op} = g_m R V_d - \frac{g_m R}{1+2g_m R_0} V_{cm}$$

$$g_m \gg \frac{1}{2R_0}$$

$$V_{op} = g_m R V_d - \frac{R}{2R_0} V_{cm}$$

$$V_{om} = -g_m R V_d - \frac{R}{2R_0} V_{cm}$$

diff. mode gain

common mode gain

DM gain >> CM gain

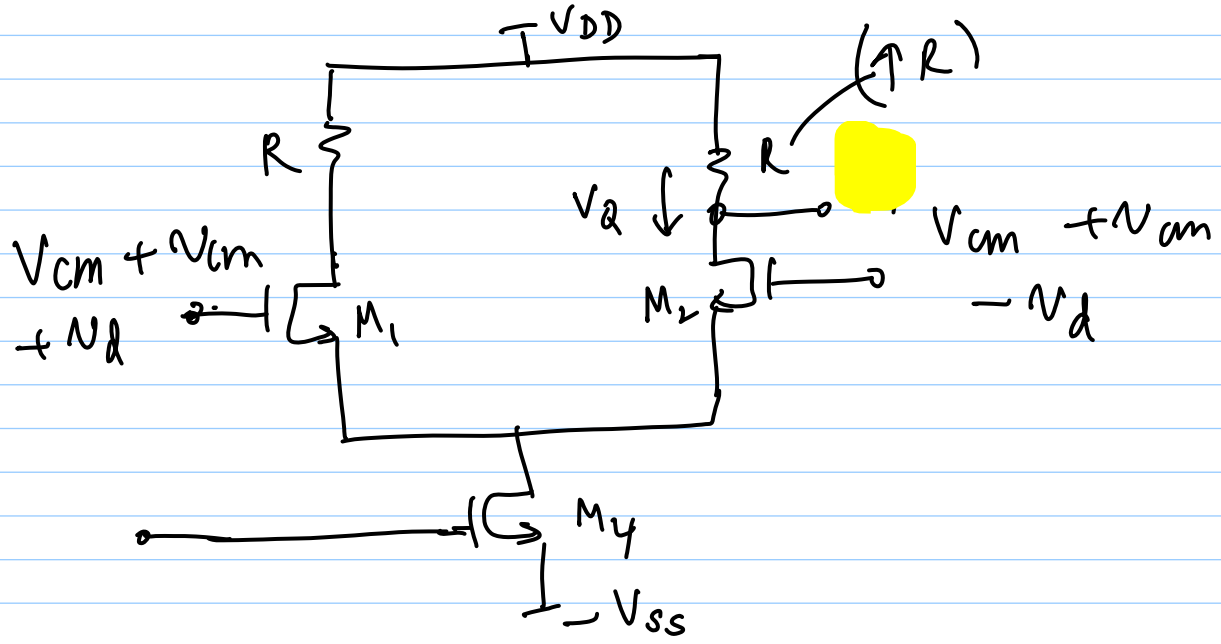
CMRR ≡ common mode rejection ratio

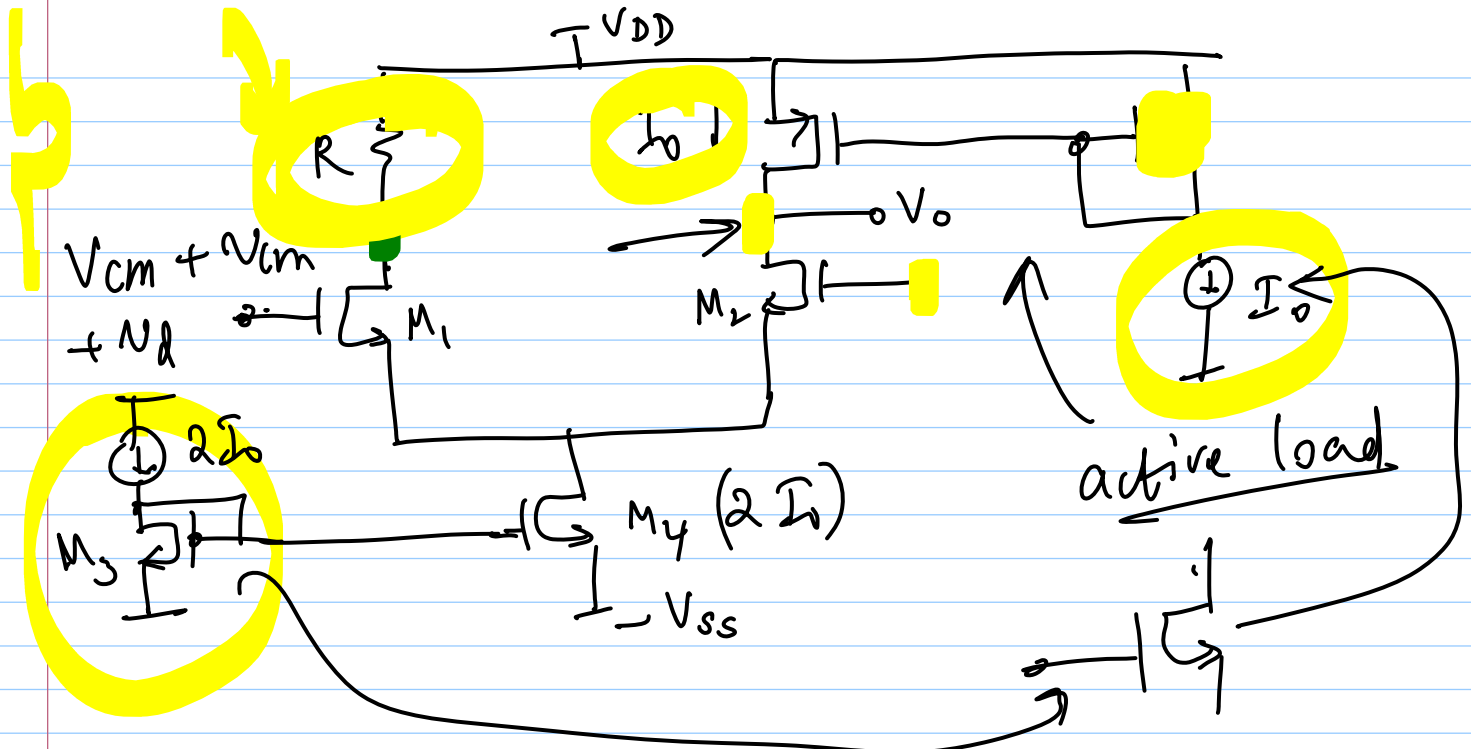
$$= \left|\frac{A_{dm}}{A_{cm}}\right| = \frac{g_m R}{R/2R_0} = 2g_m R_0$$

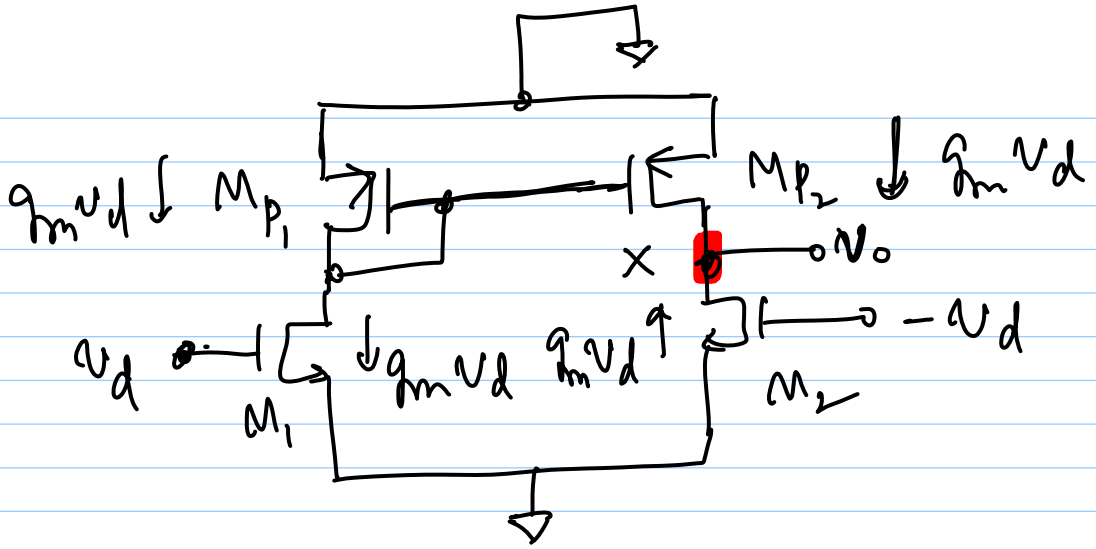
$V_a = 1mV$

$V_b = 0\ mV$

$\Big)$ w $\Big($ 1001mV, 1000mV







i_{out} = total current flowing into

(X)

$\Rightarrow \frac{v_o}{v_d} = \infty$