

23/8/19

Lec 12

Old - Friday 4:50 - 5:40pm class moved to

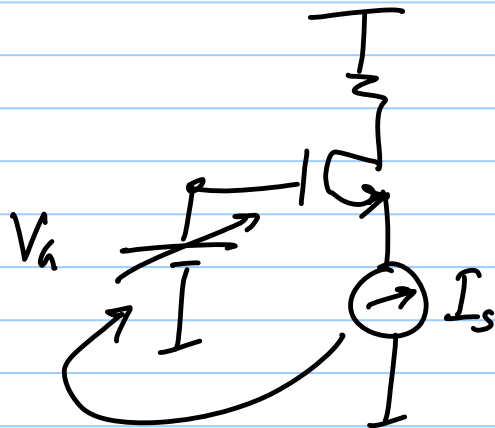
New - Thursday 2 - 2:50pm

Tutorials - 1) Moodle submission

2) 1 random problem for evaluation

Sense I_D , f.b. V_S

Sense I_S , f.b. V_g ✓

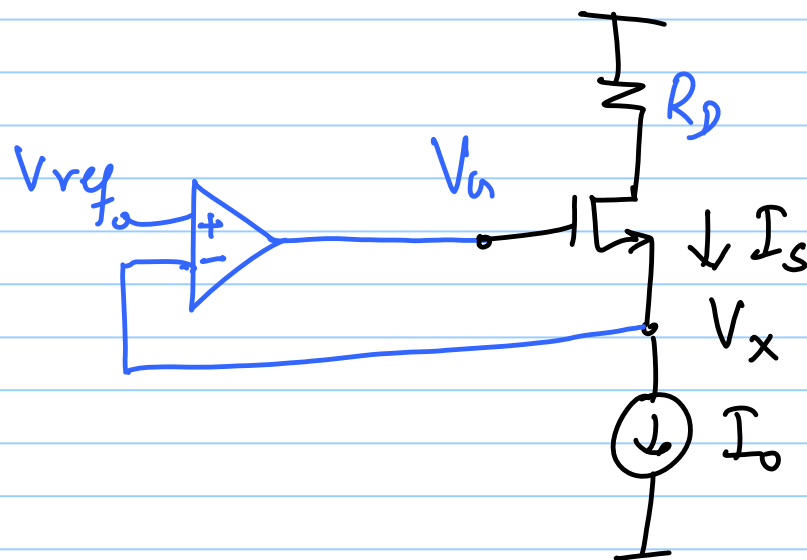


* measure I_S

* If $I_S > I_0 \Rightarrow \downarrow V_g$

If $I_S < I_0 \Rightarrow \uparrow V_g$

If $I_S = I_0 \Rightarrow$ do nothing



If $I_s > I_o \Rightarrow V_x \uparrow$ (we want $V_a \downarrow$)

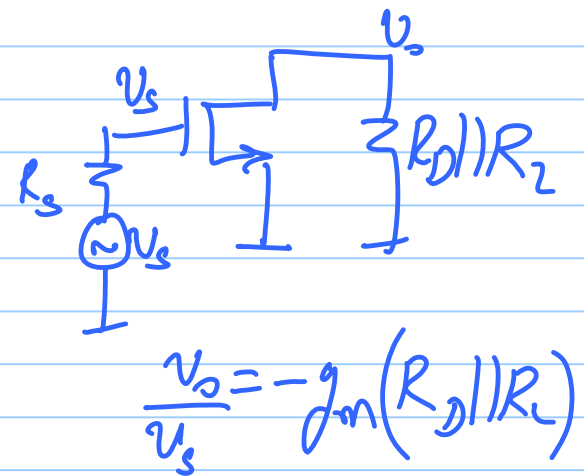
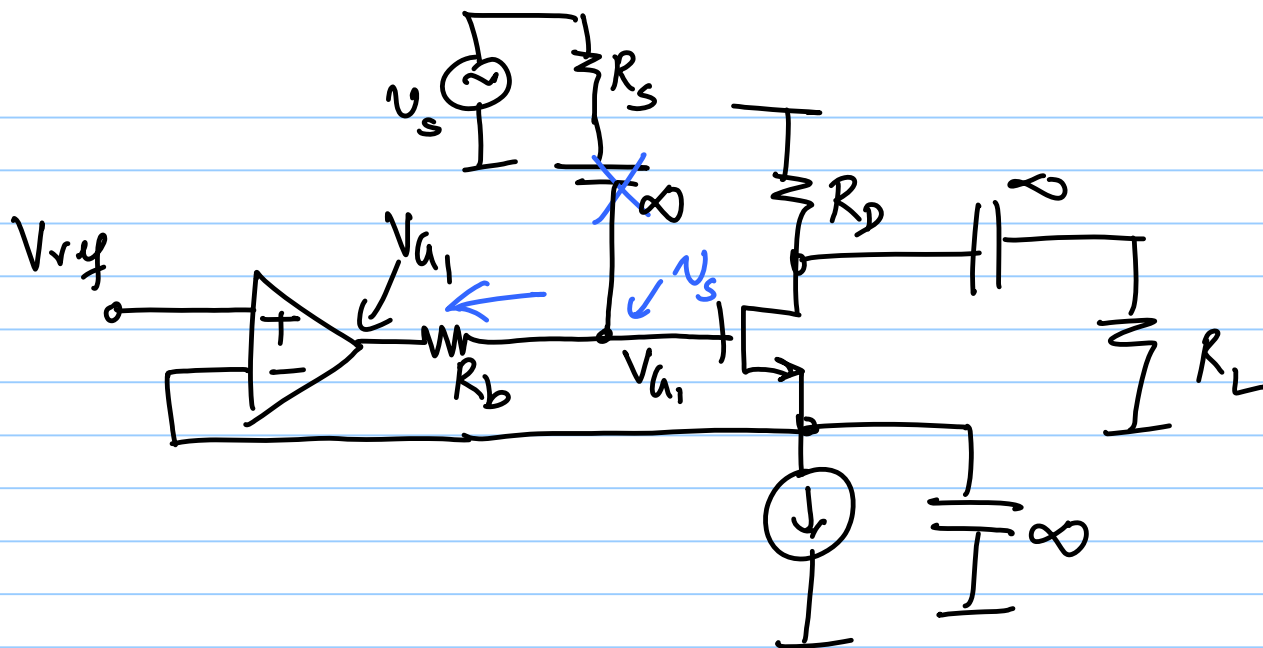
If $I_s < I_o \Rightarrow V_x \downarrow$ (we want $V_a \uparrow$)

If $I_s = I_o \Rightarrow$ keep V_a constant

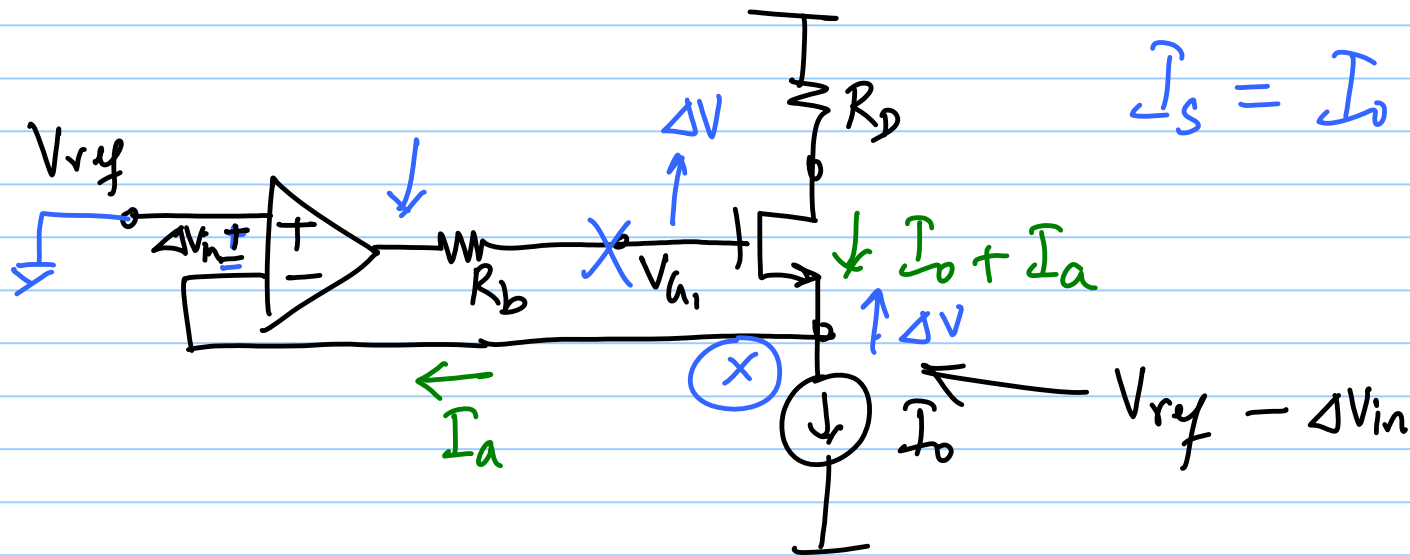
DC o/p. pt.

$$V_x = V_{ref} ; I_s = I_o$$

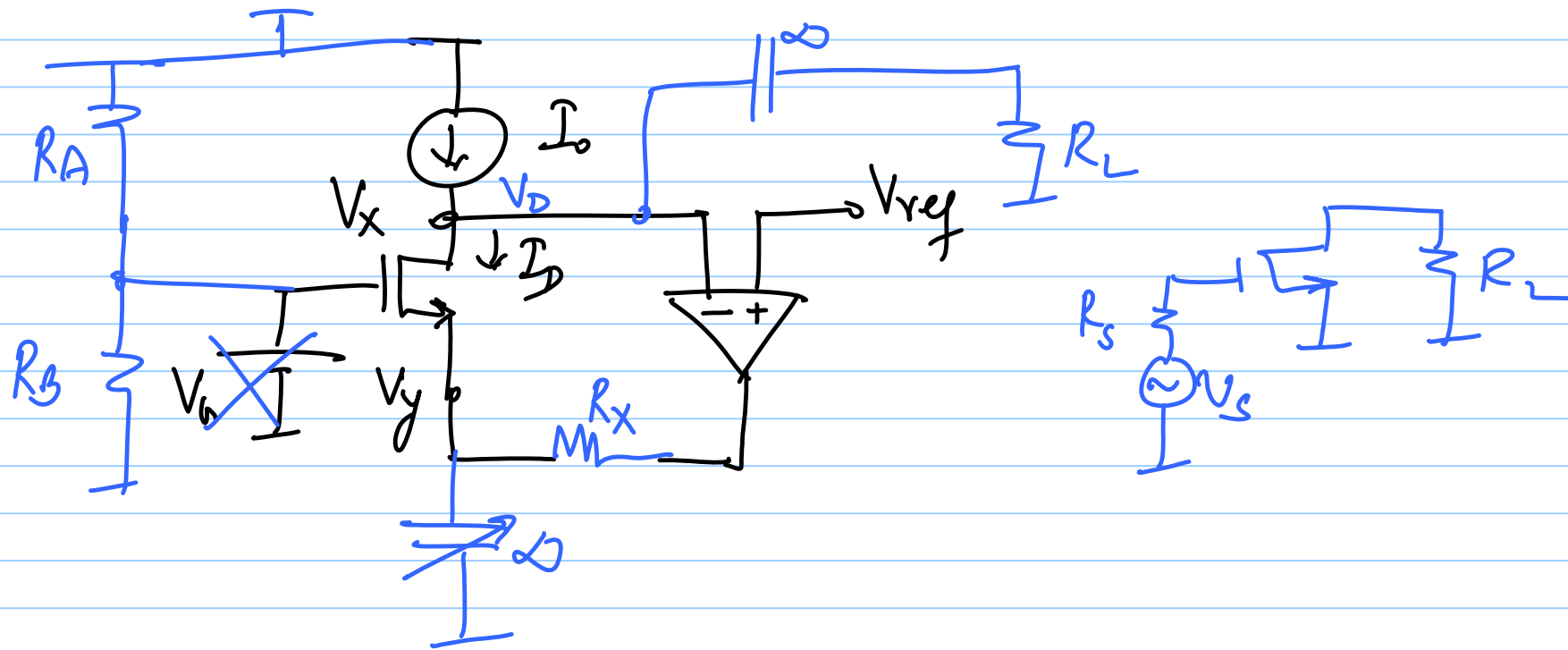
$$V_a = V_x + V_{as}|_{I_o}$$

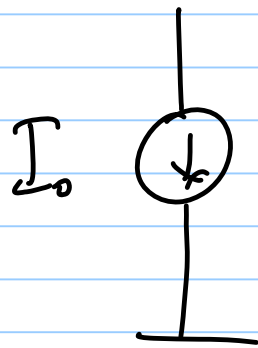


$$\frac{v_o}{v_s} = -g_m (R_D || R_L)$$

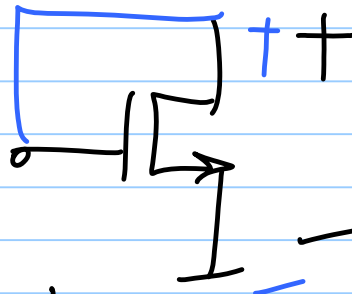
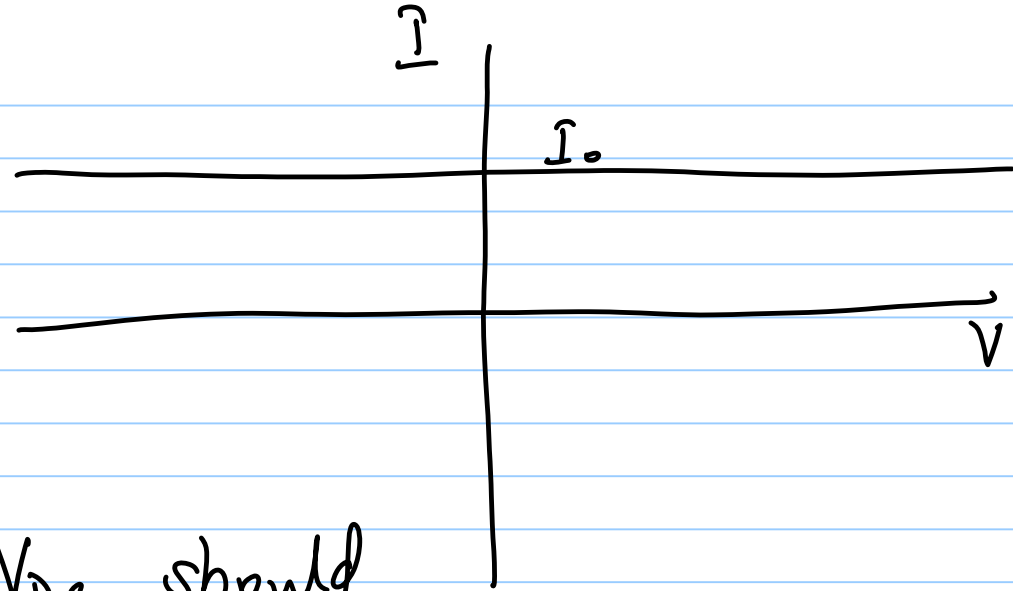


$I_s = I_o \Rightarrow V_{as}$ stays the same





$\equiv ?$



apply bias
appropriate
voltage

V_{DS} should be such that NMOS is in saturation