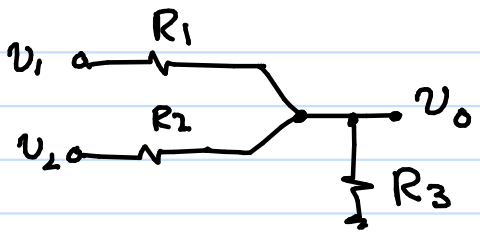


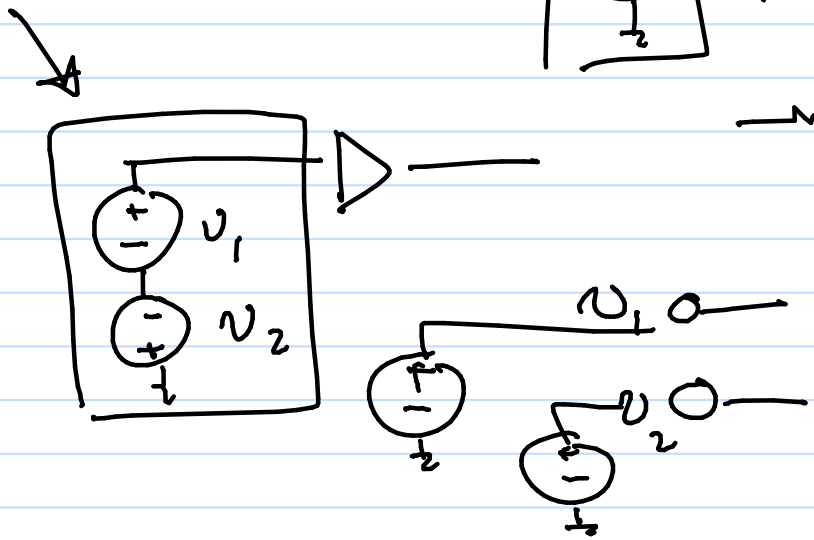
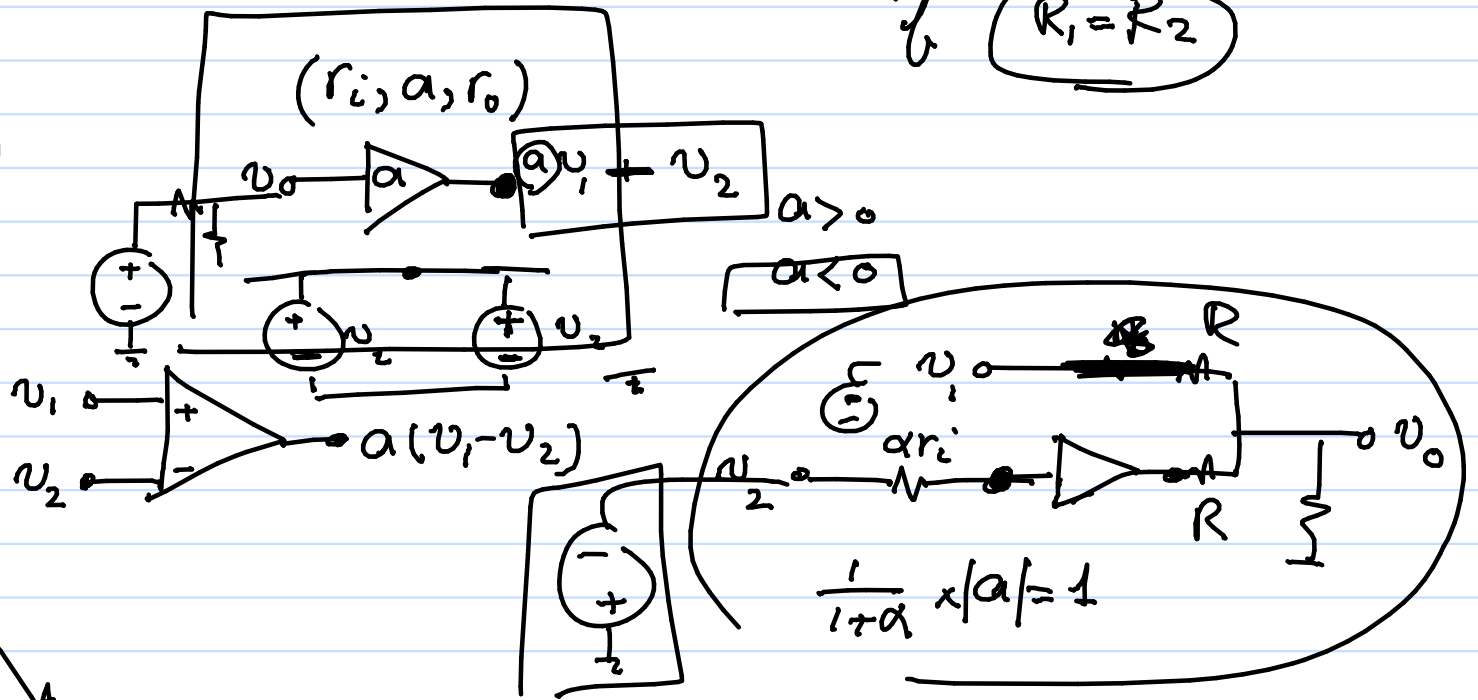
①

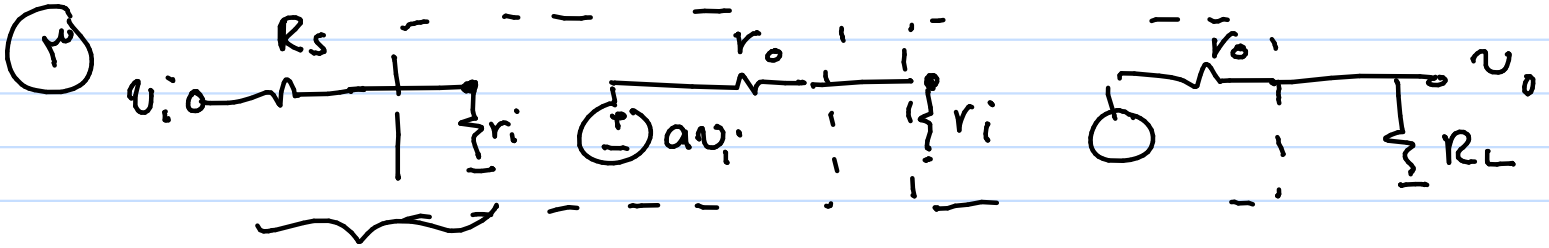


$$v_0 = \frac{R_2 \parallel R_3}{R_2 \parallel R_3 + R_1} v_1 + \frac{R_1 \parallel R_3}{R_1 \parallel R_3 + R_2} v_2$$

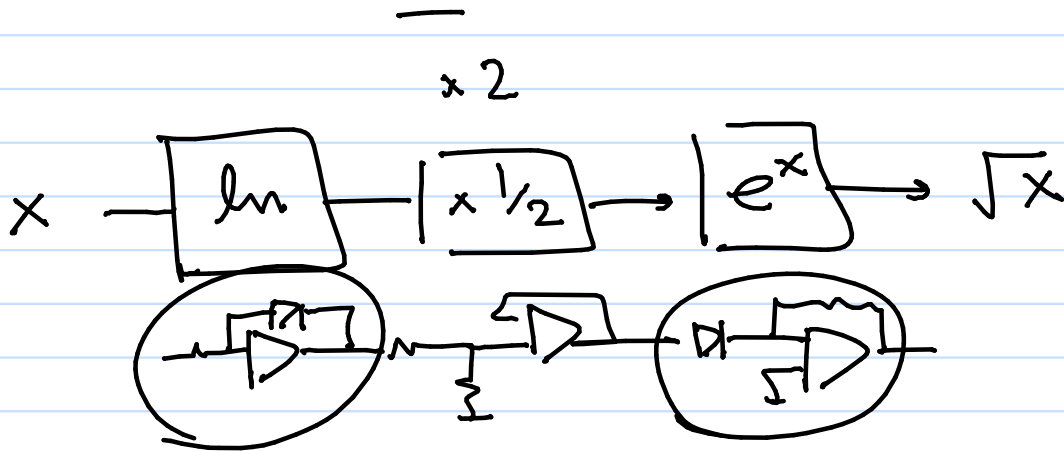
if  $R_1 = R_2$

②

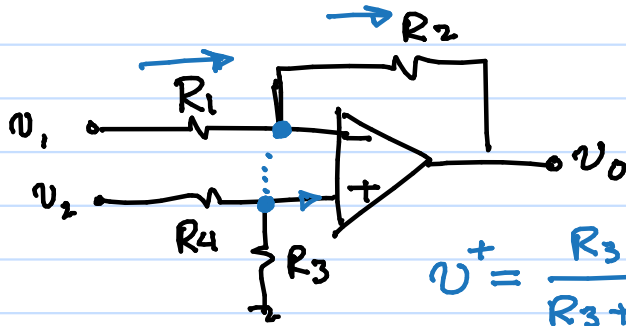




$$\frac{v_o}{v_i} = \frac{r_i}{r_i + R_s} \times \frac{r_i}{r_i + r_o} \times \frac{R_L}{R_L + r_o} a^2$$



5



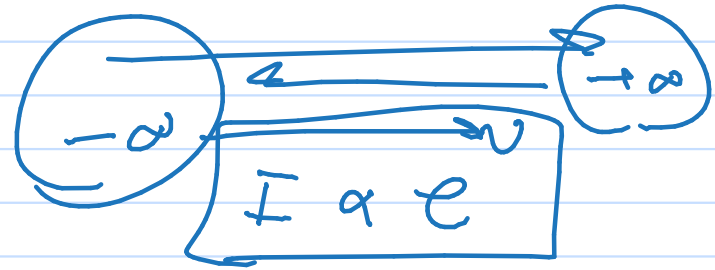
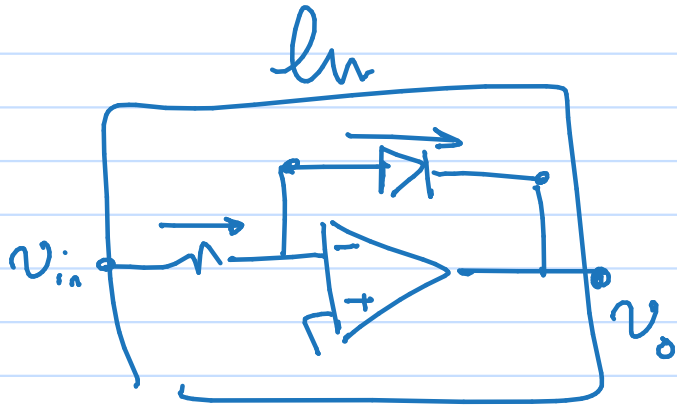
$$R_1 = R_2 = R_4 = 10^k$$

$$v^+ = \frac{R_3}{R_3 + R_4} v_2 = v^-$$

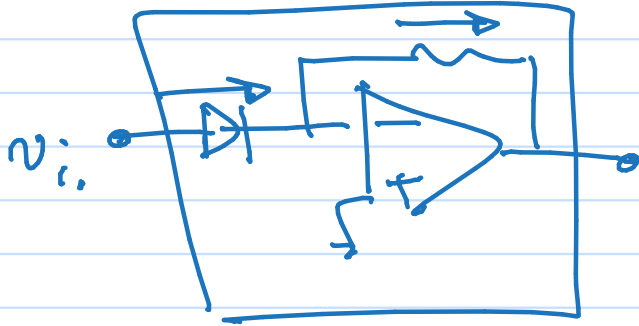
$$v_o = v^+ - R_2 \left( \frac{v_1 - v^+}{R_1} \right)$$

$$v_o = \underbrace{\left( -\frac{R_2}{R_1} \right)}_1 v_1 + \underbrace{\left( 1 + \frac{R_2}{R_1} \right)}_2 \underbrace{\frac{R_3}{R_3 + R_4}}_{\frac{1}{2}} v_2$$

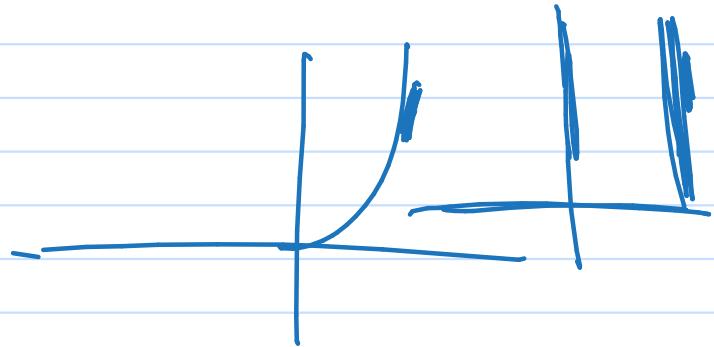
$R_3 = 10^k$

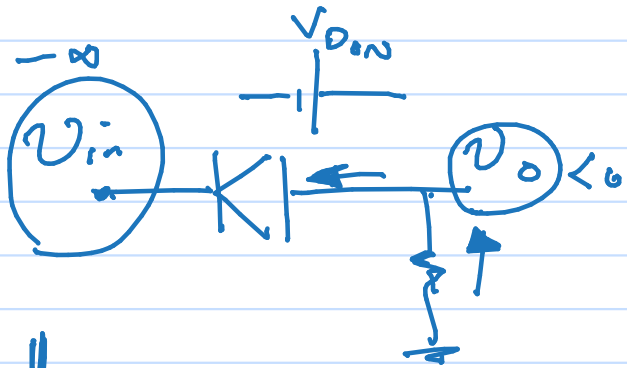


$v_o \propto \ln I$

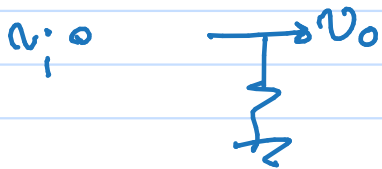
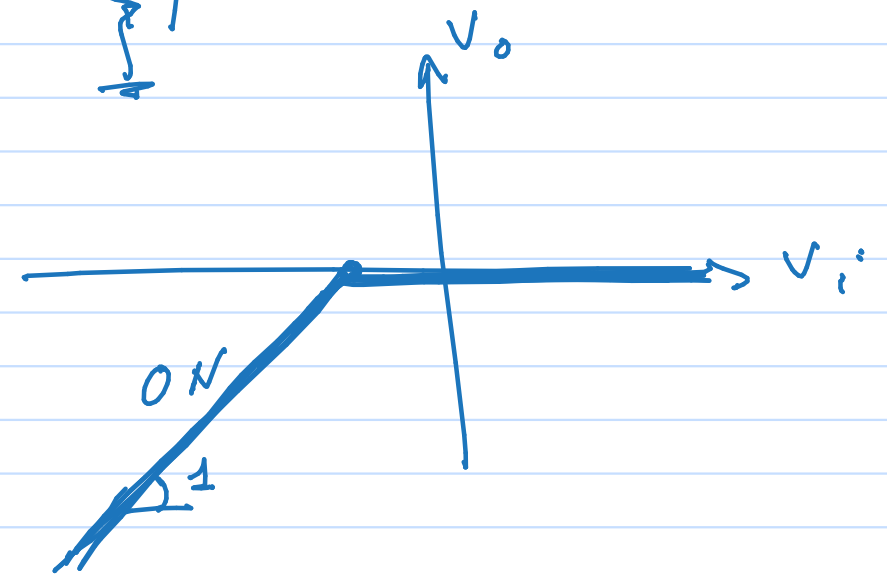
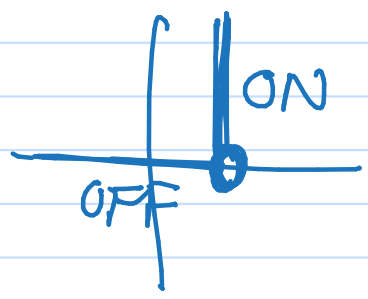


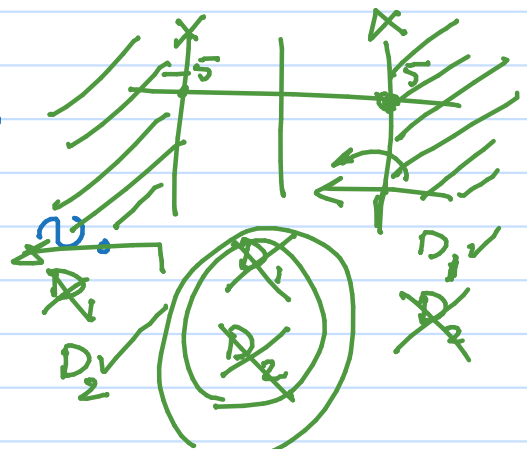
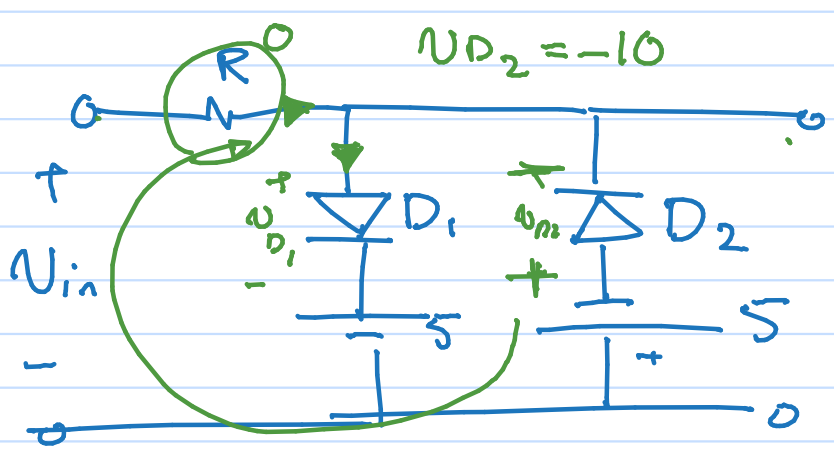
exp





$V_o = V_{in} + V_{DON}$





$D_1: ON$   
 $D_2: OFF$

$u_o = 5V$

$u_{D_2} = -5 - u_{in}$

