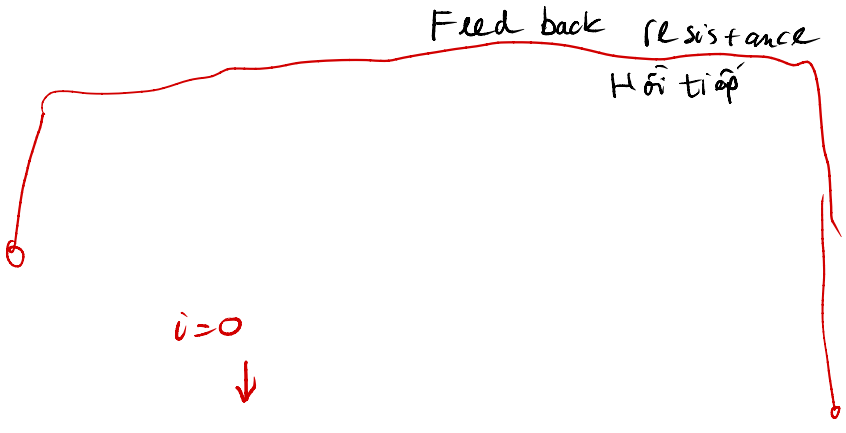


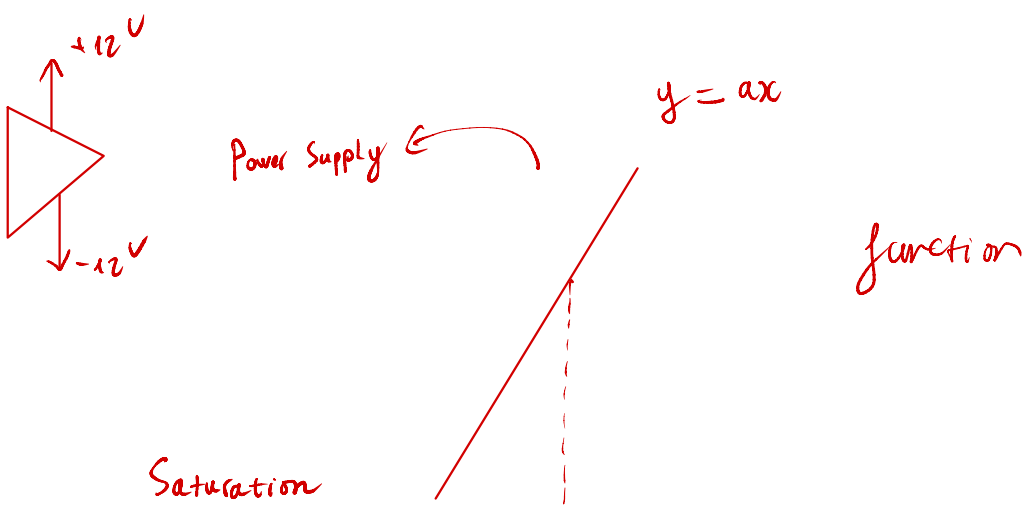
$i = 0$

V^-

V^+

$V^+ = V^-$

$v_0 = A(V^+ - V^-)$



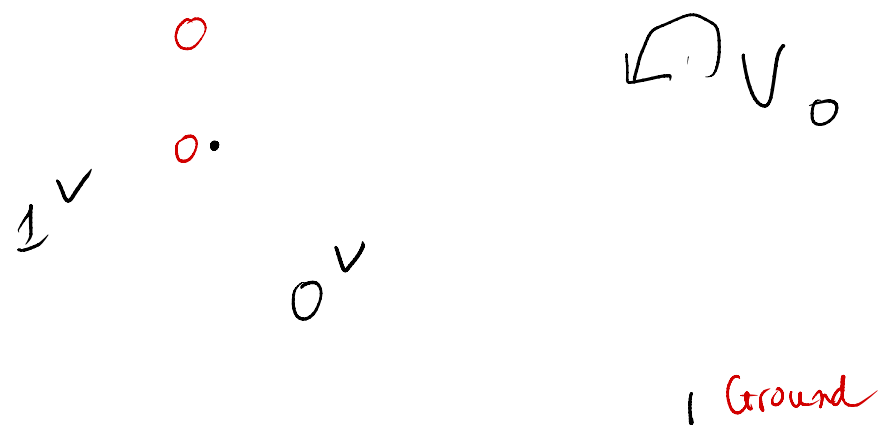
r

2 Constraints :

* $V^- = V_1 = V_n = V^+ = V_2 = V_p$
* $i_p = i_2 = i^+ = 0$

  $i_n = i_1 + i^- = 0$

Feedback



The range V_o that avoids amplifier saturation

$$-10 \leq V_o \leq 10$$

$$\text{Voltage gain} = \frac{v_o}{v_{in}} = \frac{-R_2}{R_1}$$

Feedback

KCL: $-I_S + I_f = 0$

$\Rightarrow -I_S + \left(-\frac{v_o}{R_f}\right) = 0$

(sensor)

0.1

0.25

= avoid

b) $-10^V \leq -\left(\frac{250^k}{50^k} v_a + \frac{250^k}{25^k} 0.25\right) \leq 15^V$