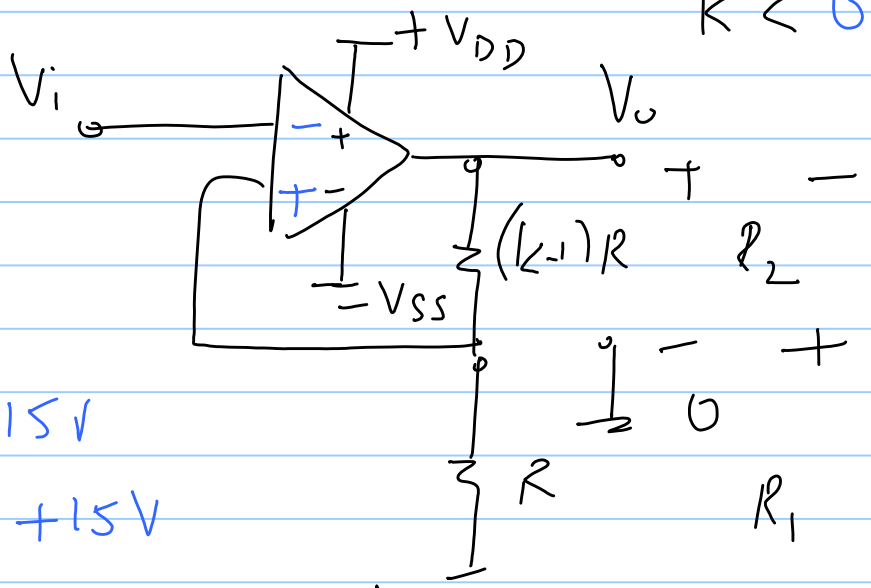
25/1/19

Lec 6

$k < 6$?



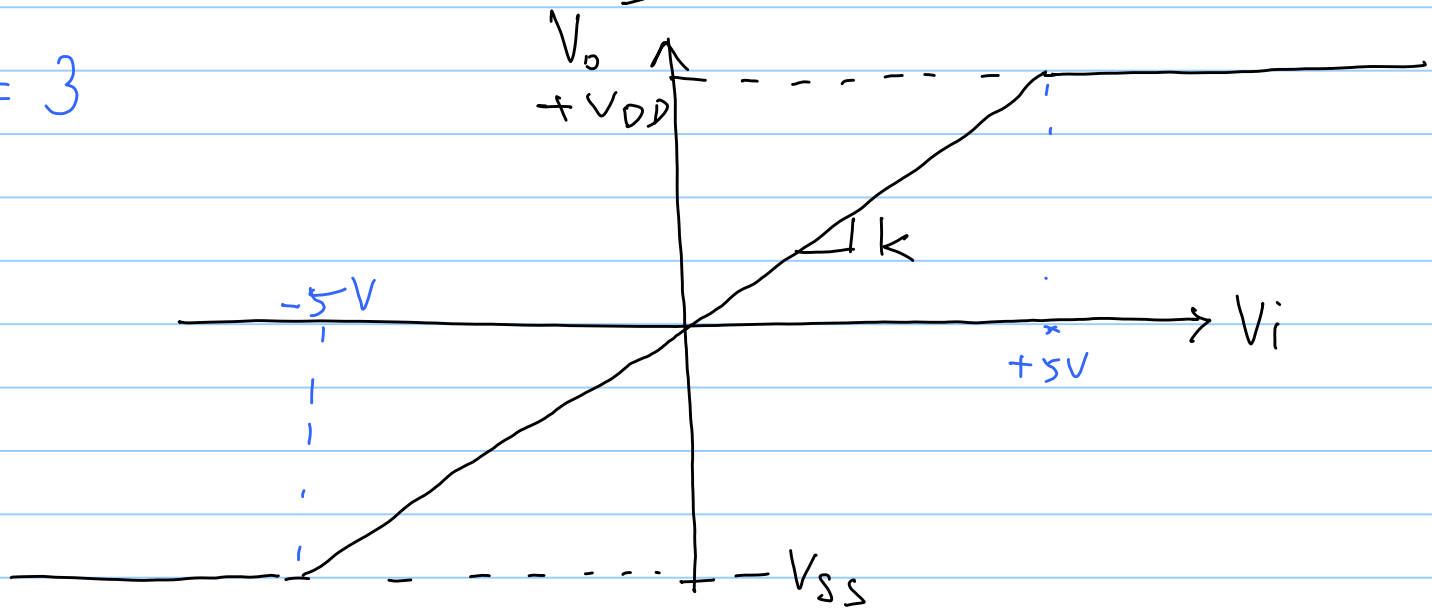
+ve feedback

$$k = \left(1 + \frac{R_2}{R_1}\right)$$

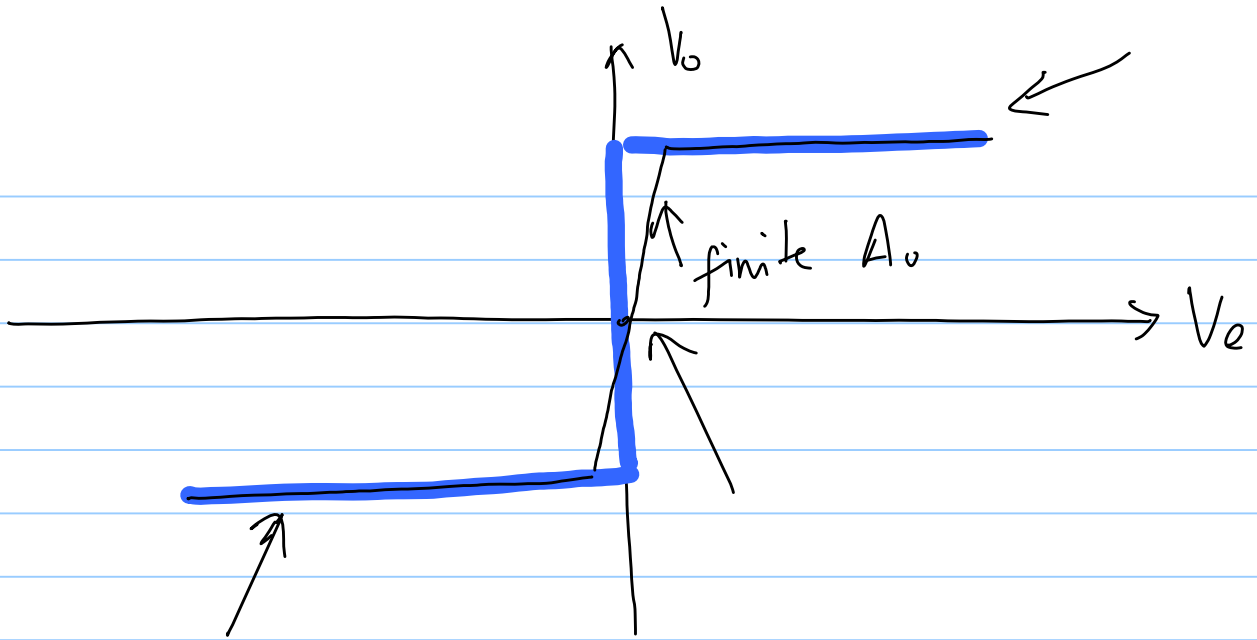
$-V_{SS} = -15V$

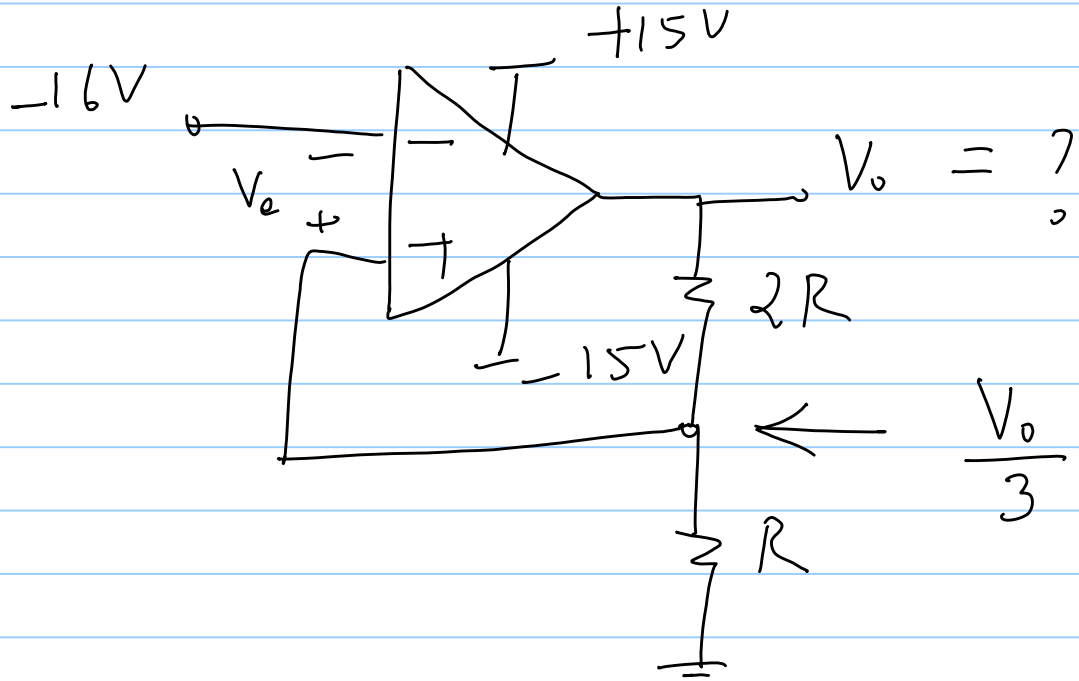
$+V_{DD} = +15V$

$k = 3$



DC transfer char.





$V_e = \frac{V_o}{3} - V_i$ ✓

If $V_e > 0$ ✓

$\Downarrow$

$V_o = +15V$

If $V_e < 0$

$V_o = -15V$

$V_o = +15V$

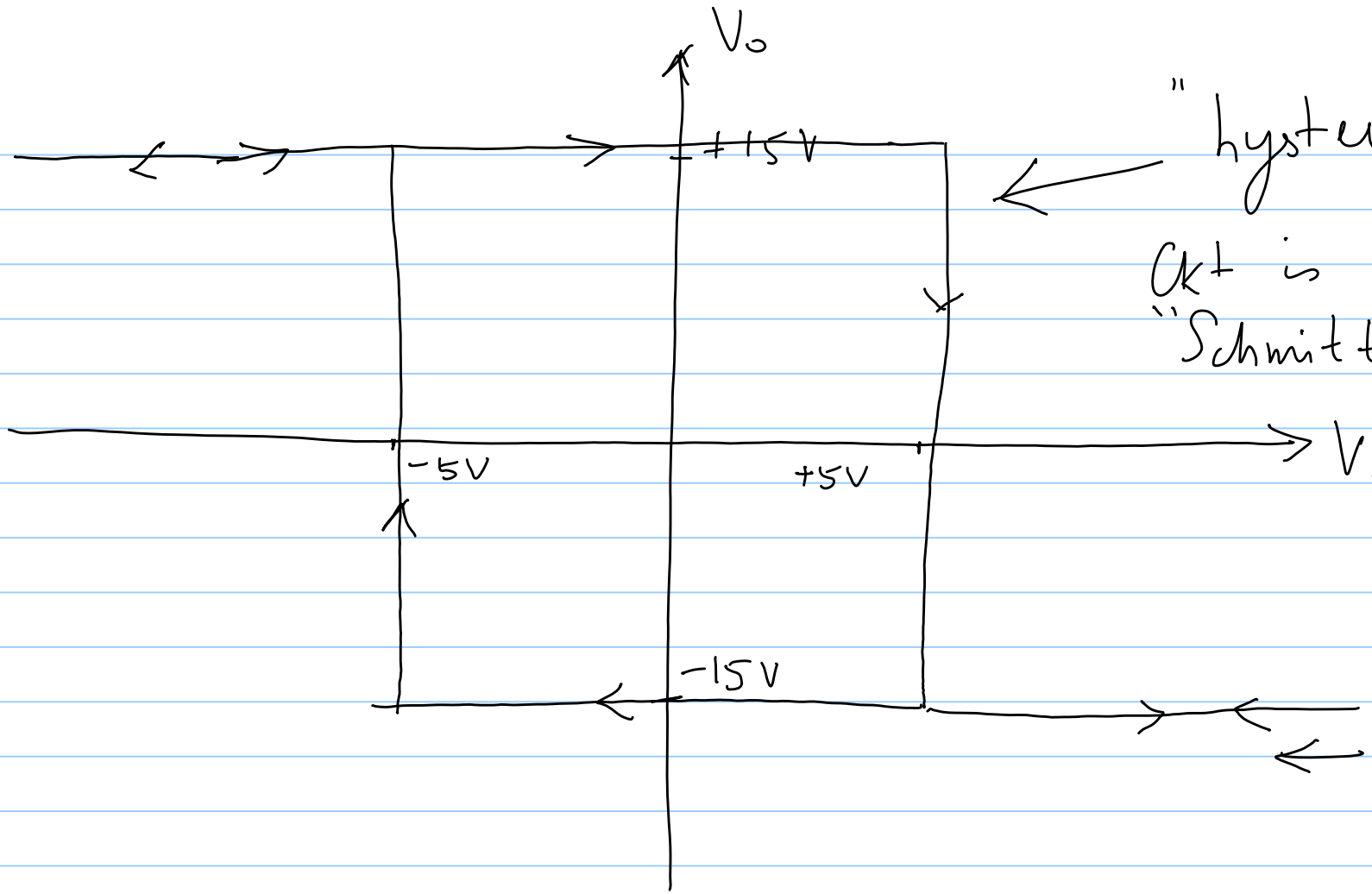
$V_o = +15V \Rightarrow \frac{V_o}{3} = +5V$

$V_e = \frac{V_o}{3} - V_i = 5 - (-16)$

$= 21 > 0 \Rightarrow V_o = +15V$

$V_o = -15V \Rightarrow V_e = -5 - (-16)$

$= +11 > 0 \Rightarrow V_o = +15V$



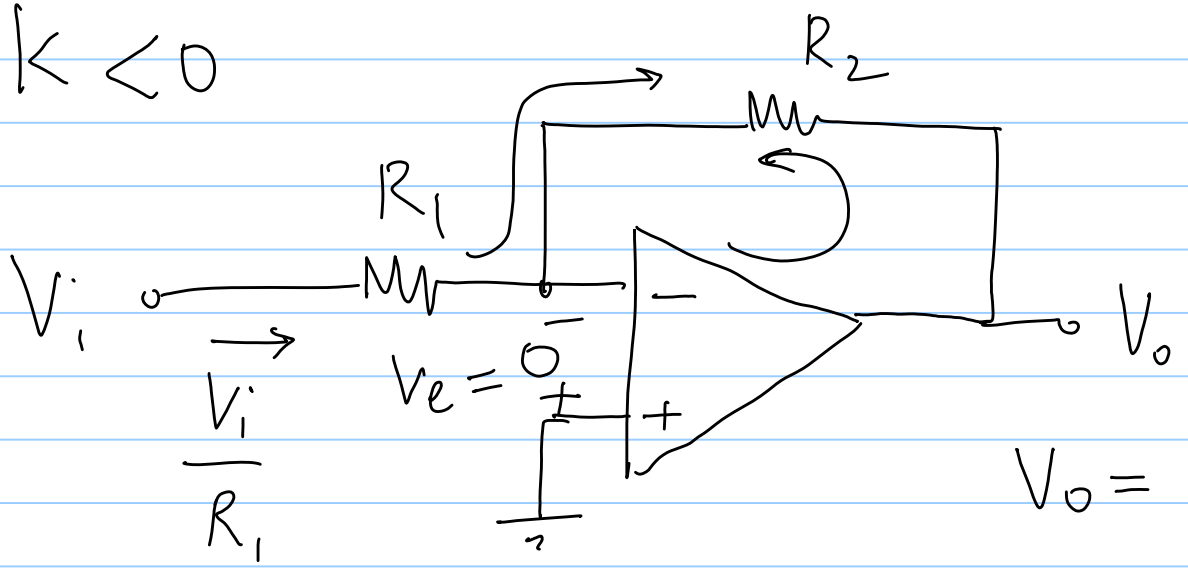
"hysteresis"

Ckt is called "Schmitt Trigger"

$V_i = +15V$ $\qquad$ $V_e = \frac{V_0}{3} - V_i$ }

$\Rightarrow V_0 = -15V$

$k < 0$



"Inverting Amplifier"

$\frac{V_i}{R_1}$

$V_0 = 0 - \frac{V_i}{R_1} \cdot R_2$

$\frac{V_0}{V_i} = k = -\frac{R_2}{R_1}$