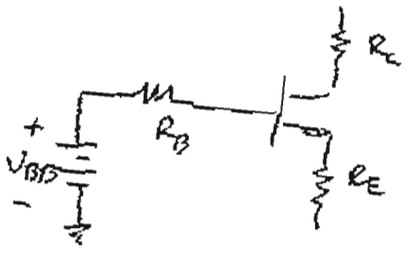
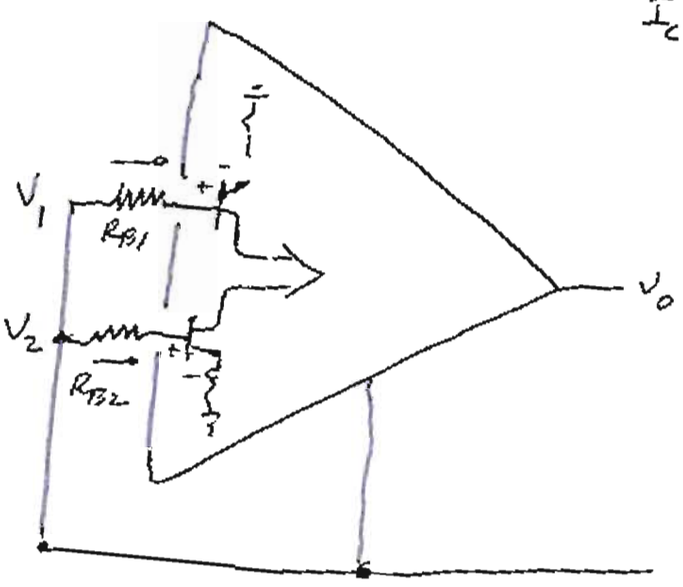


$$I_B = \frac{V_{BB} - V_{BE}}{R_B + (1+\beta)R_E}$$

$$I_C = \beta I_B$$

$$I_C = \frac{(V_{BB} - V_{BE})\beta}{R_B + (1+\beta)R_E}$$

$$I_C(V_{BB}, \beta) = I_C(\underline{V_{BE}}, \underline{I_B})$$



$$I_{C1} = \frac{(V_{BB} - V_{BE})\beta_1}{D}$$

$$I_{C2} = \frac{V_{BB} - V_{BE2}}{D}$$

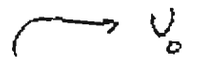
$\Rightarrow I_{C1} = I_{C2}$

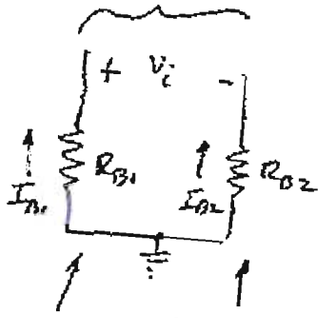
0 V in $\rightarrow$ 0 V out

$V_{BE1} = V_{BE2}$
$\beta_1 = \beta_2$
or
$V_{BE1} = V_{BE2}$
$I_{B1} = I_{B2}$

not in reality

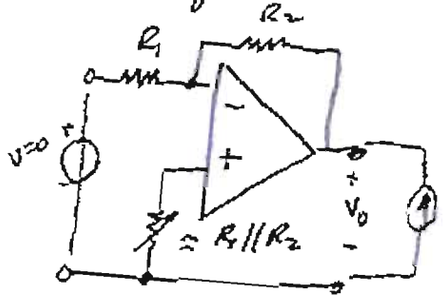
12/5/07



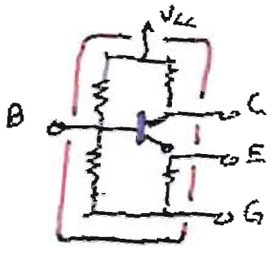


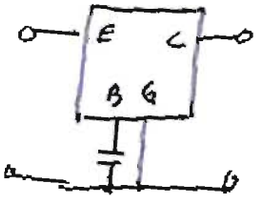
If $V_o \neq 0$ with inputs grounded then it appears that there is an input.

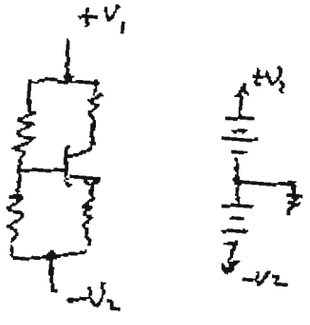
adjust create a $-V_i$ to counteract the equivalent $+V_i$ that cause offset.



$V_o = K_1 V_i + K_2 I_i$







$V_1 = 12$
$V_2 = 3$
$V_1 - V_2 = 15$

$V_B = 5$
$V_E = 4.3$ } 0 to 15
$V_C = 9$

$V_B = 2$
$V_E = 1.3$ } -3 to 12
$V_C = 6$

-15 → +3 to 12

$V_B = -7$
$V_E = -7.87$ } -12 to +3
$V_C = -3$