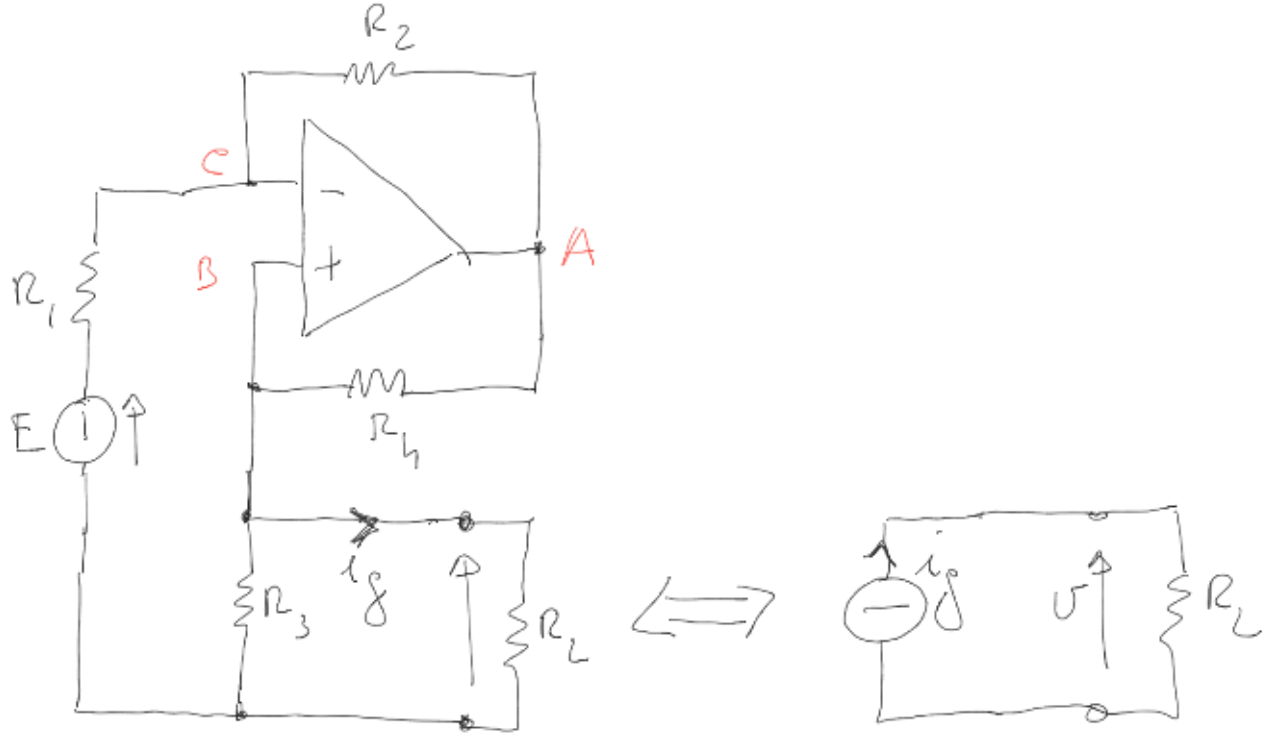
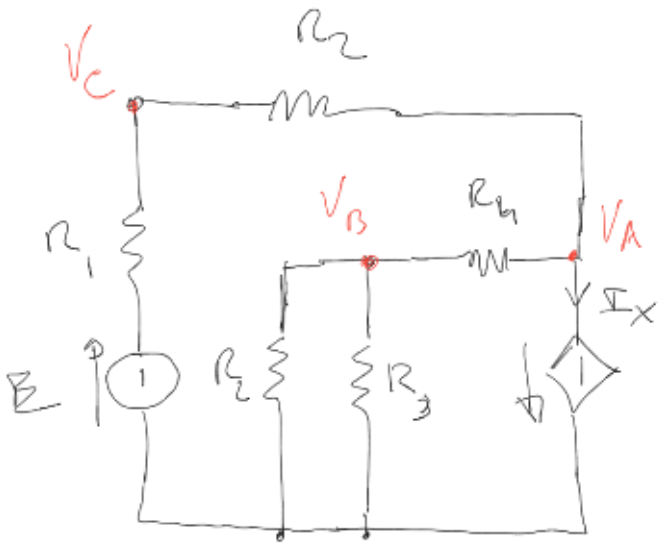
Lezione 38

GEN. CORRENTE HOWLAND





$$\begin{array}{c} \\ A \\ B \end{array} \begin{array}{c} \begin{array}{ccc} A & B & C \end{array} \\ \begin{bmatrix} \frac{1}{R_2}+\frac{1}{R_h} & -\frac{1}{R_h} & -\frac{1}{R_2} \\ -\frac{1}{R_h} & \frac{1}{R_2}+\frac{1}{R_1}+\frac{1}{R_h} & 0 \end{bmatrix} \end{array} \begin{bmatrix} V_A \\ V_B \end{bmatrix} = \begin{bmatrix} -I_x \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} & & \\ -\frac{1}{R_2} & 0 & \frac{1}{R_2}+\frac{1}{R_1} \end{bmatrix} \begin{Bmatrix} V_C \end{Bmatrix} = \begin{bmatrix} \frac{E}{R_1} \end{bmatrix}$$

$$V_B = \frac{-E}{\frac{R_1 R_4}{R_2 R_2} + \frac{R_1 R_4}{R_3 R_2} - 1}$$

IPOTESI: $\boxed{R_1 R_4 = R_2 R_3}$

$$V_B = \frac{-E}{\frac{R_1 R_4}{R_2 R_2} + \frac{R_1 R_4}{R_3 R_2} - 1}$$

$R_2 R_3$

$$V_B = \frac{-E}{\frac{R_3}{R_2}}$$

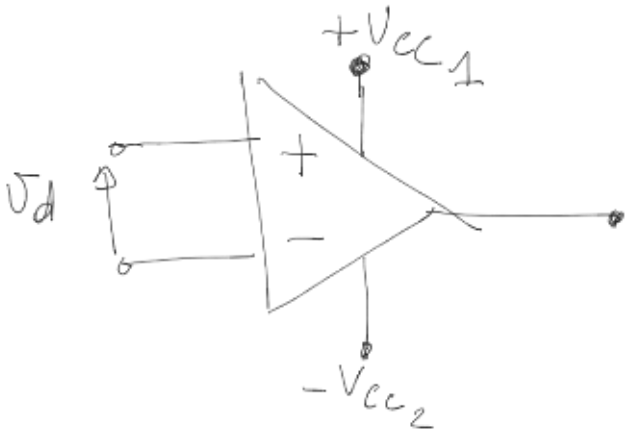
$$V_B = -\frac{R_2 E}{R_3}$$

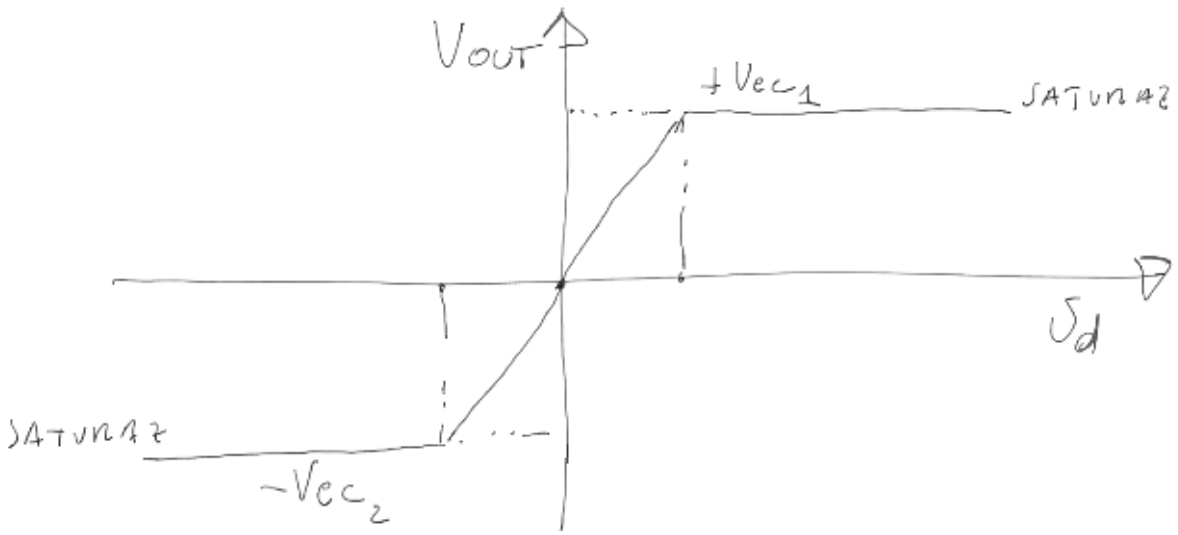
V_B dipende da R_L

$$i_0 = \frac{V_B}{\quad} = -\frac{E}{\quad}$$

R_L R_3

SATURAZIONE DI UN AMP. OP.





$$V_{OUT} = V_A = -E \frac{R_L R_3 + R_4 R_3 + R_4 R_L}{R_3^2}$$

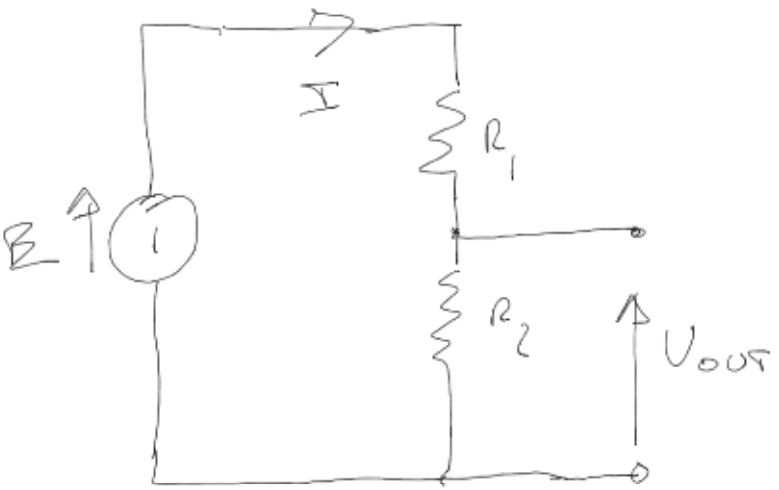
$$|V_A| < V_{SAT} = 1mV \quad (\text{AD ESEMPIO})$$

$$R_L^* = \frac{1}{R_3 + R_4}\left(10 \cdot \frac{R_3^2}{|E|} - R_4 R_3\right)$$

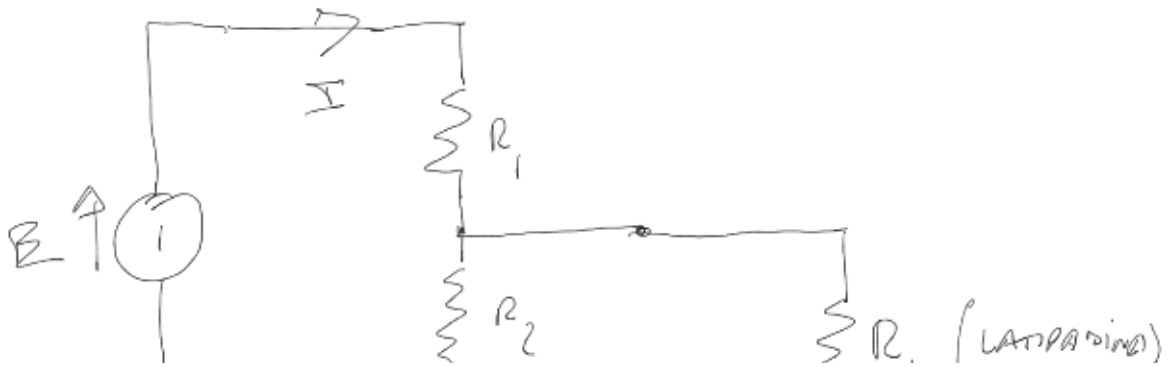
(VALORE MASSIMO DEL CARICO)

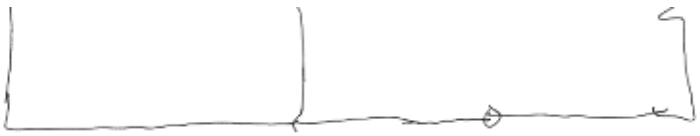
⟵

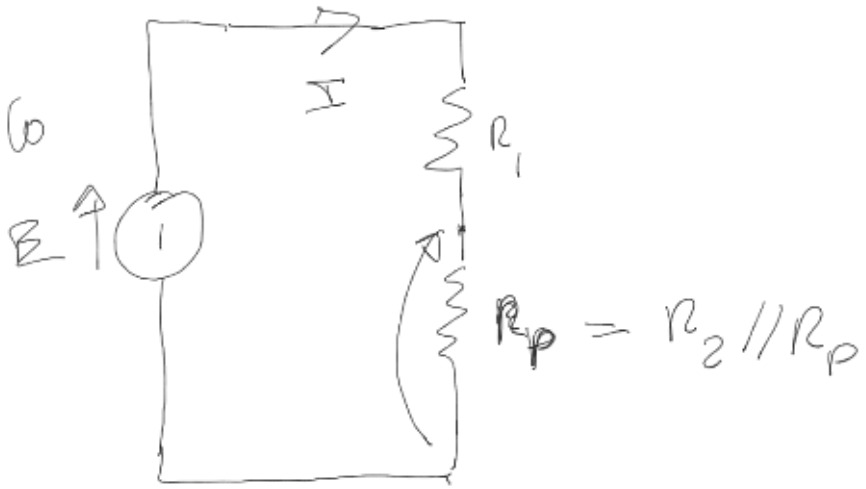
AMP. OP. come BUFFER

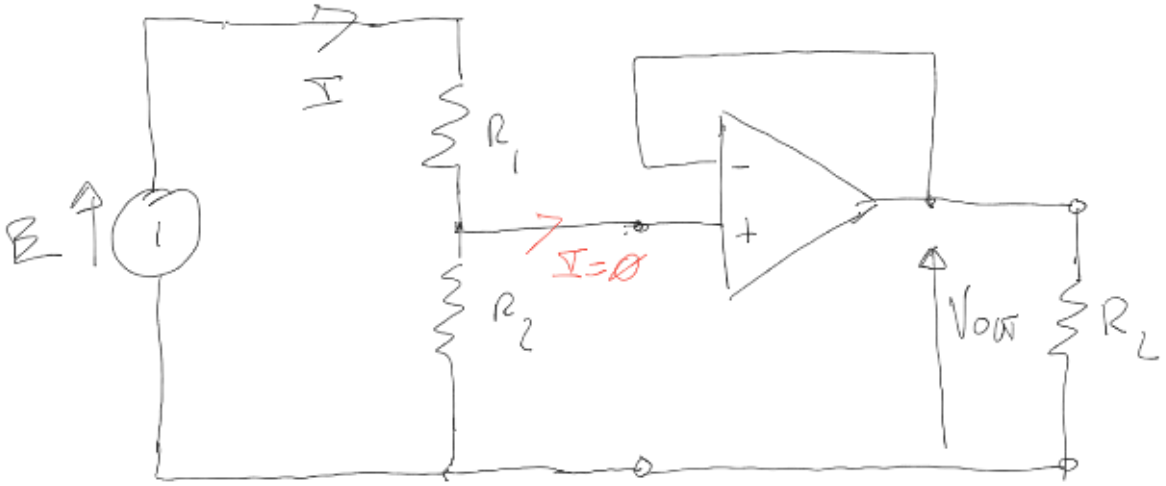


$$I = \frac{E}{R_1 + R_2} \Rightarrow V_{OUT} = R_2 I = \frac{R_2}{R_1 + R_2} E$$






I
R1
E
Rp = R2 // RP


I
R1
E
I=0
R2
VOUT
RL