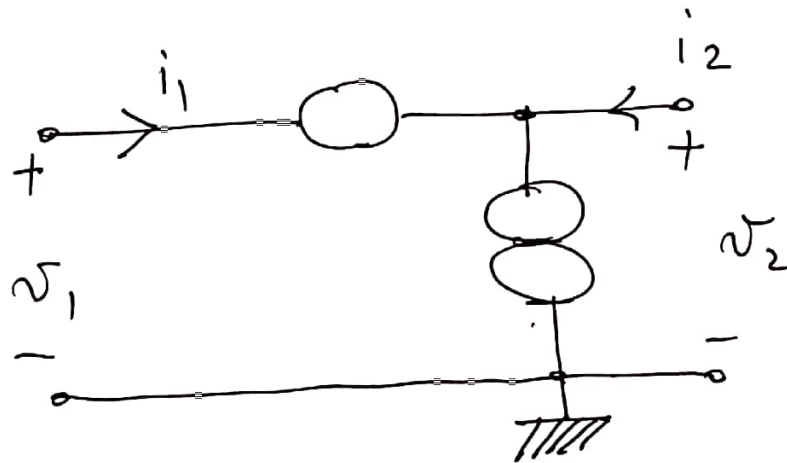
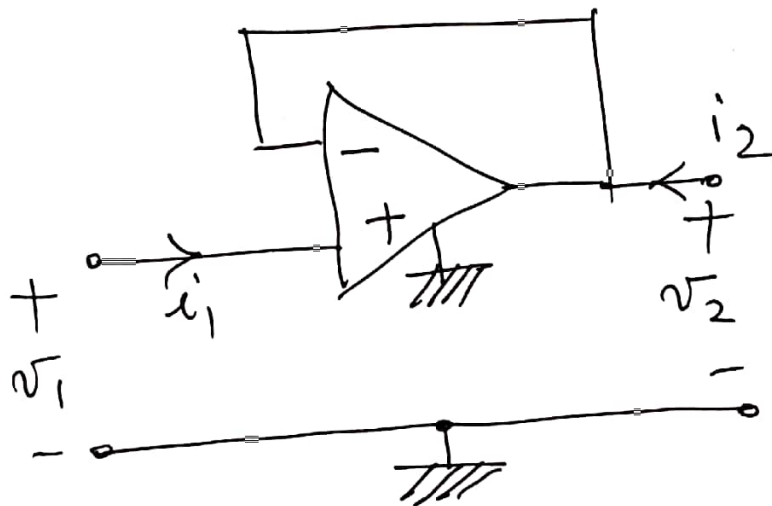
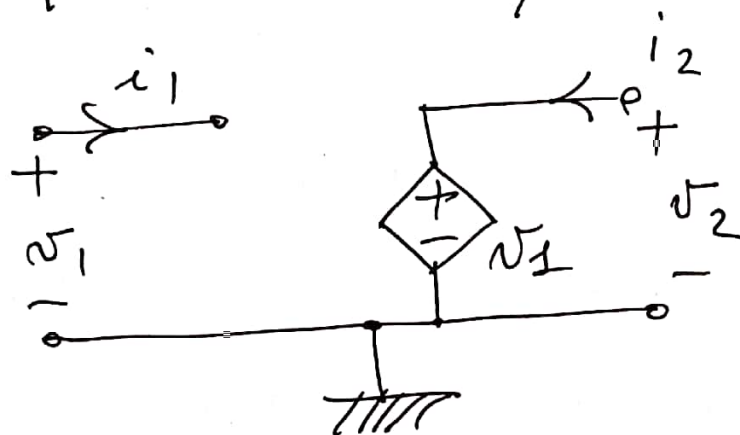


Esempio Circuito separatore (buffer) ①



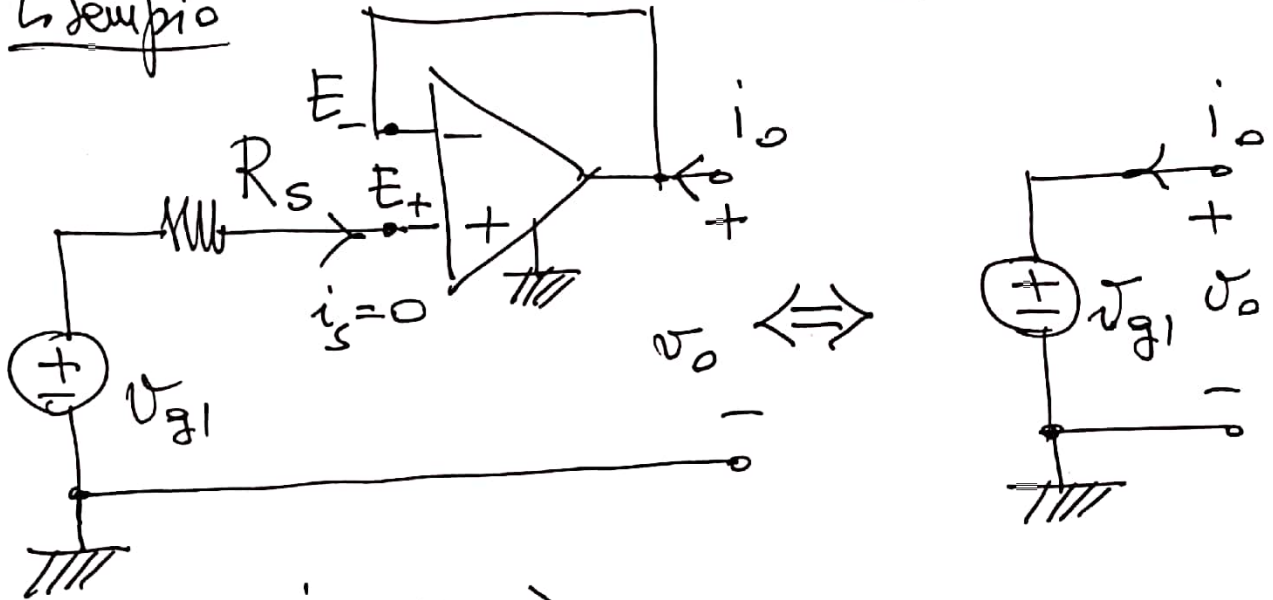
$$\begin{cases} v_2 = v_1 \\ i_1 = 0 \end{cases}$$

relazioni costitutive



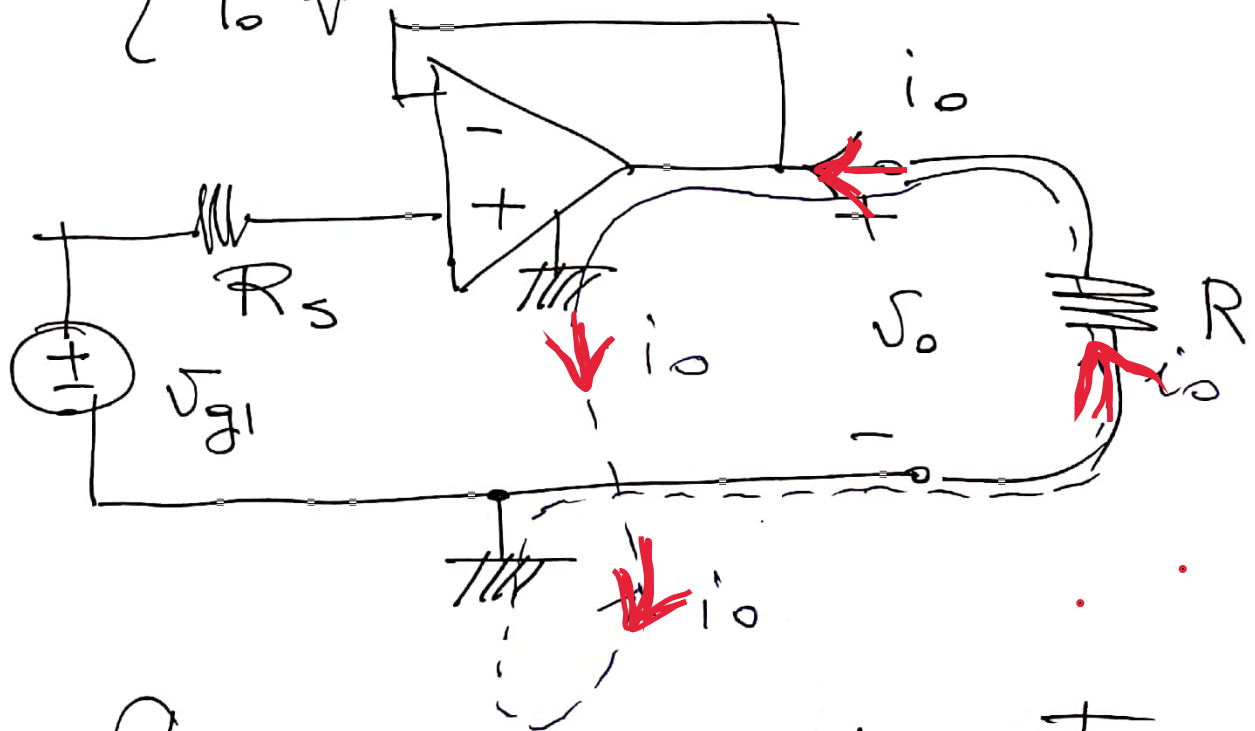
Esempio

Impiego c.to Reparatore ②



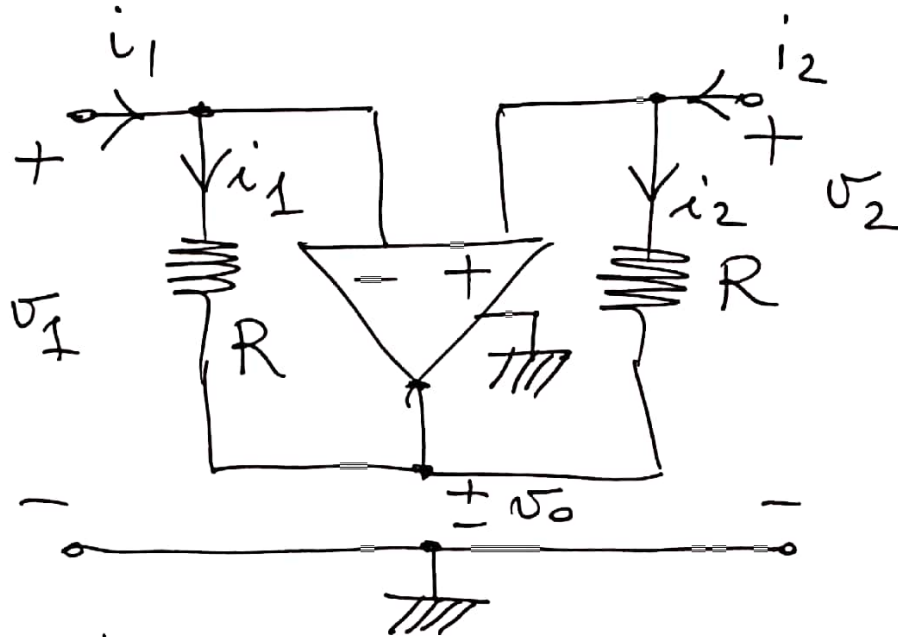
$$i_s = 0 \Rightarrow$$

$$\begin{cases} v_o = E_- = E_+ = V_{g1} \\ i_o \neq 0 \end{cases}$$



Notare la circolazione di corrente nel circuito.

Invertitore di corrente ($I-\sqrt{ic}$) (3)

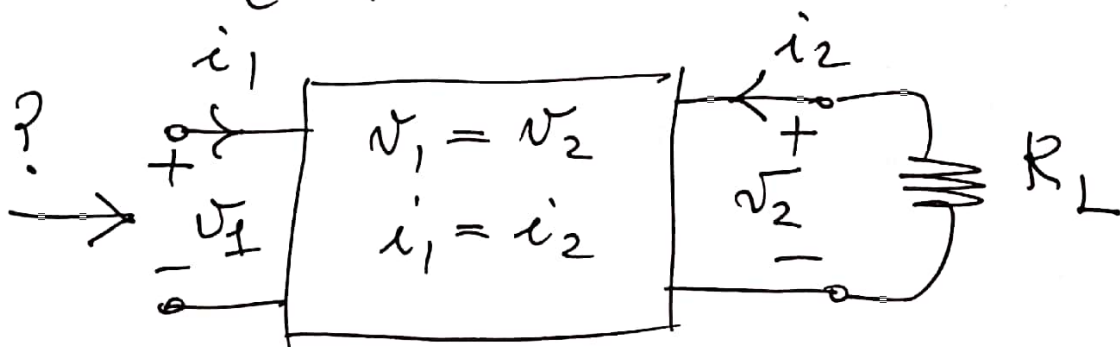


Si ha: $v_1 = v_2$

$$i_1 = \frac{v_1 - v_0}{R} ; i_2 = \frac{v_2 - v_0}{R}$$

$$\Rightarrow i_1 = i_2$$

$$\Rightarrow \begin{cases} v_1 = v_2 \\ i_1 = i_2 \end{cases} \quad \underline{I-\sqrt{ic}}$$

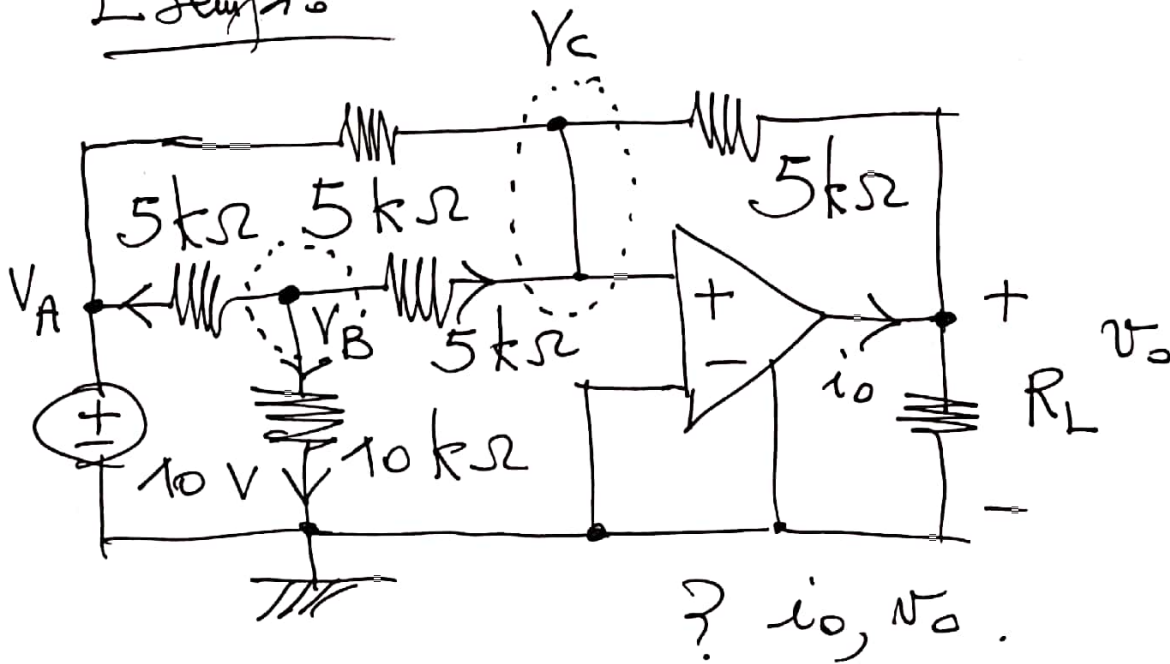


$$\frac{v_1}{i_1} = \frac{v_2}{i_2} \quad \text{ma} \quad v_2 = -R_L i_2$$

$$\Rightarrow \frac{v_1}{i_1} = -R_L \quad \dots \Leftrightarrow \quad \text{Circuit diagram showing } v_1 = -R_L i_1$$

Esercizio

④



4 nodi A, B, C, D;

4 incognite V_A, V_B, V_C, V_D

Ma: $V_A = 10V, V_C = 0$.

$\Rightarrow$ 2 sole incognite V_B e V_o

KI nodi B e C.

$$\textcircled{B} \quad \frac{V_B - 10}{5 \times 10^3} + \frac{V_B}{5 \times 10^3} + \frac{V_B}{10 \times 10^3} = 0$$

$$2V_B - 20 + 2V_B + V_B = 0 \Rightarrow$$

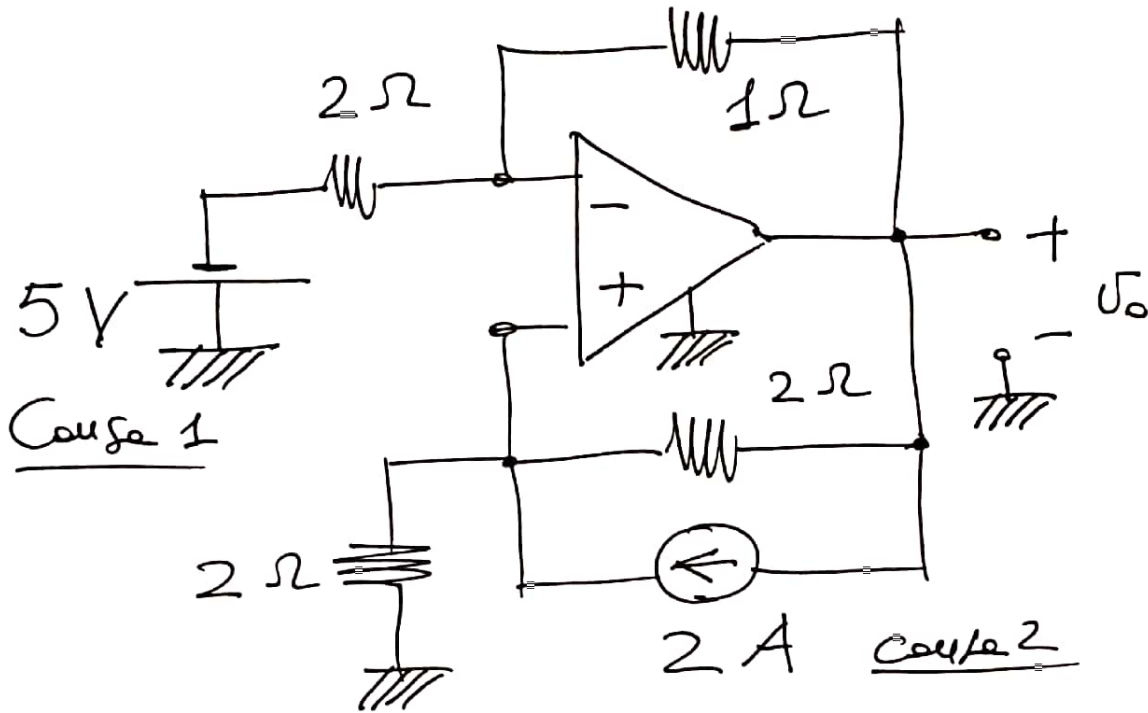
$$\boxed{V_B = 4V}$$

$$\textcircled{C} \quad \frac{10 - 0}{5 \times 10^3} + \frac{V_o - 0}{5 \times 10^3} + \frac{V_B - 0}{5 \times 10^3} + 0 = 0$$

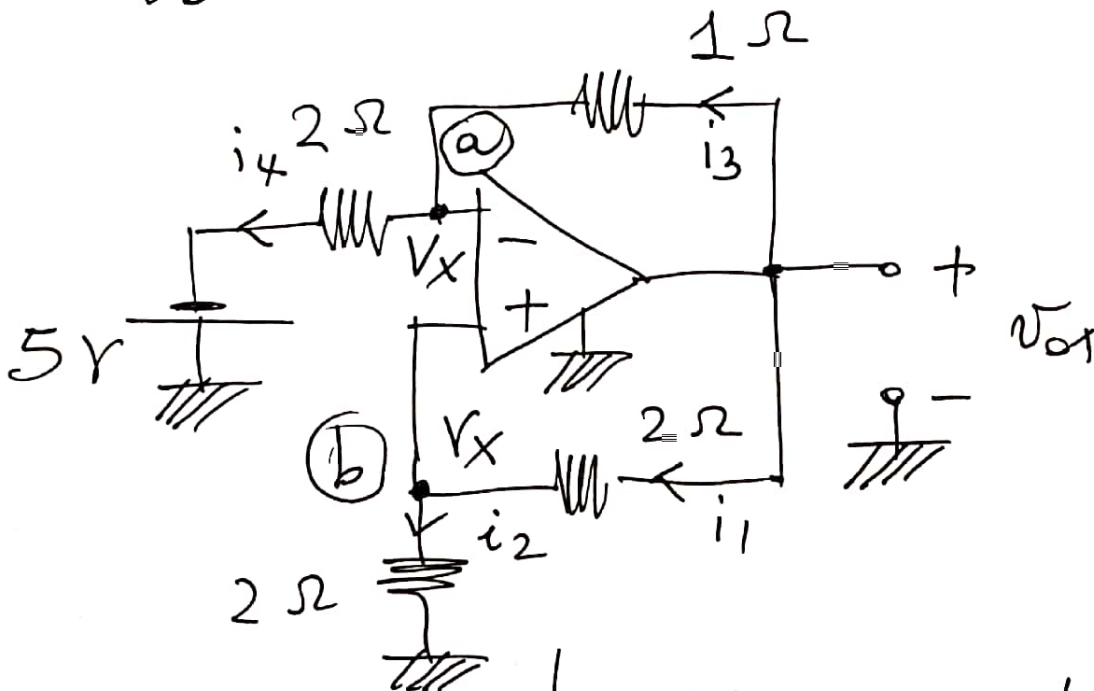
$$10 + V_o + 4 = 0$$

$$\boxed{V_o = -14V}$$

Esempio Determinare V_o usando il p.s.e. ①



$$V_o = V_{o1} + V_{o2}$$

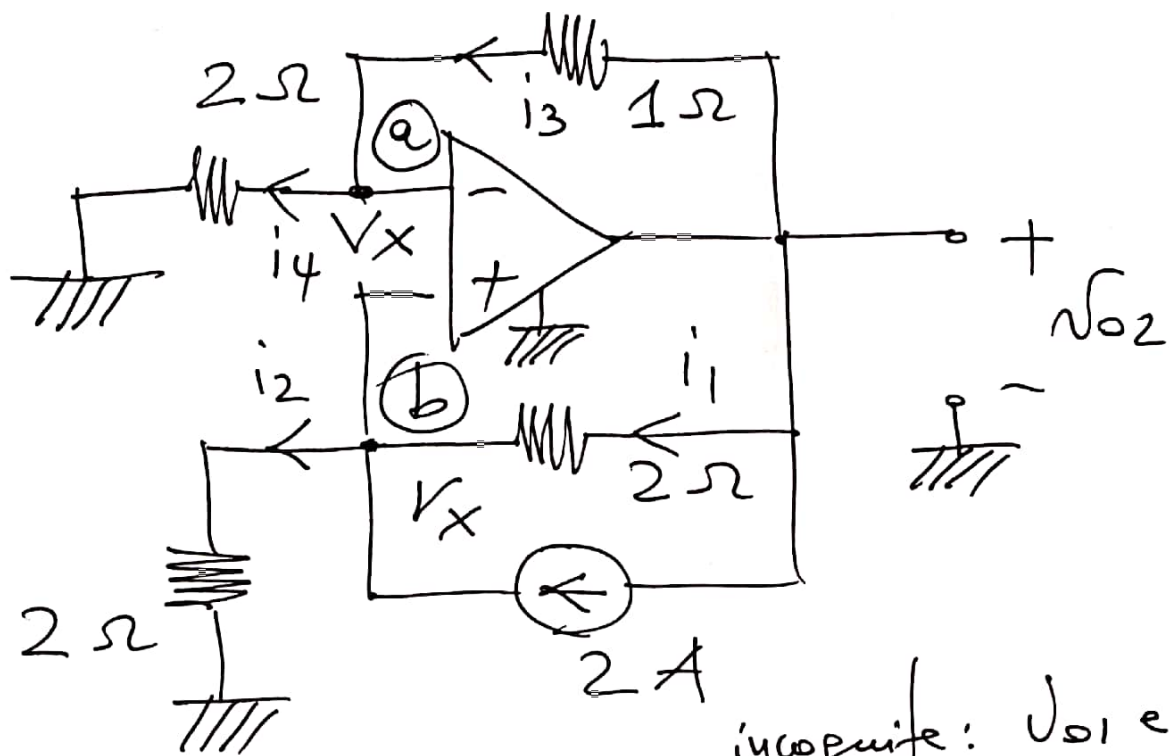


1 sola incognita V_x in equazione e V_{o1}
 KIR nodo (b): $i_1 = i_2$, cioè

$$\frac{V_{o1} - V_x}{2} = \frac{V_x - 0}{2} \Rightarrow V_x = \frac{V_{o1}}{2}$$

KIR nodo (a): $i_3 = i_4$

$$V_{o1} - \frac{V_{o1}}{2} = \left[\frac{V_{o1}}{2} + 5 \right] \frac{1}{2} \Rightarrow \boxed{V_{o1} = 10 \text{ V}}$$



incognite: V_{o1} e V_x

KI node (b): $i_1 + 2 = i_2$

$$2 + \frac{V_{o2} - V_x}{2} = \frac{V_x - 0}{2}$$

KI node (a): $i_3 = i_4$

$$\frac{V_{o2} - V_x}{1} = \frac{V_x - 0}{2}$$

risolvendo otteniamo: $V_{o2} = 12 \text{ V.}$

Allora

$$V_o = V_{o1} + V_{o2} = 10 + 12 = 22 \text{ V.}$$