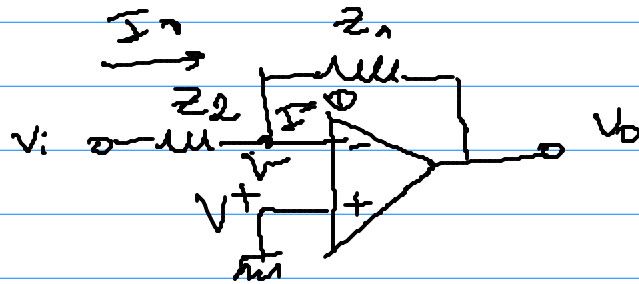


Práctico 8

22/6

* inversor



$$V^+ = V^- = 0$$

$$\frac{V_i - V^-}{Z_2} = I_1$$

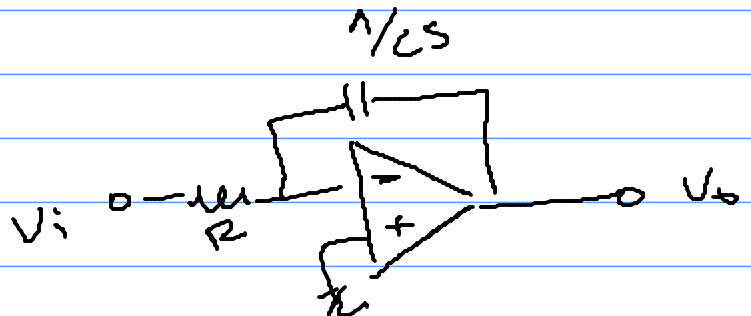
$$\frac{V^- - V_o}{Z_1} = I_1$$

$$\Rightarrow \frac{V_i \cdot Z_1}{-V_o \cdot Z_2} = 1$$

$$\boxed{\frac{V_o}{V_i} = -\frac{Z_1}{Z_2}}$$

$$V_o = \left(-\frac{Z_1}{Z_2}\right) V_i$$

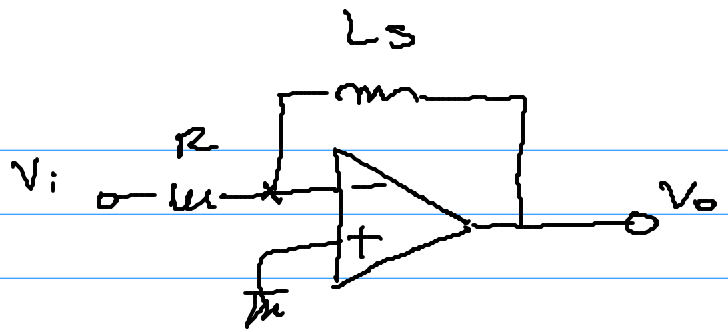
* integrador



$$V_o = \frac{-1/s}{R} \cdot V_i \Rightarrow V_o = -\frac{1}{RCs} \cdot V_i$$

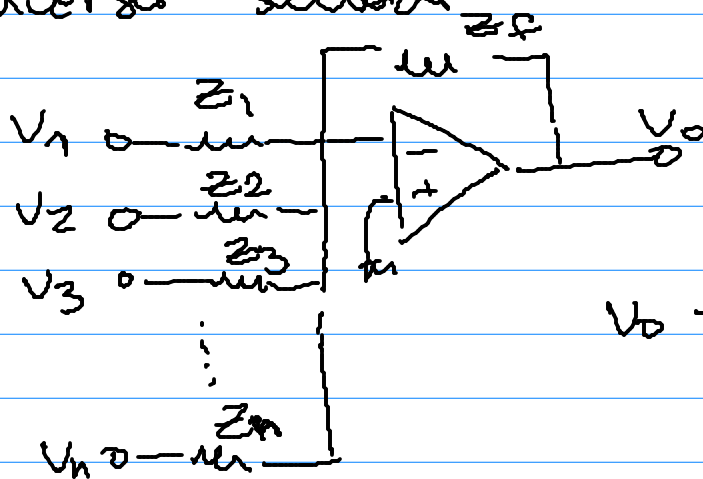
$$\Rightarrow V_o = \frac{-1/RC}{s} \cdot V_i$$

* Derivador



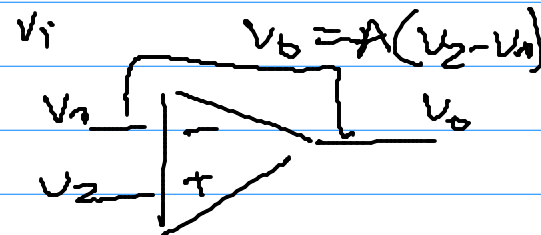
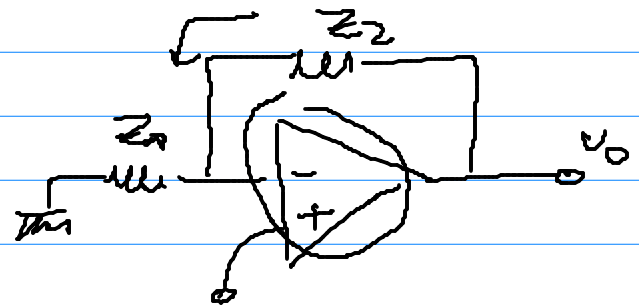
$$V_o = -\frac{L}{R} \cdot S \cdot V_i$$

* Inversor sumador



$$V_o = \sum_{i=1}^n \frac{-Z_F \cdot V_i}{Z_i}$$

* No inversor



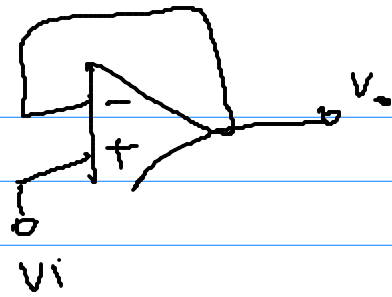
$$\frac{-V_i}{Z_1} = \frac{V_i - V_o}{Z_2}$$

$$\frac{V_o}{Z_2} = V_i \left(\frac{Z_2 + Z_1}{Z_2 Z_1} \right)$$

$$\frac{V_o}{V_i} = 1 + \frac{Z_2}{Z_1} \Rightarrow V_o = \left(1 + \frac{Z_2}{Z_1} \right) V_i$$

* Separador

$$V_o = V_i$$

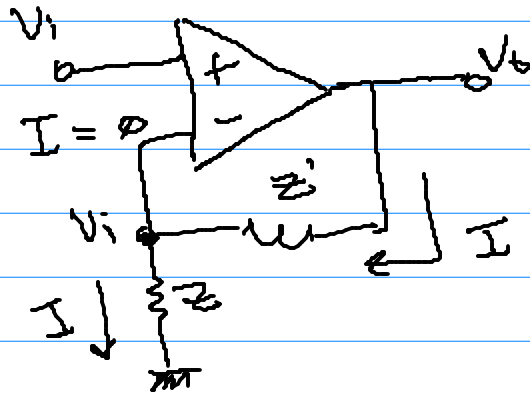


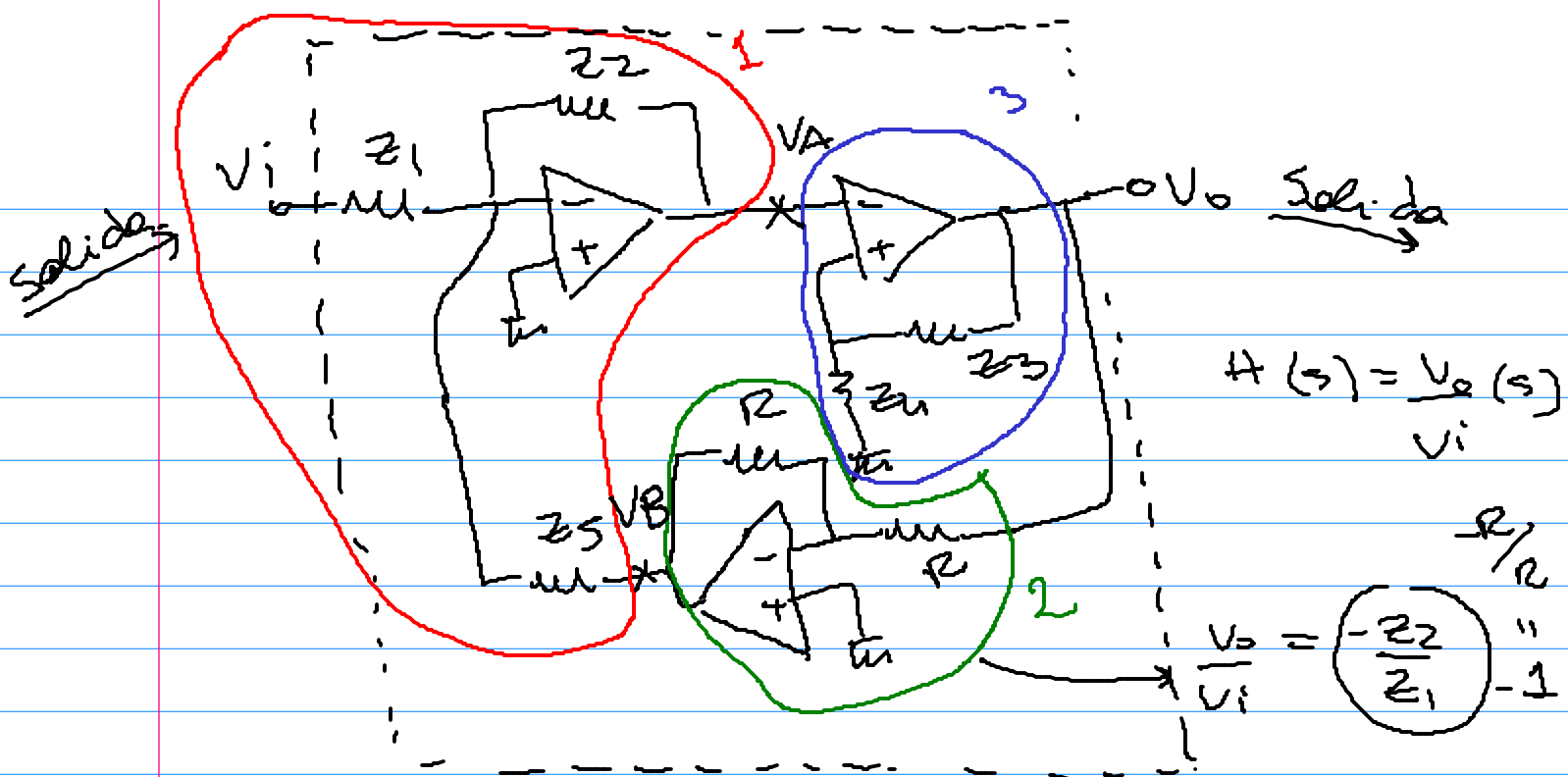
Ejercicio 5

$$\frac{-V_i}{Z} = \frac{V_i - V_o}{Z'}$$

$$\frac{V_o}{Z} = V_i \left(\frac{Z + Z'}{Z Z'} \right)$$

$$V_o = \left(1 + \frac{Z'}{Z} \right) V_i$$





Bloque 1: $-\frac{Z_2}{Z_1} V_i - \frac{Z_2}{Z_5} V_B = V_A$

Bloque 2: $\frac{V_B}{V_0} = -1$

Bloque 3: $\frac{V_0}{V_A} = \left(1 + \frac{Z_3}{Z_4} \right)$

$\Rightarrow V_B = -V_0 \Rightarrow \left(\frac{-Z_2}{Z_1} V_i \right) + \frac{Z_2}{Z_5} V_0 = V_A$

$V_0 \left(\frac{Z_4}{Z_4 + Z_3} \right) = V_A \quad (3)$

$-\frac{Z_2}{Z_1} V_i = \left(V_0 \left(\frac{Z_4}{Z_4 + Z_3} \right) - \left(\frac{Z_2}{Z_5} \right) \right)$

$\frac{V_0}{V_i} = -\frac{Z_2}{Z_1} \left(\frac{(Z_4 + Z_3) Z_5}{Z_4 Z_5 - (Z_4 + Z_3) Z_2} \right)$