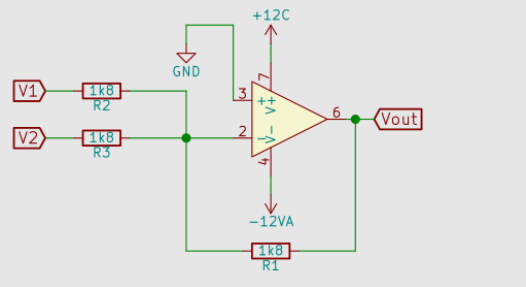
Brandon Gabriel Bejarano Jimenez

Tarea 1 Analisis de Sistemas Lineales

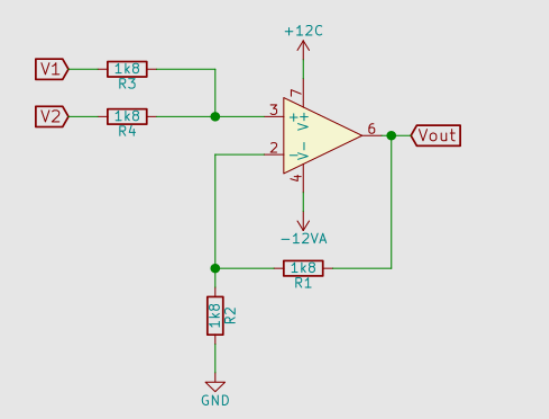
A) Resta amplificador operacional



$$V_{out} = -(V_1 + V_2)$$

$$= F(S) = \frac{R_2}{R_1}$$

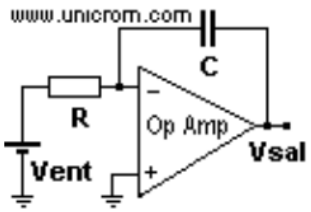
B) Suma Amplificador Operacional no inversor



$$V_{out} = V_1 + V_2$$

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

C) *Integrar con Amplificador Operacional*

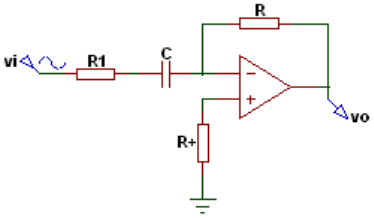


$Z_1 = R$ $\qquad Z_2 = \frac{1}{jwC} = -\frac{1}{SC}$

$\frac{V_{out}}{V_{in}} = -\frac{Z_2}{Z_1}$

$F(s) = -\frac{Z_2}{Z_1}$; $\qquad F(s) = -\frac{\frac{1}{SC}}{R} = -\frac{1}{SCR}$

D) *Derivar con Amplificador Operacional*

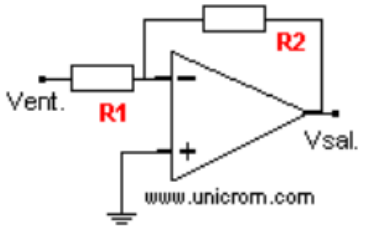


$Z_2 = R$ $\qquad Z_1 = \frac{1}{jwC} = -\frac{1}{SC}$

$\frac{V_{out}}{V_{in}} = -\frac{Z_2}{Z_1}$

$F(s) = -\frac{Z_2}{Z_1}$; $\qquad F(s) = -\frac{R}{\frac{1}{SC}} = -SCR$

E) *Amplificador Operacional Inversor*



$\frac{V_{out}}{V_{in}} = -\frac{R_2}{R_1}$ $\qquad F(s) = -\frac{R_2}{R_1}$