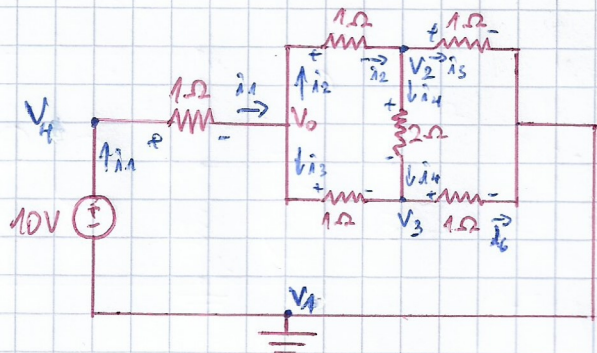


Ejercicio 2.72 Sadiku

2.72 Halle V_0 en el circuito divisor de potencial bidireccional.



$V_4 = 0 \rightarrow$ Nodo de referencia

Voltage facil

① $V_4 = 10[V]$

Nodo 0

$$V_4 - V_0 - V_0 + V_2 - V_0 + V_3 = 0$$

② $3V_0 - V_2 - V_3 - V_4 = 0$

Nodo 2

$$V_0 - V_2 - \frac{V_2 + V_3}{2} - V_2 = 0$$

③ $2V_0 - 5V_2 + V_3 = 0$

Nodo 3

$$V_0 - V_3 + \frac{V_2 - V_3}{2} - V_3 = 0$$

④ $2V_0 - 5V_3 + V_2 = 0$

$$\begin{bmatrix} 0 & 0 & 0 & 1 \\ 3 & -1 & -1 & -1 \\ 2 & -5 & 1 & 0 \\ 2 & 1 & -5 & 0 \end{bmatrix} \begin{bmatrix} V_0 \\ V_2 \\ V_3 \\ V_4 \end{bmatrix} = \begin{bmatrix} 10 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

$$V_0 = 5[V]$$

$$V_2 = 5/2[V]$$

$$V_3 = 5/2[V]$$

$$V_4 = 10[V]$$

In[7]:= **A = {{0, 0, 0, 1}, {3, -1, -1, -1}, {2, -5, 1, 0}, {2, 1, -5, 0}}**

Out[7]= **{{0, 0, 0, 1}, {3, -1, -1, -1}, {2, -5, 1, 0}, {2, 1, -5, 0}}**

In[8]:= **b = {{10}, {0}, {0}, {0}}**

Out[8]= **{{10}, {0}, {0}, {0}}**

In[9]:= **MatrixForm[Inverse[A].b]**

forma de mat·matriz inversa

Out[9]/MatrixForm=

$$\begin{pmatrix} 5 \\ \frac{5}{2} \\ \frac{5}{2} \\ 10 \end{pmatrix}$$