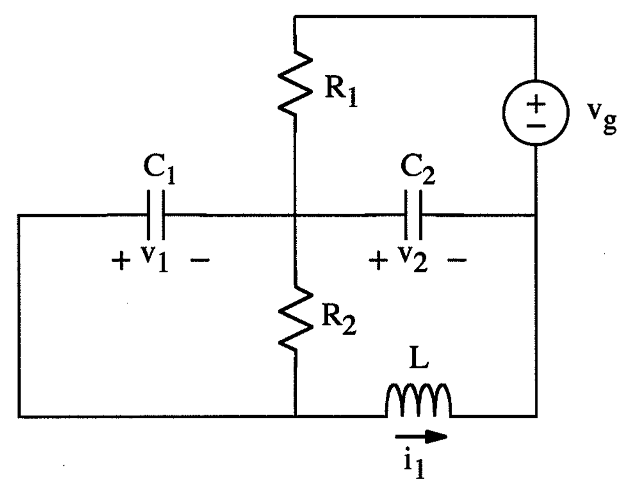
Ex:



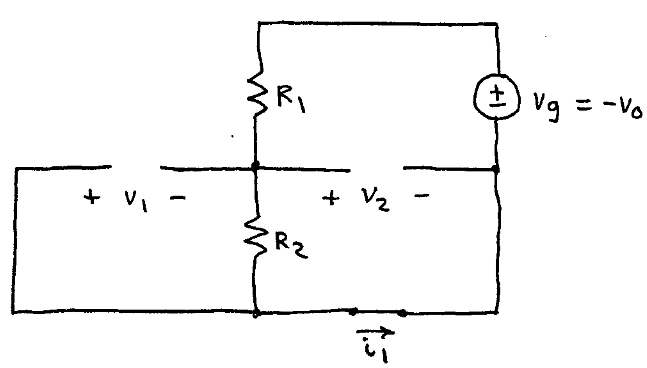
At $t = 0$, $v_g(t)$ switches instantly from $-v_o$ to v_o.

Evaluate the state vector at $t = 0^+$:

$$\vec{x} = \begin{bmatrix} v_1 \\ v_2 \\ i_1 \end{bmatrix}$$

sol'n: Since state vector is energy variables, we have $v_1(0^+) = v_1(0^-)$, $v_2(0^+) = v_2(0^-)$, $i_1(0^+) = i_1(0^-)$. (These values cannot change instantly.)

At $t=0^-$, L = wire, C's = opens



From v-loop v_g, R_1, R_2 we have

$$i_1 = \frac{v_g}{R_1 + R_2} = \frac{-v_0}{R_1 + R_2} \quad @\ t = 0^-$$

$$v_1(0^-) = -v \text{ across } R_2 = -i_1 R_2 = +v_0 \frac{R_2}{R_1 + R_2}$$

$v_2(0^-) = -v_1$ from v-loop thru v_1, v_2, L.

$$v_2(0^-) = -v_0 \frac{R_2}{R_1 + R_2}$$

Summary:

$$\begin{bmatrix} v_1(0^-) \\ v_2(0^-) \\ i_1(0^-) \end{bmatrix} = \begin{bmatrix} \dfrac{v_0 R_2}{R_1 + R_2} \\ -\dfrac{v_0 R_2}{R_1 + R_2} \\ -\dfrac{v_0}{R_1 + R_2} \end{bmatrix}$$