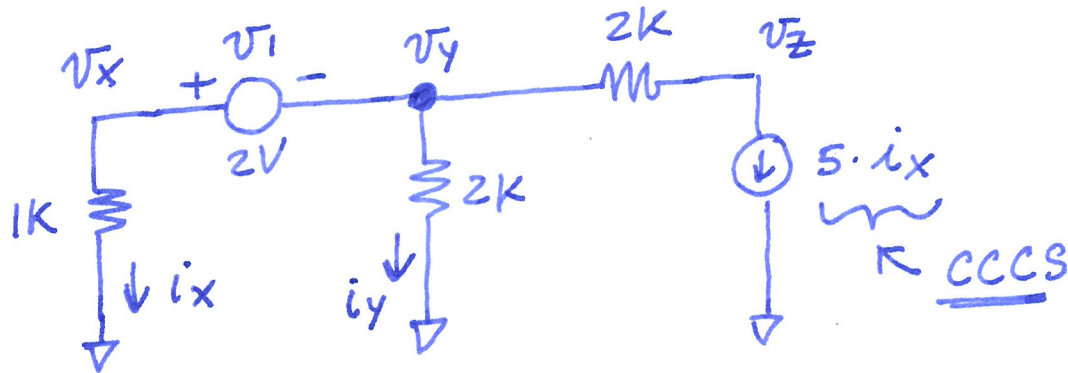


Example #5 - using CCCS



Find v_y , v_z , i_x
and verify with
LTSPICE.

• dependent sources controlled in current

$$\begin{cases} v_x = 2V + v_y \\ i_x + 5i_x = -i_y \rightarrow i_y = -6i_x \end{cases}$$

$$\begin{aligned} v_z &= v_y - 2k \cdot 5 \cdot i_x = \\ &= -1.85 - 2k \cdot 5 \cdot 0.154m = \\ &= -3.39V \end{aligned}$$

$$\rightarrow v_y = 2k \cdot (-6 \cdot i_x)$$

$$v_x = 2V - 2k \cdot 6 \cdot i_x \rightarrow$$

$$\rightarrow \underbrace{1k \cdot i_x}_{v_x} = 2V - 12k \cdot i_x \rightarrow 13k \cdot i_x = 2V \rightarrow$$

$$i_x = 0.154 \text{ mA}, \quad v_x = 0.154V$$

$$v_y = 0.154V - 2V \approx -1.85V$$