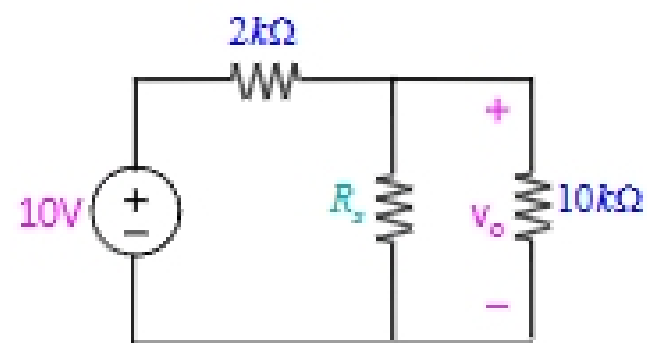


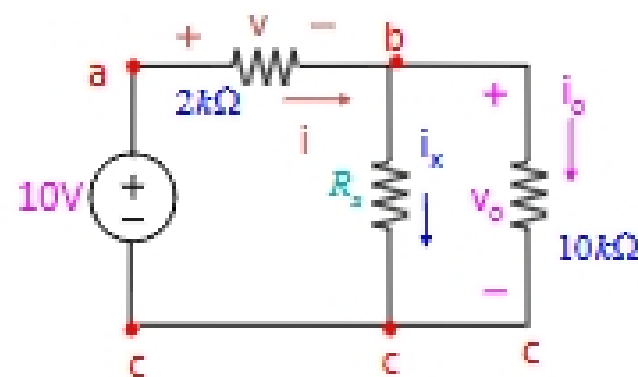
Example (2)

In the circuit shown, select a value for the resistor R_x so that $v_o = 8V$



Solution

Given: $v_o = 8V$



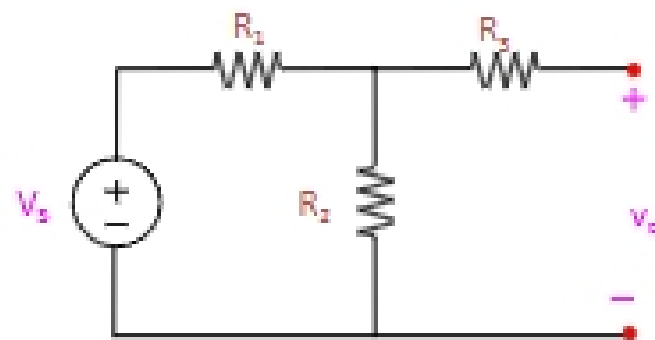
$$\text{KVL (abca): } 10 = v + 8 \Rightarrow v = 2V \Rightarrow i = \frac{2}{2k} = 1mA$$

$$\text{Ohm's Law: } i_o = \frac{8}{10k} = 0.8mA$$

$$\text{KCL node b: } i = i_x + i_o \Rightarrow 1m = i_x + 0.8m \Rightarrow i_x = 0.2mA$$

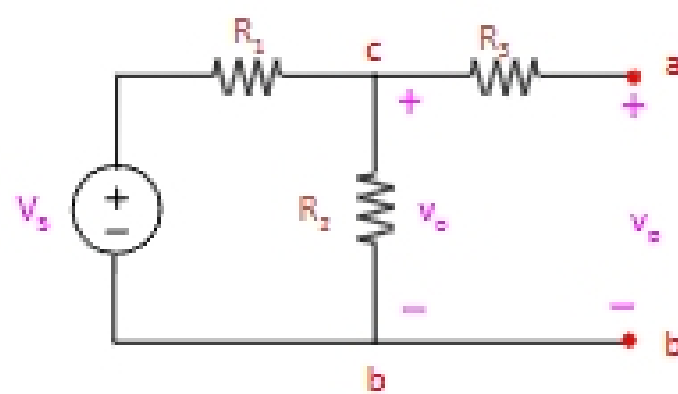
$$\text{Current division rule: } \frac{i_o}{i_x} = \frac{R_x}{10k} \Rightarrow \frac{0.8}{0.2} = \frac{R_x}{10k} \Rightarrow \boxed{R_x = 40k\Omega}$$

Example (3)



Use the voltage division rule to find the output voltage v_o .

Solution:



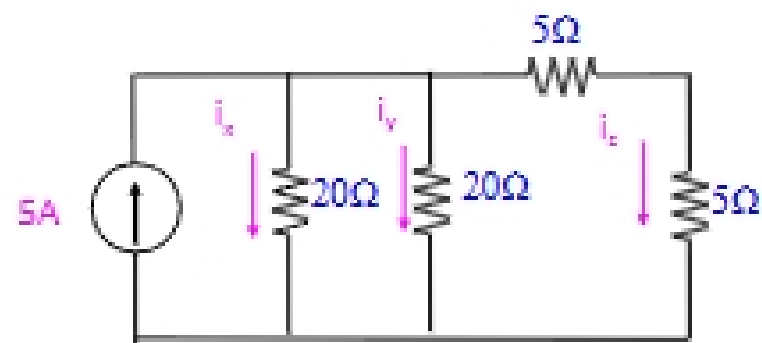
Hint:

- current through R_2 is zero !
- The voltage source and R_1 and R_2 connected in series !

Voltage division rule:

$$v_o = V_s \left(\frac{R_2}{R_1 + R_2} \right)$$

Example (4)



- Find the current i_x
- Find the current i_y
- Find the current i_z

Solution:

