

EE 42

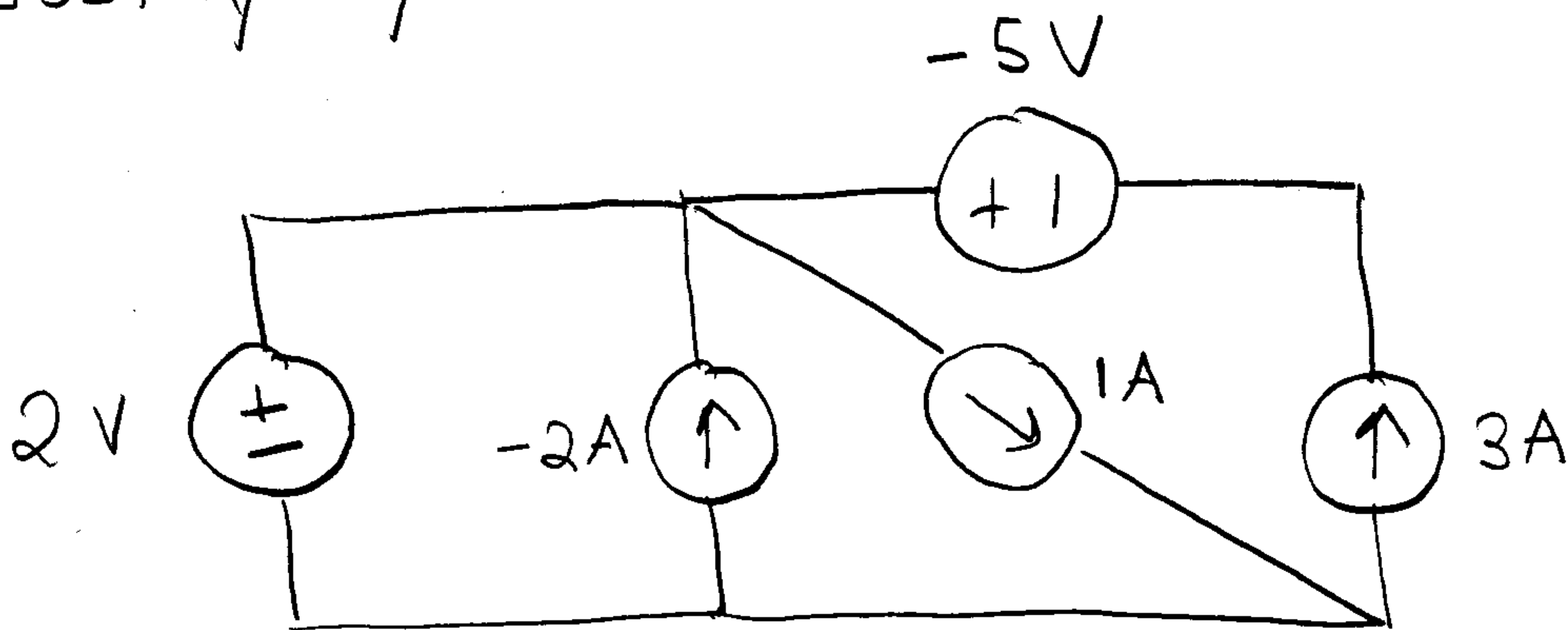
Homework # 1

Due Thursday, Feb 5, 2004  
at 3:30 PM in drop box

Problem 1:

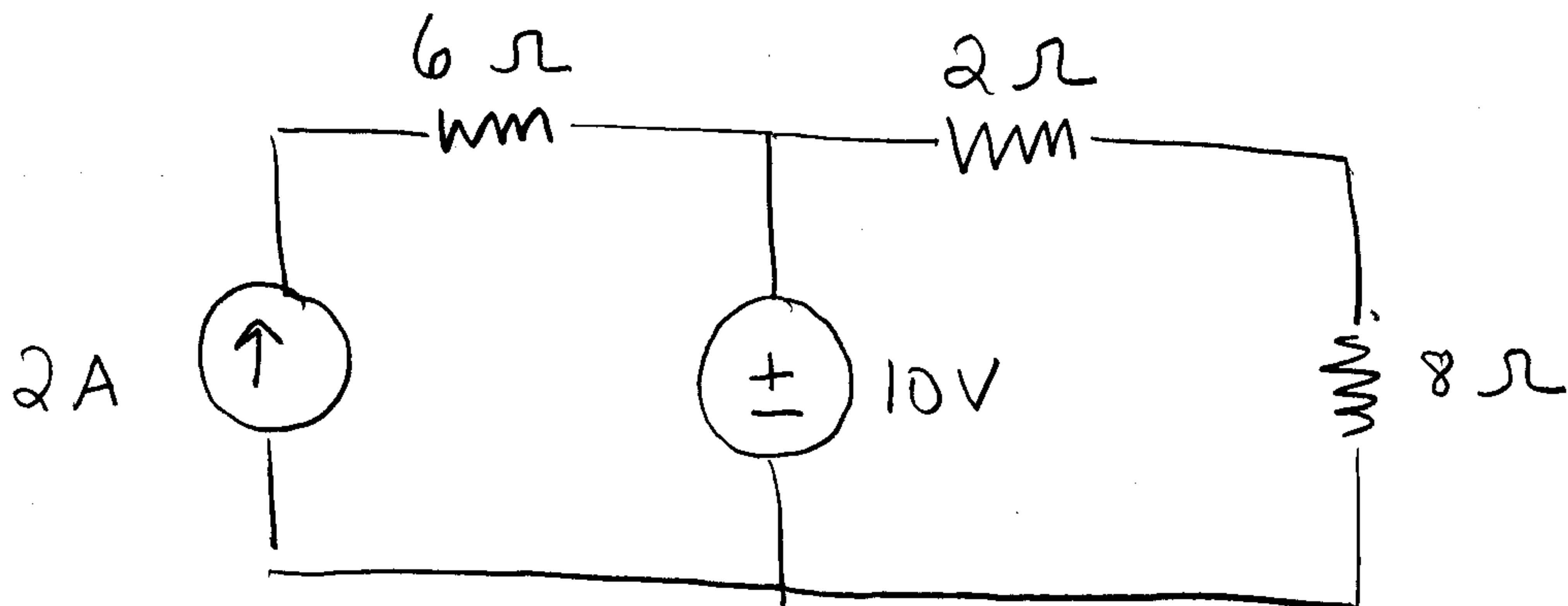
Does the following circuit violate KVL or KCL?

Justify your answer.



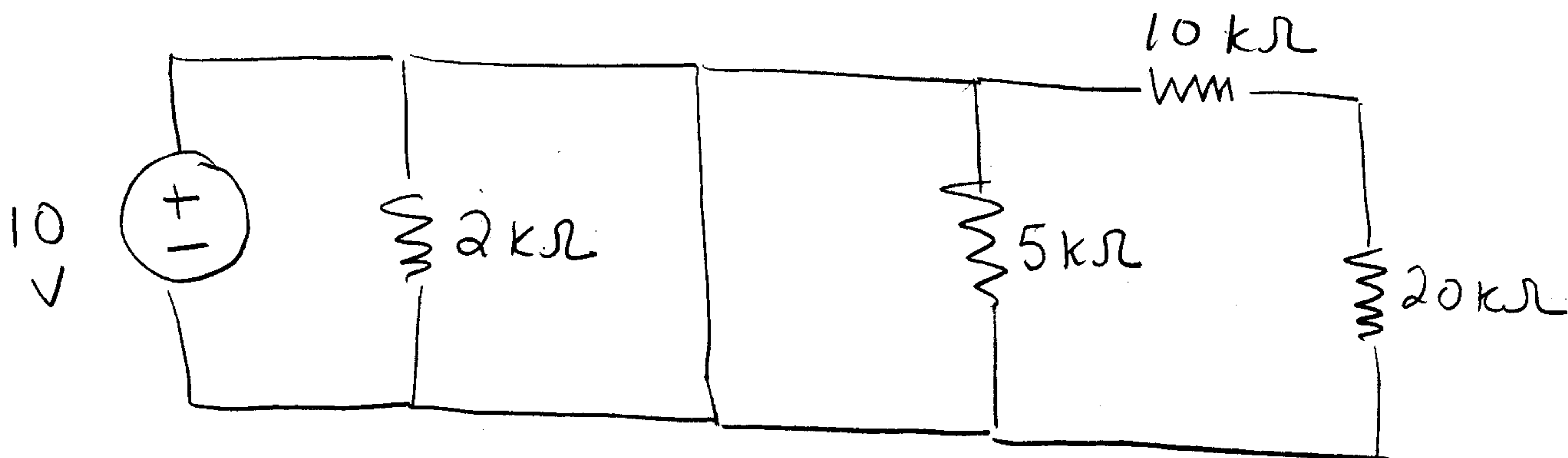
Problem 2:

Find the power absorbed by each of the devices in the following circuit. (Use KVL, KCL to find  $i$  &  $v$ .)



Problem 3:

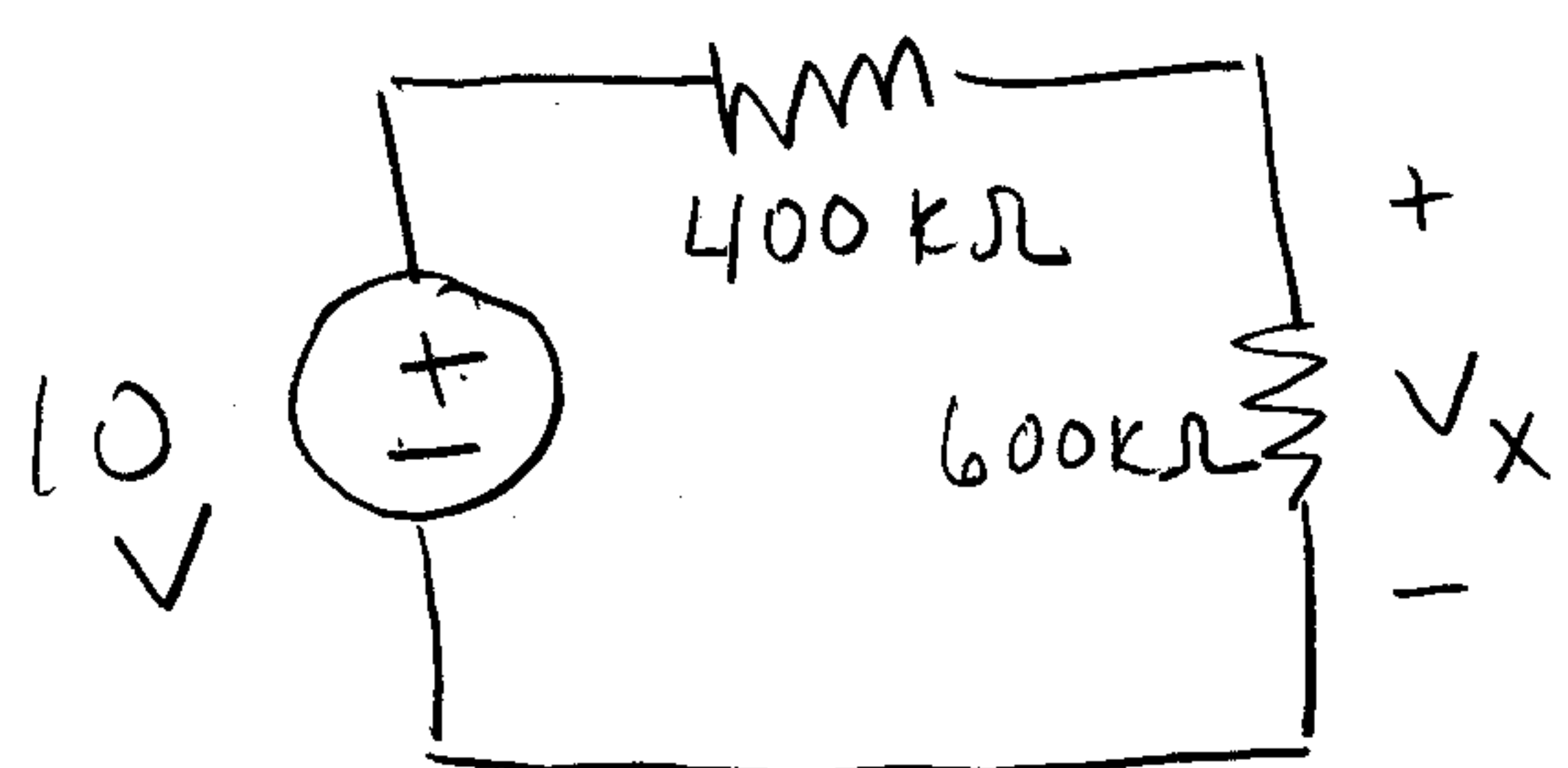
Consider the following circuit:



- Does this circuit violate KVL or KCL? Justify your answer.
- If you built this circuit in lab, would the components behave according to our idealized models? What might happen?

Problem 4:

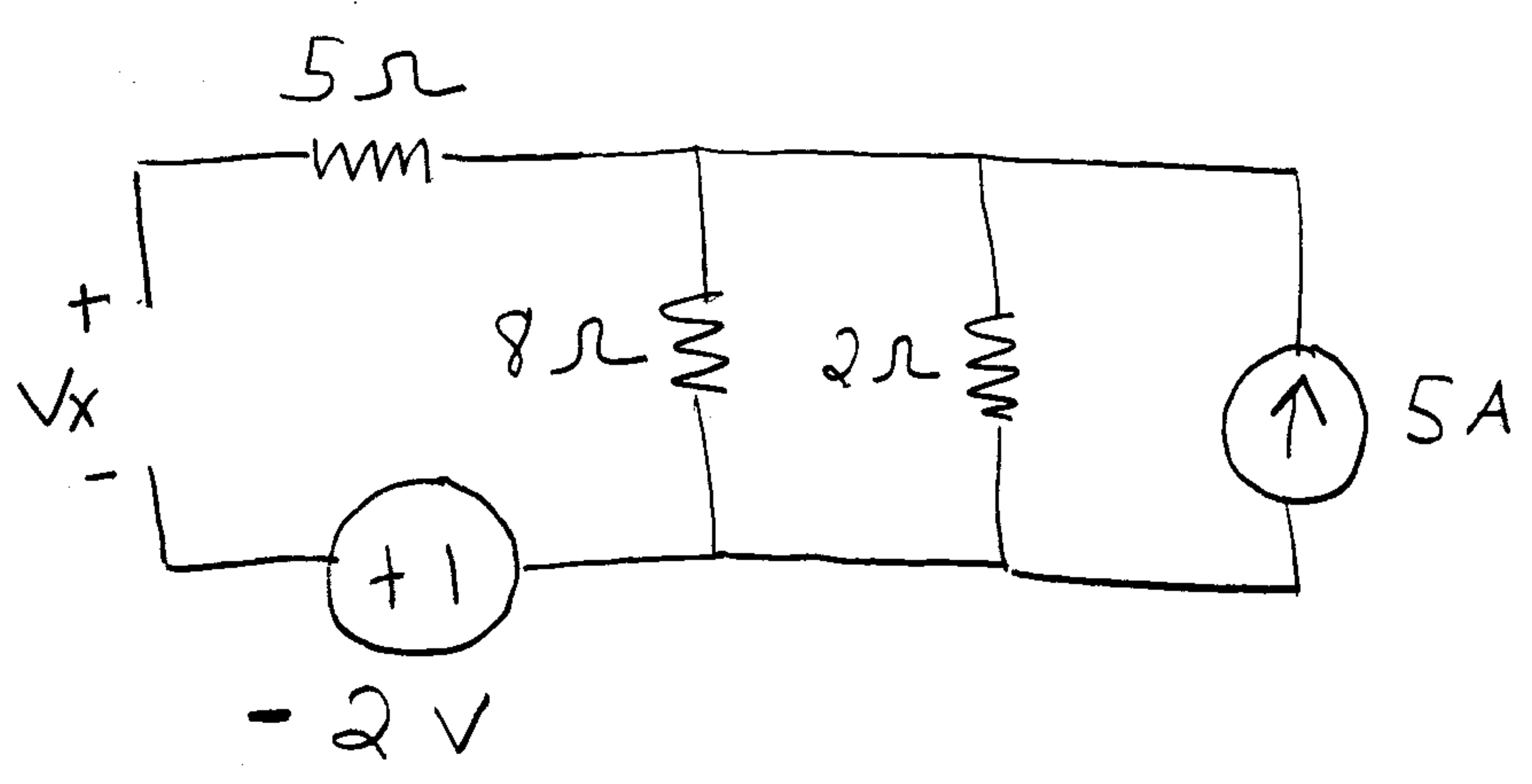
Consider the following circuit:



- What is the value of  $V_x$ ?
- Suppose I measure  $V_x$  using a voltmeter, and it reads 5V. What is the internal resistance of the voltmeter?

Problem 5:

Find  $V_x$ .



(Yes,  $V_x$  is the voltage over a hole in the circuit.)