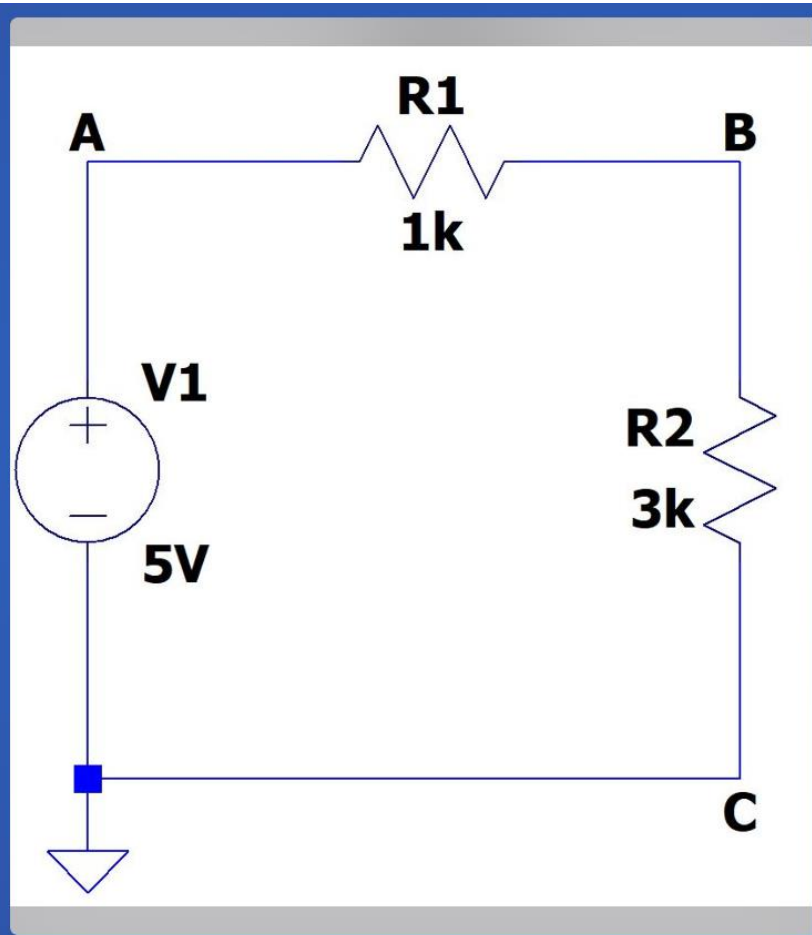


Q1) Conventional Current Flow



In which direction would we (electrical engineers) define current flow in this circuit?

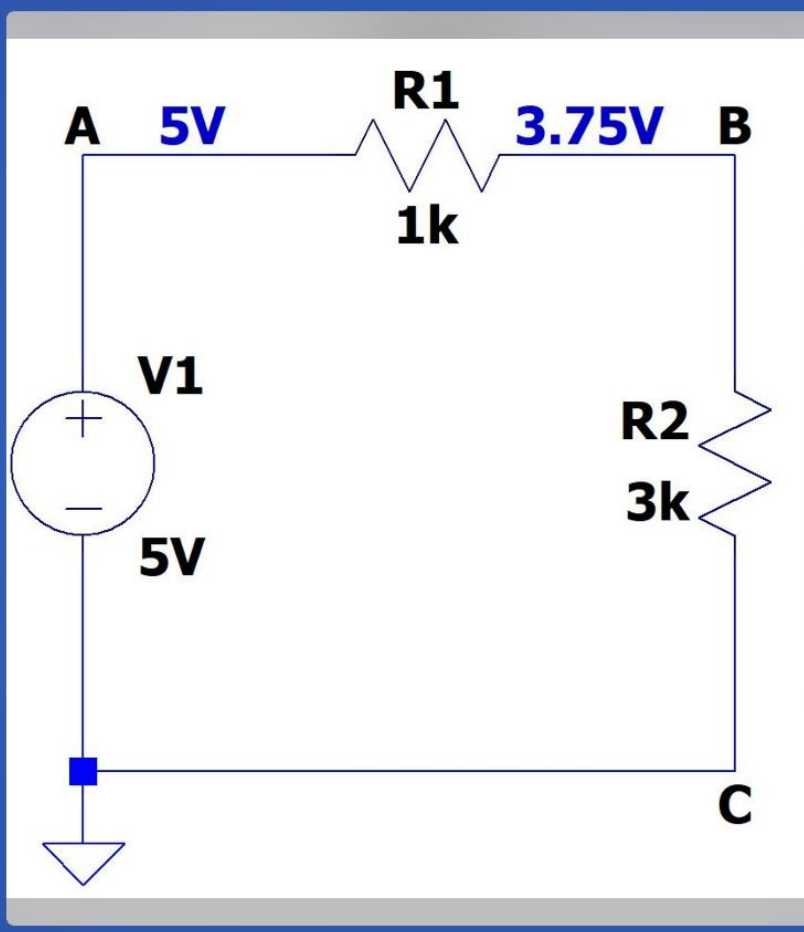
Clockwise 95%

Counterclockwise 5%

Undefined 0%

Since conventional current flows from (+) to (-), the current in this circuit flows from the (+) terminal of V1 around the circuit, then back into the (-) terminal of V1 (**clockwise**)

Q2) Node Voltages 1



The circuit diagram shows a 5V DC voltage source V1 connected in series with a 1k resistor R1. This series combination is connected to a 3k resistor R2. The circuit is completed by a ground connection. Node A is defined as the wire between the positive terminal of V1 and the left side of R1. Node B is the wire between the right side of R1 and the top of R2. Node C is the ground connection.

What is the voltage at node A?

- 5V ✓ 95%
- 0V 4%
- 1.25V 2%
- 3.75V 0%

Node A spans the wire between the (+) terminal of V1 and the left side of R1. The voltage on that wire, as reported by LTSpice is **5V**.

Q3) Node Voltages 2

What is the voltage at node C?

- 0V 70%
- 1.25V 28%
- 5V 2%
- 3.75V 0%

Node C spans the wire between the bottom of R2 and the (-) terminal of V1. Since that node is directly connected to ground, the voltage at node C is **0V**.

Q2) Voltage Across a Resistor

What is the voltage across R1?

1.25V 95%

3.75V 5%

0V 0%

5V 0%

The voltage across R1 is the difference between the voltage at node A (the left side of R1) and node B (the right side of R1), giving an answer of $5V - 3.75V = 1.25V$