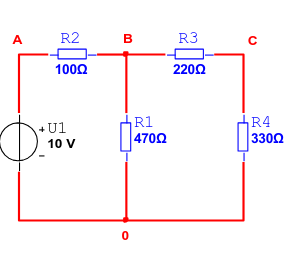
**Week 5: Kirchoff’s laws**

**1.**

a.



b.

Metrahit 29S multimeter

|  |  |  |
| --- | --- | --- |
|  | meet-value() | Abs.error() |
| UAB | 2.810 V |  |
| UB0 | 7.16 |  |
| U0A | -9.97 |  |
|  |  |  |
| sum | 0 |  |

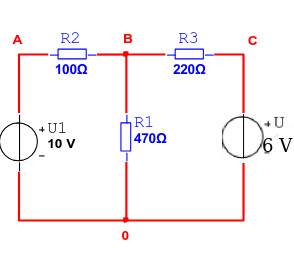
|  |  |  |
| --- | --- | --- |
|  | meet-value() | Abs.error() |
| U0C | 4.329 |  |
| UCB | 2.844 |  |
| UB0 | -7.16 |  |
|  |  |  |
| sum | 0.013 |  |

c.

The sum is close to zero, however because of the absence of ideal components, there is some voltage lost in the circuit.

d.

Circuit with 6V battery (U)



e.

|  |  |  |
| --- | --- | --- |
|  | meet-value() | Abs.error() |
| UAB | 2.205 V |  |
| UB0 | 7.77 V |  |
| U0A | -9.98 |  |
|  |  |  |
| sum | -0.005 |  |

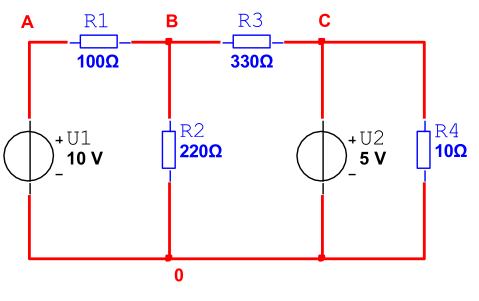
|  |  |  |
| --- | --- | --- |
|  | meet-value() | Abs.error() |
| U0C | -6.47 |  |
| UCB | -1.186 |  |
| UB0 | 7.79 |  |
|  |  |  |
| sum | 0.134 |  |

f.

The sum of the voltages is close to 0, however not 0 due to the lack of ideal components.

g.

The battery is being charged by the circuit, due to charge traveling through it from the positive to the negative terminal.

1.2 **Kirchhoff - The sum of the currents in a node is zero**

Due to the lack of a 5V source, a 6V battery is used instead

a.

|  |  |  |
| --- | --- | --- |
|  | Measured value (mA) | Abs. Error () |
| IR1 | 17.51 |  |
| IR2 |  |  |
| IR3 |  |  |
| sum |  |  |