* 1. **Resistive network with Arduino**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Comp. | Meas. (kΩ) | Meas. U (V) | Meas. I (mA) | Calc (kΩ)  R = U/I | Calc (mW)  P = UI | Calc (mW) P=U^2/R | Calc (mW)  P = I^2 R |
| R1 | 2.14 | 0.99 | 0.55 | 0.46 | 0.55 | 0.47 | 0.65 |
| R2 | 20.0 | 4.01 | 2.3 | 0.20 | 9.29 | 0.79 | 109 |
| R3 | 4.56 | 1.27 | 0.38 | 0.27 | 0.48 | 0.35 | 0.66 |
| R4 | 9.63 | 2.72 | 0.69 | 0.28 | 1.86 | 0.77 | 4.52 |

*Compare the values to the simulated values, are they the same?*

No. The voltage and resistance checks out, but the current does not.

*Calculate all resistances from measured voltage and current. Do they agree?*

No. See above answer.

*Confirm KVL in the loops U – R1 – R2 AND R2 – R3 – R4.*

KVL checks out, to a reasonable error margin.

*Confirm KCL in the node between R1, R2 and R3.*

R1 = R3 + R2. This does not agree with the multimeter measurements as R3 + R2 = 2.31 + 0.38 = 2.69mA and R1 = 0.55mA.

*Calculate the power from the Arduino and confirm the power balance.*

P = IV = 5V \* 0.55mA = 2.75mW