Graduate student problem competition
Dec 12–18, 2022

All graduate students are eligible to participate.
To submit your solution, e-mail it to `bazaliy@mailbox.sc.edu`

Find resistor

N electric nodes $(N > 2)$ are connected by $N(N-1)/2$ resistors. Resistors are arbitrary, and there is one and only one resistor connecting any two nodes. Using only wires and an Ohmmeter, find the resistance of a selected resistor in this contour (see figure). You are not allowed to cut any connections but you may connect any two nodes of the contour with a wire. Wires are assumed to be ideal conductors with no resistance.
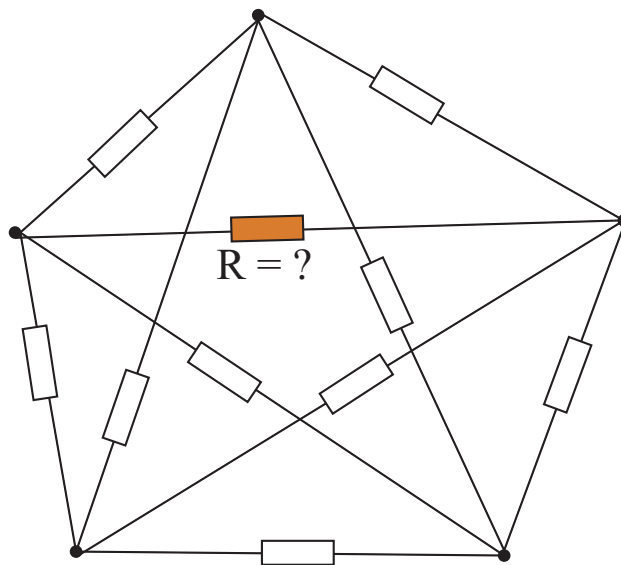

Figure 1: Example with $N = 5$. You have to find the value of resistor shown in red.