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We make use of classical results in linear algebra that can be traced back to Sylvester's days to study the minors of Laplace matrices of graphs. It is shown how every minor of a Laplace matrix can be written in terms of those minors that are obtained by deleting two rows and the corresponding columns. Two applications of this interesting fact are presented:

- The determinant identity can be used to solve a problem in the theory of electrical networks: given the effective resistances in such a network, how can the original resistances be reconstructed?
- As another consequence, we obtain a novel approach to the enumeration of spanning trees. This method is applied to a problem from statistical physics: the enumeration of spanning trees on translation-invariant and self-similar lattices.

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