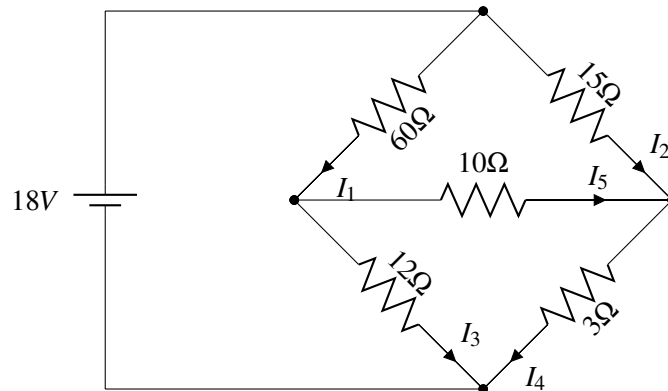


1. Wheatstone bridge



Determine all the branch currents.

## 2. Circuits to matrices!

Following the node method, develop a set of simultaneous equations for the network shown that can be used to solve for the three unknown node voltages. Express these equations in the form

$$G \begin{bmatrix} e_1 \\ e_2 \\ e_3 \end{bmatrix} = S$$

where  $G$  is a  $3 \times 3$  matrix of conductance terms and  $S$  is a  $3 \times 1$  vector of terms involving the sources. You need not solve the set of equations for the node voltages.

