

Node Voltage Method

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- Node — A point where two or more circuit elements join
- Essential Node — A node where three or more circuit elements join
- Path — A trace of adjoining basic elements with no elements included more than once
- Branch — A path that connects two nodes
- Essential Branch — A path which connects two essential nodes without passing through an essential node
- Loop — A path whose last node is the same as the starting node
- Mesh — A loop that does not enclose any other loops
- Planar Circuit — A circuit that can be drawn on a plane with no crossing branches
- The Node Voltage Method — 4 Step Process
 1. Find essential nodes ($\# = n$)
 2. Designate a ground node
 3. Write $n - 1$ KCL equations, setting current flowing out of each essential node = 0 (not including the ground node)
 4. Solve $n - 1$ equations