Kirchhoff's current law (KCL) This law is also coded Kirchhoff's first law, Kirchhoff's point, one, Kirchhoff's junction rule (or nodal rule), and previetlichhoffe ärst rule.

The principle of conservation of electric charge implies that: At any node (junction) in an electrical circuit, the sum of currents flowing into that node is equal to the sum of currents flowing out of that node, or The algebraic sum of currents in a network of conductors meeting at a point is zero. Strictly speaking KCL only applies to circuits with steady currents (DC). However, for AC circuits having dimensions much smaller than a wavelength, KCL is also approximately

applicable.

Solve for the mesh currents.
Notesale
$$R_{1} \oplus B_{3} \oplus C_{2} - R_{3}$$

preview from $R_{1} \oplus B_{3} \oplus C_{2} - R_{3}$
 $Preview = -R_{3} = R_{2} + R_{3}$
 $\begin{bmatrix} i_{1} \\ i_{2} \end{bmatrix} = \begin{bmatrix} V_{1} \\ -V_{2} \end{bmatrix}$

Use *i* for a mesh current and *I* for a branch current. It's evident from Fig. 3.17 that

$$I_1 = i_1, \quad I_2 = i_2, \quad I_3 = i_1 - i_2$$

