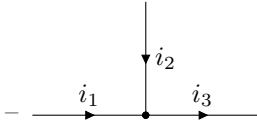# Lecture 6, Jan 28, 2022

Circuit Analysis Laws

- Kirchhoff's Current Law (KCL): The algebraic sum of the currents entering a node is zero (or the current exiting)

  - If we assume current entering node is positive, then i_1 and i_2 are positive, i_3 is negative, therefore $i_1 + i_2 - i_3 = 0 \implies i_3 = i_1 + i_2$
  - We can also assume current leaving the node is positive, so $-i_1 - i_2 + i_3 = 0$ which gets us the same relation
  - Alternatively can be stated as "sum of current entering the node equals sum of current leaving the node"
- Kirchhoff's Voltage Law (KVL): The algebraic sum of the voltages in a loop are zero
  - The dual of the KCL
  - Note the sign changes depending on which direction you're going