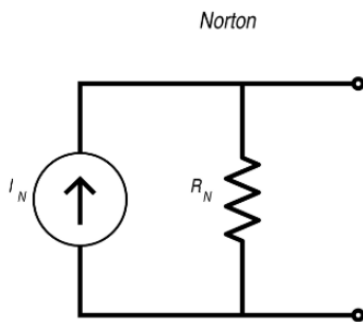


ANSWER 6

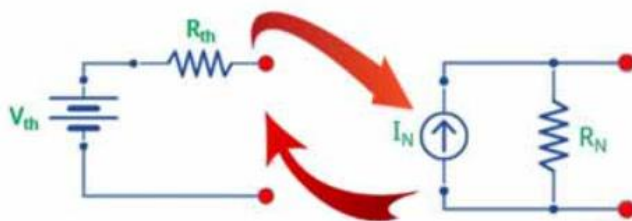


Any linear electric network or complex circuit with current and voltage sources can be replaced by an equivalent circuit containing a single independent current source I_N and a parallel resistance R_N .

Steps to Analyze an Electric Circuit using Norton's Theorem

1. Short the load resistor.
2. Calculate / measure the Short Circuit Current. This is the Norton Current (I_N).
3. Open Current Sources, Short Voltage Sources and Open Load Resistor.
4. Calculate /measure the Open Circuit Resistance. This is the Norton Resistance (R_N).
5. Now, Redraw the circuit with measured short circuit Current (I_N) in Step (2) as Current Source and measured open circuit resistance (R_N) in step (4) as a parallel resistance and connect the load resistor which we had removed in Step (3). This is the Equivalent Norton Circuit of that Linear Electric Network or Complex circuit which had to be simplified and analyzed. You have done.
6. Now find the Load current flowing through and Load Voltage across Load Resistor by using the Current divider rule. $I_L = I_N / (R_N / (R_N + R_L))$ ((For better understanding...check the solved example).

Norton & Thevenin's Circuit Conversion



Thevenin's circuit

Norton's circuit

Norton circuit and thevenin's circuit are reversible as thevenin's equivalent circuit has independent voltage source with equivalent resistance in series, whereas norton's equivalent circuit has independent current source with equivalent resistance in parallel.