Answer on Question #43806 – Physics - Electric Circuits

Tell me similarities among AND,OR,NOR,NAND,XOR,XNOR and other logic gates?

Solution:
Similarities among logic gates:

1. The output of a gate attached to the input of another gate.
2. There must be no cycles in the circuit. Treat the circuit like a directed graph with directed edges defined in the previous item.
3. Output of a gate may be attached to more than one input, an input may not have two different outputs attached to it (this would create conflicting input signals).
4. Each input of a gate come from either the output of another gate or a source. A source is a source that generates either a 0 or 1.

We can use logic gates to build circuits. While we've described 6 gates (AND,OR,NOR,NAND,XOR,XNOR), we can do with only three gates to build all possible circuits: AND, OR, and NOT. In fact, you don't even need all three gates. It can be done in two kinds of gates of less.