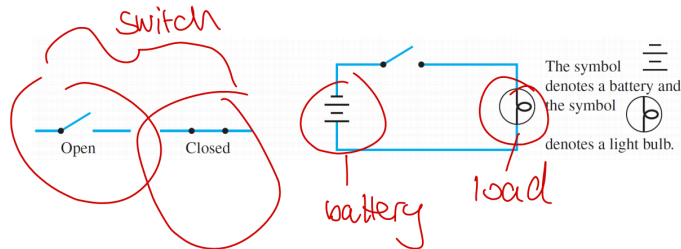
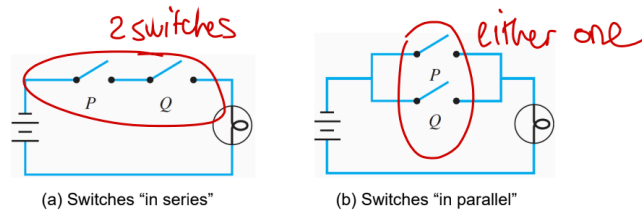


Digital logic circuits

Simple circuit



A simple circuit has three elements: switch, battery and load



Switches can either be used "in series" (the circuit will only work when both switches are closed) or "in parallel" (the circuit will work when one of the both switches are closed).

The in series circuit is equivalent to the AND truth table, where closed is equivalent to true and the truth table is only true when both values are true (closed).

The in parallel circuit is equivalent to the OR truth table, where closed is equivalent to true and the truth table is only false when both values are false (open).

Combinatorial circuit

- cominatorial: type of digital circuit whose output only depends on the current input.
- sequential: output depends on both the current input and previous outputs. This means a sequential circuit preserves a memory of the input while a combinational circuit does not (out of scope for this course)

3 possible inputs

Input			Output
<i>P</i>	<i>Q</i>	<i>R</i>	<i>S</i>
1	1	1	1
1	1	0	0
1	0	1	0
1	0	0	1
0	1	1	0
0	1	0	1
0	0	1	1
0	0	0	0

1 possible output

Logic gate