

Logic Gates

Overview

This page gives a brief description of the principal logic gates, a detailed description will be found in Wikipedia by clicking on each of the images. A more detailed overview is in [Wikipedia here](#).

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AND



Boolean operator which is used to join two or more statements so that the final statement is true only if the individual statements are all true. Thus $(X>1)AND(X<2)$ is true if X is between 1 and 2.

| A | B | Q = A AND B |
|---|---|--------------------|
| 0 | 0 | 0 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 1 |

OR



Boolean operator which is used to join two or more statements so that the final statement is true if any of the individual statements are true.

| A | B | Q = A OR B |
|---|---|-------------------|
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 1 |

NAND



Boolean operator which is used to join two or more statements so that the final statement is false only if the individual statements are all true. Inverted AND.

| A | B | Q = A NAND B |
|---|---|---------------------|
| 0 | 0 | 1 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |

NOR



Boolean operator which is used to join two or more statements so that the final statement is false if any of the individual statements are true. Inverted OR.

| A | B | Q = A NOR B |
|---|---|--------------------|
| 0 | 0 | 1 |
| 1 | 0 | 0 |
| 0 | 1 | 0 |
| 1 | 1 | 0 |

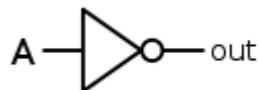
XOR



Exclusive OR. Boolean operator which is used to join two statements so that the final statement is true if one or other of the individual statements are true but not both.

| A | B | Q = A XOR B |
|---|---|--------------------|
| 0 | 0 | 0 |
| 1 | 0 | 1 |
| 0 | 1 | 1 |
| 1 | 1 | 0 |

NOT



In digital logic, an inverter or NOT gate is a logic gate which implements logical negation.

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