Truth table for most commonly used logical operators

Here is a truth table giving definitions of the most commonly used 6 of [the 16 possible truth functions of 2 binary variables (P,Q are thus boolean variables)](http://en.wikipedia.org/wiki/Tractatus_Logico-Philosophicus#Propositions_4..2A-5..2A):

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *P* | *Q* | P \and Q | P \or Q | P \underline{\or} Q | P \underline{\and} Q | P \rightarrow Q | P \leftarrow Q |
| F | F | F | F | F | T | T | T |
| F | T | F | T | T | F | T | F |
| T | F | F | T | T | F | F | T |
| T | T | T | T | F | T | T | T |

Key:

T = true, F = false

\and= [AND](http://en.wikipedia.org/wiki/Logical_conjunction) (logical conjunction)

\or= [OR](http://en.wikipedia.org/wiki/Logical_disjunction) (logical disjunction)

\underline{\or}= [XOR](http://en.wikipedia.org/wiki/Exclusive_or) (exclusive or)

\underline{\and}= [XNOR](http://en.wikipedia.org/wiki/Exclusive_nor) (exclusive nor)

\rightarrow= [conditional "if-then"](http://en.wikipedia.org/wiki/Logical_conditional)

\leftarrow= [conditional "(then)-if"](http://en.wikipedia.org/wiki/Logical_conditional)

\iff[biconditional or "if-and-only-if"](http://en.wikipedia.org/wiki/If_and_only_if) is [logically equivalent](http://en.wikipedia.org/wiki/Logical_equivalence) to \underline{\and}: [XNOR](http://en.wikipedia.org/wiki/Exclusive_nor) (exclusive nor).