Definition

We define $P \iff Q$ to be the proposition that is true when P and Q are the same, namely:

P	Q	$P \iff Q$
T	T	T
T	F	F
F	T	F
F	F	T

We typically read this as "P if and only if Q", but can also read it as

- "P iff Q";
- "P is necessary and sufficient for Q";
- "P and Q are (logically) equivalent".

Note: $(P \iff Q)$ is **logically** equivalent to:

1. $\neg(P \oplus Q)$;
2. $(P \implies Q) \wedge (Q \implies P)$.