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inverse statement

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Let a statement be of the form of an implication

If p , then q

<http://planetmath.org/Ie>i.e., it has a certain premise p and a conclusion q . The statement in which one has negated the conclusion and the premise,

If $\neg p$, then $\neg q$

is the *inverse* (or *inverse statement*) of the first. Note that the following constructions yield the same statement:

- the inverse of the original statement;
- the contrapositive of the converse of the original statement;
- the converse of the contrapositive of the original statement.

Therefore, just as an implication and its contrapositive are logically equivalent (proven <http://planetmath.org/SomethingRelatedToContrapositivehere>), the converse of the original statement and the inverse of the original statement are also logically equivalent.

The phrase “inverse theorem” is in usage; however, it is nothing akin to the phrase “<http://planetmath.org/ConverseTheorem>converse theorem”. In the phrase “inverse theorem”, the word “inverse” typically refers to a multiplicative inverse. An example of this usage is the <http://planetmath.org/BinomialInverseTheorem> inverse theorem.