

Logic

A statement is defined as a declarative sentence that is either true or false, but not both simultaneously. A compound statement may be formed by combining two or more statements.

<u>Connectives</u>	<u>Symbol</u>	<u>Type of statement</u>
And	\wedge	Conjunction
Or	\vee	Disjunction
Not	\sim	Negation
If ... then	\rightarrow	Conditional
If and only if	\leftrightarrow	Biconditional

Quantifiers

The words all, each, every, none, some are called quantifiers. Be careful when forming the negation of a statement involving a quantifier.

<u>Statement</u>	<u>Negation</u>
All do.	Some do not.
Some do.	None do.

Negate each statement:

All students present will get another chance.

No computer repairman can play blackjack.

Some people have all the luck.

Explain the difference between the following statements:

All students did not pass the test.

Not all students passed the test.

Number of rows in a truth table is 2^n where n is the number of variables in the statement.

A statement with the variables p and q has how many rows?

A statement with the variables p , q , and r has how many rows?

Truth tables

Construct a truth table for the following statements:

$$\sim p \wedge (q \vee \sim r)$$

$$\sim p \rightarrow \sim (\sim q \rightarrow (p \vee r))$$
