MR BRICE

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NOTES TAKER: Enoch.

REVIEW FOR TEST.

Conjunction: "and" $\Rightarrow$ $p \wedge q$

Negation: $p' \vee q'$

Eg: Mars is a planet and I love brocoli.

Negation: Mars is not a planet or ~~and~~ I don't love brocoli

Disjunction: "or" $\Rightarrow$ $p \vee q$.

Negation: $p' \wedge q'$

Eg: Bob won the election or Today is Tuesday.

Negation: Bob lost the election and Today is not Tuesday.

Conditional : "if ... then".

$$p \longrightarrow q.$$

Negation: $p \wedge q'$

Eg: If Today is Tuesday, it is raining.

~~Negation: If today is Tu~~

Negation: Today is Tuesday and it is not raining.

"All" statement : All p.

Neg: "Some" : Some p'

~~Eg: All my exes live~~

Eg. All my exes live in Texas.

Neg: Some of my exes don't live in TX.

"Some" Statement : Some q.

Neg: All q'

Eg. Some of the students cheated

Neg: All of the students did not cheat.

or: None of the students cheated.

Review on truth table

1 letter = 2^1 rows.

2 letters = 2^2 or 4 rows

3 letters = 2^3 or 8 rows.

Eg: $(p \vee p') \to q$. $\Rightarrow$ 4 rows.

p	q	p'	$p \vee p'$	$(p \vee p') \to q$
T	T	f	T	T
T	f	f	T	f
f	T	T	T	T
f.	f.	T.	T	f.

NEW

Converse:

If $p \rightarrow q$ is my conditional statement, then $q \rightarrow p$ is said to be its converse.

Eg: true If John lives in Texas, he lives north of the equator.

Converse: NOT TRUE If John lives north of the equator, then he lives in Texas.

An example of a statement whose converse is true

Eg: ~~If temperature is below 32~~

If I'm older than my sister, then my sister is younger than me.

Converse: If my sister is younger than me, then I'm older than my sister.

Equivalence:

when

$p \to q$ is true

And

$q \to p$ is true,

we have an equivalence.

$$p \longleftrightarrow q.$$

"p if and only if q"

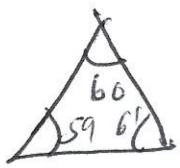
~~Es~~

Eg. ① X is an even # if and only if it is divisible by 2. ✓

② A $\triangle$ is equilateral if and only if it is equiangular. ✓

③ ~~Af~~ A $\triangle$ is equilateral, if and only if all its angles are acute. (less than $90°$).

Note: Its converse is not necessarily true.



$\to$ Not a good equivalence.