Discrete Mathematics–Honors

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1 Chapter 1

There are three basic logical connectives: **and**, **or**, **not** which are denoted by $\wedge$, $\vee$, and $\neg$ respectively. The negation of a proposition p, written $\neg p$, is true if p is false and false if p is true.

1 **Example**
"Less than 80 students are enrolled in CS311H" is a proposition. The negation of this is at least 80 students are in CS311H

Conjunction of two propositions p and q is written $p \wedge q$

2 **Example**
The conjunction of p = "It is Tuesday" and q = "it is morning" is $p \wedge q$ = "It is Tuesday and it is morning"

- Disjunction is written $p \vee q$ and the disjunction between $p \vee q$ for p = "It is Tuesday" and q = "it is morning" is $p \vee q$ = "It is Tuesday or it is morning"
- If your formula has n variables then your truth table has $n + 1$ columns because you have n variables and one column for the truth value of the formula.
- The number of rows is given by the formula 2^n
- Other connectives: exclusive or $\oplus$, implication $\rightarrow$, biconditional $\leftrightarrow$