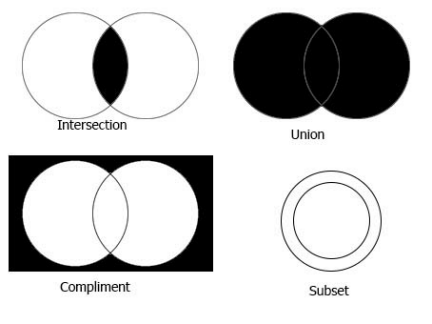
Math 1901 Final Cheat Sheet

by SirUmbreon77 via cheatography.com/50420/cs/13917/

Sets

∈	"Is an element of..."
∪	**Union:** combine elements of A and B
∩	**Intersection:** elements that appear in both sets
⊄	Is not a subset of
⊆	**Subset:** all elements in A are in B
⊂	**Proper Subset:** A is a proper subset of B iff A is a subset of B and B is not equal to A
∅	Empty set
{ }	Empty set
~~{∅}~~	Not an empty set
$\bar{A}$	**Compliment:** the set consisting of all element in U that are not in A
Set builder notation	{formula for elements| restrictions}

Venn Diagrams



Conjunction

p	q	p∧ q
T	T	T
T	F	F
F	T	F
F	F	F

Disjunction

p	q	pVq
T	T	T
T	F	T
F	T	T
F	F	F

Negation

p	~p
T	F
F	T

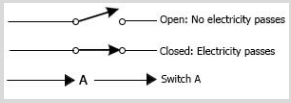
Other Statements

NAND	**Not And:** Negation of And
NOR	**Not Or:** Negation of OR
EOR	**Exclusive Or:** exactly one of p and q is true
Conditional Statement →	If p then q
Biconditional Statement ↔	p iff (if and only if) q

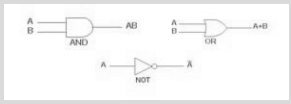
Boolean Tables

A	B	A + B	A x B
1	1	1	1
1	0	1	0
0	1	1	0
0	0	0	0

Circuits



Logic Circuits



Probability/Stats

Perms	P(n,r) = n!/((n−r)!)
Combs	C(n,r) = n!/(n−r)!r!
Sample Space	Set of all possible outcomes
Mean	Sum of set divided by length of set
Median	Middle term of an organized
	Take the average of two terms if there is more than one middle term
Mode	The number that occurs most in a set
σ^2 (Variance)	Calculate the mean For each number, subtract the mean and square the result Calculate the average of the squared differences, or sum up the squared differences and divide by N, the number of values.
σ (Standard Deviation)	Square Root of Variance (σ^2)

Probability Formulas

b= Binomial Probability	b(x; n, P) = nCx Px (1 - P)
n= number of trials	
x= number of successes	
P= probability of success	
Binomial Distribution	μ = n·P
	$\sigma^2 = n \cdot P \cdot (1-P)$

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