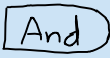




Meet Boolean Algebra

Name	Variables	"True/False"	"And"	"Or"	"Not"	Implication
Java Code	boolean b	true, false	&&		!	No special symbol
Propositional Logic	"p, q, r"	T, F	\wedge	\vee	\neg	\rightarrow
Circuits	Wires	1, 0				No special symbol
Boolean Algebra	a, b, c	1, 0	\cdot ("multiplication")	$+$ ("addition")	' (apostrophe after variable)	No special symbol

Propositional logic
 $(p \wedge q \wedge r) \vee s \vee \neg t$

Boolean Algebra
 $pqr + s + t'$

Predicates

Predicate

A function that outputs true or false.

$\text{Cat}(x) := \text{"x is a cat"}$

$\text{Prime}(x) := \text{"x is prime"}$

$\text{LessThan}(x, y) := \text{"x < y"}$

$\text{Sum}(x, y, z) := \text{"x + y = z"}$

$\text{HasNChars}(s, n) := \text{"string s has length n"}$

Numbers and types of inputs can change. Only requirement is output is Boolean.

Try it...

What's a possible domain of discourse for these lists of predicates?

1. "x is a cat", "x barks", "x likes to take walks"
2. "x is prime", "x=5" "x < 20" "x is a power of two"
3. "x is enrolled in course y", "y is a pre-req for z"

Translations

"For every x , if x is even, then $x = 2$."

"There are x, y such that $x < y$."

$\exists x (\text{Odd}(x) \wedge \text{LessThan}(x, 5))$

$\forall y (\text{Even}(y) \wedge \text{Odd}(y))$

pollev.com/robbie

Help me adjust my explanation!