Algebraic and Logical Notation

#	Symbol	Meaning
1.	$\forall$	For every, for each
2.	$\exists$	There exists
3.	!	Unique (logic)
4.	$\in, \notin$	Element of, Not an element of
5.	$\therefore$	therefore
6.	ϕ , {}	empty set
7.	$\neg, \sim$	Not
8.	$\wedge, \vee$	And, Or
9.	$\cap, \cup$	Intersection, Union
10.	$\subset, \subseteq, \not\subset$	Proper Subset, Subset, Not a subset
11.	$\supseteq$	Superset
12.	$\rightarrow, \leftarrow, \Rightarrow, \Leftarrow$	Implies
13.	$\sum_{i=1}^{n} a_i = a_1 + a_2 + \cdots + a_n$	Summation
14.	$\prod_{i=1}^{n} a_i = a_1 \cdot a_2 \cdots a_n$	Product
15.	∞	Infinity
16.	π	Pi
17.	$\mathbb{N}$, N	Natural Numbers
18.	W	Whole Numbers
19.	$\mathbb{Z}$	Integers
20.	$\mathbb{Q}$	Rational Numbers
21.	Irr	Irrational Numbers
22.	$\mathbb{R}, \Re$	Real Numbers
23.	$\mathbb{C}$	Complex
24.	$\aleph_0$	Aleph Null (Cardinality of the Integers) Countably Infinite
25.	$A', A^c, \overline{A}$	Complement of set A
26.	Δx	Delta *x*, change in *x*, $x_2 - x_1$
27.	$x \xrightarrow{f} y$, $y = f(x)$	f maps x to y, function notation
28.	$y \propto x$	x is proportional to y, i.e $y = kx$
29.	$\cong$	congruent to (geometry)
30.	$\equiv$	congruent to (algebra) i.e. $14 \equiv 4 (\mathrm{mod} 10)$, remainder