Phase 3 : Quantifiers and Mathematical Notation

Example 1 : Quantifiers

(a)

$\forall\, x\colon N \bullet x \geq 0$

(b)

$\exists\, y\colon N \bullet y = 0$

(c)

$\forall\, n\colon N \bullet n \geq 0 \land n < 100$

Example 2 : Subscripts and Superscripts

(a)

x^2

(b)

a_1

(c)

x_i^2

Example 3 : Comparison Operators

(a)

$x < 10$

(b)

$x \geq 0 \land x \leq 100$

(c)

$y > 5 \lor y = 0$

Example 4 : Set Operators

(a)

$x \in N$

(b)

$A \subseteq B$

(c)

$A \cup B \cap C$

Example 5 : Complex Expressions

(a)

$$\forall\, x \colon N \bullet x \in N \land x \geq 0$$
$$\Leftrightarrow \forall\, x \colon N \bullet x \geq 0$$

(b)

$\forall\, i \colon N \bullet a_i > 0 \Rightarrow a_i^2 > 0$

(c)

p	q	$p \Rightarrow q$
t	t	t
t	f	f
f	t	t
f	f	t