0.1 Functions of integers

0.1.1 Addition

Then we can define addition as:

$(a, b) + (c, d) = (a + c, b + d)$

Integer addition can then be defined:

$a + b = \{\{a_1\}, \{a_1, a_2\}\} + \{\{b_1\}, \{b_1, b_2\}\}$

$a + b = \{\{a_1 + b_1\}, \{a_1 + b_1, a_2 + b_2\}\}$

Or:

$a + b = c$

$c_1 = a_1 + b_1$

$c_2 = a_2 + b_2$

0.1.2 Multiplication

Similarly, multiplication can be defined as:

$(a, b).(c, d) = (ac + bd, ad + bc)$

$ab = c$

$c_1 = a_1 b_1 + a_2 b_2$

$c_2 = a_2 b_1 + a_1 b_2$

0.1.3 Subtraction

$a - b = c$

$c_1 = a_1 + b_2$

$c_2 = a_2 + b_1$