Contents

0.1 Subtraction of natural numbers

We have inverse functions for addition. This is subtraction.

For function $\oplus$, its inverse is $\oplus'$, as defined below:

$a \oplus b = c$

$b = c \oplus' a$

$f(a, b) = c \rightarrow f^{-1}(c, b) = a$

0.1.1 Subtraction

$a + b = c \rightarrow b = c - a$

There is no natural number b that satisfies:

$3 + b = 2$

While addition and multiplication are defined across all natural numbers, subtraction is not.

0.1.2 Properties of subtraction

Subtraction is not commutative:

$x - y \neq y - x$

Subtraction is not associative:

$x - (y - z) \neq (x - y) - z$