### Variable

In mathematical expressions, a variable is a symbol (often the letters x, y, or z) which serves as a substitute for an unknown quantity in the expression.

Source: Brückmann, 2013.

The value range of a variable determines which values the variable can take. To express

that a variable x can only store numbers of a certain number set, we use the notation M x ∈ ℝ x ∈ ℕ x x x ∈=x M, where M stands for one of the number sets mentioned above. This is expressed as “

(is) an element (of) .” For example, we can use to express that is a natural number. For example, the expression would mean that the variables 5 x and x≠ yy have the same value and := x = 7x x. has the value 7.x = In mathematics, a distinction is made between the symbols . The symbol indicates the equality of two expressions. For example, if you write , this means that

and y = 6x := 5, then . The symbol stands for “equal by definition” and means that To express that variables have different values, we write instead. For example, if

the expression on the left side is defined by the expression on the right side. For example, if we write , then we define that the variable should have the value 5. Or, in the We will informally use the symbol ∧ as an abbreviation for “and” and the symbol ∨ as an words of a computer scientist, “We assign the value 5 to the variable ”

abbreviation for “or.” For example, instead of writing “In winter it is cold and in winter it is

dark,” we will abbreviate “In winter it is cold ∧ in winter it is dark.”