

# Definition of Elementary Functions

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## 1 Fundamental Elementary Functions

$$f_1(x) = C, (D_1 \subset \mathbb{R})$$

$$f_2(x) = x, (D_2 \subset \mathbb{R})$$

$$f_3(x) = e^x, (D_3 \subset \mathbb{R})$$

$$f_4(x) = \sin x, (D_4 \subset \mathbb{R})$$

$$f_5(x) = \frac{1}{x}, (D_5 \subset \mathbb{R}/\{0\})$$

## 2 Fundamental Operations

$$f_{el} \text{ and } g_{el} \Rightarrow (f + g)_{el}$$

$$f_{el} \text{ and } g_{el} \Rightarrow fg_{el}$$

$$f_{el} \text{ and } g_{el} \Rightarrow f(g)_{el}$$

$$f_{el} \Rightarrow f_{el}^{-1}$$

## 3 Definition

A function is called elementary, if the values of the function could be obtained from the fundamental elementary functions by a finite number of fundamental operations using one and the same operations (formula) for all values of the argument.