

Simple function:

$$\begin{aligned} f : \mathbf{R} &\rightarrow \mathbf{R} \\ x &\mapsto f(x) \end{aligned}$$

Simple function with declaration:

$$\begin{aligned} f : \mathbf{R} &\rightarrow \mathbf{R} \\ x &\mapsto f(x) := x^2 \end{aligned}$$

Function with alternative writing:

$$\begin{aligned} \exp : \mathbf{R} &\rightarrow \mathbf{R} \\ x &\mapsto e^x \end{aligned}$$

Function with alternative writing and declaration:

$$\begin{aligned} \exp : \mathbf{R} &\rightarrow \mathbf{R} \\ x &\mapsto e^x := \lim_{n \rightarrow \infty} \left(1 + \frac{x}{n}\right)^n \end{aligned}$$

Function with different domain and codomain:

$$\begin{aligned} \text{sqrt} : \mathbf{N} &\rightarrow \mathbf{R} \\ n &\mapsto \text{sqrt}(n) \end{aligned}$$

Function with different domain and codomain, and alternative writing:

$$\begin{aligned} \text{sqrt} : \mathbf{N} &\rightarrow \mathbf{R} \\ n &\mapsto \sqrt{n} \end{aligned}$$

Function with different domain and codomain, alternative writing and declaration:

$$\begin{aligned} \text{sqrt} : \mathbf{N} &\rightarrow \mathbf{R} \\ n &\mapsto \sqrt{n} := \exp\left(\frac{1}{2} \ln n\right) \end{aligned}$$

$$\begin{aligned} f : A &\rightarrow B \\ a &\mapsto f(a) \end{aligned}$$

$$\begin{aligned} f : A \times B &\rightarrow C \\ (a, b) &\mapsto f(a, b) \end{aligned}$$

$$\begin{aligned} f : A \times B &\rightarrow C \\ a, b &\mapsto f(a, b) \end{aligned}$$

$$\begin{aligned} f : A \times B &\rightarrow C \\ (a, b) &\mapsto f((a, b)) \end{aligned}$$

$$\begin{aligned} \times : A \times A &\rightarrow A \\ (a, b) &\mapsto a \times b \end{aligned}$$

$$\begin{aligned} \times : A \times A &\rightarrow A \\ (a, b) &\mapsto \times((a, b)) \end{aligned}$$