

1 Mathe-Umgebung

Inline Hallo $f = a$.

Hallo $f = a$.

Mehrzeilig

$$\begin{aligned} f &= a \\ \implies a &= b \end{aligned}$$

```
\begin{Eq*}
\sep f = a \\
\Implies \sep a = b \\
\end{Eq*}
```

Mehrzeilig benannt

$$\begin{aligned} f &= a \\ \implies a &= b \end{aligned} \tag{1}$$

```
\begin{Eq}
\sep f = a \\
\Implies \sep a = b \\
\end{Eq}
```

2 Symbole

Meta-Logik

$$\begin{aligned} \implies & \quad \backslash\Implies \\ \impliedby & \quad \backslashRImplies \\ \iff & \quad \backslashIff \end{aligned}$$

Universen

$$\begin{aligned} \mathbb{R} & \quad \backslashUR \\ \mathbb{N} & \quad \backslashUN \\ \mathbb{Z} & \quad \backslashUZ \\ \mathbb{Q} & \quad \backslashUQ \\ \mathbb{C} & \quad \backslashUC \\ \mathbb{B} & \quad \backslashUB \end{aligned}$$

Logic

$$\begin{aligned} \bigwedge_x x \wedge y & \quad \backslashLand_x \ x \ \backslashland \ y \\ \bigvee_x x \vee y & \quad \backslashLor_x \ x \ \backslashlor \ y \\ \neg x & \quad \backslashlnot \ x \\ x \rightarrow y & \quad x \ \backslashlimplies \ y \\ x \leftarrow y & \quad x \ \backslashtrightimplies \ y \\ x \leftrightarrow y & \quad x \ \backslashliff \ y \\ x \dot{\vee} y & \quad x \ \backslashlxor \ y \\ \forall g : g & \quad \backslashforall \ g : \ g \\ \exists g : g & \quad \backslashexists \ g : \ g \end{aligned}$$

Mengen

$$\begin{aligned} \emptyset & \quad \backslashemptyset \\ x \in A & \quad x \ \backslashin \ A \\ x \notin A & \quad x \ \backslashnotin \ A \\ \bigcup_x x \cup y & \quad \backslashSetunion_x \ x \ \backslashsetunion \ y \\ \bigcap_x x \cap y & \quad \backslashSetintersect_x \ x \ \backslashsetintersect \ y \\ a \subset b & \quad a \ \backslashsubset \ b \\ a \subseteq b & \quad a \ \backslashsubsepeq \ b \\ a \subsetneq b & \quad a \ \backslashsubsetneq \ b \\ |A| & \quad \backslashsetsize\{A\} \\ C = \{a \in A \mid a \notin B\} & \quad C = \backslash\{ \ a \ \backslashin \ A \ \backslashmid \ a \ \backslashnotin \ B \ \} \\ \partial A & \quad \backslashpartial \ A \\ \bar{A} & \quad \backslashbar \ A \\ A_n = \{1 \dots n\} & \quad A_n = \backslash\{ \ 1 \ \backslashdots \ n \ \} \end{aligned}$$

Functions

$x \rightarrow y$	<code>x \to y</code>
$x \mapsto y$	<code>x \mapsto y</code>
$f \circ g$	<code>f \circ g</code>
$f * g$	<code>f \ast g</code>
\hat{f}	<code>\hat{f}</code>

Arithmetik

$\pm a$	<code>\pm a</code>
$\lfloor a \rfloor$	<code>\lfloor a \rfloor</code>
$\lceil a \rceil$	<code>\lceil a \rceil</code>
$\sqrt{a+b}$	<code>\sqrt{a + b}</code>
$\sqrt[3]{a+b}$	<code>\sqrt[3]{a + b}</code>
$x \cdot y$	<code>x \cdot y</code>
$\sum_{x \in X} a + x$	<code>\sum_{x \in X} a + x</code>
$\sum_{i=x}^y a + i$	<code>\sum_{i = x}^y a + i</code>
$\prod_{x \in X} a + i$	<code>\prod_{x \in X} a + i</code>
$\min(a, b)$	<code>\min(a, b)</code>
$\max(a, b)$	<code>\max(a, b)</code>

Vergleiche

$a = b$	<code>a = b</code>
$a < b$	<code>a < b</code>
$a > b$	<code>a > b</code>
$a \leq b$	<code>a \leq b</code>
$a \geq b$	<code>a \geq b</code>
$a \neq b$	<code>a \neq b</code>
$a \equiv b$	<code>a \equiv b</code>
$a \approx b$	<code>a \approx b</code>
$a \sim b$	<code>a \sim b</code>

Vectorräume

$x \times y$	<code>x \times y</code>
$\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$	<code>\Vector{1 \ 2 \ 3}</code>
$\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$	<code>\begin{Matrix} 1 & 2 \ 3 & 4 \end{Matrix}</code>
$\begin{pmatrix} 1 & \dots \\ \vdots & b \end{pmatrix}$	<code>\begin{Matrix} 1 & \dots \ \vdots & b \end{Matrix}</code>
$\text{Det}(x)$	<code>\Det(x)</code>
$A + B$	<code>A + B</code>
$A * B$	<code>A * B</code>
$A \oplus B$	<code>A \oplus B</code>
$A \otimes B$	<code>A \otimes B</code>
A/B	<code>A / B</code>
A^\perp	<code>A^\perp</code>
$\langle A \rangle$	<code>\langle A \rangle</code>
$\dim(A)$	<code>\dim(A)</code>

Lina & AZ

$a \bmod b$	<code>a \mod b</code>
$a \mid b$	<code>a \mid b</code>
$a \nmid b$	<code>a \nmid b</code>
$a \parallel b$	<code>a \parallel b</code>
$a \perp b$	<code>a \perp b</code>
$\operatorname{ggT}(x, y)$	<code>\operatorname{ggT}(x, y)</code>
$\operatorname{kgV}(x, y)$	<code>\operatorname{kgV}(x, y)</code>
$[x]$	<code>\big[x \big]</code>
\mathbb{E}	<code>\neutral</code>

Ana

dx	<code>\dd x</code>
$\frac{df}{dx}$	<code>\frac{\dd f}{\dd x}</code>
$\frac{\partial f}{\partial x}$	<code>\frac{\partial f}{\partial x}</code>
$\int x dx$	<code>\int x \dd x</code>
$\int_0^\infty x dx$	<code>\int_0^\infty x \dd x</code>
$[x]_0^y$	<code>\big[x \big]_0^y</code>
$\lim_{x \nearrow a} f(x)$	<code>\lim_{x \nearrow a} f(x)</code>
$\lim_{x \searrow a} f(x)$	<code>\lim_{x \searrow a} f(x)</code>
$\lim_{x \rightarrow a} f(x)$	<code>\lim_{x \rightarrow a} f(x)</code>
f'	<code>f^\prime</code>
f''	<code>f^{\prime\prime}</code>
\dot{f}	<code>\dot f</code>
\ddot{f}	<code>\ddot f</code>
∇f	<code>\nabla f</code>

3 Layout

$$f(x) = \begin{cases} 1 & x = 0 \\ 0 & \text{sonst} \end{cases} \quad f(x) = \begin{cases} 1 & x = 0 \\ 0 & \text{sonst} \end{cases}$$

4 Weiteres

Einen eigenen Binär-Operator definieren Am Anfang des Dokuments definieren:

```
\def\bin{\newbinaryop{bin}}
```

Dann kann dieser wie folgt genutzt werden:

$$a \bin b \quad a \backslash bin b$$

Einen eigenen Funktion definieren Am Anfang des Dokuments definieren:

```
\def\fn{\newfunc{fn}}
```

Dann kann dieser wie folgt genutzt werden:

$$\operatorname{fn}(a, b) \quad \backslash fn(a, b)$$