General

This document collects some LaTeX commands you might need for the exercises. The left column shows the results in the PDF and the right column shows the LaTeX source. If you are missing a command or spot something that is in the wrong place, please let us know. You can also find the LaTeX command for many symbols by drawing them at `https://detexify.kirelabs.org/`.

First paragraph.
Second paragraph.

```
First paragraph.

Second paragraph.
```

manual new
line

```
manual new\\line
```

page break

```
\clearpage
```

Let φ be a formula.

```
Let $\varphi$ be a formula.
```

This text is important.

```
\emph{This text is important.}
```

special characters like & or $

```
special characters like \& or \$
```

missing space after LaTeXcommands

```
missing space after \LaTeX commands
```

correct space after LaTeX commands

```
correct space after \LaTeX{} commands
```

- a
- b

```
\begin{itemize}
  \item a
  \item b
\end{itemize}
```

1. a
2. b

```
\begin{enumerate}
  \item a
  \item b
\end{enumerate}
```

$$|x| = \begin{cases} x & \text{if } x \geq 0 \\ -x & \text{otherwise} \end{cases} \tag{1}$$

```
\begin{equation}
  \lvert x \rvert = \begin{cases}
    x & \text{if } x \geq 0 \\
    -x & \text{otherwise}
  \end{cases}
\end{equation}
```


```
\includegraphics[scale=0.3]{logo.png}
```

text	text
text	text

```
\begin{tabular}{r|l}
   text & text \\
   \hline
   text & text
\end{tabular}
```

Commands in Math Mode

$\alpha, \beta, \gamma, \delta, \varepsilon$	`\alpha, \beta, \gamma, \delta, \varepsilon`
φ, χ, ψ	`\varphi, \chi, \psi`
Σ, Γ	`\Sigma, \Gamma`
$x_1, \ldots, x_n$	`x_1, \dots, x_n`
x^{2y}	`x^{2y}`
$\leadsto$	`\leadsto`
$\leftarrow$	`\leftarrow`
$\Rightarrow$	`\Rightarrow`
$x \stackrel{(*)}{=} y$	`x \stackrel{(*)}{=} y`
kursiv	`\textit{kursiv}`
`code`	`\texttt{code}`
Symbol	`\textup{Symbol}`
$x < y, x \leq y, x \geq y$	`x < y, x \leq y, x \geq y`
$x \mod 3$	`x \mod 3`
$2 \cdot x$	`2 \cdot x`

Chapter A

$A = \{a, b, c\}$	`A = \{a,b,c\}`
$x \in A$	`x \in A`
$y \notin A$	`y \notin A`
$A \cup B$	`A \cup B`
$A \cap B$	`A \cap B`
$A \setminus B$	`A \setminus B`
$A \subset B$	`A \subset B`
$A \subseteq B$	`A \subseteq B`
$A \not\subseteq B$	`A \not\subseteq B`
$B \supseteq A$	`B \supseteq A`
$A \neq B$	`A \neq B`

Chapter B

$\{1, 2, 3, \dots\}$	`\{1, 2, 3, \dots\}`
$\emptyset$	`\emptyset`
$\{x^2 \mid 0 \leq x \leq 5\}$	`\{x^2 \mid 0 \leq x \leq 5\}`
$x \in A, x \notin A$	`x \in A, x \notin A`
$\mathbb{N}, \mathbb{N}_0, \mathbb{Z}, \mathbb{Q}, \mathbb{R}$	`\mathbb N, \mathbb N_0, \mathbb Z, \mathbb Q, \mathbb R`
$A = B, A \subset B, A \not\supseteq B$	`A = B, A \subset B, A \not\supseteq B`
$\mathcal{P}(A)$	`\mathcal P(A)`
$A \cap B, A \cup B, A \setminus B, \overline{A}$	`A \cap B, A \cup B, A \setminus B, \overline{A}`
$\lvert A \rvert$	`\lvert A \rvert`
$0 \leftrightarrow 1$	`0 \leftrightarrow 1`
$\bigcup_{S \in M} S$	`\bigcup_{S \in M} S`
$\langle 0, 0 \rangle$	`\langle 0, 0 \rangle`
$S_1 \times S_2$	`S_1 \times S_2`
$x \prec y, x \preceq y$	`x \prec y, x \preceq y`
R^*	`R^*`
$R_1 \circ R_2$	`R_1 \circ R_2`
$f : A \to B$	`f : A \rightarrow B`
$f : A \nrightarrow B$	`f : A \nrightarrow B`
$f\lvert_X$	`f\lvert_X`

$\begin{pmatrix} 1 & 2 & 3 & 4 & 5 \\ 4 & 1 & 3 & 5 & 2 \end{pmatrix}$	`\begin{pmatrix}`
	`  1 & 2 & 3 & 4 & 5 \\`
	`  4 & 1 & 3 & 5 & 2`
	`\end{pmatrix}`

$\frac{x}{y}$	`\frac{x}{y}`
$x \equiv y \pmod{z}$	`x \equiv y \pmod{z}`
$\binom{x}{y}$	`{x \choose y}`

Chapter D

$\Sigma_{n=0}^{\infty} L(n) x^n$	`\Sigma_{n=0}^\infty L(n)x^n`
$\log_B(A)$	`\log_B(A)`
$O(g)$	`O(g)`
$\Omega(g)$	`\Omega(g)`
$\Theta(g)$	`\Theta(g)`

Chapter E

$\neg A$	`\lnot A`
$(A \vee B)$	`(A \lor B)`
$(A \wedge B)$	`(A \land B)`
$(A \rightarrow B)$	`(A \rightarrow B)`
$(A \leftrightarrow B)$	`(A \leftrightarrow B)`
$\mathcal{I} \models \varphi$	`\mathcal I \models \varphi`
$\mathcal{I} \not\models \psi$	`\mathcal I \not\models \psi`
Δ	`\Delta`
$\forall x$	`\forall x`
$\exists x$	`\exists x`