LATEX cursus deel 1

 $T_EXniCie$

26 september 2022

Please log into

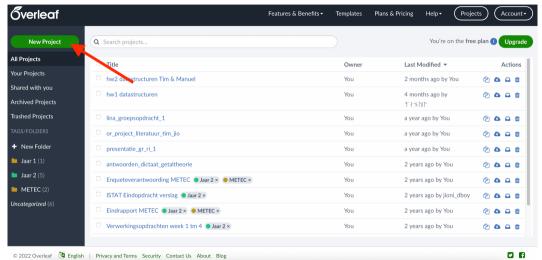
overleaf.com

(Create an account if you do not have one)

Agenda

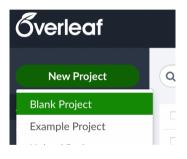
- Introductie tot LaTeX en Overleaf,
- ► LaTeX documentstructuur
- ► Tekst
- Wiskunde
- ► Tot slot / vervolgcursus

Overleaf





Overleaf





Een eenvoudig document in LATEX

```
\documentclass{article}
\begin{document}
\end{document}
```

preamble: document settings go
here

body: content (text and images) goes here

10 11 12

13

Een eenvoudig document in LATEX

```
\documentclass{article}
\begin{document}
The Differential and Integral
Calculus, or, as it was formerly
called in this country,
the Doctrine of Fluxions, has always
been supposed to present remarkable
obstacles to the beginner.
\end{document}
```

Example text: "Elementary Illustrations of the Differential and Integral Calculus" by Augustus De Morgan

body: inhoud (tekst, plaatjes, tabellen) hier

4

6

10

11 12

13

Een eenvoudig document in LATEX

```
\documentclass[a4paper,11pt]{article}
3
    \begin{document}
4
    The Differential and Integral
6
    Calculus, or, as it was formerly
    called in this country,
    the Doctrine of Fluxions, has always
    been supposed to present remarkable
10
    obstacles to the beginner.
11
12
    \end{document}
13
```

Example text: "Elementary Illustrations of the Differential and Integral Calculus" by Augustus De Morgan

preamble: instellingen hier

LaTeX commands

LaTeX commando's beginnen met een backslash \setminus , gevolgd door letters of een speciaal teken: , #, %,

Commando's kunnen argumenten en optionele argumenten hebben.

Commando

of

\commando{argument}

or

\commando[optioneel argument]{argument}

LaTeX commands

Sommige commando's staan in de **body** van het document

- ► Het commando \LaTeX print het LATeX logo. Dit commando staat in de **body** van het document.
- \newpage begint een nieuwe pagina en staat ook in de body van het document.
- \textbf{text} is een commando voor vetgedrukte tekst. Dit commando heeft 1 argument.
- ▶ \sqrt[3]{y} $\sqrt[3]{y}$ het wortelargument heeft 1 argument en 1 optioneel argument.

LaTeX commands

Andere commando's staan in de preamble van het document

- Met \title geef je het document een titel.
- \usepackage{PACKAGE-NAAM} laadt LaTeX code van anderen in je document. Deze code definïeert vaak nieuwe commando's of past bestaande commando's aan. Soms verandert de opmaak van je pagina ook door het laden van een package.
- \usepackage[paper=a5paper, margin=2cm, landscape=true]{geometry} laadt het geometry package met 3 optionele argumenten.

■ a_{⊔⊔⊔⊔}b

a b

■ a_{⊔⊔⊔⊔}b

■ a___\b

a b

a b

■ a_{⊔⊔⊔⊔}b

■ a___\b

■ a\quad_⊔b

a b

a b

a b

•	$a_{\sqcup \sqcup \sqcup \sqcup} D$	aı	b	
•	a___\b	а	b	
•	a _⊔ b	а	b	
•	a\hspace _⊔ {2cm}b	а		b

- a_{□□□□□}ba\□\□\□\□
- a (U (U (U (U)
- a\quad_□b
- a\hspace_{2cm}b
- \LaTeX_is_cool!

- a b
- a b
- a b
- a b

LATEXis cool!

- a_{⊔⊔⊔⊔}b
- a___\b
- a\quad_□b
- a\hspace_{2cm}b
- \LaTeX_is_cool!
- \LaTeX_{\(\operatorname{1}\)} \landsquare \LaTeX_{\(\operatorname{1}\)} \landsquare \(\operatorname{1}\) \randsquare \(\operatornam

- a b
- a b
- a b
- a b
- LATEXis cool!
- LATEX is cool!

Paragrafen

Een paragraaf bestaat uit enkele regels tekst. Paragrafen worden van elkaar gescheiden door witregels.

\documentclass[a4paper, 10pt]{article}
\begin{document}

The agitation for the Universal Colour Bill continued for three years; and up to the last moment of that period it seemed as though Anarchy were destined to triumph.

A whole army of Polygons, who turned out to fight as private soldiers, was utterly annihilated by a superior force of Isosceles Triangles --- the Squares and Pentagons meanwhile remaining neutral. \end{document} The agitation for the Universal Colour Bill continued for three years; and up to the last moment of that period it seemed as though Anarchy were destined to triumph.

A whole army of Polygons, who turned out to fight as private soldiers, was utterly annihilated by a superior force of Isosceles Triangles — the Squares and Pentagons meanwhile remaining neutral

Paragraphs

Standaard worden paragrafen ingesprongen. De paragrafen scheiden met een witregel in plaats van inspringing kan door het commando \usepackage{parskip} aan de preamble toe te voegen.

\documentclass[a4paper, 10pt]{article}
\usepackage{parskip}

\begin{document}

The agitation for the Universal Colour Bill continued for three years; and up to the last moment of that period it seemed as though Anarchy were destined to triumph.

A whole army of Polygons, who turned out to fight as private soldiers, was utterly annihilated by a superior force of Isosceles Triangles --- the Squares and Pentagons meanwhile remaining neutral.

\end{document}

The agitation for the Universal Colour Bill continued for three years; and up to the last moment of that period it seemed as though Anarchy were destined to triumph.

A whole army of Polygons, who turned out to fight as private soldiers, was utterly annihilated by a superior force of Isosceles Triangles — the Squares and Pentagons meanwhile remaining neutral.

Sections

Het commando \section{SECTIONNAME} maakt een heading (titel, kop, tussenkopje). Deze headings worden automatisch genummerd. Andere headings zijn:

\subsection{} , \subsubsection{} and \paragraph{}

```
\documentclass[a4paper]{article}
begin{document}
\section{How I tried to teach the Theory of Three Dimensions to my
Grandson, and with what success}
I awoke rejoicing, and began to reflect on the glorious career before me.
I would go forth, methought, at once, and evangelize the whole of Flatland.
Even to Women and Soldiers should the Gospel of Three Dimensions
be proclaimed. I would begin with my Wife.
\end{document}
```

Example text: "Flatland" by Edwin A. Abbott

Title, author and date

We geven het artikel nu een titel. We gebruiken drie commando's om een **title**, **author** en **date** in te stellen. Deze commando's staan in de **preamble**.

Het commando \maketitle staat in de **body** van het document en bepaalt de positie van de titel.

```
\documentclass[a4paper, 12pt]{article}
    \title{Elementary Illustrations of the Differential and Integral Calculus}
2
    \author{Augustus De Morgan}
3
    \date{November 11}
    \begin{document}
5
    \maketitle
6
    The Differential and Integral Calculus, or, as it was formerly
    called in this country, the Doctrine of Fluxions, has always
    been supposed to present remarkable obstacles to the beginner.
Q
    \end{document}
10
```

Speciale tekens

Code	Resultaat	Code	Resultaat,
\{	{	-{	Begin groep,
\}	}	}	Eindig groep,
\%	%	%	Comment
_	_	_	Betekenis voor wiskunde,
\textasciicircum	^	^	Betekenis voor wiskunde,
\\$	\$	\$	Wiskundemodus,
\textbackslash	\	\	Commando,
\&	&	&	Kolomscheiding,
\#	#	#	Parameter
\textgreater	>	>	>
\textless	<	<	<

Speciale tekens

Code	Resultaat	Code	Resultaat,
\{	{	{	Begin groep,
\}	}	}	Eindig groep,
\%	%	%	Comment
_	_	_	Betekenis voor wiskunde,
\textasciicircum	^	^	Betekenis voor wiskunde,
\\$	\$	<i>\$</i>	Wiskundemodus,
\textbackslash	\	\	Commando,
\&	&	&	Kolomscheiding,
\#	#	#	Parameter
\textgreater	>	>	>
\textless	<	<	<

Resultaat, Code	Resultaat, Code
Text	Text
Text	Text
Text	Text
<u>Text</u>	Text

Resultaat,	Code	Resultaat, Code	
Text	\textbf{Text}	Text	
Text		Text	
TEXT		Text	
<u>Text</u>		Text	
$\mathbf{bf} = \mathbf{boldface} \mid \mathbf{it} = \mathbf{italics} \mid \mathbf{sc} = \mathbf{smallcaps} \mid \mathbf{tt} = \mathbf{teletype} \text{ (a.k.a. monospace)}$			

T_EXniCie

Resultaat,	Code	Resultaat, Code
Text	\textbf{Text}	Text
Text	\textit{Text}	Text
TEXT		Text
<u>Text</u>		Text

Resultaat,	Code	Resultaat, Code
Text	\textbf{Text}	Text
Text	\textit{Text}	Text
TEXT	\textsc{Text}	Text
<u>Text</u>		Text

Resultaat,	Code	Resultaat, Code
Text	\textbf{Text}	Text
Text	\textit{Text}	Text
TEXT	\textsc{Text}	Text
Text	\underline{Text}	Text

Resultaat,	Code	Resultaat,	Code
Text	\textbf{Text}	Text	\texttt{Text}
Text	\textit{Text}	Text	
TEXT	\textsc{Text}	Text	
Text	\underline{Text}	Text	

Resultaat,	Code	Resultaat,	Code
Text	\textbf{Text}	Text	\texttt{Text}
Text	\textit{Text}	Text	{\tiny Text}
TEXT	\textsc{Text}	Text	
<u>Text</u>	\underline{Text}	Text	

Resultaat,	Code	Resultaat,	Code
Text	\textbf{Text}	Text	\texttt{Text}
Text	\textit{Text}	Text	{\tiny Text}
TEXT	\textsc{Text}	Text	{\LARGE Text}
Text	\underline{Text}	Text	

Resultaat,	Code	Resultaat,	Code
Text	\textbf{Text}	Text	\texttt{Text}
Text	\textit{Text}	Text	{\tiny Text}
Text	\textsc{Text}	Text	{\LARGE Text}
Text	\underline{Text}	Text	

Huge, huge, LARGE, Large, large, normalsize, small, footnotesize, scriptsize, tiny

Resultaat,	Code	Resultaat,	Code
Text	\textbf{Text}	Text	\texttt{Text}
Text	\textit{Text}	Text	{\tiny Text}
Техт	\textsc{Text}	Text	{\LARGE Text}
<u>Text</u>	\underline{Text}	Text	\textcolor{red}{Text} 1

Huge, huge, LARGE, Large, large, normalsize, small, footnotesize, scriptsize, tiny

^{1\}usepackage{xcolor}

Logische opmaak

Het is vaak beter om niet teveel van de vorige commando's gebruik te maken om de logische opmaak filosofie van LATEXte volgen.

	not logisch	logisch	resultaat
vector	\textbf{w}	\vec{w}	\vec{w}
nadruk	\textit{text}	\emph{text}	text
kop	\Large My Heading	\subsection{My Heading}	My Heading
lemma	\textsc{LEMMA 3.2}	\begin{mylemma}\end{mylemma}	LEMMA 3.2

Wiskunde

Er zijn twee manieren om wiskunde te zetten:

inline mode

The trigonometric identity is given by $\sin^2(\theta) + \cos^2(\theta) = 1$ for all θ .

display mode

The Pythagorean trigonometric identity is given by

$$\sin^2(\theta) + \cos^2(\theta) = 1 \tag{1}$$

The identity

$$1 + \tan^2(\theta) = \frac{1}{\cos^2\theta} \tag{2}$$

Is also called the Pythagorean trigonometric identity.

Er is maar 1 manier om wiskunde te zetten in inline mode. Maar er zijn vele environments om

Inline wiskunde

Tekst en symbolen tussen \$ en \$ worden gezien als wiskundige symbolen.

```
1  \documentclass[a5paper]{article}
2  \begin{document}
3  The trigonometric identity is
4  given by $\sin^2(\theta) + \cos^2(\theta) = 1 $. This identity is also
5  called the Pythagorean trigonometric identity.
6  \end{document}
```

The trigonometric identity is given by $\sin^2(\theta) + \cos^2(\theta) = 1$. This identity is also called the Pythagorean trigonometric identity.

Wiskundepackages

De onderstaande drie packages zijn handig om wiskunde te zetten:

Met deze packages kun je tekst toevoegen aan formules, extra symbolen gebruiken zoals \mathbb{H} , \rightsquigarrow en \mathbb{R} betere environments voor stellingen en bewijzen gebruiken.

Formule	Code	Formule	Cod	е	
$\sqrt{2}$	\$	\$ √3/8	\$		\$
$\frac{2}{3}$	\$	\$ x_1	\$	<i>\$</i>	
$6 \geq 3$	\$	\$ x_1^2	\$	\$	
$a^2 + b^2$	<i>\$</i>	\$ a^{2+b^2}	\$		<i>\$</i>
$a^{2} + b^{2}$	\$	\$ $a^2 + b^2$	\$		\$

Formule	Code		Formule	Cod	е	
$\sqrt{2}$	\$\sqrt	[2] \$	√38	\$		\$
$\frac{2}{3}$	\$	\$	x_1	\$	\$	
$6 \geq 3$	\$	<i>\$</i>	x_1^2	\$	\$	
$a^2 + b^2$	\$	\$	a^{2+b^2}	\$		\$
$a^2 + b^2$	\$	<i>\$</i>	$a^2 + b^2$	\$		<i>\$</i>

Formule	Code		Formule	Cod	е	
$\sqrt{2}$	\$2	2} \$	√38	\$		\$
$\frac{2}{3}$	\$\frac{2}{2}	2}{3} \$	x_1	\$	\$	
$6 \geq 3$	\$	<i>\$</i>	x_1^2	\$	\$	
$a^2 + b^2$	\$	<i>\$</i>	a^{2+b^2}	\$		\$
$a^2 + b^2$	\$	\$	$a^2 + b^2$	\$		<i>\$</i>

Formule	Code		Formule	Cod	е	
$\sqrt{2}$	\$\sqrt{2}	\$	√3/8	\$		\$
$\frac{2}{3}$	<pre>\$ \frac{2}</pre>	{3} <i>\$</i>	<i>x</i> ₁	\$	\$	
$6 \geq 3$	\$6\geq 3	\$	x_1^2	\$	\$	
$a^2 + b^2$	\$	\$	a^{2+b^2}	\$		\$
$a^{2} + b^{2}$	\$	\$	$a^2 + b^2$	\$		\$

Formule	Code	Formule	Cod	e	
$\sqrt{2}$	\$ \sqrt{2} \$	$\sqrt[3]{8}$	\$		\$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$	\$	
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$	\$	
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$		\$
$a^{2} + b^{2}$	\$	$a^2 + b^2$	\$		\$

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	$\sqrt[3]{8}$	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	<i>\$</i>
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$
$a^2 + b^2$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ \$

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	√3/8	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ x_1 \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$ \$
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$
$a^{2} + b^{2}$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ \$

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	³ √8	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ x_1 \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$ x_1^2 \$
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$
$a^{2} + b^{2}$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ \$

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	³ √8	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ x_1 \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$ x_1^2 \$
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$ a^{2 + b^2} \$
$a^{2} + b^{2}$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ \$

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	$\sqrt[3]{8}$	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ x_1 \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$ x_1^2 \$
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$ a^{2 + b^2} \$
$a^{2} + b^{2}$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ a^2 + b^2 \$

\$ x^22 \$: x^22

Formule	Code	Formule	Code
$\sqrt{2}$	\$ \sqrt{2} \$	$\sqrt[3]{8}$	\$\sqrt[3]{8} \$
$\frac{2}{3}$	<pre>\$ \frac{2}{3} \$</pre>	x_1	\$ x_1 \$
$6 \geq 3$	\$ 6\geq 3 \$	x_1^2	\$ x_1^2 \$
$a^2 + b^2$	\$ a^2 + b^2 \$	a^{2+b^2}	\$ a^{2 + b^2} \$
$a^{2} + b^{2}$	\$ a^2 + b^2 \$	$a^2 + b^2$	\$ a^2 + b^2 \$

 $$x^22 $: x^22 | $x^{22} $: x^{22}$

Display mode

Er bestaan vele environmets voor wiskunde in Display mode. Vandaag bekijken we de **align** environment.

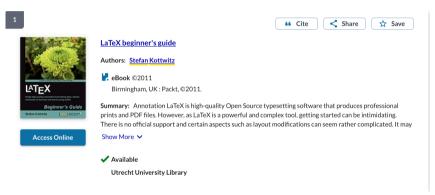
The double angle formula can now be rewritten as

$$\cos(2\theta) = \cos^2\theta - \sin^2\theta \tag{3}$$

$$=2\cos^2\theta-1\tag{4}$$

Closing remarks

Het beste boek om meer te leren is **LaTeX Beginner's Guide** door **Stefan Kottwitz**. De eerste editie is verkrijgbaar als eBook via de uu bibliotheek.



Closing remarks

De volgende cursusavond is op maandag 3 oktober van 17:15 tot 19:00. Houdt voor de locatie onze website in de gaten.

texnicie.nl

License

Contributors

```
Copyright (c) 2022 Tim Weijers
```

Copyright (c) 2021-2022 Vincent Kuhlmann

Copyright (c) 2022 Hanneke Schroten

Copyright (c) 2022 Thomas van Maaren

The TEXniCie licenses this PDF to the public under

Creative Commons CC BY-NC-ND 4.0

If you want to use slide content in a different presentation, you need to request a different license from the TEXniCie first.