

Introduction to \LaTeX Part 2

<http://www.win.tue.nl/~marko/latex>



TU/e

Technische Universiteit
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Changing Font Style

The following commands and declarations change the current font style:

Command	Declaration	Result
\emph	\em	emphasised
\textrm	\rmfamily	Roman font family
\texttt	\ttfamily	Typewriter font family
\textsf	\sffamily	Sans serif font family
\textup	\upshape	Normal, upright font shape
\textit	\itshape	<i>Italic font shape</i>
\textsl	\slshape	<i>Slanted font shape</i>
\textsc	\scshape	SMALL CAPS FONT SHAPE
\textbf	\bfseries	Boldface font weight
\textmd	\mdseries	normal (medium) font weight

Changing Font Style – Example

This is normal text with one `\textit{italic}` word.
`\sffamily` This whole `\itshape` line is `\textbf{sans}` serif.}

`\textbf{\textit{Bold and italic}}`

Do you see the difference?

`\emph{emphasised}, \textit{italic}, \textsl{slanted}`

Changing Font Style – Example

This is normal text with one \textit{italic} word.
\sffamily This whole \itshape line is \textbf{sans serif.}

\textbf{\textit{Bold and italic}}

Do you see the difference?

\emph{emphasised}, \textit{italic}, \textsl{slanted}

This is normal text with one *italic* word. This whole *line is sans serif*.

Bold and italic

Do you see the difference? *emphasised, italic, slanted*

Changing Font Style – Example

This is normal text with one \textit{italic} word.
\sffamily This whole \itshape line is \textbf{sans serif.}

\textbf{\textit{Bold and italic}}

Do you see the difference?

\emph{emphasised}, \textit{italic}, \textsl{slanted}

This is normal text with one *italic* word. This whole *line is sans serif*.

Bold and italic

Do you see the difference? *emphasised, italic, slanted*

This is an italic sentence containing an emphasised word.

Displaying Text

Font Size

The font size can be changed using one of the following declarations:

Declaration	Result
<code>\tiny</code>	smallest
<code>\scriptsize</code>	very small
<code>\footnotesize</code>	smaller
<code>\small</code>	small
<code>\normalsize</code>	normal
<code>\large</code>	large
<code>\Large</code>	larger
<code>\LARGE</code>	even larger
<code>\huge</code>	still larger
<code>\Huge</code>	largest

Centered Text

The environment `center` centers the text within this environment. The declaration `\centering` will center all following text.

```
Normal text, left justified.
```

```
\begin{center}
```

```
The text in this paragraph is centered.
```

```
The text in this paragraph is still centered.
```

```
\end{center}
```

```
And left justified again
```

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Normal text, left justified.
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The text in this paragraph is centered.

The text in this paragraph is still centered.

```
\end{center}
```

And left justified again

Normal text, left justified.

The text in this paragraph is centered.

The text in this paragraph is still centered.

And left justified again

One-sided Justification

The environments `flushleft` and `flushright` produce text that is left or right justified.

```
\begin{flushright}  
Right justified text.  
\end{flushright}
```

Right justified text.

One-sided Justification

The environments `flushleft` and `flushright` produce text that is left or right justified.

```
\begin{flushright}  
Right justified text.  
\end{flushright}
```

Right justified text.

The corresponding declarations are `\raggedright` and `\raggedleft`. Please note that `\raggedleft` will produce right justified text and vice versa!

```
\raggedleft  
Right justified text.
```

Right justified text.

Two-sided indentation: quotation

Sections of text that are indented by an equal amount on both sides, can be created with the environments `quote` or `quotation`.

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In a quote environment additional vertical spacing is inserted above and below the displayed text to separate it visually from the normal text.

The text to be displayed may be of any length; it can be part of a sentence, a whole paragraph, or several paragraphs.

Two-sided indentation: quotation

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The text to be displayed may be of any length; it can be part of a sentence, a whole paragraph, or several paragraphs.

In the quotation environment, paragraphs are marked by extra indentation of the first line, whereas in the quote environment they are indicated with more vertical spacing between them.

The quotation environment is only really meaningful when the regular text makes use of first-line indentation to show off new paragraphs.

Lists

There are three environments available for producing formatted lists: `itemize`, `enumerate` and `description`.

```
\begin{itemize}
\item This is the first item
\item This is the second item
\item This is an item with a nested list:
\begin{itemize}
\item This list has different labels.
\item Another item.
\end{itemize}
\item the final item?
\item[+] it is even possible to change the label
\end{itemize}
```

Lists – Itemize

- This is the first item
- This is the second item
- This is an item with a nested list:
 - This list has different labels.
 - Another item.
- the final item?
- + it is even possible to change the label

Lists – Enumerate

```
\begin{enumerate}
\item This is the first item
\item This is another item \label{lab}
\item This is an item with a nested list:
\begin{enumerate}
\item This list has different labels.
\item In this item we refer to item \ref{lab}.
\end{enumerate}
\item the final item
\end{enumerate}
```

Lists – Enumerate

1. This is the first item
2. This is another item
3. This is an item with a nested list:
 - (a) This list has different labels.
 - (b) In this item we refer to item 2.
4. the final item

Lists – Description

```
\begin{description}
\item[itemize] this creates a list with bullets
\item[enumerate] this creates a numbered lists.
\item[description] this creates a list for
descriptions. Each item has an optional parameter
to specify the description item.
\end{description}
```

Lists – Description

`itemize` this creates a list with bullets

`enumerate` this creates a numbered lists.

`description` this creates a list for descriptions. Each item has an optional parameter to specify the description item.

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Advanced Lists

To change the default list label, use the package `paralist` (see package documentation for more information).

Text in Boxes

A box is a piece of text that \LaTeX treats as a unit, like a single character. Three box types:

1. LR (left-right) boxes
2. paragraph boxes
3. rule boxes

LR Boxes

```
\mbox{text}  
\fbox{text}
```

These commands produce a box with a width exactly equal to that of the text.

\fbox is the same as \mbox with a frame.

LR Boxes

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```
\makebox[width][pos]{text}  
\framebox[width][pos]{text}
```

These commands produce a box with the specified width and horizontal text alignment. Possible values for pos are: l (left), r (right), s (stretch to full width).

LR Boxes

```
\mbox{text}  
\fbox{text}
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These commands produce a box with a width exactly equal to that of the text.

`\fbox` is the same as `\mbox` with a frame.

```
\makebox[width][pos]{text}  
\framebox[width][pos]{text}
```

These commands produce a box with the specified width and horizontal text alignment. Possible values for pos are: l (left), r (right), s (stretch to full width).

```
\framebox[0.8\textwidth][r]{some text}
```

some text

Parboxes and Minipages

Whole paragraphs can be put into separate vertical boxes with the command `\parbox` or the environment `minipage`:

```
\parbox [pos] {width} {text}

\begin{minipage} [pos] {width}
    text
\end{minipage}
```

The optional `pos` argument can take on the values

`b` to align the bottom edge of the box with the current baseline

`t` to align the top line of text with the current baseline

Parboxes and Minipages

```
This is a parbox: \hfill  
\fbox{\parbox[t]{0.4\textwidth}{  
This is text in a parbox. Its top line is aligned  
with the baseline. An fbox is put around the  
parbox to show the border.  
}}}
```

Parboxes and Minipages

```
This is a parbox: \hfill  
\fbox{\parbox[t]{0.4\textwidth}{
```

This is text in a parbox. Its top line is aligned with the baseline. An `fbox` is put around the parbox to show the border.

```
}
```

This is a parbox:

This is text in a parbox. Its top line is aligned with the baseline. An `fbox` is put around the parbox to show the border.

Parboxes and Minipages

```
This is a parbox: \hfill  
\fbox{\parbox[t]{0.4\textwidth}{
```

This is text in a parbox. Its top line is aligned with the baseline. An `fbox` is put around the parbox to show the border.
}}

This is a parbox:

This is text in a parbox. Its top line is aligned with the baseline. An `fbox` is put around the parbox to show the border.

Vertical positioning of minipages and parboxes can often lead to unexpected results. Read paragraph 5.1.4 in the book for more information.

Paragraph Boxes of Specific Height

The complete syntax of the `\parbox` command and `minipage` environment include two more optional arguments:

```
\parbox [pos] [height] [inner_pos] {width} {text}
```

```
\begin{minipage} [pos] [height] [inner_pos] {width}
```

text

```
\end{minipage}
```

`height` is a length specifying the height of the box. The argument `inner_pos` states how the text is to be positioned internally:

`t` push the text to the top of the box

`b` shove the text to the bottom of the box

`c` center the text vertically

`s` stretch the text to fill up the whole box

Rule Boxes

A rule box is a filled-in black rectangle:

```
\rule [lift] {width} {height}
```

Example: `\rule [-1em] {2cm} {1cm}`

Displaying Text

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Rule Boxes

A rule box is a filled-in black rectangle:

```
\rule [lift] {width} {height}
```

Example: `\rule [-1em] {2cm} {1cm}`

Example:



Footnotes

Footnotes are generated with the command `\footnote{text}`.

Example:

```
This section is about footnotes.\footnote{The  
standard footnote marker is a small, raised number.}
```

Footnotes

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Example:

```
This section is about footnotes.\footnote{The  
standard footnote marker is a small, raised number.}
```

This section is about footnotes.¹

¹The standard footnote marker is a small, raised number.

The environments array and tabular create tables and matrices. The usage of array is the same as for tabular, but it can only be used in math mode (which will be discussed later).

```
\begin{array}{[pos]}{cols}
  rows
\end{array}

\begin{tabular}{[pos]}{cols}
  rows
\end{tabular}
```

The pos argument defines the vertical positioning for the table: t or b (just like for the parbox)

The `cols` argument defines the column formatting. The possible formatting symbols are:

`l` the column contents are left justified

`r` the column contents are right justified

`c` the column contents are centered

`p{width}` the text in this column is set in a parbox of the specified width.

`|` draws a vertical line

`||` draws a double vertical line

The rows contain the actual entries. Each row is terminated with the \\ command. The column entries are separated by a & symbol.

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The command `\hline` draws a horizontal line over the full width.

The command `\cline{m-n}` draws a horizontal line from the left of column m to the right of column n .

The rows contain the actual entries. Each row is terminated with the `\\"` command. The column entries are separated by a `&` symbol.

The command `\hline` draws a horizontal line over the full width.

The command `\cline{m-n}` draws a horizontal line from the left of column m to the right of column n .

The command `\multicolumn{n}{c}{text}` creates a table cell that extends n columns. The column formatting for this cell is defined by `c`.

Tables

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Example 1

Stand Eredivisie 26 maart 2008							
		P	W	D	L	Pts	+/-
1	PSV	30	19	7	4	64	61 - 23
2	Ajax	30	16	9	5	57	79 - 40
3	sc Heerenveen	30	16	6	8	54	76 - 38
4	Feyenoord	30	16	6	8	54	56 - 34
5	NAC Breda	30	16	6	8	54	41 - 35
6	FC Twente	30	14	10	6	52	47 - 31
7	FC Groningen	30	15	5	10	50	50 - 48
8	Roda JC	30	11	10	9	43	51 - 49
9	FC Utrecht	30	12	6	12	42	56 - 50
10	Vitesse	30	11	7	12	40	42 - 51
11	NEC	30	11	6	13	39	43 - 49
12	AZ	30	8	9	13	33	41 - 49
13	Heracles Almelo	30	8	7	15	31	33 - 56
14	Sparta Rotterdam	30	8	6	16	30	46 - 68
15	De Graafschap	30	7	7	16	28	30 - 55
16	Willem II	30	7	6	17	27	33 - 41
17	VVV-Venlo	30	6	8	16	26	37 - 67
18	Excelsior	30	6	5	19	23	29 - 67

Example 1

```
\begin{tabular}{|l|l|cccc|r|c|}
\hline
\multicolumn{8}{|c|}{Eredivisie 26 maart 2008} \\
\hline
& & P & W & D & L & Pts & +/- \\
\hline
1 & PSV & 30 & 19 & 7 & 4 & 64 & 61 - 23 \\
2 & Ajax & 30 & 16 & 9 & 5 & 57 & 79 - 40 \\
...
18 & Excelsior & 30 & 6 & 5 & 19 & 23 & 29 - 67 \\
\hline
\end{tabular}
```

Example 2

Model	Description	Price
FBD 360	Desktop: XP3600+ Processor, 512 MB DDR-RAM, 80 GB Hard disk, 16x DVD drive, 32x CDRW drive, 64 MB TV output, Windows XP, 15" monitor	€ 999.00
FBD 480	Desktop DeLuxe: Same as FBD 360 but with XP4800+ Processor, 48x CDRW drive, 17" monitor	€ 1399.00

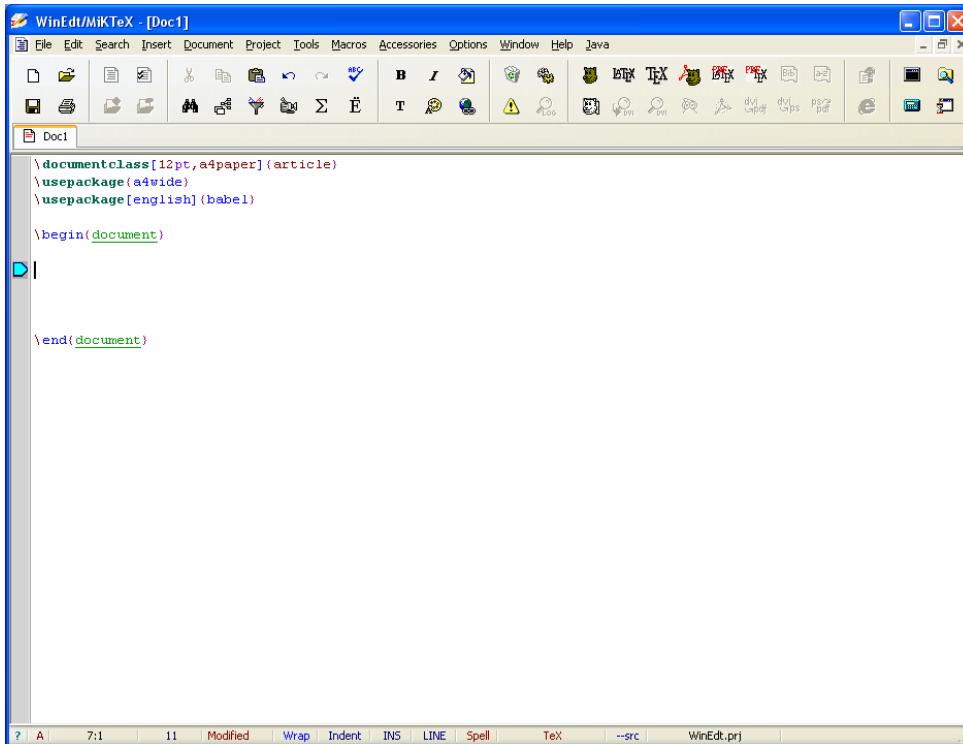
Example 2

```
\begin{tabular}{lp{0.5\textwidth}r}
\bfseries Model & \bfseries Description &
\bfseries Price \\[1ex]
```

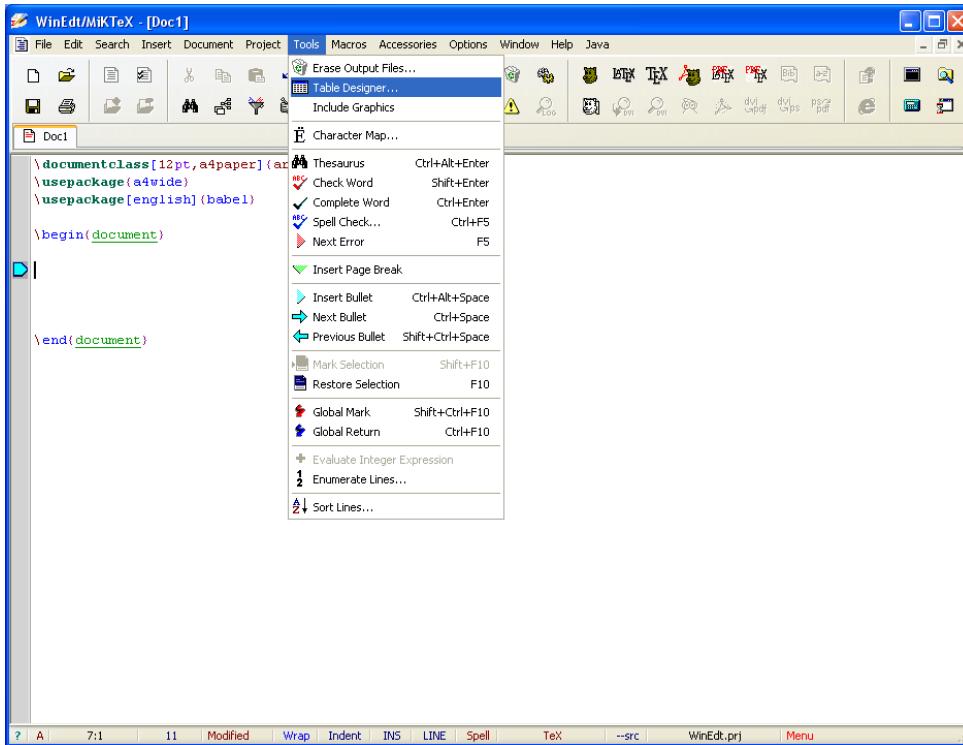
FBD 360 & \small \textbf{Desktop}: XP3600+ Processor, 512~MB DDR-RAM, 80~GB Hard disk, 16x DVD drive, 32x CDRW drive, 64~MB TV output, Windows~XP, 15" monitor & \EUR{} 999.00 \\

FBD 480 & \small \textbf{Desktop DeLuxe}: Same as FBD 360 but with XP4800+ Processor, 48x CDRW drive, 17" monitor & \EUR{} 1399.00 \\
\end{tabular}

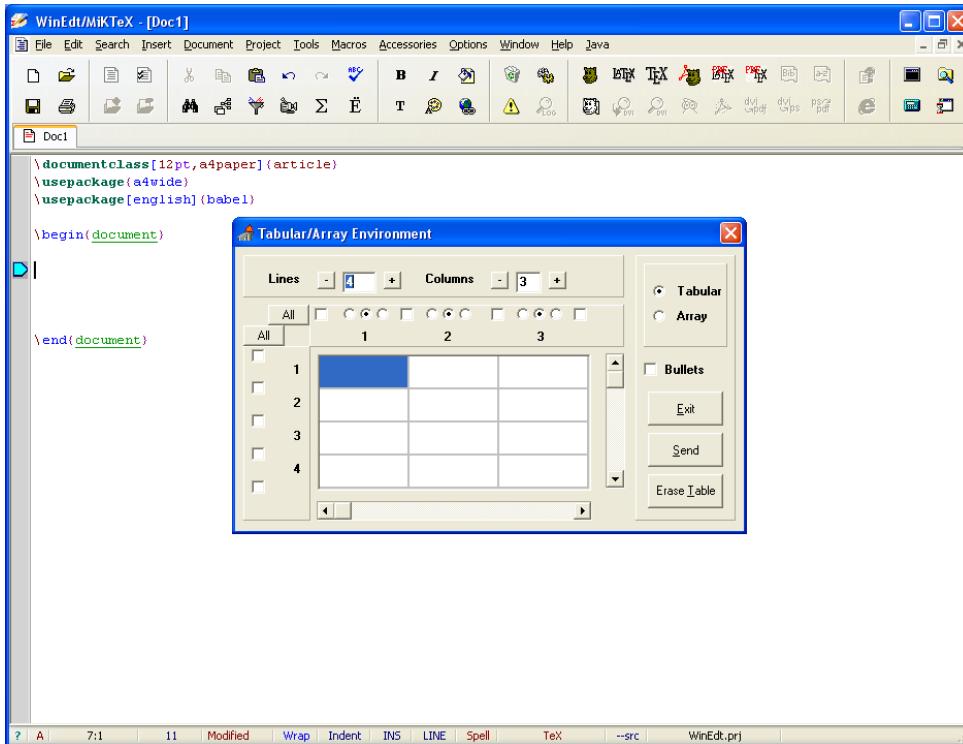
WinEdt had a useful plug-in to insert tables:



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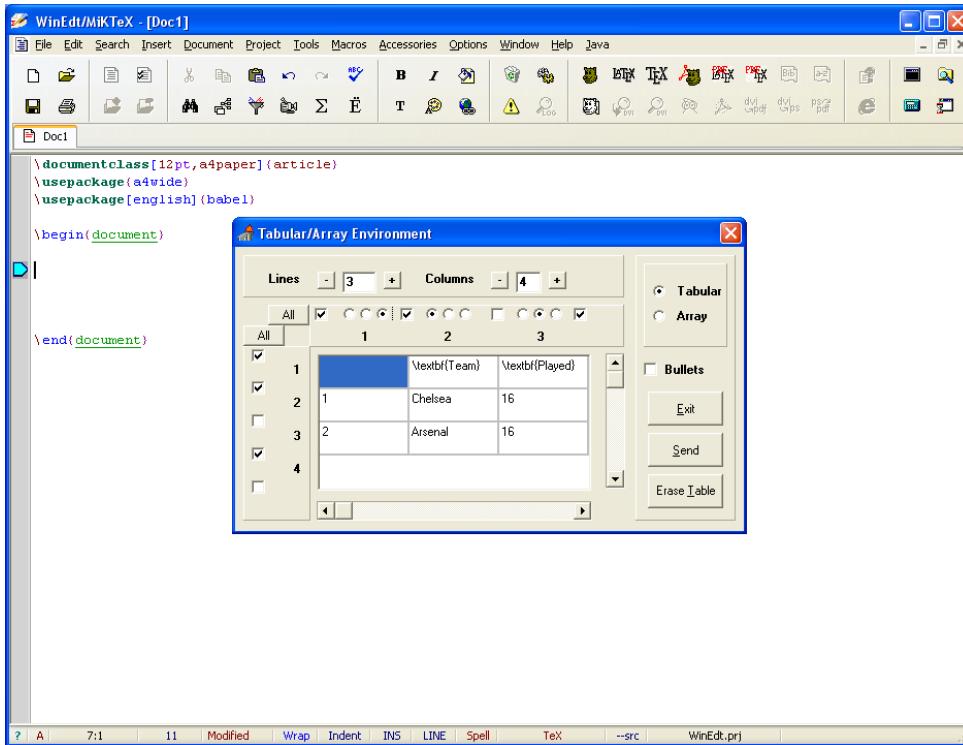


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Tables

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Tables

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The screenshot shows the WinEdt/MiKTeX interface with a LaTeX document open in Doc1. The code includes a table comparing two football teams.

```
\documentclass[12pt,a4paper]{article}
\usepackage{a4wide}
\usepackage[english]{babel}

\begin{document}

\begin{tabular}{|r|lc|c}
\hline
& \textbf{Team} & \textbf{Played} & \textbf{Points} \\
\hline
1 & Chelsea & 16 & \\
2 & Arsenal & 16 & \\
\hline
\end{tabular}

\end{document}
```

Excel to L^AT_EX Add-In

1. download the Excel macro: [Excel2LaTeX.xla](#)

2. Start Excel and install the Add-in:

- Tools → Add-Ins...
- Browse...
- Browse for the Add-In and click Ok

3. Restart Excel

4. A button has been added to the toolbar: 

5. Create a table in Excel, select the table and press this button.

6. Copy-paste to WinEdt

Graphics Inclusion

To include an external graphics file:

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To include an external graphics file:

- Load the package `graphicx` in the preamble:

```
\usepackage{graphicx}
```

Graphics Inclusion

To include an external graphics file:

- Load the package `graphicx` in the preamble:

```
\usepackage{graphicx}
```

- Include the graphics using this command:

```
\includegraphics [width=0.7\ linewidth] {filename}
```

Supported File Formats:

	EPS	PDF	JPG	GIF	PNG
\LaTeX	yes	no	yes*	no	yes*
PDF \LaTeX	no	yes	yes	no	yes

Please notice: only EPS and PDF are scalable. Use JPG and PNG just for photographs!

Many programs can generate EPS images. Use Corel Designer to export images created in other programs. Copy/Paste the objects in Corel Designer and export to EPS.

Use EPS2PDF (on your desktop) to convert EPS to PDF.

* does not work automatically when working with \LaTeX . You should enter the coordinates of the bounding box manually.

```
\includegraphics [options] {filename}
```

```
\includegraphics [options] {filename}
```

When including EPS or PDF files, use the file name without extension!
 \LaTeX will take the EPS, PDF \LaTeX will take the PDF.

```
\includegraphics [options] {filename}
```

When including EPS or PDF files, use the file name without extension!
 \LaTeX will take the EPS, \PDF\LaTeX will take the PDF.

Supported options are:

`scale=number` magnifies the figure by *number* over its natural size.

`width=length` specifies the width to which the figure should be scaled

`height=length` specifies the height to which the figure should be scaled

`angle=number` rotates the figure counterclockwise over the specified angle
(in degrees)

`bbllx lly urx ury` enters the coordinates of the bounding box manually.

You can create a figure environment to create “floating” figures. \LaTeX will put the image at the location that you specify, or on the top of the next page if the figure does not fit at the current page. In a figure environment you can add a caption and a label to refer to the figure.

```
\begin{figure}[ht]
\begin{center}
\includegraphics{normal}
\end{center}
\caption{Two dimensional normal distribution}
\label{fig:normal}
\end{figure}
```

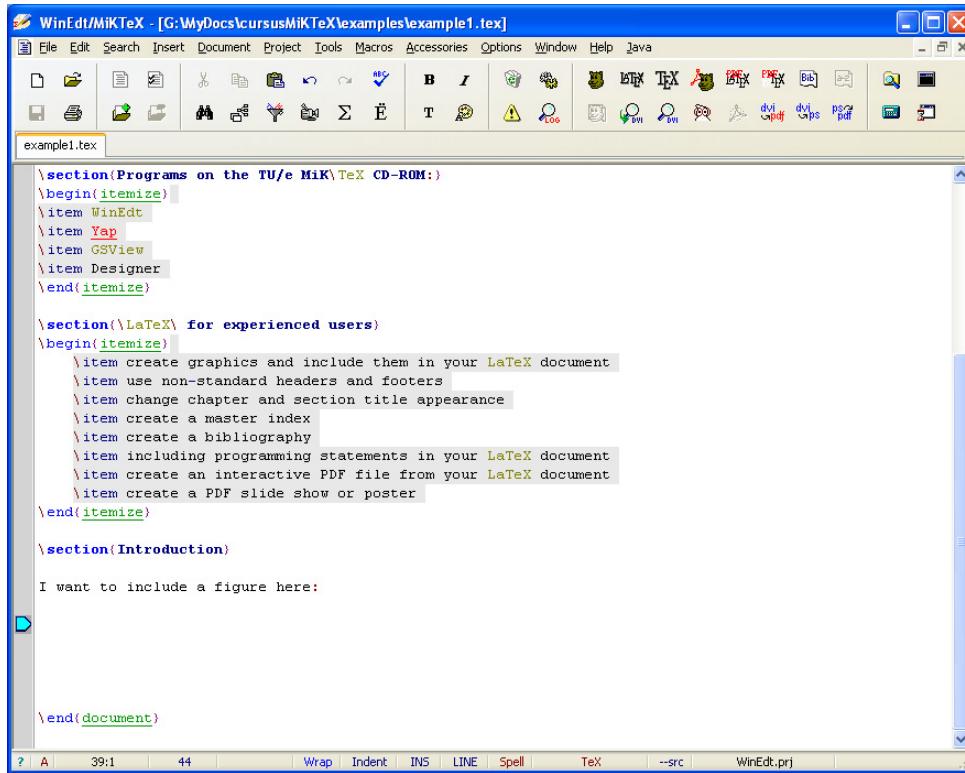
You can create a figure environment to create “floating” figures. \LaTeX will put the image at the location that you specify, or on the top of the next page if the figure does not fit at the current page. In a figure environment you can add a caption and a label to refer to the figure.

```
\begin{figure}[ht]
\begin{center}
\includegraphics{normal}
\end{center}
\caption{Two dimensional normal distribution}
\label{fig:normal}
\end{figure}
```

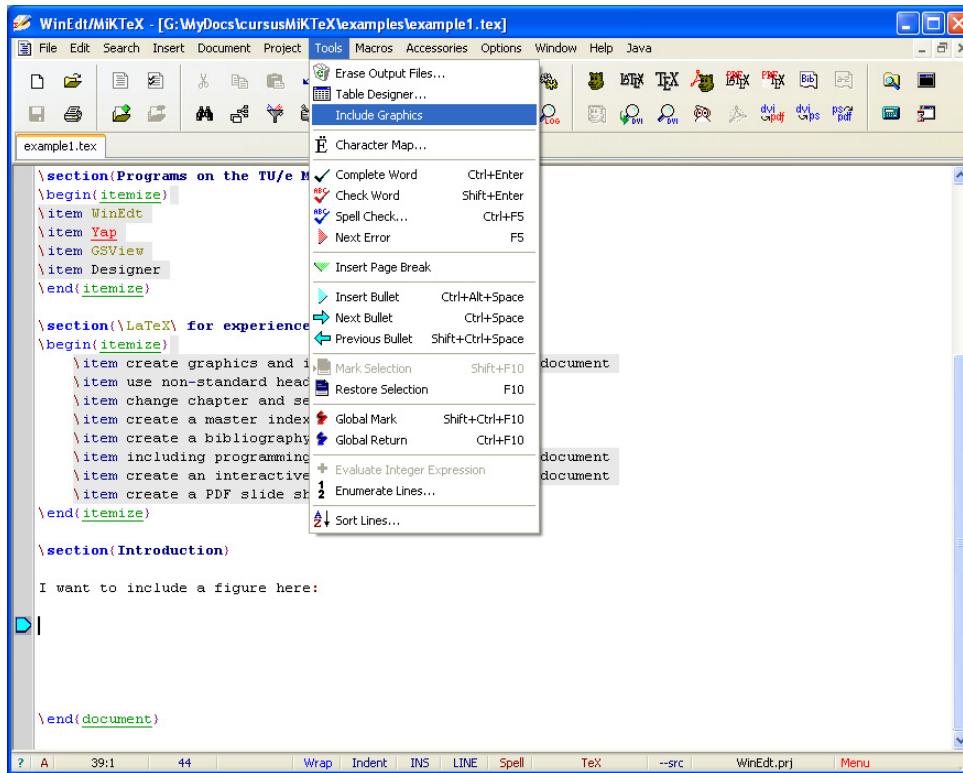
Now we can refer to the image:

```
See figure \ref{fig:normal}.
```

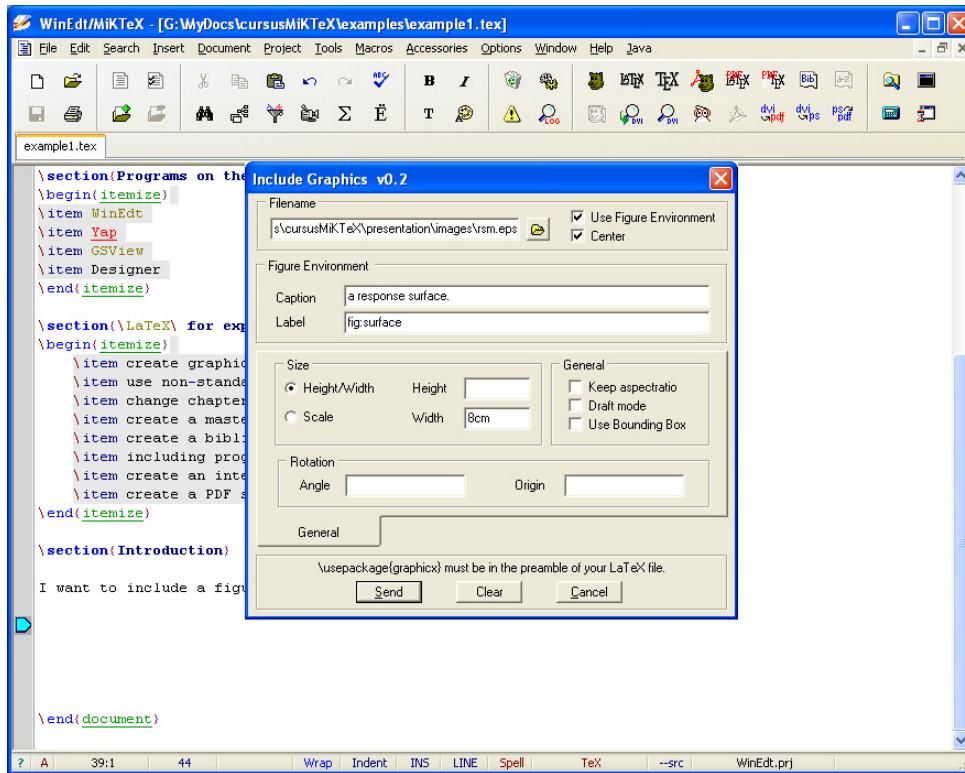
WinEdt had a useful plug-in to insert pictures:



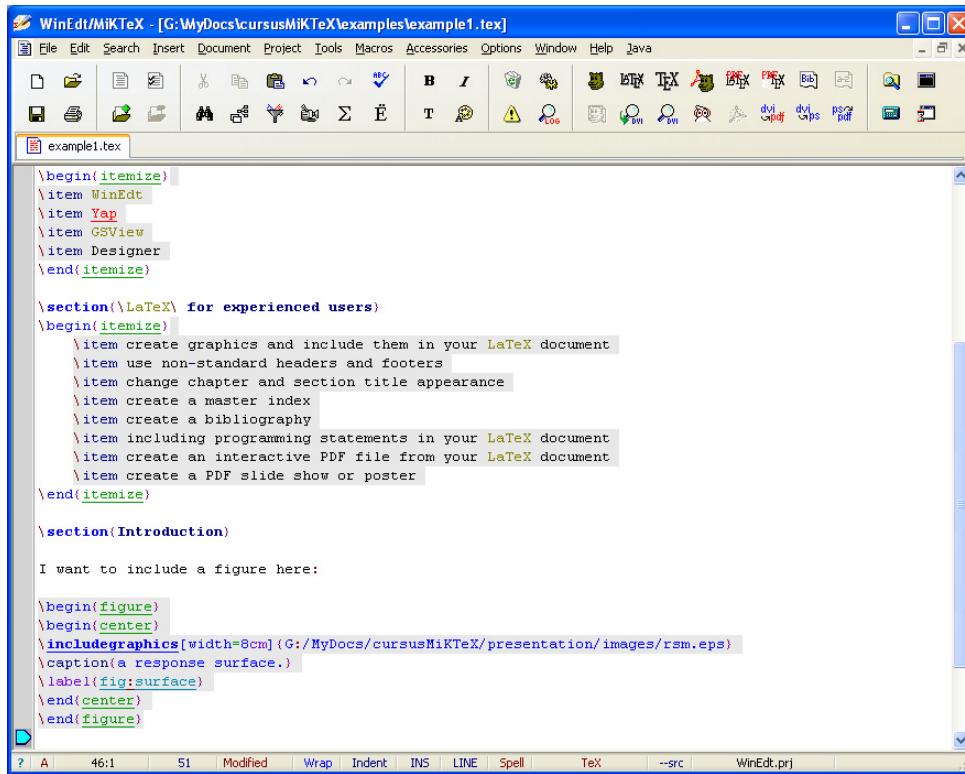
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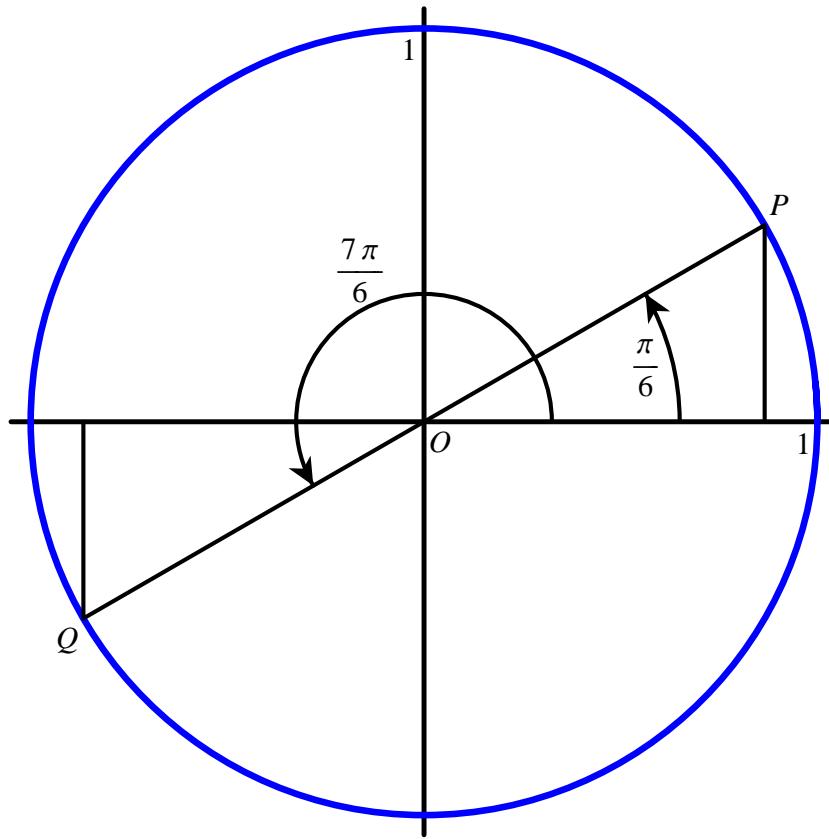
The screenshot shows the WinEdt interface with a LaTeX document titled "example1.tex". The code includes sections for itemize and section, and a specific section for "Introduc". A comment "I want to include figure here:" is followed by a figure environment. The code for the figure environment is:

```
\begin{figure}[ht]
\begin{center}
\includegraphics[width=8cm]{images/rsm}
\caption{a response surface.}
\label{fig:rsm}
\end{center}
\end{figure}
```

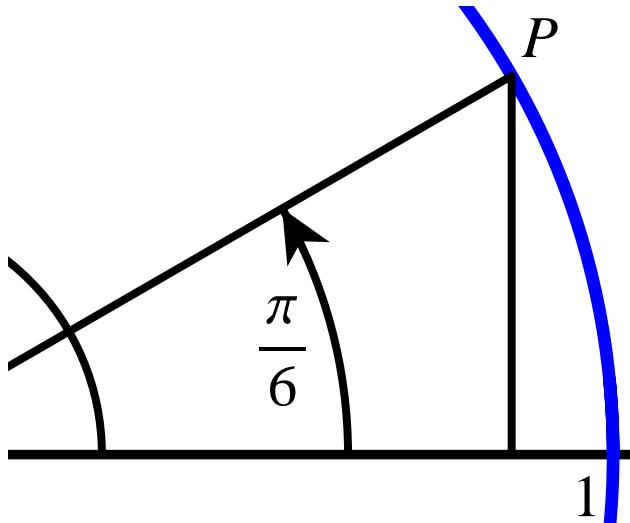
Annotations in green text and arrows highlight specific parts of the code:

- A large green arrow points from the text "Position: Here, Top (of next page)" to the line "\begin{figure}[ht]".
- A green arrow points from the text "Remove absolute file path remove file extension" to the line "\includegraphics[width=8cm]{images/rsm}".

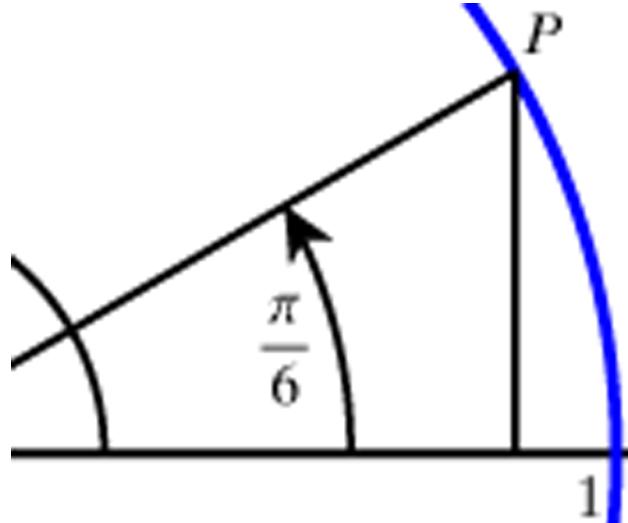
Scalable and non-scalable graphics



Scalable and non-scalable graphics



Scalable graphics formats:
EPS, PDF, WMF, EMF, SVG.



Non-scalable graphics formats:
JPG, GIF, BMP, PNG.
But also: all scalable formats!

Scalable Graphics Software

- Corel Designer,
- CorelDraw,
- Adobe Illustrator,
- Microsoft Visio,
- Microsoft Office Drawing,
- OpenOffice.org Draw,
- all computer algebra software (*Mathematica*, Matlab, Maple)

Non-scalable Graphics Software

- Adobe PhotoShop,
- Paint Shop Pro,
- MS Paint,
- all digital photo editing software!

Including JPG/PNG Images

\LaTeX (unlike PDF \LaTeX) cannot determine the bounding box automatically.



JPEG Image, 2304×1728 pixels,
72dpi, taken with 4.0 megapixel digital
camera

Including JPG/PNG Images

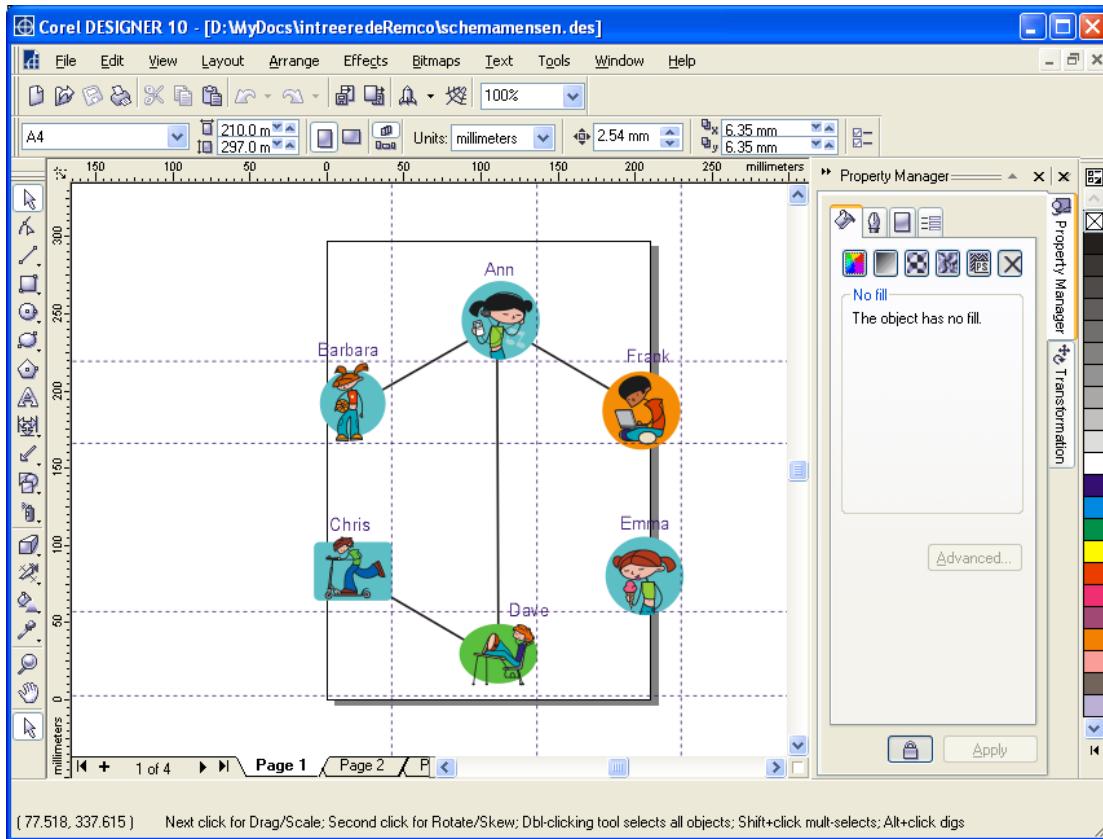
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72dpi, taken with 4.0 megapixel digital
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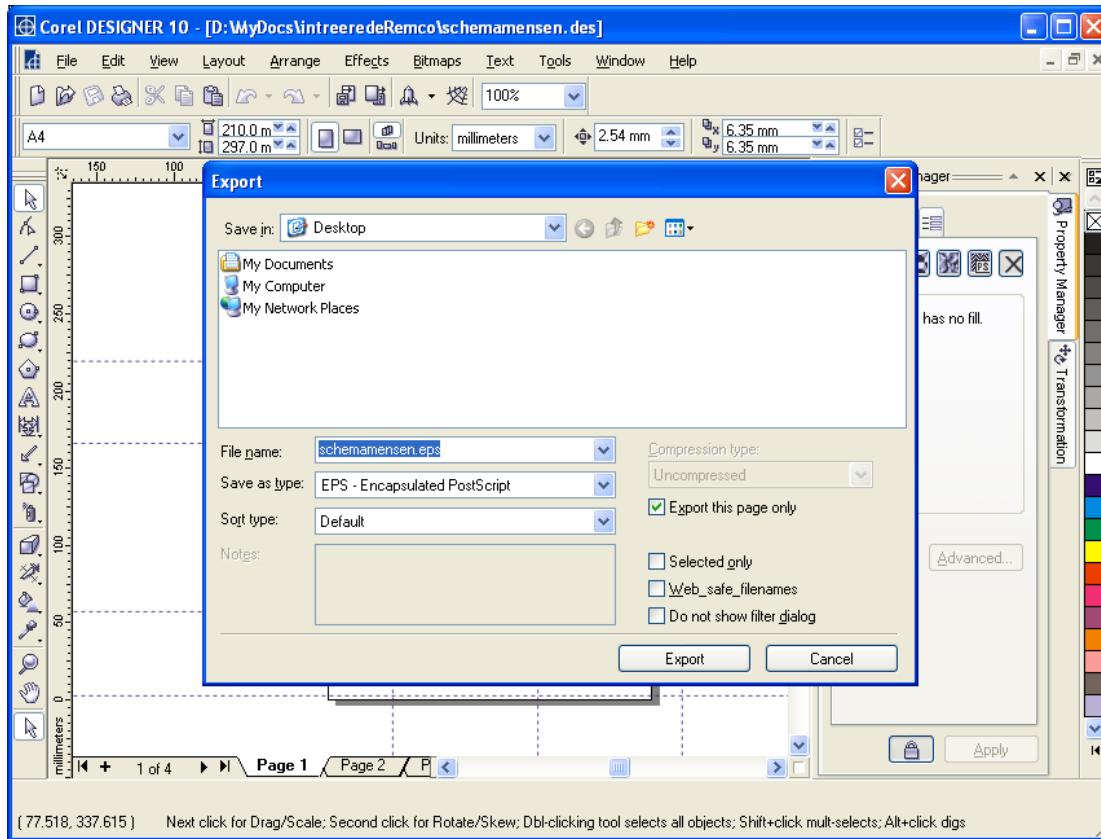
```
\includegraphics [width=8cm, bb=0 0 2304 1728]  
{holiday.jpg}
```

Corel Designer

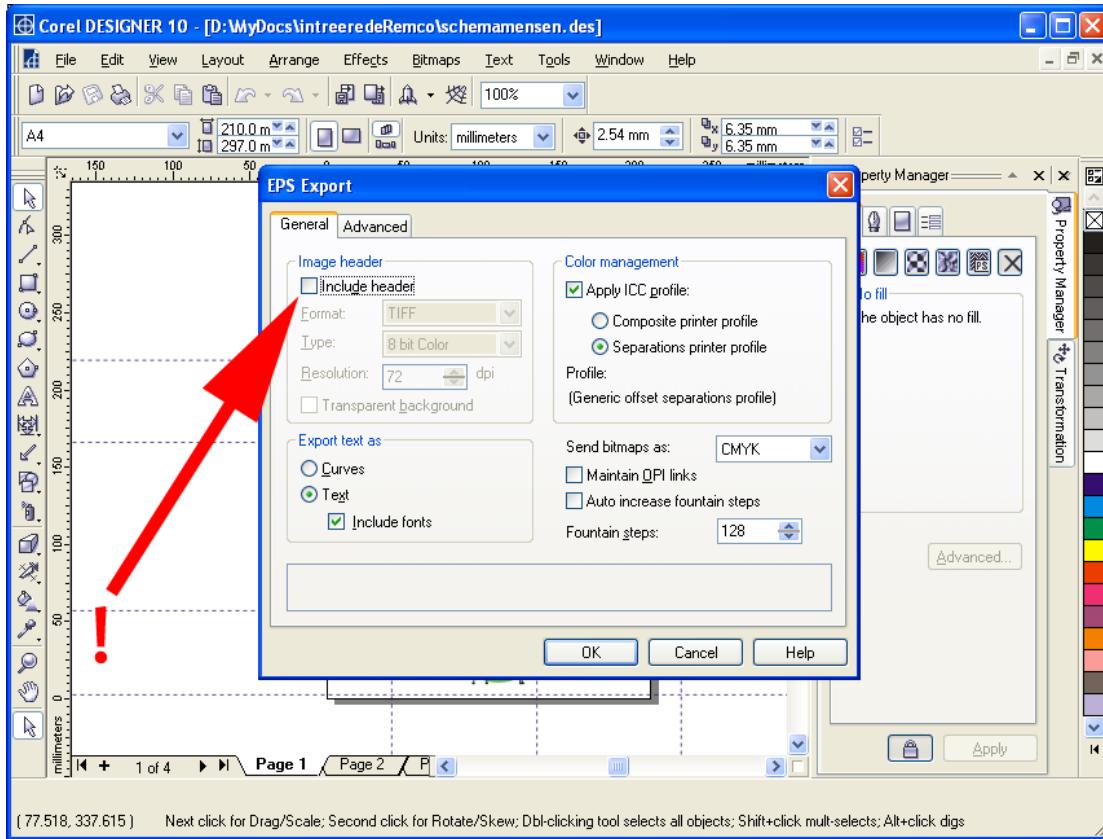


(77.518, 337.615) Next click for Drag/Scale; Second click for Rotate/Skew; Dbl-clicking tool selects all objects; Shift+click multi-selects; Alt+click digs

Corel Designer



Corel Designer



```
\renewcommand{\sfdefault}{phv}  
\renewcommand{\rmdefault}{ptm}  
\renewcommand{\ttdefault}{pcr}
```

Helvetica phv

This is an *italic* or **bold** test

Times ptm

This is an *italic* or **bold** test

Courier phv

This is an *italic* or **bold** test

One-time selection of a different font.

```
{\normalfont \fontfamily{ptm} \selectfont  
This is an \textit{italic}  
or \textbf{bold} test}
```

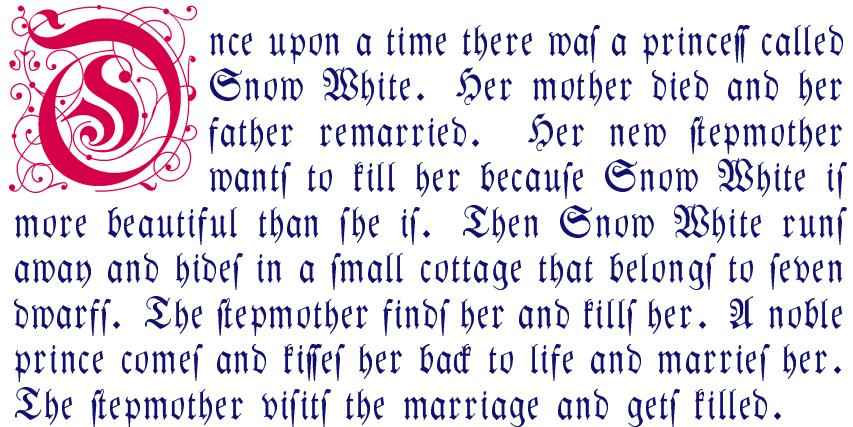
This is an *italic* or **bold** test

```
{\normalfont \fontencoding{LY}%
\fontfamily{yfrak}\selectfont
This is an \textit{italic} or
\textbf{bold} test}
```

This is an italic or bold test

```
\usepackage{yfonts}%
{\frakfamily Bla}
```

Bla

Once upon a time there was a princess called Snow White. Her mother died and her father remarried. Her new stepmother wants to kill her because Snow White is more beautiful than she is. Then Snow White runs away and hides in a small cottage that belongs to seven dwarfs. The stepmother finds her and kills her. A noble prince comes and kisses her back to life and marries her. The stepmother visits the marriage and gets killed.

Alternative Font Families (Text and Math)

Computer Modern \LaTeX default

Concrete Roman

```
\usepackage[boldsans]{ccfonts}
```

Utopia with Fourier

```
\usepackage{utopia}
\usepackage{fourier}
```

Times Roman

```
\usepackage{mathptmx}
```

Alternative Font Families (Text and Math)

Euler

```
\usepackage[euler-digits]{eulervm}
```

Palatino

```
\usepackage{mathpazo}
```

Mathtime

```
\usepackage[mtbold, mtpluscal]{mathtime}
```

Lucida

```
\usepackage[lucidasmallscale, expert]{lucidabr}
```

Computer Modern Fonts (\LaTeX default)

First some large operators both in text: $\int\int\int_Q f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\tilde{C}}} \partial(\tilde{X}_\gamma)$;
and also on display:

$$\begin{aligned} \iiint_Q f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\approx \biguplus_{Q \Subset \bar{Q}} \left[f^* \left(\frac{\int \mathbb{Q}(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Concrete Roman Fonts

First some large operators both in text: $\iiint_Q f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\tilde{C}}} \partial(\widetilde{X}_\gamma)$; and also on display:

$$\begin{aligned} \iiint_Q f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\lesssim \bigoplus_{Q \in \bar{Q}} \left[f^* \left(\frac{\int Q(t) dt}{\sqrt{1 - t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Utopia with Fourier Fonts

First some large operators both in text: $\mathop{\iiint}\limits_{\mathcal{Q}} f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\tilde{C}}} \partial(\tilde{X}_{\gamma})$;
and also on display:

$$\begin{aligned} \mathop{\iiint\iiint}\limits_{\mathbf{Q}} f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial \mathbf{Q}} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\lesssim \bigcup_{\mathbb{Q} \in \bar{\mathbb{Q}}} \left[f^* \left(\frac{\int \mathbb{Q}(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Times Roman

First some large operators both in text: $\mathop{\iiint}\limits_{\mathcal{Q}} f(x,y,z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\tilde{C}}} \partial(\tilde{X}_\gamma)$; and also on display:

$$\begin{aligned} \mathop{\iiint\iiint}\limits_{\mathbf{Q}} f(w,x,y,z) dw dx dy dz &\leq \oint_{\partial\mathbf{Q}} f' \left(\max \left\{ \frac{\|w\|}{|w^2+x^2|}, \frac{\|z\|}{|y^2+z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\approx \bigcup_{\mathbb{Q} \in \bar{\mathbf{Q}}} \left[f^* \left(\frac{\int \mathbb{Q}(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Euler Fonts

First some large operators both in text: $\iiint_Q f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\bar{C}}} \partial(\tilde{X}_{\gamma})$; and also on display:

$$\begin{aligned} \iiint_Q f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\approx \bigcup_{Q \in \bar{Q}} \left[f^* \left(\frac{\int Q(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \quad (1)$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \quad (2)$$

Palatino

First some large operators both in text: $\iiint_{\mathcal{Q}} f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\tilde{C}}} \partial(\tilde{X}_\gamma)$;
and also on display:

$$\begin{aligned} \iiint_{\mathbf{Q}} f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\lesssim \bigcup_{\mathbf{Q} \Subset \bar{\mathbf{Q}}} \left[f^* \left(\frac{\int \mathbf{Q}(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (??) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Mathtime Fonts (Commercial)

First some large operators both in text: $\mathop{\iiint}\limits_{\mathcal{Q}} f(x, y, z) dx dy dz$ and $\prod_{\gamma \in \Gamma_{\widetilde{C}}} \partial(\widetilde{X}_{\gamma})$;
and also on display:

$$\begin{aligned} \mathop{\iiint}\limits_{\mathbf{Q}} f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\approx \bigcup_{\mathbb{Q} \in \bar{\mathbf{Q}}} \left[f^* \left(\frac{\left\{ \mathbb{Q}(t) \right\}}{\sqrt{1 - t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \quad (1)$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \quad (2)$$

Lucida Fonts (Commercial)

First some large operators both in text: $\iiint_Q f(x, y, z) dx dy dz$ and $\prod_{Y \in \Gamma_C} \partial(\tilde{X}_Y)$;
and also on display:

$$\begin{aligned} \iiint_Q f(w, x, y, z) dw dx dy dz &\leq \oint_{\partial Q} f' \left(\max \left\{ \frac{\|w\|}{|w^2 + x^2|}, \frac{\|z\|}{|y^2 + z^2|}, \frac{\|w \oplus z\|}{\|x \oplus y\|} \right\} \right) \\ &\lesssim \bigcup_{Q \in \bar{Q}} \left[f^* \left(\frac{\int Q(t)}{\sqrt{1-t^2}} \right) \right]_{t=\alpha}^{t=\vartheta} \end{aligned} \tag{1}$$

For x in the open interval $] -1, 1 [$ the infinite sum in Equation (2) is convergent; however, this does not hold throughout the closed interval $[-1, 1]$.

$$(1-x)^{-k} = 1 + \sum_{j=1}^{\infty} (-1)^j \binom{k}{j} x^j \quad \text{for } k \in \mathbb{N}; k \neq 0. \tag{2}$$

Marvosym - A Collection of Symbols

```
\usepackage{marvosym}
```

Marvosym - A Collection of Symbols

```
\usepackage{marvosym}
```

```
\Pickup \Letter \Mobilefone \Telefon \fax \FAX \Faxmachine \Email \Lightning \Emailct
```



FAX



Marvosym - A Collection of Symbols

```
\usepackage{marvosym}
```

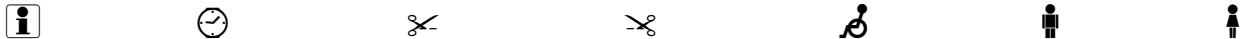
\Pickup	\Letter	\Mobilefone	\Telefon	\fax	\FAX	\Faxmachine	\Email	\Lightning	\Emailct
---------	---------	-------------	----------	------	------	-------------	--------	------------	----------



\Industry	\Coffeecup	\Rightscissors	\Kutline	\Leftscissors	\Football	\Bicycle
-----------	------------	----------------	----------	---------------	-----------	----------



\Info	\Clocklogo	\Cutright	\Cutleft	\Wheelchair	\Gentsroom	\Ladiesroom
-------	------------	-----------	----------	-------------	------------	-------------



\Checkedbox	\Crossedbox	\Pointinghand	\Writinghand
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Marvosym

\WashCotton	\WashSynthetics	\WashWool	\Handwash	\Dontwash	\NoChemicalCleaning
					
\Bleech	\NoBleech	\CleaningA	\CleaningP	\CleaningPP	
					
\IroningI	\IroningII	\IroningIII	\NoIroning	\AtSixty	\ShortSixty
					
\ShortFifty	\AtForty	\ShortForty	\SpecialForty	\ShortThirty	
					

Marvosym

\Stopsign \CEsign \Estatically \Explosionsafe \Laserbeam \Biohazard \Radioactivity \BSEfree



Marvosym

\Stopsign \CEsign \Estatically \Explosionsafe \Laserbeam \Biohazard \Radioactivity \BSEfree



\RewindToIndex \RewindToStart \Rewind \Forward \ForwardToEnd \ForwardToIndex \MoveUp \MoveDown



Marvosym

\Stopsign \CEsign \Estatically \Explosionsafe \Laserbeam \Biohazard \Radioactivity \BSEfree



\RewindToIndex \RewindToStart \Rewind \Forward \ForwardToEnd \ForwardToIndex \MoveUp \MoveDown



\ComputerMouse \SerialInterface \Keyboard \SerialPort \ParallelPort \Printer



Marvosym

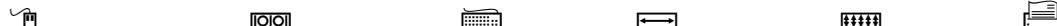
\Stopsign \CEsign \Estatically \Explosionsafe \Laserbeam \Biohazard \Radioactivity \BSEfree



\RewindToIndex \RewindToStart \Rewind \Forward \ForwardToEnd \ForwardToIndex \MoveUp \MoveDown



\ComputerMouse \SerialInterface \Keyboard \SerialPort \ParallelPort \Printer



\Neutral \Male \Hermaphrodite \Female \MaleMale \FemaleFemale \FemaleMale



Marvosym

\Stopsign \CEsign \Estatically \Explosionsafe \Laserbeam \Biohazard \Radioactivity \BSEfree



\RewindToIndex \RewindToStart \Rewind \Forward \ForwardToEnd \ForwardToIndex \MoveUp \MoveDown



\ComputerMouse \SerialInterface \Keyboard \SerialPort \ParallelPort \Printer



\Neutral \Male \Hermaphrodite \Female \MaleMale \FemaleFemale \FemaleMale



\Sun \Moon \Mercury \Venus \Mars \Jupiter \Saturn \Uranus \Neptune \Pluto \Earth



Marvosym

\Aries	\Taurus	\Gemini	\Cancer	\Leo	\Virgo
♈	♉	♊	♋	♌	♍
\Libra	\Scorpio	\Sagittarius	\Capricorn	\Aquarius	\Pisces
♎	♏	♐	♑	♒	♓

Marvosym

\Aries	\Taurus	\Gemini	\Cancer	\Leo	\Virgo
♈	♉	♊	♋	♌	♍
\Libra	\Scorpio	\Sagittarius	\Capricorn	\Aquarius	\Pisces
♎	♏	♐	♑	♒	♓

\Yinyang	\MVAt	\Mundus	\Cross	\Celtcross	\Ankh
☯	Ⓜ	Ⓜ	✝	✝	☥
\Heart	\CircledA	\Bouquet	\Frowny	\Smiley	\Bat
♥	Ⓐ	💐	☹	☺	🦇
\Womanface					👩

TU/e Fonts

TU/e Scala (zsc):

0123456789

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

TU/e Meta (zmb):

0123456789

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

TU/e logos (zlo):

TU/e technische universiteit eindhoven