

# L<sup>A</sup>T<sub>E</sub>X: Online module 2

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# Topics to be covered

- Typeface
- Font size
- Special characters
- Hyphens and dots
- Spacing
- Examples
- Summary

# Typeface

Use the following commands to get different types of fonts in your document in text mode:

- Bold face: `\bf{content}`
- Italic face: `\it{content}`
- Emphasized text: `\emph{content}`
- Typewriter: `\texttt{content}`
- Slanted text: `\textsl{content}`
- Small capitals: `\textsc{content}`
- Upper case: `\uppercase{content}`

contd...

Use the following commands to get different types of fonts in your document in mathematical mode:

- Math bold face:  $\mathbf{content}$
- Math italic face:  $\mathit{content}$
- Math typewriter:  $\mathtt{content}$
- Math calligraphic letters:  $\mathcal{content}$

# Example

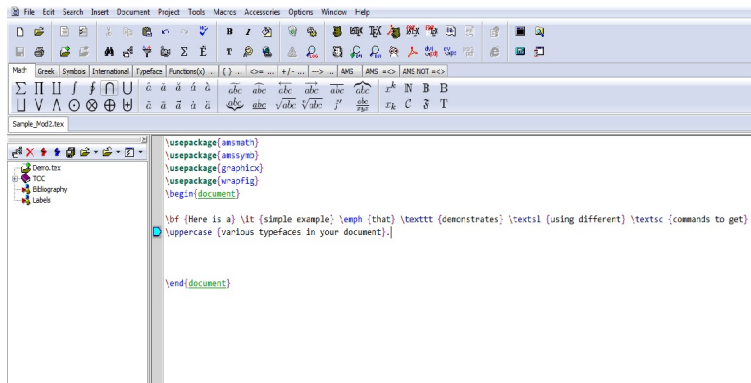


Fig1: Snap shot- using various typefaces

contd...

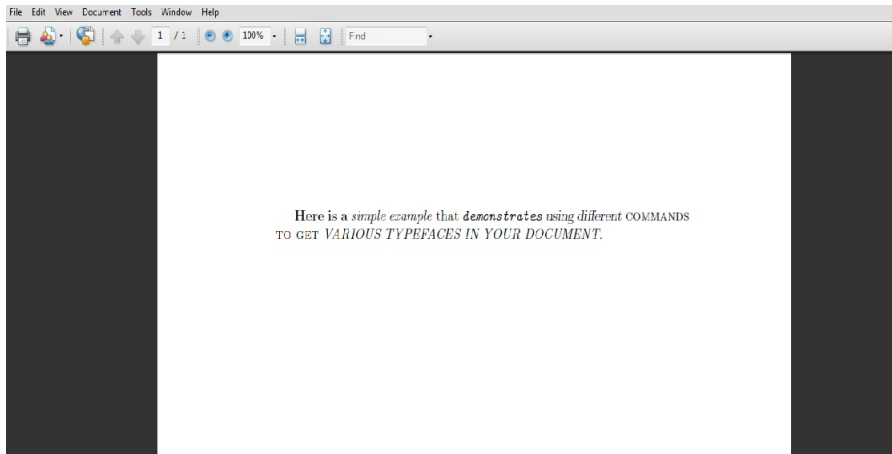


Fig2: Output of the previous slide

# Font sizes

- Default font size: `\normalsize` is 10 points, but can be even 11 and 12 depending on the type of document
- All the following commands change the size of the text embedded within the command
- Cannot be used in the mathematical mode
- Following commands are in the increasing order of the font size:
  - 1 `{\tiny write your content here}`
  - 2 `{\scriptsize write your content here}`
  - 3 `{\footnotesize write your content here}`
  - 4 `{\small write your content here}`

contd...

- 1 `{\normalsize write your content here}`
- 2 `{\large write your content here}`
- 3 `{\Large write your content here}`
- 4 `{\LARGE write your content here}`
- 5 `{\huge write your content here}`
- 6 `{\Huge write your content here}`



# Special characters

Some of the special characters that can be included in your document are the following:

- Backslash: `\`
- Ampersand: `&`
- Hash: `#`
- Percent: `%`
- Curly brackets: `{` and `}`
- Text circled: `\textcircled{a}`
- Copyright: `\copyright`

All of the above can be included into your text by typing the command `\` followed by any of the above mentioned character, for example, `\&`

# Hyphens

- Minus sign: 0, 1 and  $-1$
- Hyphen: simple-easy-enjoyable
- En dash: *Figure 1 -- Figure 5* generates the output as the following:  
*Figure 1 – Figure 5*
- Em dash: *Table 1 --- Table 10* generates the output as the following:  
*Table 1 — or Table 5*

# Dots

- To generate the following output: *applied mathematics department, pure mathematics department, ...*, there might be a spacing issue with the dots at the the end of the sentence.
- Replace the dots with the command `\dots`: *applied mathematics department, pure mathematics department, ...*
- To generate the following output in mathematical environment  $10+11+\dots=100$
- Replace the dots with the command `\ldots` :  $10+11+\dots=100$
- If you want the dots to be centered in the above mathematical equation use the command `\cdots` to obtain:  $10 + 11 + \cdots = 100$

# Example

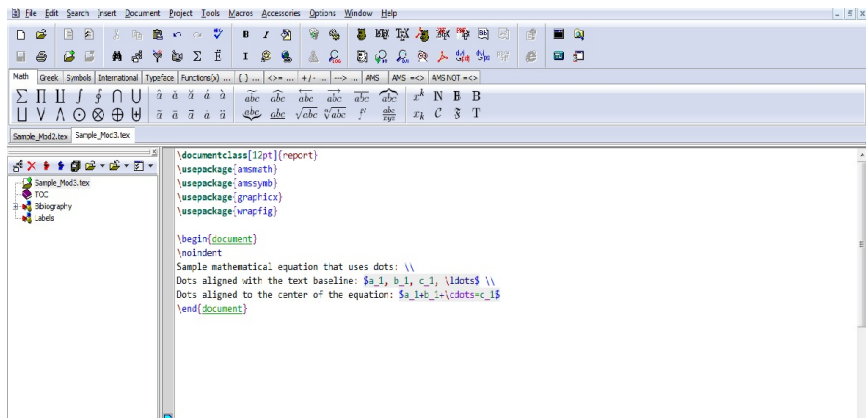


Fig2a: Snap shot- using commands for dots

contd...

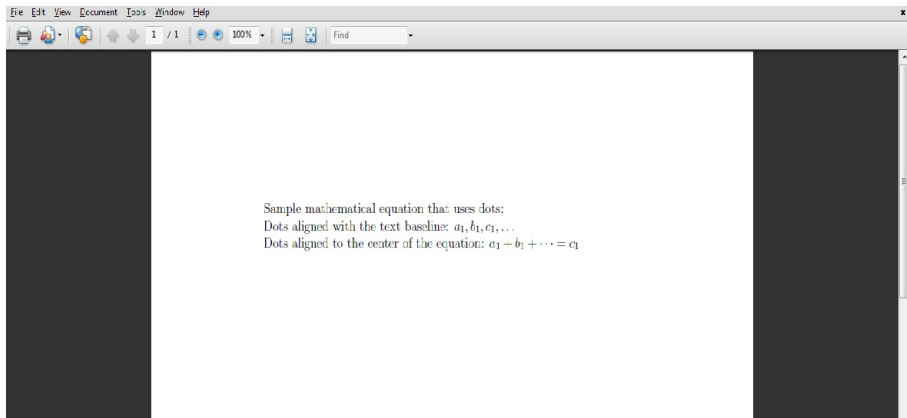


Fig2b: Output of the previous slide

# Spacing

- Extra spaces are ignored by  $\text{\LaTeX}$  and the output file looks much better than the source file.
- $\backslash newline$  or  $\backslash\backslash$  (short form): to start a new line
- $\backslash newpage$ : to start a new page
- $\backslash linebreak$ : makes a line break at this point
- $\backslash pagebreak$ : makes a page break at this point

contd...

A quad is equal to the length of the font size, say, 1 quad = 11 pt with 11 pt font size. The following are the commands that can be used for spacing:

- $ab$ : The generated output doesn't have any space between  $a$  and  $b$
- `\quad` - Generates 1 quad space
- `\qquad` - Generates 2 quad space
- `\,` - Generates  $3/18$  quad space
- `\:` - Generates  $4/18$  quad space
- `\;` - Generates  $5/18$  quad space

# Example

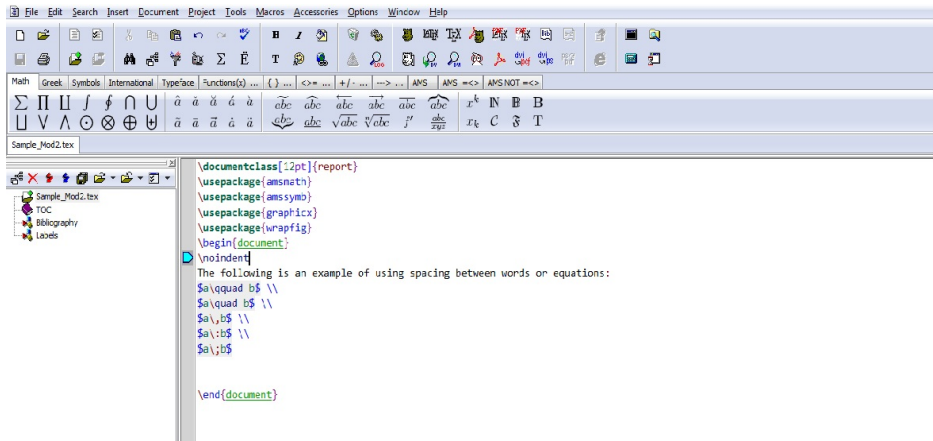


Fig3: Snap shot- using spacing commands



contd...

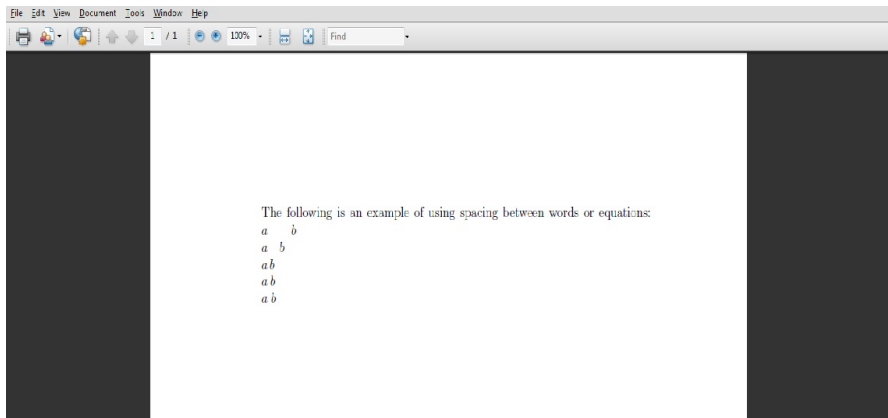


Fig4: Output of the previous slide

## Other spacing commands

- To add some horizontal space between sentences, paragraphs or equations, use the command `\hspace{length}`
- For some vertical space between sentences, paragraphs or equations, use the command `\vspace{length}`

# Example

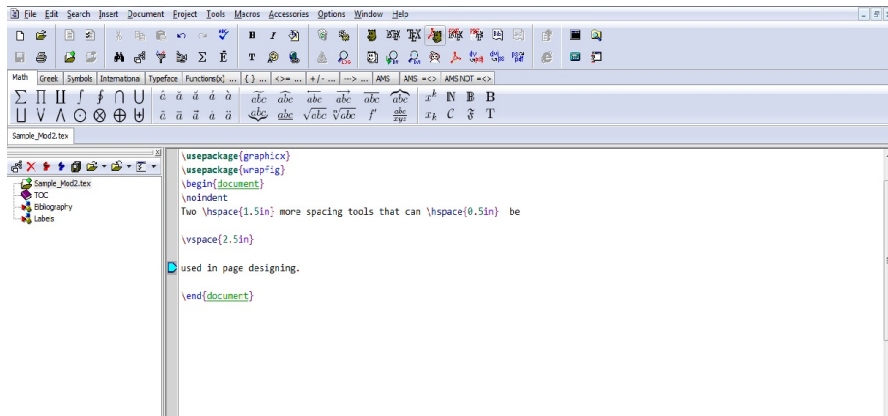


Fig5: Snap shot- vertical and horizontal spacing commands

contd...

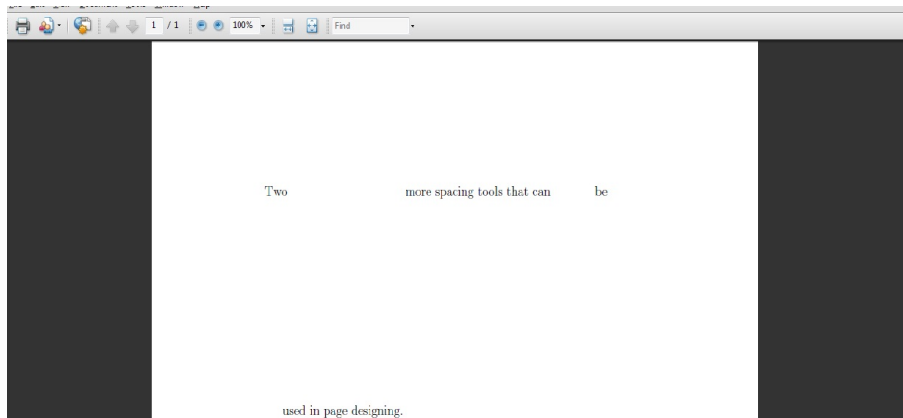
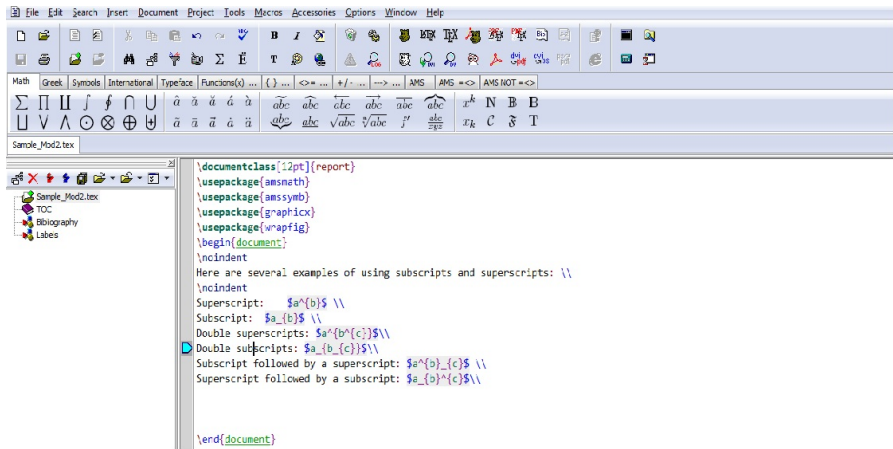


Fig6: Output of the previous slide

# Subscripts and superscripts

- Subscripts are specified by a underscore operator ( $_$ )
- Superscripts are specified by a caret operator ( $^$ )
- Content should be enclosed with curly braces after the operator
- Double subscript or double superscript can be done only with enclosing the first level in braces
- Following slide gives several examples of using subscripts and superscripts

# Example



The screenshot shows a LaTeX editor window with a menu bar (File, Edit, Search, Insert, Document, Project, Tools, Macros, Accessoires, Options, Window, Help) and a toolbar. Below the toolbar is a palette of mathematical symbols categorized by Math, Greek, Symbols, International, Typeface, and Functions(x). The main text area displays the following LaTeX code:

```
\documentclass[12pt]{report}
\usepackage{amsmath}
\usepackage{amssymb}
\usepackage{graphicx}
\usepackage{wrapfig}
\begin{document}
\ncindent
Here are several examples of using subscripts and superscripts: \\
\ncindent
Superscript:  $a^b$  \\
Subscript:  $a_b$  \\
Double superscripts:  $a^{b^c}$  \\
Double subscripts:  $a_{b_c}$  \\
Subscript followed by a superscript:  $a_{b^c}$  \\
Superscript followed by a subscript:  $a_b^c$ 
\end{document}
```

Fig7: Snap shot- using subscripts and superscripts commands

contd...

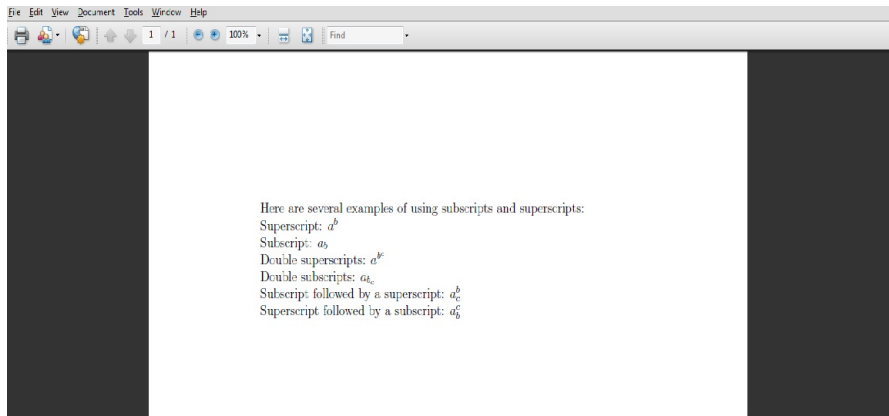


Fig8: Output of the previous slide

# Braces

Commands for different sizes of braces are:

① Left braces:

- `\bigl(`
- `\Bigl(`
- `\biggl(`
- `\Biggl(`

② Right braces:

- `\bigr)`
- `\Bigr)`
- `\biggr)`
- `\Biggr)`

For curly brackets use the same commands, but replace the left open brace ( by `{` and right open brace ) by `}`



# Example

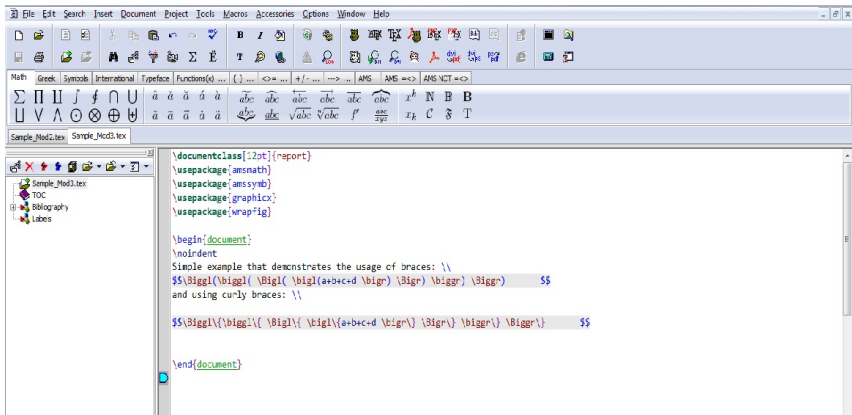


Fig9: Snap shot of using braces

contd...

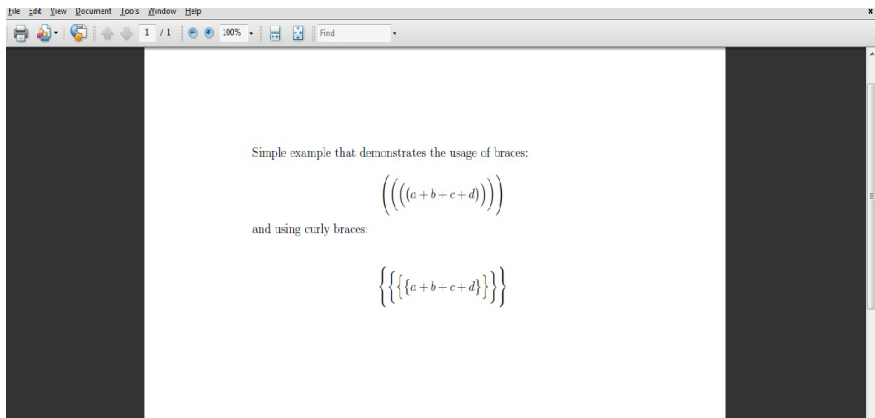


Fig10: Output of the previous slide

# References

For more references please visit the following websites:

- 1 <http://www.latex-project.org/>
- 2 <http://en.wikibooks.org/wiki/LaTeX>
- 3 <http://www.ctan.org/>

# Exercises

Try to get the following output: (Remember to have equations embedded within two dollar signs, i.e.,  $\$ equation \$$ )

①  $x^{y^2} = a + b$

②  $x_{y_2} = a + b$

③  $x_{y^2} = a + b$

④  $x^{y^2} = a + b$

⑤  $\left(\left(\left\{\left\{a + b + c + d\right\}\right\}\right)\right)$