1 Text

1.1 Changing Text Sizes

- Normal text huge text normal text
- Large text in braces normal outside

1.2 Font Styles

- textbf - **bold text**
- textit - *italic text*
- underline - underlined text
- bold + italics + underline - ***itlalized undelined bold text***

LaTeX has problem with long underlines - it messes up spacing: This longer underlined text will cause sonme troubles along the way with spacing and breaking lines so it is better to use package ulem wit option uline ssome textsome textsome textsome textsome textsome textsome textome text

LaTeX has problem with long underlines - it messes up spacing: This longer underlined text will cause sonme troubles along the way with spacing and breaking lines so it is better to use package `ulem` with option uline ssome textsome textsome textsome textsome textsome textsome textome text

Also `ulem` has:

- double underline
- wavy underline

1.3 Text Emphasis

- Regular emphasis
- *Italic emphasis*
- Emphasized emphasis text

ulem package messes up emphasis, to get it right we need to use `\normalem` to get it right

1.4 Font Families

- Default Roman text
- Sans serif text
- `Typewriter text`

1.5 Test Justification/Algnment

1.5.1 Default Alignment - Fully Justified

By default text is fully justified - left and right margins are the same and text stretches to fill width of page sample text sample text sample text sample text

sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text

1.5.2 Left Justified Text

Left justified text is aligned with left margin, words are not streched out, so right margin is ragged

sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text

1.5.3 Center Justified Text

Center justified text is aligned to center of the document, spacing between words is not streched out so left and right margins are ragged sample text

sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text

1.5.4 Right justified text

sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text sample text

1.6 Line Breaks

This is a line of text with
4 line break line

extra space and break line

1.7 Indentation

Every paragraph is indented automatically. To create new paragraph we need to put two Enter keys

This is new, indented paragraph

This is paragraph without indentation

2 Basic Math Manipulation

2.1 Math Modes

2.1.1 Display Style Math

Math equations are in center of page

- Backslash bracket combination (best for single lines of math equations):

$$f(x) = (x+2)^2 - 9$$

- align*(star means equations won't be numbered) environment - alignes multiline equations the ampersand character `&` determines where the equations align.

$$\begin{aligned} 2x - 5y &= 8 \\ 3x + 9y &= -12 \end{aligned}$$

It also can be used to align multiple equations:

$$\begin{aligned} a + b &= 0 & 3y - 2 &= 5 \\ 2a + 3 &= b & 2x + 32 - 2 &= 11 \\ b + 4a + 11 &= 7 & 21z * 2 - 3y &= 23 \end{aligned}$$

Numbered equations:

$$\begin{aligned} a + b &= 0 & 3y - 2 &= 5 && (1) \\ 2a + 3 &= b & 2x + 32 - 2 &= 11 && (2) \\ b + 4a + 11 &= 7 & 21z * 2 - 3y &= 23 && (3) \end{aligned}$$

Skippiing one number:

$$\begin{aligned} a + b &= 0 & 3y - 2 &= 5 && (4) \\ 2a + 3 &= b & 2x + 32 - 2 &= 11 \\ b + 4a + 11 &= 7 & 21z * 2 - 3y &= 23 && (5) \end{aligned}$$

2.1.2 Inline

It is just math that stays in line. There are two ways of doing it (first is dated)

- This is Pythagorean teorem: $a^2 + b^2 = c^2$ which you should know by now.
- This is Pythagorean teorem: $a^2 + b^2 = c^2$ which you should know by now.

2.1.3 More Differences in Math Modes

Lets look at formula:

$$\sum_{n=0}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$$

* This is how it will look like in forced display mode inside text:
text text text text text text text text text text text ttexttexttexttext-texttextext text$\sum_{n=0}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$ text text text text text text text text texttext-texttexttexttext ext texttext text

* This is how it will look like in forced inline mode
Text text text text text text text text

$$\sum_{n=0}^{\infty} \frac{1}{n^2} = \frac{\pi^2}{6}$$

text text text text text text text text text text text text text

2.2 Basic Notation

2.2.1 Arithmetic

- Addition: $1 + 1$
- Substraction: $1 - 1$
- Multiplication:
  - cdot: $a^2 \cdot 2$
  - times: $a^2 \times 2$

2.2.2 Fractions

Fraction in display style:

$$\frac{numerator}{denominator}$$

Fraction in inline style $\frac{numerator}{denominator}$ Forced fractions:

- forced text-style (inline)
$\frac{numerator}{denominator}$
- forced display-style $\frac{numerator}{denominator}$

2.3 Superscript and subscript

- Superscript: a^2
- Subscript: a_2
- Grouped with brackets: e^{kx}, without brackets: $e^k x$
- Simultaneous Superscript and Subscript: a_1^2, a_1^2
- Combined Superscripts and Subscripts
  - Stacked Style: $x_1^{y_1}$
  - Offset Style: ${x_1}^{y^1}$

3 Parentheses

To autoresize parantheses we use **\left** and **\right**:

$$\left(\left(\frac{1}{a+b}\right)^2\right)$$

some text