Learning LaTeX

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Contents

1 Introduction

This is a template made with the sole purpose of learning latex for academical and work purposes.

The work consists of the filetitlepages.tex and the derived filetitlepages.pdf

2 Learning the basics - Mathematical mode

- Math mode: $(x + 3 + 4)$
- Displayed math mode:

$$A(x) = x^2 + 2x + 4$$

- Superscript:

$$2x^{34+5x}$$

- Subscript:

$$x_1$$

$$x_{12}$$

- Sub-subscripts:

$$x_{1_3}$$

$$a_0, a_1, a_2, \ldots, a_{100}$$

- Greek letters

$$\pi$$

$$\Pi$$

$$\alpha$$

$$A = \pi r^2$$

- Trig functions:

$$y = \sin x$$

$$y = \cos x$$

$$y = \csc \theta$$

$$y = \sin^{-1} x$$

$$y = \arcsin x$$

- Log functions:

$$y = \log x$$

$$y = \log_5 x$$

$$y = \ln x$$

-Roots & square roots:

$$\sqrt{2}$$

$$\sqrt[3]{2}$$

$$\sqrt{x^2 + y^2}$$

$$\sqrt{1 + \sqrt{x}}$$

-Simple Fractions:

$$\frac{2}{3}$$

-More complicated fractions:

$$\frac{\sqrt{x+1}}{\sqrt{x+2}}$$

$$\frac{\sqrt{x+3}}{\sqrt{x+4}}$$

$$\frac{1}{(1+\frac{1}{x})}$$

-Sizing the fractions:

· Example: $\frac{1}{2}$ of the population is...

· Example: $\frac{2}{3}$ of the population is...

· Example: $\frac{2}{3}$ of the population is... (we need a package for this)

-Arrays:

$$5x^2 - 9 = x + 3 \tag{1}$$
$$5x^2 - x - 12 = 0 \tag{2}$$

$$\begin{aligned} 5x^2 - 9 &= x + 3 \\ 5x^2 - x - 12 &= 0 \\ 0 &= 12 + x - 5x^2 \end{aligned}$$

$$5x^2 - 9 = x + 3 \tag{3}$$
$$5x^2 - x - 12 = 0 \tag{4}$$

3 Brackets

The distributive property states that $a(b+c) = ab + ac$, for all $a, b, c \in \mathbb{R}$.

The equivalence class of a is $[a]$.

The set A is defined to be $\{1, 2, 3\}$.

Money: \$11.50. Expanding the size of the brackets:

$$2\left(\frac{1}{x^2-1}\right)$$

$$2\left[\frac{1}{x^2-1}\right]$$

$$2\left\{\frac{1}{x^2-1}\right\}$$

$$2\left\langle\frac{1}{x^2-1}\right\rangle$$

$$2\left|\frac{1}{x^2-1}\right|$$

$$\left.\frac{dy}{dx}\right|_{x=1}$$

$$\left(\frac{1}{1+\left(\frac{1}{1+x}\right)}\right)$$

4 Tables

Basic table:

x	1	2	3	4	5
$g(x)$	10	11	12	13	14

x	1	2	3	4	5
$f(x)$	$\frac{1}{2}$	11	12	13	14

Table 1: These values represent the function $f(x)$.

Table 2: The relationship between f and f'.

$f(x)$	$f'(x)$
$x > 0$	The function $f(x)$ is increasing. The function $f(x)$ is increasing. The function $f(x)$ is increasing. The function $f(x)$ is increasing. The function $f(x)$ is increasing.