



The Search for a Title

A Profound Subtitle

Dr. John Smith



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Contents

I	Part One	
1	Text Chapter	7
1.1	Paragraphs of Text	7
1.2	Citation	8
1.3	Lists	8
1.3.1	Numbered List	8
1.3.2	Bullet Points	8
1.3.3	Descriptions and Definitions	8
2	In-text Elements	9
2.1	Theorems	9
2.1.1	Several equations	9
2.1.2	Single Line	9
2.2	Definitions	9
2.3	Notations	10
2.4	Remarks	10
2.5	Corollaries	10
2.6	Propositions	10
2.6.1	Several equations	10
2.6.2	Single Line	10
2.7	Examples	10
2.7.1	Equation and Text	10
2.7.2	Paragraph of Text	11

2.8	Exercises	11
2.9	Problems	11
2.10	Vocabulary	11

II	Part Two
----	----------

3	Presenting Information	15
3.1	Table	15
3.2	Figure	15
	Bibliography	17
	Articles	17
	Books	17
	Index	19



Part One

1	Text Chapter	7
1.1	Paragraphs of Text	
1.2	Citation	
1.3	Lists	
2	In-text Elements	9
2.1	Theorems	
2.2	Definitions	
2.3	Notations	
2.4	Remarks	
2.5	Corollaries	
2.6	Propositions	
2.7	Examples	
2.8	Exercises	
2.9	Problems	
2.10	Vocabulary	



1. Text Chapter

1.1 Paragraphs of Text

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1.2 Citation

This statement requires citation [1]; this one is more specific [2, page 162].

1.3 Lists

Lists are useful to present information in a concise and/or ordered way¹.

1.3.1 Numbered List

1. The first item
2. The second item
3. The third item

1.3.2 Bullet Points

- The first item
- The second item
- The third item

1.3.3 Descriptions and Definitions

Name Description

Word Definition

Comment Elaboration

¹Footnote example...

2. In-text Elements

2.1 Theorems

This is an example of theorems.

2.1.1 Several equations

This is a theorem consisting of several equations.

Theorem 2.1.1 — Name of the theorem. In $E = \mathbb{R}^n$ all norms are equivalent. It has the properties:

$$||\mathbf{x}|| - ||\mathbf{y}|| \leq ||\mathbf{x} - \mathbf{y}|| \quad (2.1)$$

$$||\sum_{i=1}^n \mathbf{x}_i|| \leq \sum_{i=1}^n ||\mathbf{x}_i|| \quad \text{where } n \text{ is a finite integer} \quad (2.2)$$

2.1.2 Single Line

This is a theorem consisting of just one line.

Theorem 2.1.2 A set $\mathcal{D}(G)$ is dense in $L^2(G)$, $|\cdot|_0$.

2.2 Definitions

This is an example of a definition. A definition could be mathematical or it could define a concept.

Definition 2.2.1 — Definition name. Given a vector space E , a norm on E is an application, denoted $||\cdot||$, $E \rightarrow \mathbb{R}^+ = [0, +\infty[$ such that:

$$||\mathbf{x}|| = 0 \Rightarrow \mathbf{x} = \mathbf{0} \quad (2.3)$$

$$||\lambda \mathbf{x}|| = |\lambda| \cdot ||\mathbf{x}|| \quad (2.4)$$

$$||\mathbf{x} + \mathbf{y}|| \leq ||\mathbf{x}|| + ||\mathbf{y}|| \quad (2.5)$$

2.3 Notations

Notation 2.1. Given an open subset G of \mathbb{R}^n , the set of functions φ are:

1. Bounded support G ;
2. Infinitely differentiable;

a vector space is denoted by $\mathcal{D}(G)$.

2.4 Remarks

This is an example of a remark.



The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K} = \mathbb{R}$, however, established properties are easily extended to $\mathbb{K} = \mathbb{C}$.

2.5 Corollaries

This is an example of a corollary.

Corollary 2.5.1 — Corollary name. The concepts presented here are now in conventional employment in mathematics. Vector spaces are taken over the field $\mathbb{K} = \mathbb{R}$, however, established properties are easily extended to $\mathbb{K} = \mathbb{C}$.

2.6 Propositions

This is an example of propositions.

2.6.1 Several equations

Proposition 2.6.1 — Proposition name. It has the properties:

$$||\mathbf{x}| - |\mathbf{y}|| \leq |\mathbf{x} - \mathbf{y}| \quad (2.6)$$

$$||\sum_{i=1}^n \mathbf{x}_i|| \leq \sum_{i=1}^n ||\mathbf{x}_i|| \quad \text{where } n \text{ is a finite integer} \quad (2.7)$$

2.6.2 Single Line

Proposition 2.6.2 Let $f, g \in L^2(G)$; if $\forall \varphi \in \mathcal{D}(G)$, $(f, \varphi)_0 = (g, \varphi)_0$ then $f = g$.

2.7 Examples

This is an example of examples.

2.7.1 Equation and Text

■ **Example 2.1** Let $G = \{x \in \mathbb{R}^2 : |x| < 3\}$ and denoted by: $x^0 = (1, 1)$; consider the function:

$$f(x) = \begin{cases} e^{|x|} & \text{si } |x - x^0| \leq 1/2 \\ 0 & \text{si } |x - x^0| > 1/2 \end{cases} \quad (2.8)$$

The function f has bounded support, we can take $A = \{x \in \mathbb{R}^2 : |x - x^0| \leq 1/2 + \varepsilon\}$ for all $\varepsilon \in]0; 5/2 - \sqrt{2}[$. ■

2.7.2 Paragraph of Text

■ **Example 2.2 — Example name.** Nam dui ligula, fringilla a, euismod sodales, sollicitudin vel, wisi. Morbi auctor lorem non justo. Nam lacus libero, pretium at, lobortis vitae, ultricies et, tellus. Donec aliquet, tortor sed accumsan bibendum, erat ligula aliquet magna, vitae ornare odio metus a mi. Morbi ac orci et nisl hendrerit mollis. Suspendisse ut massa. Cras nec ante. Pellentesque a nulla. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Aliquam tincidunt urna. Nulla ullamcorper vestibulum turpis. Pellentesque cursus luctus mauris. ■

2.8 Exercises

This is an example of an exercise.

Exercise 2.1 This is a good place to ask a question to test learning progress or further cement ideas into students' minds. ■

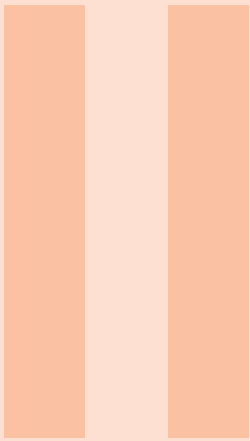
2.9 Problems

Problem 2.1 What is the average airspeed velocity of an unladen swallow?

2.10 Vocabulary

Define a word to improve a students' vocabulary.

Vocabulary 2.1 — Word. Definition of word.



Part Two

3	Presenting Information	15
3.1	Table	
3.2	Figure	
	Bibliography	17
	Articles	
	Books	
	Index	19

3. Presenting Information

3.1 Table

Treatments	Response 1	Response 2
Treatment 1	0.0003262	0.562
Treatment 2	0.0015681	0.910
Treatment 3	0.0009271	0.296

Table 3.1: Table caption

Referencing Table 3.1 in-text automatically.

3.2 Figure



Figure 3.1: Figure caption

Referencing Figure 3.1 in-text automatically.



Bibliography

Articles

- [1] James Smith. “Article title”. In: 14.6 (Mar. 2013), pages 1–8 (cited on page 8).

Books

- [2] John Smith. *Book title*. 1st edition. Volume 3. 2. City: Publisher, Jan. 2012, pages 123–200 (cited on page 8).

Index

C

Citation	8
Corollaries	10

D

Definitions	9
-------------------	---

E

Examples	10
Equation and Text	10
Paragraph of Text	11
Exercises	11

F

Figure	15
--------------	----

L

Lists	8
Bullet Points	8
Descriptions and Definitions	8
Numbered List	8

N

Notations	10
-----------------	----

P

Paragraphs of Text	7
Problems	11
Propositions	10
Several Equations	10
Single Line	10

R

Remarks	10
---------------	----

T

Table	15
Theorems	9
Several Equations	9
Single Line	9

V

Vocabulary	11
------------------	----