

L^AT_EX Tutorial

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Chapter 1

Day 1

This is for test. The aim of this work is to generalize Lomonosov's techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a This is second line.

1.1 Introduction

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This is second line.

This is Third line. Let G is a graph. let

$$x^{x^2+21}+1$$

$$x_i-x_{ij}^2+2x_{i^2+1}+x_iy_i$$

$$\left\{\frac{\{x^{x^2+21}+1\}}{x_i-x_{ij}^2+2x_{i^2+1}+x_iy_i}\right\}$$

$$\left\{\frac{\left\{\frac{x^{x^2+21}+1}{2x}\right\}}{x_i-x_{ij}^2+2x_{i^2+1}+x_iy_i}\right\}$$

1.2 Mathematics Formula

$$\sqrt[n]{x^2-2x+1}$$

$$\sqrt[2]{\frac{2x+1}{x-1}}$$

1.2.1 subsection

$$\left(\frac{\frac{1}{\frac{1}{x}}}{\left(\sqrt{\frac{2x}{y}}\right)}\right)$$

$$\sum_{i=1}^n x_i$$

$$\sum_{i=1}^{\infty} \frac{x_i-2x^2-1}{x-1}$$

$$\lim_{\alpha\rightarrow\infty}\sin(\alpha)$$

$$\int_a^{x^2}\frac{\sin x}{\sin x+\cos x}$$

$$\bigotimes_{i=1}^5 x^{i^2} \quad (1.2.1)$$

$$\sum_{i=1}^n x_i \quad (1.2.2)$$

$$\lim_{\alpha \rightarrow \infty} \sin(\alpha) \quad (1.2.3)$$

$$\int_a^{x^2} \frac{\sin x}{\sin x + \cos x} \quad (1.2.4)$$

$$\sum_{i=1}^{\infty} \frac{x_i - 2x^2 - 1}{x - 1} \quad (1.2.5)$$

$$\bigotimes_{i=1}^5 x^{i^2}$$

$$\begin{aligned} f(x) &= \sin x + \cos x \\ &\leq 2x + 1 \\ &< x^2 - 1 \\ &= \frac{x^5 + 4x^2}{4}. \end{aligned}$$

$$f(x) = \sin x + \cos x \quad (1.2.6)$$

$$\begin{aligned} &\leq 2x + 1 \\ &< x^2 - 1 \end{aligned} \quad (1.2.7)$$

$$= \frac{x^5 + 4x^2}{4}. \quad (1.2.8)$$

Based on equation 1.2.5 this is true. is a variable. G x page 3 A. Ahmadi

$$A = \{x|x \text{ is odd or even}\}.$$

Chapter 2

Day 2

2.1 Itemize, enumerate

- a) First one
- b) Second one

This is for test. The aim of this work is to generalize Lomonosov's techniques in order to apply them to a wider class of not necessarily

1. First one
2. new one
3. Second one
4. This is for test. The aim of this work is to generalize¹ Lomonosov's techniques² in order to apply them to a wider class of not necessarily

¹A sample of footnote.

²Second one.

2.2 array

<i>a</i>	<i>b</i>	<i>c</i>
1 2 3 2 3 4 234 5 4 6 <hr/> 44 34	<i>xxx</i>	<i>yyy</i>
10000	200000	
1 2 3 2 3 4 5 4 6	x^2	$2x + 1$

<i>a</i>	<i>b</i>	<i>c</i>
1 2 1 2 3 3 4	<i>xxx</i>	<i>yyy</i>
10000	200000	
10	x^2	$2x + 1$

<i>Name</i>			<i>x</i>	<i>y</i>	<i>age</i>		<i>XXX</i>	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>x</i>	<i>y</i>	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>x</i>	<i>y</i>	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>x</i>	<i>y</i>	
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>x</i>	<i>y</i>	

$$\left(\begin{array}{ccc} 1111111111111111 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \\ 1 & 2 & 3 & 4 \end{array} \right)$$

$$f(x) \neq \begin{cases} \frac{x^2+2x}{\sqrt[3]{\frac{1}{x}}} & \text{if } x > 1, \\ \frac{x+\sqrt{x}}{x^2+1} & \text{otherwise.} \end{cases}$$

2.3 Graphics

jkdshfjdsf fhskfhds techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a





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Figure 2.1: This is a caption.

techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a By figure ?? we have techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a

connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a

Figure 2.2: This is a caption.



techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a

Table 2.1: First example of table environment.

Name			x	y	age		XXX	
a	b	c	d	e	f	x	y	
a	b	c	d	e	f	x	y	
a	b	c	d	e	f	x	y	
a	b	c	d	e	f	x	y	

Book This is book

Table ettr

Table 2.2: Example of Table with tabular environment.

techniques in order to apply them to a wider class of not necessarily *compact operators*. We start by *establishing* **establishing** *establishing* a connection

between the subspaces and density of what we define as the associated Lomonosov space in a certain function space. On a

Chapter 3

Day 3

3.1 Theorem

Definition 3.1.1. Let H be a subgroup of a group G . A left coset of H in G is a subset of G that is of the form xH , where $x \in G$ and $xH = \{xh : h \in H\}$. Similarly a right coset of H in G is a subset of G that is of the form Hx , where $Hx = \{hx : h \in H\}$

Note that a subgroup H of a group G is itself a left coset of H in G .

Lemma 3.1.1. Let H be a subgroup of a group G , and let x and y be elements of G . Suppose that $xH \cap yH$ is non-empty. Then $xH = yH$.

Proof. Let z be some element of $xH \cap yH$. Then $z = xa$ for some $a \in H$, and $z = yb$ for some $b \in H$. If h is any element of H then $ah \in H$ and $a^{-1}h \in H$, since H is a subgroup of G . But $zh = x(ah)$ and $xh = z(a^{-1}h)$ for all $h \in H$. Therefore $zH \subset xH$ and $xH \subset zH$, and thus $xH = zH$. Similarly $yH = zH$, and thus $xH = yH$, as required. \square

Lemma 3.1.2. *Let H be a finite subgroup of a group G . Then each left coset of H in G has the same number of elements as H .*

Proof. Let $H = \{h_1, h_2, \dots, h_m\}$, where h_1, h_2, \dots, h_m are distinct, and let x be an element of G . Then the left coset xH consists of the elements xh_j for $j = 1, 2, \dots, m$. Suppose that j and k are integers between 1 and m for which $xh_j = xh_k$. Then $h_j = x^{-1}(xh_j) = x^{-1}(xh_k) = h_k$, and thus $j = k$, since h_1, h_2, \dots, h_m are distinct. It follows that the elements xh_1, xh_2, \dots, xh_m are distinct. We conclude that the subgroup H and the left coset xH both have m elements, as required. \square

REMARK 3.1.2. *This is a sample remark.*

Example 3.1.3. *Example example.*

Theorem 3.1.4. (Lagrange's Theorem) *Let G be a finite group, and let H be a subgroup of G . Then the order of H divides the order of G .*

Proof. Each element x of G belongs to at least one left coset of H in G (namely the coset xH), and no element can belong to two distinct left cosets of H in G (see Lemma 3.1.1). Therefore every element of G belongs to exactly one left coset of H . Moreover each left coset of H contains $|H|$ elements (Lemma 3.1.2). Therefore $|G| = n|H|$, where n is the number of left cosets of H in G . The result follows. \square

By Theorem 3.1.4 we have

3.2 amssymb package

The most common characters are \mathbb{R} for real numbers, \mathbb{N} for natural numbers and \mathbb{Z} for integers.

Chapter 4

Day 4

4.1 hyperref package

The hyperref package is used to handle cross-referencing commands in L^AT_EX to produce hypertext links in the document.

You also can have links to websites like <http://www.google.com> or [LaTeX Course Website](#)

4.2 References

You can see at [1] or maybe in [2, 3]. For example you can put several references in one bracket using [4, 5, 1, 3]. [6]

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