Good Thesis

Your thesis must includes:

0. **Table of content**

1. **Abstract , Résumé,** ملخص الرسالة باللغة العربية
2. **Introduction (General introduction**, ≥ 2 pages**)**
3. **Chapter1**

- Small introduction
- Section x
- Section y

4. **Chapter 2**

- Small introduction
- Section a
- Section b

- 5. **Chapter 3**
- Small introduction
- Section i
- Section ii
- **Conclusion**
- **References**

Section

- Results
- Proofs
- Remarks
- …

Appendix

- Numerical computation
- Open problems
- …

Keywords: …

MSC 2010: …

My thesis is in
PDF format

لنساعد القارئ !
مسكين
و نعطي منظر !
جميل لعملك

01 February 2021
By
Bellaouar Dj.
&
Azzouza N.

University 08 Mai 1945 Guelma.

I'm going to use both

Scientific WorkPlace

&

LaTeX

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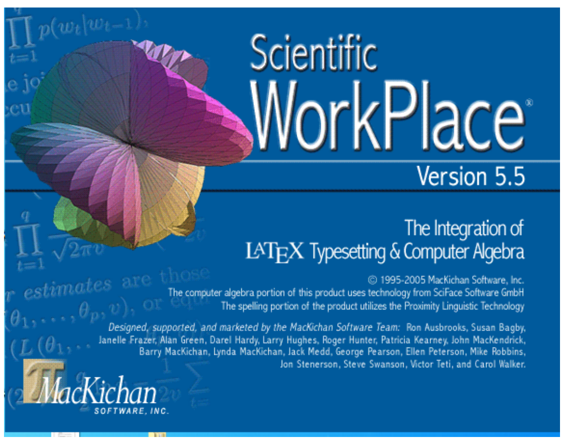
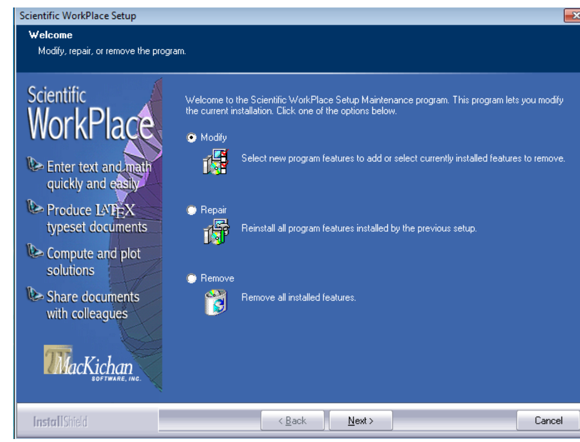
LaTeX



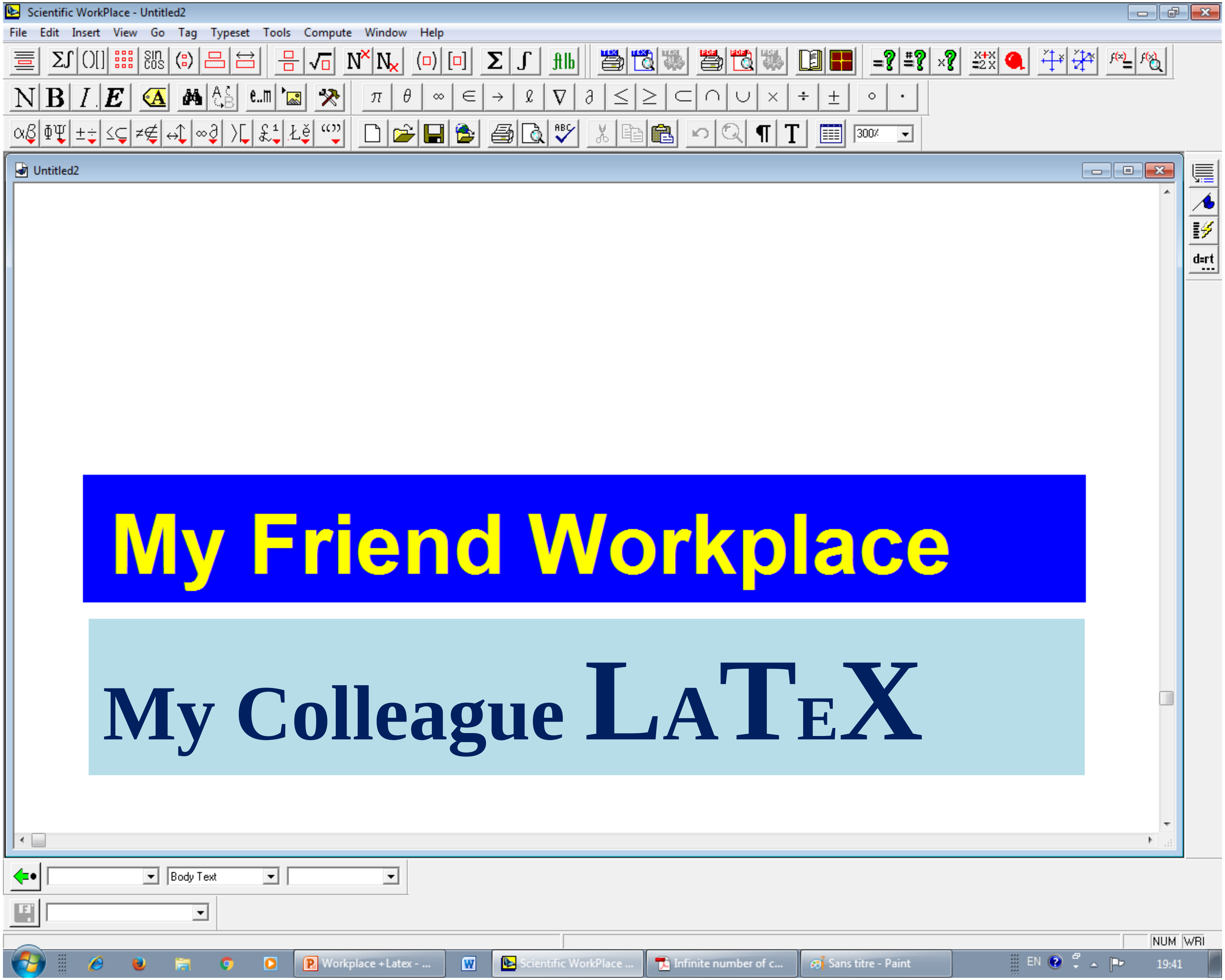


By Bellaouar D. and Azzouza N.
University 08 Mai 1945 Guelma
February 2021

NEW EDITION

Workplan

- General information
- Text/Math
- Fraction Properties
- Numbered List Item
- Sections, subsections, subsubsections, ….
- Links used in my thesis
  1. How to call for a reference
  2. Display Equations that we need in proofs
  3. Display Equations without numbers
  4. Marker
  5. Footnote
- My thesis By French
- References
- Template of my Thesis
- Questions
- احذر من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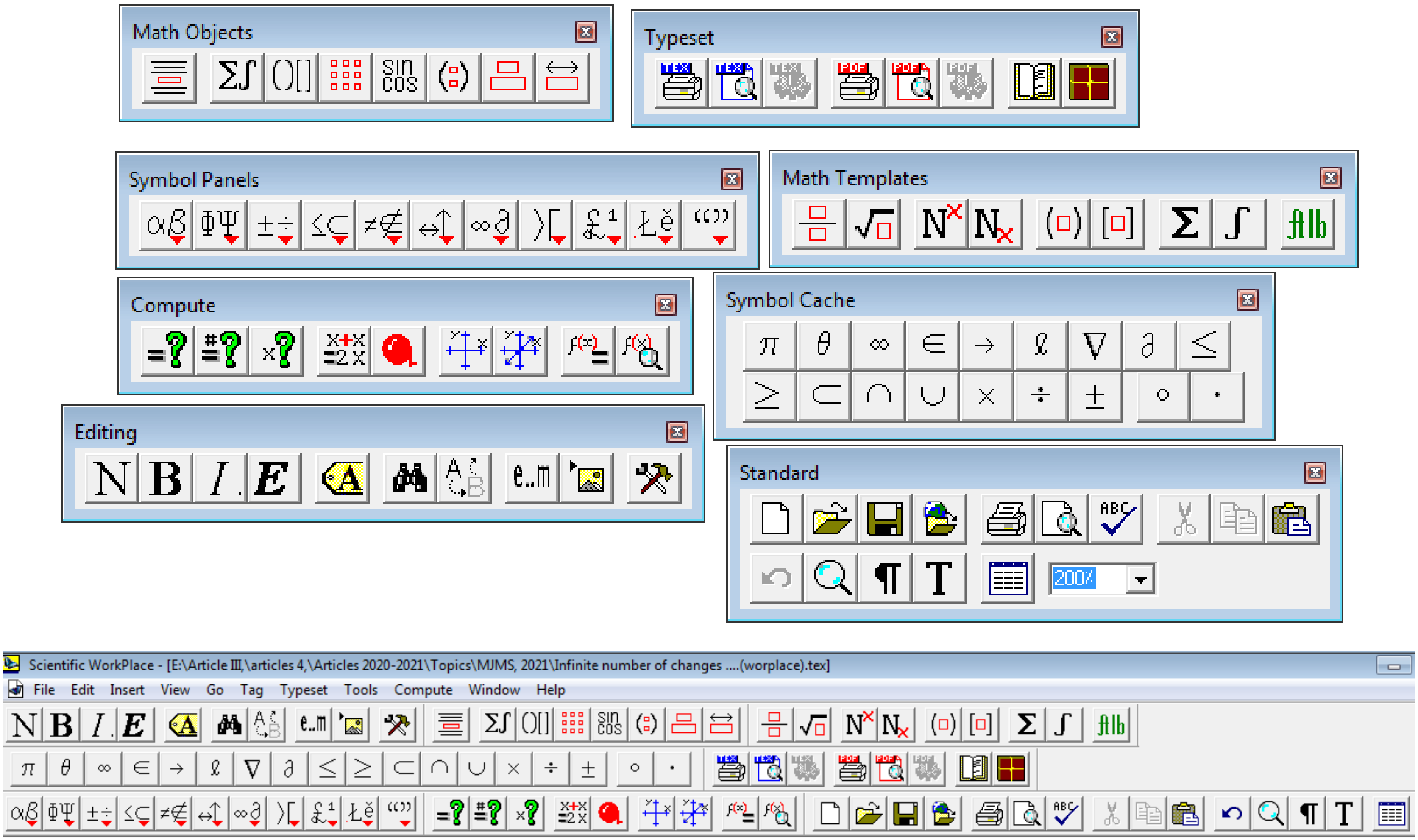

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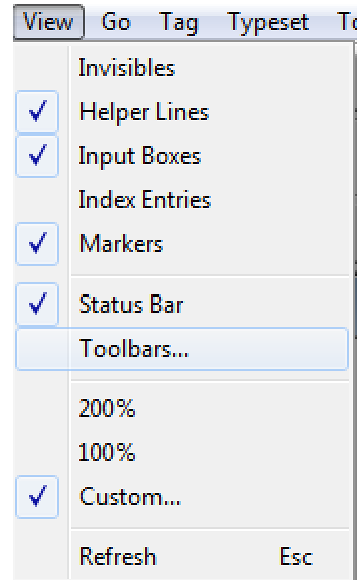

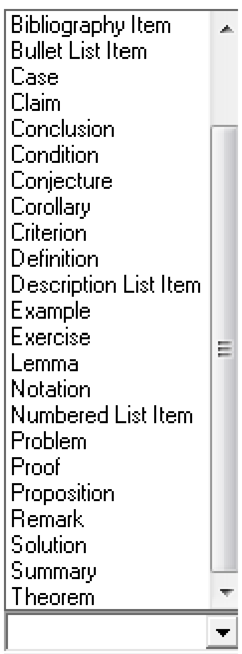

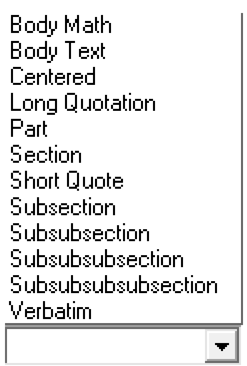

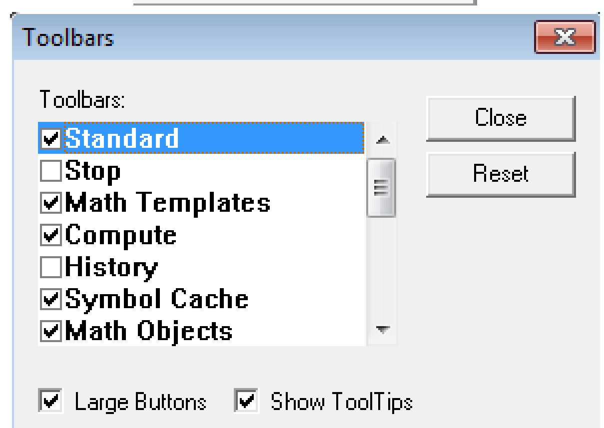

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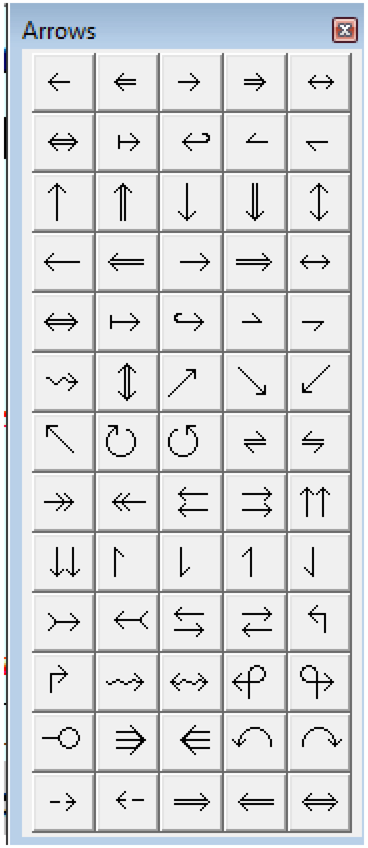

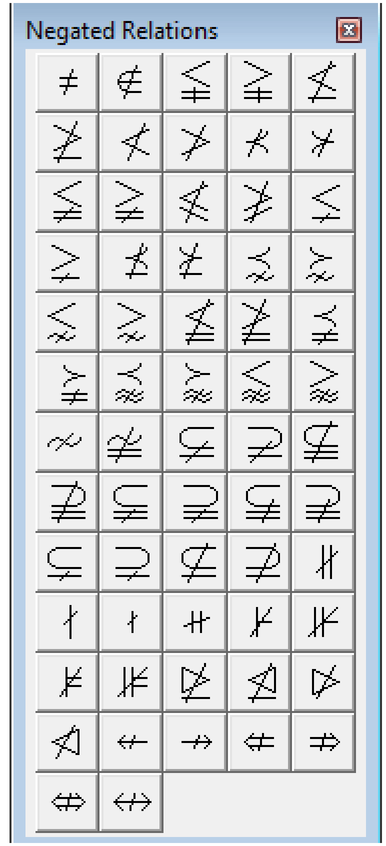

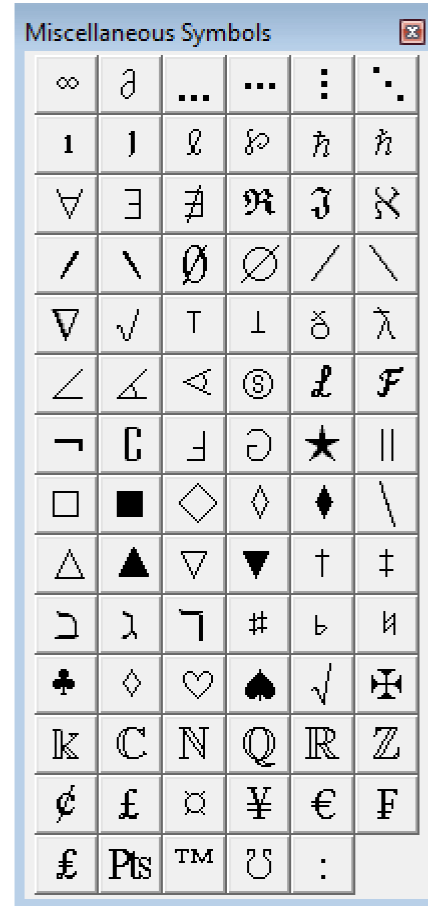

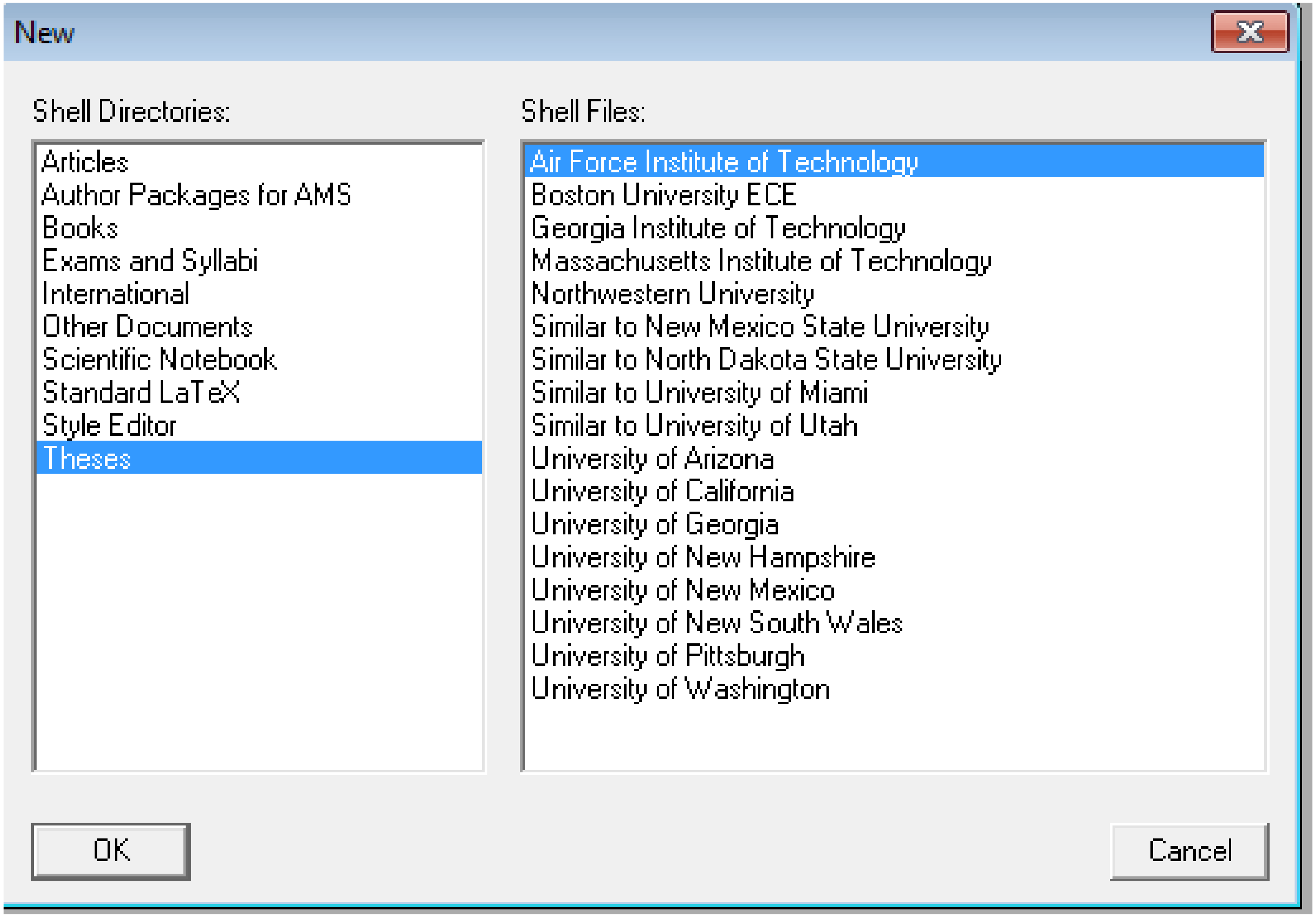
New
Shell Directories:
Articles
Author Packages for AMS
Books
Exams and Syllabi
International
Other Documents
Scientific Notebook
Standard LaTeX
Style Editor
Theses
Shell Files:
Air Force Institute of Technology
Boston University ECE
Georgia Institute of Technology
Massachusetts Institute of Technology
Northwestern University
Similar to New Mexico State University
Similar to North Dakota State University
Similar to University of Miami
Similar to University of Utah
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University of California
University of Georgia
University of New Hampshire
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University of Washington
OK
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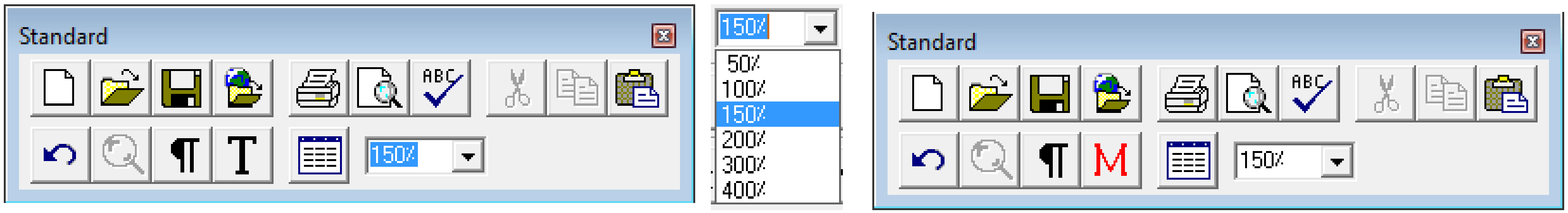
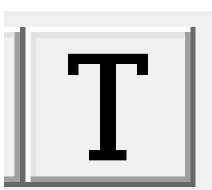
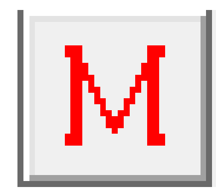
Text/Math



Abstract. In this paper, we present two number-theoretic functions F and G for which $p_r F(n) - p_{r-1} G(n)$ is both positive and negative infinitely often, where n has at least k distinct prime factors and (p_{r-1}, p_r) is a couple of two consecutive primes.





هنا يوجد محرك العربة أي قبل:

```
\begin{document}
\end{document}
```

Work 1

عندك عمل خفيف في المحرك

```
% ---------------------------------------------
\begin{document}
```

Your work is here

....

Work 2

ينتظرك عمل كثير هنا

```
\end{document}
```

ماذا يوجد في المحرك ؟

```
\documentclass[12pt]{article}    \documentclass[a4paper,12pt]{article}
\usepackage{name of the journal-style}
%----------------------------------------------------
\usepackage{amssymb}
\usepackage{amsmath}
\usepackage{amsfonts}
\usepackage{graphicx}
\usepackage{epstopdf}
\usepackage{epsfig}
\usepackage{psfrag}
\usepackage{rotating}
\usepackage[colorlinks=black,urlcolor=black]{hyperref}
\usepackage{..............................}
```

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\setcounter{MaxMatrixCols}{10}
%TCIDATA{OutputFilter=Latex.dll}
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\textwidth 16.3cm
\oddsidemargin 0.in
\evensidemargin 0.in
\topmargin -1.8cm
\renewcommand{\baselinestretch}{1.15}
```

```latex
\newtheorem{thm}{Theorem}[section]
\newtheorem{acknowledgement}[theorem]{Acknowledgement}
\newtheorem{algorithm}[theorem]{Algorithm}
\newtheorem{axiom}[theorem]{Axiom}
\newtheorem{case}[theorem]{Case}
\newtheorem{claim}[theorem]{Claim}
\newtheorem{conclusion}[theorem]{Conclusion}
\newtheorem{condition}[theorem]{Condition}
\newtheorem{conjecture}[theorem]{Conjecture}
\newtheorem{corollary}{Corollary}[section]
\newtheorem{criterion}[theorem]{Criterion}
\newtheorem{definition}{Definition}[section]
\newtheorem{example}{Example}[section]
\newtheorem{exercise}[theorem]{Exercise}
\newtheorem{lemma}{Lemma}[section]
\newtheorem{notation}{Notation}[section]
\newtheorem{problem}[theorem]{Problem}
\newtheorem{proposition}{Proposition}[section]
\newtheorem{remark}{Remark}[section]
\newtheorem{summary}[theorem]{Summary}
\newenvironment{proof}[1][Proof]{\noindent\textbf{#1.} }{\ \rule{0.5em}{0.5em}}
\input{tcilatex}
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ماذا يوجد في المحرك ؟

ماذا يوجد في المحرك ؟

```
\title{\Large \bf The title of your manuscript ... }
\author [1]{xxxxxxx}
\author[2]{yyyyyyyy}

\affil[1]{Department of Mathematics, ..........}
\affil[2]{Laboratory of .............}
e-mails: {author1@university.edu, author2@university.edu}
\date{Received: .................... \ Accepted: ......................}
\thanks{This work was completed with the support of ...}
```

أحيانا هذه المعلومات تكون موجودة داخل: \begin{document}

\end{document}

```
\begin{document}

\begin{abstract}
\end{abstract}

\section{Introduction}
\section{x}

\begin{thm}
\end{thm}
.........................
.........................
\section{y}
\section{z}
\section{Open Problems}
\subsection*{Acknowledgments}

\begin{thebibliography}{XX}
\end{thebibliography}{XX}

\end{document}
```

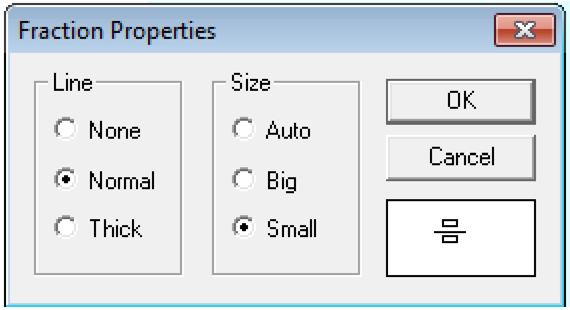
ماذا يوجد بين :

\begin{document}

و

\end{document}

Fraction Properties



$$\frac{n^s}{\varphi_s(n)} < \frac{p_r}{p_{r-1}} < \frac{p_{r-1}}{p_{r-2}}.$$

$$\frac{n^s}{\varphi_s(n)} < \frac{p_r}{p_{r-1}} < \frac{p_{r-1}}{p_{r-2}}.$$

تعلم بنفسك

$$\mathbb{R}^3 \times [0, \infty[$$

$$\boxed{\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}}$$

$$\sqrt{x^2 + y^3} + \sqrt[n]{y} \geq 0$$

$$\| u \|_{W^{k,p}(\Omega)} = \left(\sum_{|\alpha| \leq k} \int_{\Omega} |D^{\alpha} u|^p \right)^{\frac{1}{p}} dx,\ 1 \leq p < \infty$$

$$\cos(xy - \tfrac{2}{5})^2$$

$$\prod_{m=1}^{+\infty} B_m \neq \emptyset$$

$$e^{\pi i} = -1$$

$$\lim_{x \to \infty} f(\sqrt{x}) = 1$$

Numbered List Item

conditions:

1. f *is is strictly increasing on the set* $P\cap A$.
2. *For each* $u, v\in A$,

$$\frac{f(uv)}{uv}\leq\frac{f(u)}{u}\leq 1.$$

3. *For all primes* $p, q\in A$ *with* $p\leq q$,

$$\frac{q}{f(q)}\leq\frac{p}{f(p)}<1.$$

اسم غريب نوعا ما !

You should put a suitable name

 # (eq 2xx)

 # (eq:2.3.3)

satisfying the following conditions:

```
\begin{enumerate}

\item $f$ is is strictly increasing on the set $P\cap A$.
\item   .....
\item   ......

\end{enumerate}
```

(Remove Item Tag)
Acknowledgement
Algorithm
Axiom
Bibliography Item
Bullet List Item
Case
Claim
Conclusion
Condition
Conjecture
Corollary
Criterion
Definition
Description List Item
Example
Exercise
Lemma
Notation
Numbered List Item
Problem
Proof
Proposition

Numbered List Item

Proposition 4.1. *Let p_r be the r-th prime number with $r \geq 2$. Let A be an infinite external subset of positive integers such that $W_\infty \subset A$, and let $f : A \longrightarrow \mathbb{R}$ be a multiplicative function satisfying the following conditions:*

1. *f is is strictly increasing on the set $P \cap A$.*
2. *For each $u, v \in A$,*
$$\frac{f(uv)}{uv} \leq \frac{f(u)}{u} \leq 1. \tag{33}$$
3. *For all primes $p, q \in A$ with $p \leq q$,*
$$\frac{q}{f(q)} \leq \frac{p}{f(p)} < 1. \tag{34}$$

Then there exists a finite set of positive integers $\{n_0, n_1, \ldots, n_m\} \subset W_\infty$ such that $p_r(f(n_i) + l) > p_{r-1}n_i$, for $i = 0, 1, \ldots, m$ with $m \simeq +\infty$.

Bullet List Item

The primary goal of this work is summarized in the following two points:

- We give a rational approximation to the parameter α.
- We apply nonstandard analysis in the field of elementary number theory by using positive integers having sufficiently large number of distinct prime factors or by using sufficiently large prime powers footnote. On this topic, we refer to cite: KAREL, cite: Renling.

Bullet List Item

```
The primary goal of this work is summarized in the following
two points:
\begin{itemize}
\item We give a rational approximation to the parameter
$\alpha $.
\item We apply …
\end{itemize}
```

- We give a rational approximation to the pa
- We apply nonstandard analysis in the field

Bullet List Item,

●
●
●
i)
ii)
(*a*)
(**b**)

```
\begin{itemize}

\item
\item
\item
\item[\textit{i})]
\item[\textit{ii})]
\item[(\textit{a})]
\item[(\textbf{b})]

\end{itemize}
```

Numbered List Item

1. ...
2. ...
   a. ...
   b. ....
      i. ....
      ii. ....
         A. ...
         B. .....

- ....
- .....

Bullet List Item

Theorem *marker: t is an unlimited2 Let r, t, γ be positive integers satisfying the following conditions:*

- *γ is a limited integer different from zero.*
- *r, t are unlimited.*
- *$2t^2 \equiv \gamma \pmod{r}$.*

If $q = 2t + r$ and $n = (q - t)q$, then $n = \gamma + \omega_1\omega_2$, where ω_1, ω_2 are two unlimited integers.

Theorem 2.10 *Let r, t, γ be positive integers satisfying the following conditions:*

- *γ is a limited integer different from zero.*
- *r, t are unlimited.*
- *$2t^2 \equiv \gamma \pmod{r}$.*

If $q = 2t + r$ and $n = (q - t)q$, then $n = \gamma + \omega_1\omega_2$, where ω_1, ω_2 are two unlimited integers.

Sections, subsections, subsubsections, ….

Introduction

Basic Tools and Preliminaries marker: Materials and methods

1. Introduction

2. Basic Tools and Preliminaries

5. Conclusion

Sections, subsections, subsubsections, ….

Main results

On the solutions of $d(n) = d(\varphi(n))$

On the inequality $d(n) < d(\varphi(n))$

\section{Introduction}

\section{Main results}

\subsection{On the solutions of $d\left(n\right) =d\left(\protect\varphi\left(n\right) \right) $}

\subsection{ xxxxxxxxxxxxxxxxx }

Sections, subsections, subsubsections, ….

Basic Tools and Preliminaries marker: Materials and methods

```
\section{Basic Tools and Preliminaries
 \label{ Materials and methods}}
```

way: in Section 2 we introduce

This manuscript is organized in the following way: in Section ref: Materials and methods we introduce

```
in Section \ref{Materials and methods} we introduce …
```

Non-numbered section or non-numbered subsection

```
\section*{Appendix}

\subsection*{Acknowledgments}
```

Appendix

Acknowledgements

Links used in my thesis

1. \ref {Material and methods} ref: Materials and methods
2. \eqref {xxxxxxxxxxxxxx} eqref
3. $\footnote{xxxxxxxxxxx}$ footnote
4. \cite{Hardy} cite: Hardy
5. \cite[p. 19]{Hardy} cite: Hardy
6. \label{good primes} *marker: good primes*
7. \cite{peter, Guy1994} cite: peter,Guy1994
8. \cite{x, y, z} cite: x,y,z

Hardy

\bibitem{Hardy}

How to call for a reference ?

Introduction

Let $\gamma(n), \varphi(n)$ be the Kernel and the Euler's function of the positive integer n, respectively. Recall that if n has the prime factorization $n = q_1^{a_1} q_2^{a_2} \dots q_k^{a_k}$ with distinct primes $q_1, q_2, \dots, q_k$ and positive integers $a_1, a_2, \dots, a_k$, then $\gamma(n) = q_1 q_2 \dots q_k$, and

$$\varphi(n) = q_1^{a_1-1}(q_1 - 1) q_2^{a_2-1}(q_2 - 1) \dots q_k^{a_k-1}(q_k - 1).$$

There are many questions in the literature dealing with Diophantine equations and inequalities involving number-theoretic functions as well as the Euler's function and other multiplicative functions. For example, in cite: Guy1994, P. Erdös asked to prove that $\varphi(n) > \varphi(n - \varphi(n))$ for almost all n, but that $\varphi(n) < \varphi(n - \varphi(n))$ for infinitely many n. That is, $\varphi(n) - \varphi(n - \varphi(n))$ may change sign infinitely often. Also, there are many papers on infinitely many sign changes. In cite: Guy1994, Golomb showed that $\sigma(\varphi(n)) - \varphi(\sigma(n))$ is positive and negative infinitely often, where σ computes the sum of the positive divisors.

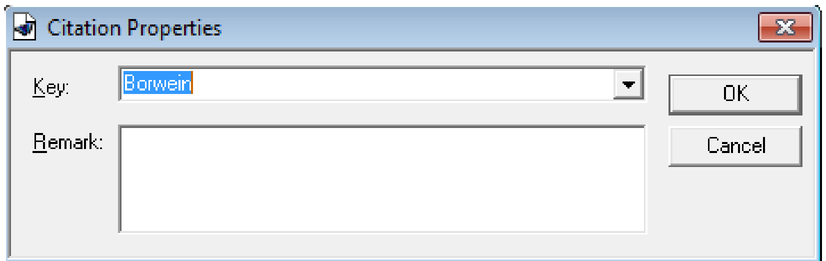
In cite: Guy1994, Golomb showed that

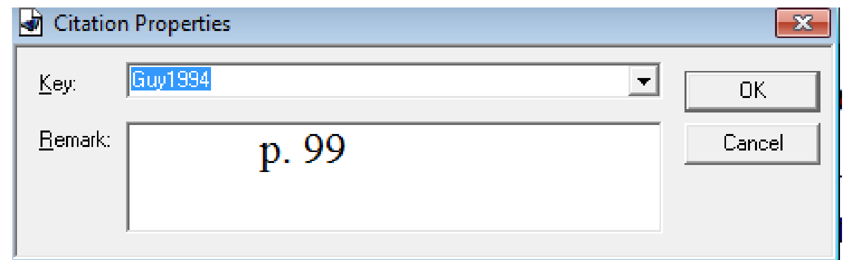
In [14, p. 99], Golomb showed that

How to call for a reference ?

For more detail, see [4]. For more detail, see [?].

For more detail, see cite: Borwein.





For more detail, see \cite{Borwein}.

In \cite[p. 99]{Guy1994}, Golomb showed that

In Nathanson [11, Theorem 8.9, page 283], we have.

```
\cite{xxxxxxxxxx}

\cite[p. 19]{xxxxxxxxxxxx}

\ cite[Theorem 8.9, page 283]{xxxxxxxxxxxx}

~\cite{Hardy1964}

~\cite{Hardy1964, Guy1994}
```

How to call for a reference ?

due to V.I. Lomonosov [11, 15].

```
due to V.I. Lomonosov ~\cite{Lom73,RR73}.
```

```
When dealing with the existence of invariant subspaces it is a common practice in ~\cite{AAB95,dB93,Lom91,Sim96a}, as well as …
```

in [1, 3, 4, 13], as well as

```
~\cite{AAB95, Lom91, Sim96a}
```

[1, 4, 13]

```
\usepackage[colorlinks=black,urlcolor=black]{hyperref}
```

Display Equations that you will need in proofs

More precisely, we will prove that there are infinitely many $n \in W_k$ for which

$$p_r F(n) > p_{r-1} G(n),$$ # (larger)

and also there are infinitely many $m \in W_k$ for which

$$p_r F(m) < p_{r-1} G(m).$$ # (less)

we will prove that there are infinitely many $n \in W_k$ for which

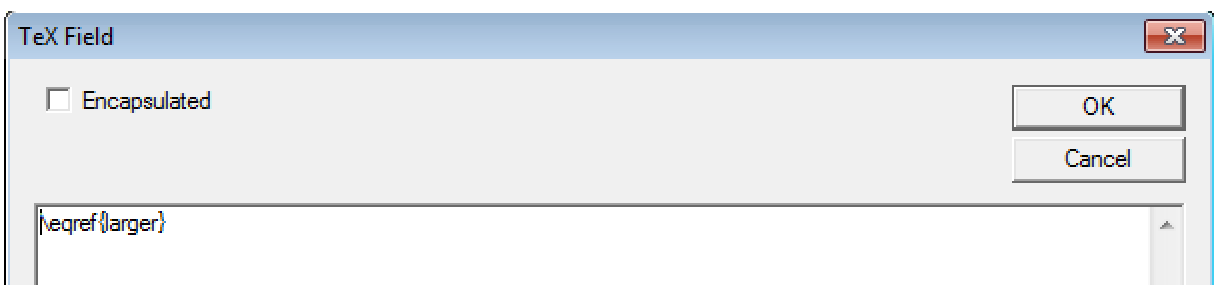
$$p_r F(n) > p_{r-1} G(n), \tag{2}$$

and also there are infinitely many $m \in W_k$ for which

$$p_r F(m) < p_{r-1} G(m). \tag{3}$$

Thus, we confine the number $\frac{p_{r-1}}{p_r}$ from the right and the left by an infinity of rational numbers for each. Moreover, in this paper we will study possibilities for proving (2) and (3) infinitely often over some infinite subsets of W_k.

Thus, we confine the number $\frac{p_{r-1}}{p_r}$ from the right and the left by an infinity of rational numbers for each. Moreover, in this paper we will study possibilities for proving eqref and eqref infinitely often over some infinite subsets of W_k.



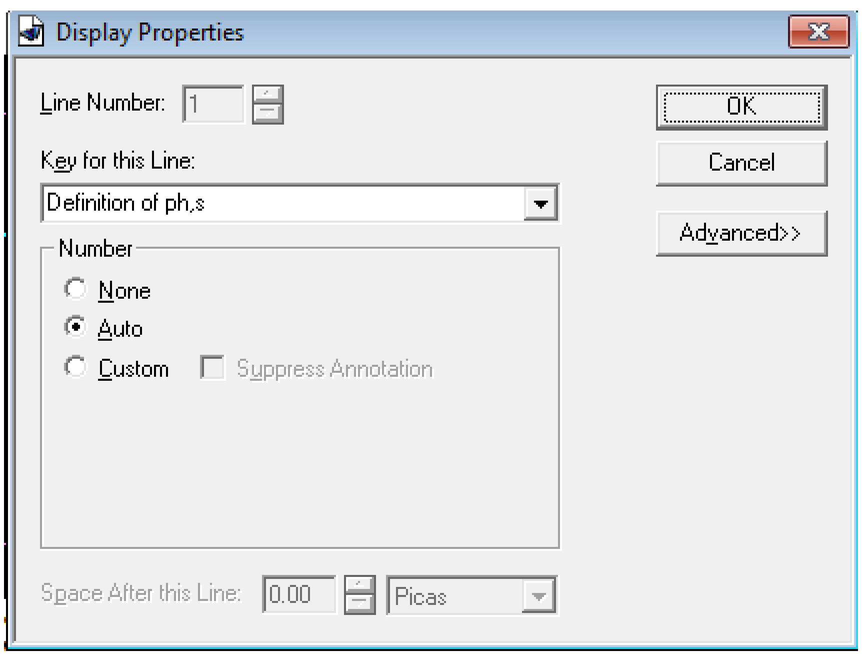
This proves \eqref { NSA Bertrand's theorem }.

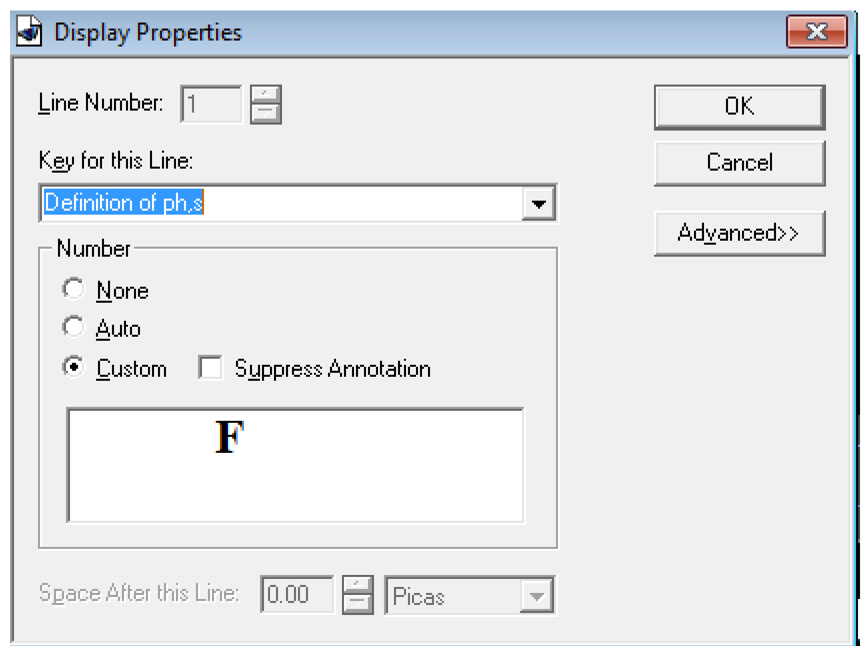
This proves eqref.

Next, we state the explicit formula of the well-known Jordan generalization of Euler's function $\varphi_s(n)$ in terms of the standard factorization of n cite: Josef. Indeed, we have

$$\varphi_s(n) = n^s \prod_{p|n} \left(1 - \frac{1}{p^s}\right), \quad \varphi_s(1) = 1,$$

(Definition of ph,s)





Display Equations that you will need in proofs

Combining eqref, eqref and eqref, we get

Combining \eqref{eq:3.2.4x}, \eqref{eq:3.2.4y} and \eqref{eq:3.2.5}, we get

Combining (15), (16) and (17), we get

$$\lambda = \frac{\alpha_0(f_1)}{\varepsilon\big(1-\alpha_0(f_1)\big)}\left(1-\frac{1}{r^2+\langle f_1, f_0\rangle}\right). \tag{1.4.3}$$

Next, we state the explicit formula of the well-known Jordan generalization of Euler's function $\varphi_s(n)$ in terms of the standard factorization of n cite: Josef. Indeed, we have

$$\varphi_s(n) = n^s \prod_{p|n}\left(1 - \frac{1}{p^s}\right), \ \varphi_s(1) = 1,$$

F (Definition of ph,s)

$$\varphi_s\left(n\right) = n^s \prod_{p|n}\left(1 - \frac{1}{p^s}\right), \ \varphi_s\left(1\right) = 1, \qquad \textbf{(F)}$$

auchy's principle, there exists an unlimited positive integer m_0 that
btained in both cases, r is limited or unlimited).
ces to prove that there exists a positive integer $n_0 \in W_\infty$ such
In fact, if such integer n_0 exists, then by (**F**),

We only put the keys for equations that we need later

$$\frac{\gamma^N(n_s+l)}{\gamma^N(n_s)} \leq \frac{(n_s+l)^N}{n_s^N}$$

(eq one changes)

$$= 1 + \frac{\sum_{i=1}^{N} C_N^i n_s^{N-i} l^i}{n_s^N}$$

$$= 1 + \sum_{i=1}^{N} \frac{C_N^i l^i}{n_s^i}$$

$$\leq 1 + \sum_{i=1}^{N} \frac{C_N^i l^i}{(q_1 q_2 \ldots q_k)^i} < \frac{p_r}{p_{r-1}}.$$

(eq two changes)

$$
\begin{aligned}
\frac{\gamma^N(n_s+l)}{\gamma^N(n_s)} &\leq \frac{(n_s+l)^N}{n_s^N} && (13)\\
&= 1+\frac{\sum_{i=1}^{N} C_N^i n_s^{N-i} l^i}{n_s^N}\\
&= 1+\sum_{i=1}^{N}\frac{C_N^i l^i}{n_s^i}\\
&\leq 1+\sum_{i=1}^{N}\frac{C_N^i l^i}{(q_1 q_2 \ldots q_k)^i} < \frac{p_r}{p_{r-1}}. && (14)
\end{aligned}
$$

of the proof of Theorem 3.1. Indeed, n_s is squarefree as in (12), and so the inequality $p_r\gamma^N(n_s) > p_{r-1}\gamma^N(n_s+l)$ comes from (13) and (14).

Display Equations without numbers

These equations are not used later.

$$q_1 q_2 \ldots q_k > l(2^N - 1)\frac{p_{r-1}}{d_{r-1}},$$

```
\begin{equation*}

q_{1}q_{2}\ldots q_{k}>l\left( 2^{N}-1\right) \dfrac{p_{r-1}}{d_{r-1}}\text{, }

\end{equation*}
```

$$q_{1}q_{2}\ldots q_{k}>l\left(2^{N}-1\right) \dfrac{p_{r-1}}{d_{r-1}}\text{, }$$

Marker

Theorem (Bertrand's Theorem, cite: Yan)

marker: Bertrand's Theorem *If n is an integer greater than 2, then there is at least one prime between n and $2n-1$.*

marker: Bertrand's Theorem

Here, we put the **key** for the following:

1. **Theorem**
2. **Lemma**
3. **Proposition**
4. **Corollary**
5. **Section**
6. **Problem**
7. **Remark, ….**

Theorem *marker: good primes* *There are infinitely many good primes.*

Theorem (Cauchy's principle) *marker: th21* *No external set is internal.*

```
\begin{theorem} [Cauchy's principle]
\label{th21} No external set is internal.
\end{theorem}
```

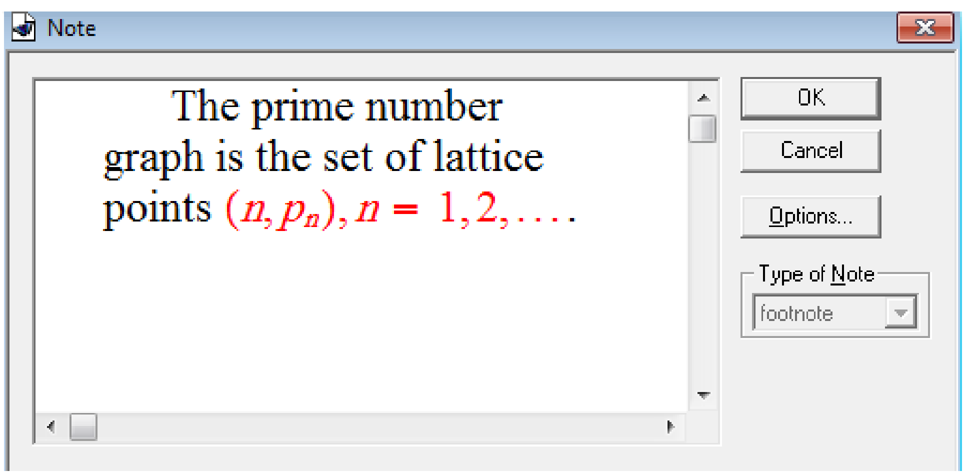
Theorem 2.4 (Cauchy's principle). *No external set is internal.*

```
\begin{cor} \label{unbounded}
.......................................
\end{cor}
```

Footnote

Recall that Erdös and Strauss call a prime p_n good if $p_n^2 > p_{n-i}p_{n+i}$ for all values of i from 1 to $n-1$, see cite: D.Wells2005. The sequence of good primes starts with $5, 11, 17, 29, \ldots$. In cite: Guy1994, Pomerance used the prime number graph footnote to show the following theorem:

[3]The prime number graph is the set of lattice points $(n, p_n), n = 1, 2, \ldots$.



4

Footnote

Recall that Erdös and Strauss call a prime p_n good if
values of i from 1 to $n-1$, see (Wells, 2005, p. 119).
primes starts with $5, 11, 17, 29, \ldots$. In (Guy, 1994, p. 32)
prime number graph[2] to show the following theorem:

Theorem 2.3. *There are infinitely many good primes.*

---

[2] The prime number graph is the set of lattice points $(n, p_n), n$

```
The sequence of good primes starts with $ 5,11,17,29,... $. In \cite[p. 32]{Guy1994},
Pomerance used the prime number graph $\footnote{The prime number graph is
the set of lattice points $(n,p_{n}),n=1,2,...$.}$
to show the following theorem:
```

---

[5] It is an unsolved problem to determine whether there are infinitely many Fermat primes. Indeed, we do not know whether F_n is prime for any $n > 4$.

How to call for Lemma, Theorem, Section, … ?

By Lemma ref: Lemma, A,r,s,

Definition 2.2 (Kanovei and Reeken (2013)). We call internal any set defined by means of an internal formula and we call external any subset of an internal set defined by means of an external formula, which is not (reduced to) an internal set.

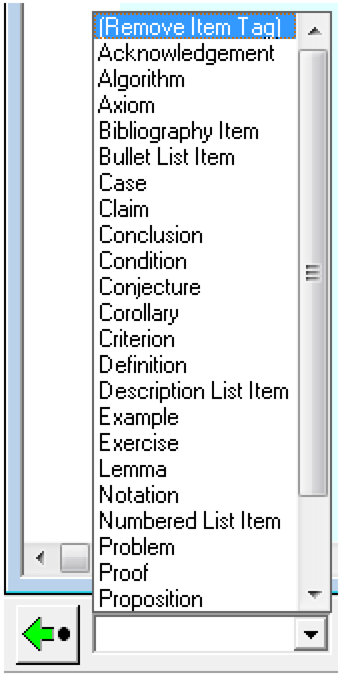
We use the name that you have put in ''Marker''

1. **Theorem**
2. **Lemma**
3. **Proposition**
4. **Corollary**
5. **Section**
6. **Problem**
7. **Remark, ….**

(Remove Item Tag)

Example *For* $n = 440\,895 \in A^b$. *We have* $(3,n) = \left(3, \prod_{p|n}(p-1)\right) = 3$. *By Proposition,* $3^k n \in A^b$ *for every* $k \geq 0$.

Example



My thesis is by French

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العربة أي قبل
\begin{document
\end{document}

\newtheorem{theorem}{Theorem}[section]

By French

\newtheorem{theorem}{Théorème}[section]

Theorem (Théorème de Bertrand cite: Yan) *marker: Bertrand's Theorem If n is an integer greater than 2, then there is at least one prime between n and $2n-1$.*

Théorème 2.2 (Théorème de Bertrand [26, p. 24]) *If n is an int*
then there is at least one prime between n and $2n-1$.

Théorème 2.2 (Théorème de Bertrand [26, p. 24]) *Si n est un entier supérieur à 2, alors il y a au moins un nombre premier entre n et $2n-1$.*

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\begin{definition}
\end{definition}
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\begin{defn}
\end{defn}
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اذهب الى محرك العربية أي قبل

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\end{document}
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\newtheorem{definition}{Definition}[section]
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\newtheorem{example}{Example}[section]
\newtheorem{lemma}{Lemma}[section]
\newtheorem{notation}{Notation}[section]
\newtheorem{proposition}{Proposition}[sectin]
\newtheorem{remark}{Remark}[section]
```

By French

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\newtheorem{definition}{Définition}[section]
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\newtheorem{exa}{Exemple}[section]
\newtheorem{lem}{Lemme}[section]
\newtheorem{nota}{Notation}[section]
\newtheorem{prop}{Proposition}[sectin]
\newtheorem{rem}{Remarque}[section]
```

```
\newenvironment{proof}[1][Proof]{\noindent\textbf{#1.} }{\ \rule{0.5em}{0.5em}}
```

Proof First of all, we prove that there are infinitely many $r \geq 2$ such that $A_{r,s} \subset A_{r-1,s}$ for every $s \geq 1$. In fact, by Theorem ref: good primes, there are infinitely many good prime. Let p_{r-1} be a prime of this form, where $r \geq 4$. Therefore, $p_{r-1}^2 > p_{r-2}p_r$, and hence for any $n \in A_{r,s}$,

$$\frac{n^s}{\varphi_s(n)} < \frac{p_r}{p_{r-1}} < \frac{p_{r-1}}{p_{r-2}}.$$

اذهب الى محرك العربية أي قبل

```
\begin{document
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```

Proof. First of all, we prove that there are infinitely many
for every $s \geq 1$. In fact, by Theorem 2.3, there are infinitely
a prime of this form, where $r \geq 4$. Therefore, $p_{r-1}^2 > p_{r-2}p_r$,

\begin{document }   \end{document}   اذهب الى محرك العربية أي قبل

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\newenvironment{proof}[1][Démonstration]{\noindent\textbf{#1.} }{\ \rule{0.5em}{0.5em}}
```

Proof First of all, we prove that there are infinitely many $r \geq 2$ such that $A_{r,s} \subset A_{r-1,s}$ for every $s \geq 1$. In fact, by Theorem ref: good primes, there are infinitely many good prime. Let p_{r-1} be a prime of this form, where $r \geq 4$. Therefore, $p_{r-1}^2 > p_{r-2}p_r$, and hence for

Démonstration. First of all, we prove that there are infinite
$A_{r,s} \subset A_{r-1,s}$ for every $s \geq 1$. In fact, by Theorem 2.3, there are i
Let p_{r-1} be a prime of this form, where $r \geq 4$. Therefore, $p_{r-1}^2 >$
$n \in A_{r,s}$,

Démonstration. ou **Preuve.**

Theorem (see cite: D.Wells2005)

marker: Theorem: P-perfect *If p is prime, n is p-perfect and p does not divide n, then pn is $(p+1)$-perfect.*

Theorem 4.4 (see (Wells, 2005, p. 173)). *If p is prime, n is p-perfect and p does not divide n, then pn is $(p+1)$-perfect.*

If p does not divide N, then from Theorem 4.4, the

Proof Let m, n be two positive integers such that

```
\begin{proof}
……………………………………………………………
……………………………………………………………
This completes the proof.
\end{proof}
```

This completes the proof. □

This completes the proof. ■

Proof of Theorem **ref: Theorem, r limited, s limited, W infinity** Since $\frac{p_r}{d_{r-1}}$ is unlimited and s is limited, for every limited prime number p we see that

$$\left(\frac{p_r}{d_{r-1}}\right)^{\frac{1}{s}} \geq p.$$

(inequlity, Cauchy's principle, p,m)

It follows from Cauchy's principle that eqref holds for some unlimited prime p_m. That

\begin{theorem}[Main Theorem] \label{Main Theorem on sign changes, W,k}

……………………………………

\end{theorem}

Theorem 3.2 (Main Theorem). *Let p_r be the*

Theorem (Main Theorem) *marker: Main Theorem on sign changes, W,k* *Let p_r be the r-th prime number with $r \geq 2$ and let $k, l, N \geq 1$. Let c be a positive integer with*

$c \geq 2$, and let $A_l(c), B_l(c)$ be the subsets of $\mathbb{N}$ given by

$$A_l(c) = \{n \in \mathbb{N}\,;\, 2^{c-1} \mid n+l,\, 2^c \nmid n \text{ and } 2^c \nmid n+l\},$$

and

$$B_l(c) = \{n \in \mathbb{N}\,;\, 2^{c-1} \mid n,\, 2^c \nmid n \text{ and } 2^c \nmid n+l\}.$$

If $k \geq 3$ and l is odd, then

1. $W_k \cap A_l(c)$, $W_k \cap B_l(c)$ *are infinite.*
2. $p_r \gamma^N(n) - p_{r-1} \gamma^N(n+l)$ *has infinitely many sign changes on the set* $W_k \cap (A_l(c) \cup B_l(c))$.

From the proof of Theorem \ref{Corollary about sign changes, W,k}

Notation, Remark, Definition **are not italic.**

\begin{example} \rm

\end{example}

Notation *Let n be a positive integer, and let $F : \mathbb{N} \to \mathbb{R}$ be a number-theoretic function.*

- *For every positive integer N, we denote by F^N the arithmetic function given by $F^N(n) = (F(n))^N$.*
- *We write $p^a \parallel n$ if p^a is the largest power of p that divides the integer n, that is, p^a divides n but p^{a+1} does not divide n.*

Notation 2.1. Let n be a positive integer, and let $F : \mathbb{N} \to \mathbb{R}$ be a number-theoretic function.

- For every positive integer N, we denote by F^N the arithmetic function given by $F^N(n) = (F(n))^N$.
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\end{thebibliography}
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\begin{thebibliography}{999}

\bibitem {Yan} S. Y. Yan: Number Theory for Computing, Second Edition, Springer Science & Business Media, 2002.

\end{thebibliography}}
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احذر: راعي الترتيب

هنا الترتيب غير صحيح ؟

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Renling R. Jin: Inverse Problem For Upper Asymptotic Density, Trans. Amer. Math. Soc. 355 (2003), 57-78.

الترتيب يكون حسب ترتيب الحرف الأول في لقب المؤلف أو حسب الإستعمال

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[2] Borwein, P., Ferguson, R., and Mossinghoff, M. (2008). Sign changes in sums of the liouville function. Math. Comp., 77(263):1681–1694.

[3] H. Karel, On Factoring of unlimited integers, J. Log. Anal. 12:5 (2020) 1-6.

[4] J.-M. De Koninck, A.Mercier: 1001 problems in classical number theory. Ellipses, Paris, 2004.

[5] B. Fine: Number theory, An introduction via the density of primes, second Edition, 2016.

[6] R. K. Guy: Unsolved Problems in Number Theory. Springer-Verlag, New York, 2 edition, 1994.

[7] G. H. Hardy, J. E. Littlewood: Tauberian theorems concerning power series and Dirichlet's series whose coefficients are positive. Proc. London Math. Soc. 13 (1914), 174–191.

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[SY] S. Y. Yan: Number Theory for Computing, Second Edition, Springer Science & Business Media, 2002.

Look at this

[18] *S. Y. Yan*: Number Theory for Computing. Springer, Berlin, 2002. zbl MR doi

[11] **M B Nathanson**, *Elementary methods in number theory*, Springer-Verlag, New York (2000); https://doi.org/10.1007/b98870

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\beforepreface
\typeout{:?111111111} % Process All Errors from Here on
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\include{T2}
\include{T3}

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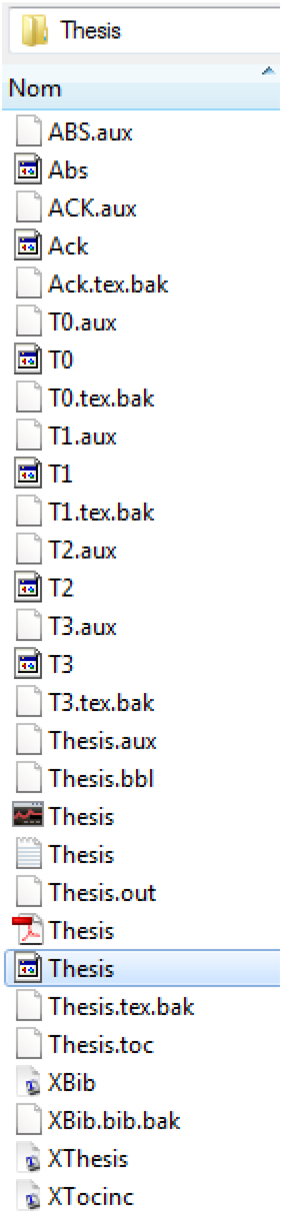

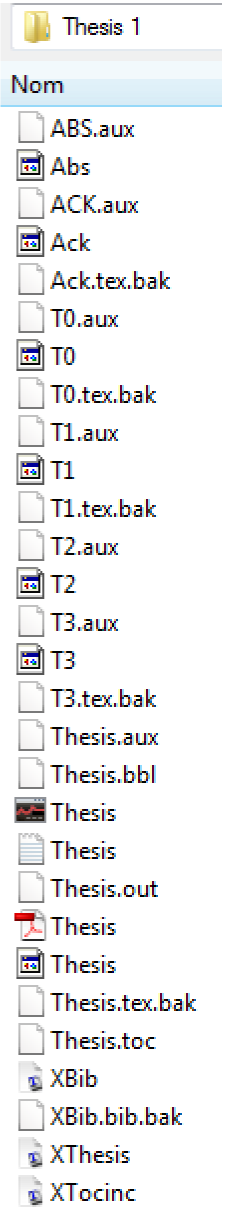

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 publisher={Springer-Verlag},
 address={New York},
 year={1994},
}
% --------------------------------------------------
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XBib.bib

For a book

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 title={Linear Spaces of Nilpotent Operators},
 journal={Linear Algebra Appl.},
 volume={149},
 year={1991},
 pages={215-225},
}
% ------------------------------------------
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Cite

MLA — Guy, Richard. *Unsolved problems in number theory*. Vol. 1. Springer Science & Business Media, 2004.

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Chicago — Guy, Richard. *Unsolved problems in number theory*. Vol. 1. Springer Science & Business Media, 2004.

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Vancouver — Guy R. Unsolved problems in number theory. Springer Science & Business Media; 2004 Jul 13.

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@book{guy2004unsolved,
title={Unsolved problems in number
theory}, author={Guy, Richard},
volume={1}, year={2004},
publisher={Springer Science \&
Business Media} }
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Questions

For example in [?], under

Why ?

Questions

أكتب و تحصل على Pdf

Lemma 1.3.8 implies the existence of

Decomposition Theorem [15, p. 31], the space $\mathcal{H}$

Note that (F_2) is equivalent to

$$(F_3) \qquad \begin{cases} n = s + \omega_1\omega_2 \\ m \mid \omega_1\omega_2, \end{cases}$$

لماذا جاء على اليمين ؟

Questions

أكتب و تحصل على Pdf

2 Main results

2.1 General theorem of representation

Proof of Theorem 2.9 From (2) we have

Main results

General theorem of representation

$$\prod_{\substack{p^a \| n_t \\ a>1}}$$

Table of Contents

Questions
أكتب و تحصل على Pdf

Questions

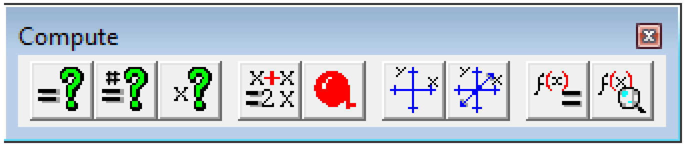
أكتب و تحصل على Pdf

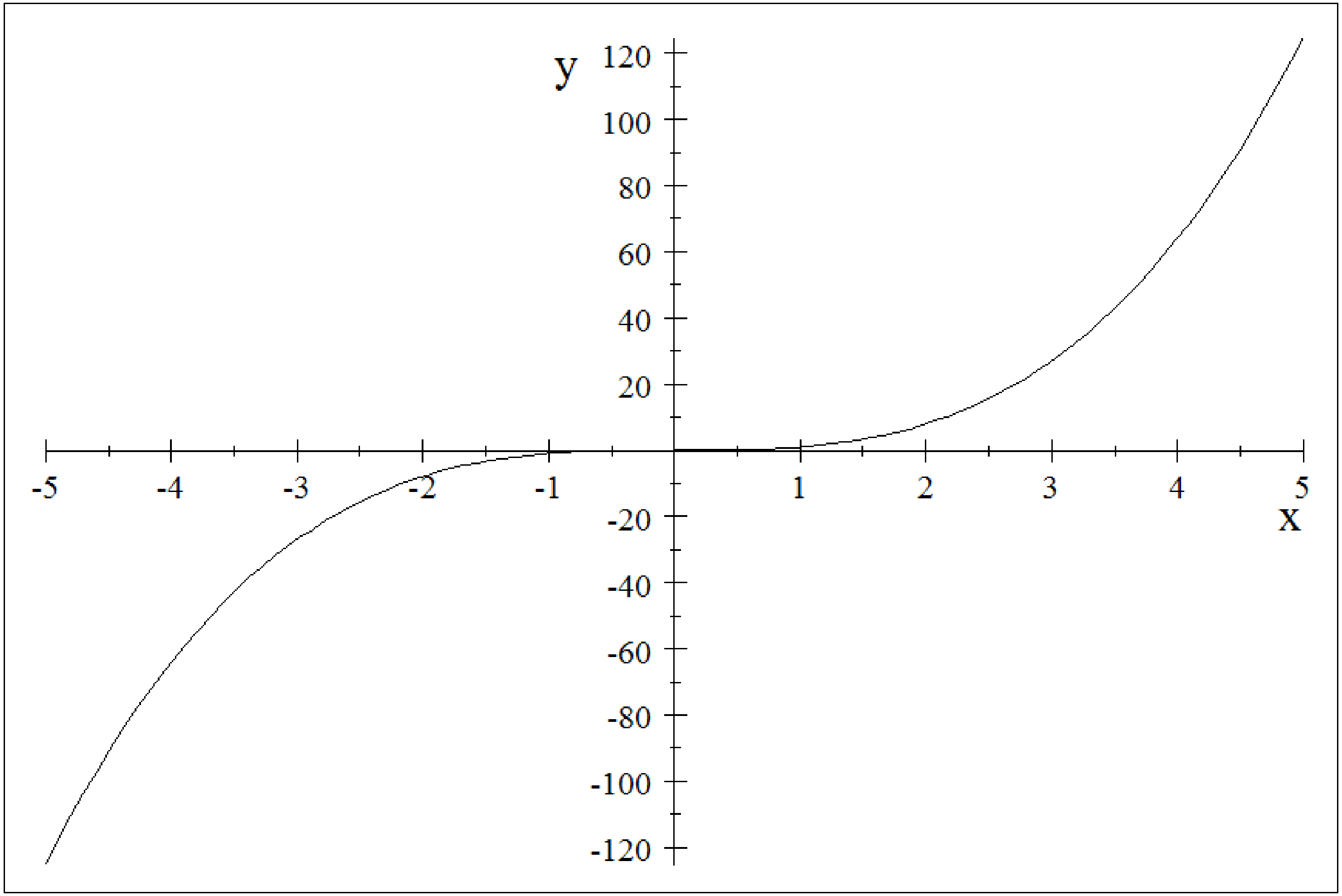
Proof

This completes proof of Proposition

ref: N, limited, sign changes.

Questions





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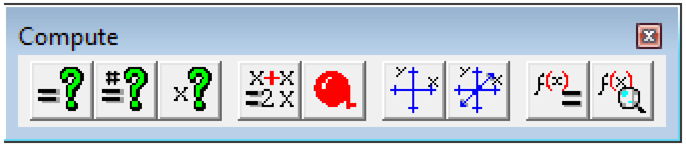
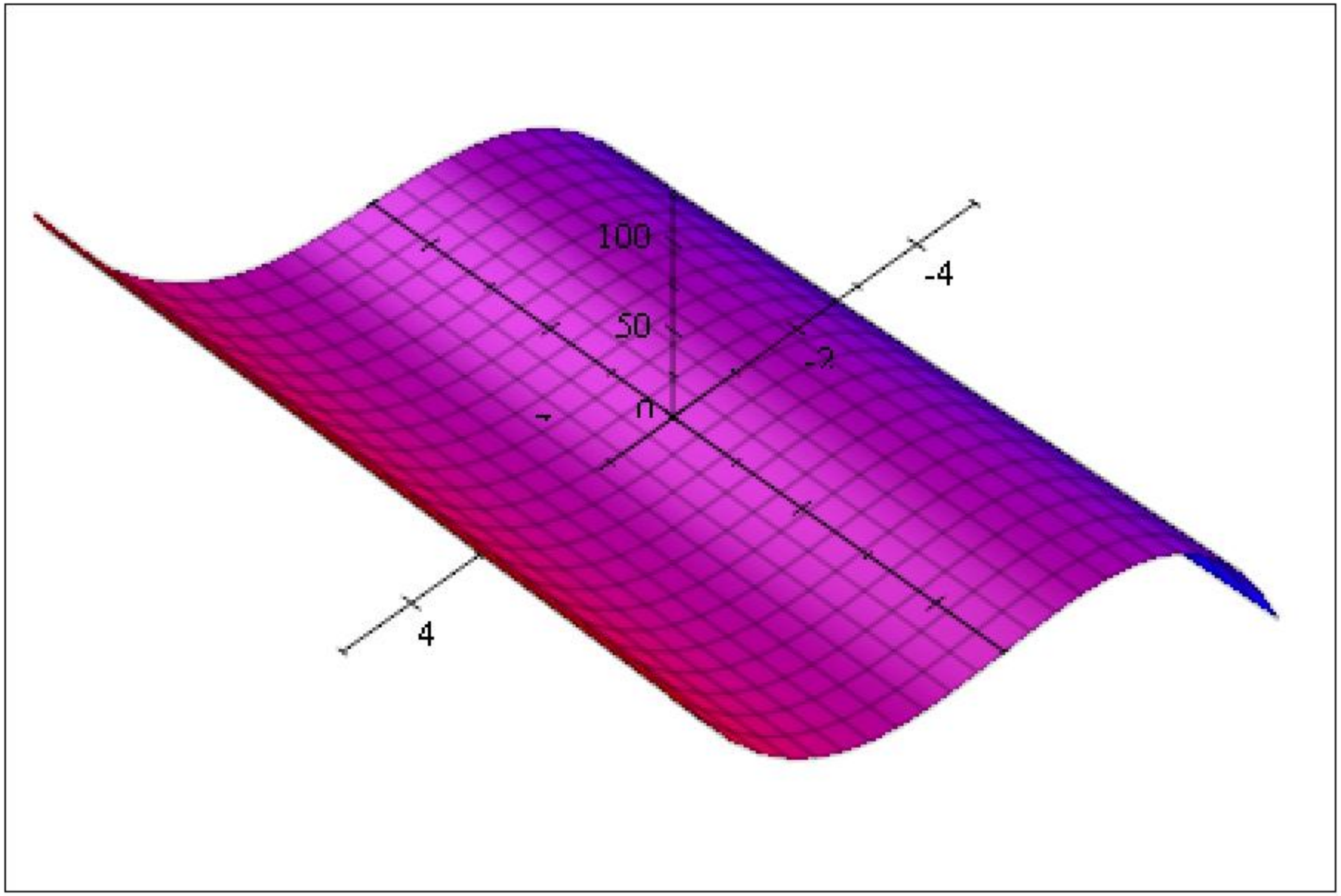
Questions





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Punctuation : , . ; ...

That is, $d_{n-1} = p_n - p_{n-1}$.

Thus, for any $s \geq 3$, there are infinitely many

By Lemma 3.2, there exist primes

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, i.e.,

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Proof

1. **Definition 3.1** *Proof.* ■

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\end{proof}
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\end{enumerate}
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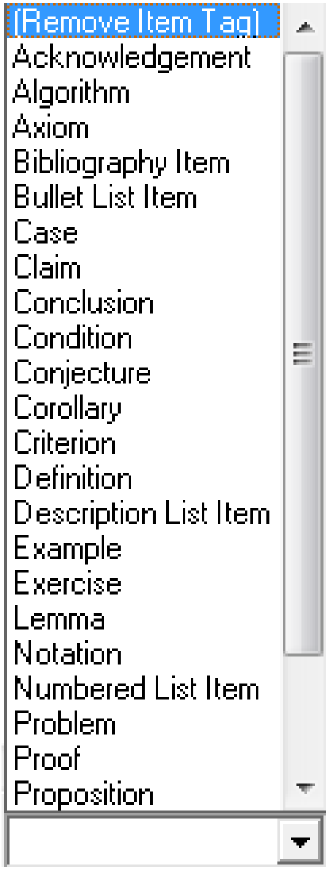

احذر من:

- Long formulas must be in Display style.
- We only put numbers for the equations that we need.
- You should verify the gap between Text/Math.
- Definitions, Remarks and Notations must not be *italic*.
- If you have done errors in the source (text file), you won’t have **pdf** format.
- احذر التكرار بكل أنواعه

احذر من:

$$\geq \begin{cases} \qquad\quad 8\alpha\beta, \text{ if } (q-1,p)=1, \\ 4\left(\alpha+1\right)\beta, \text{ if } (q-1,p)\neq 1. \end{cases}$$

$$\geq \begin{cases} 8\alpha\beta, \text{ if } (q-1,p)=1, \\ 4\left(\alpha+1\right)\beta, \text{ if } (q-1,p)\neq 1. \end{cases}$$

... not .... Or .....

احذر من:

$$\lim_{x\to+\infty}\int_{\Omega} f\left(\sum_{n=0}^{k}\frac{x^n\cos\left(\frac{1}{n}\right)}{1+\frac{1}{x}+\frac{2}{x}}\right)dx$$

ایجابیات WorkPlace

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ایجابیات LaTeX

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Good Luck

Bellaouar Dj. And Azzouza N,

Algebra and Number Theory