MATRIX

THIRD EDITION

Mathematics Study Circle

NALBARI COLLEGE

Nalbari College

YEARLY E-MAGAZINE
2024-2025

MATRIX

THIRD EDITION:2024-25

From the Principal's Desk

It gives me immense pleasure to know that anotherissue of the E-Magazine "Matrix " of department of mathematics is going on to be published. It bears witness to the academic heritage and commitment of teachers and students of the department and their present leadership. I extend my warm wishes to the faculty and students of mathematics department to bring out this magazine which gives the students an opportunity to explore more than what is prescribed in their syllabus curriculum.

Dr.Kamal Nayan Patowary
Principal
Nalbari College, Nalbari

From the HOD's

Matrix" is the annual e-magazine of the Mathematics Department, Nalbari College. This is its third edition. It aims to shape the creativity of our students and empower them with the ability to observe and explore. I believe that writing potential exists in all our students, but only a few possess the urge to write. It has been our endeavor to ignite this urge by encouraging students and teachers to express their thoughts, experiences, and observations through writing.

I hope this edition of Matrix offers students an opportunity to enhance their study skills beyond the course curriculum. This magazine reflects the growth of our department, unfolds our imaginations, and gives life to our thoughts and aspirations.

I would like to extend my gratitude to all the members of the Mathematics Department, the editor, and the contributors for their dedication and hard work..

Dr. Piroja Begum
Hod, Department of
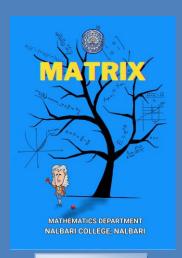*Mathematics Nalbari*
College, Nalbari

Editorial messages

Welcome to 3rd edition of our department's e-magazine dedicated to the fascinating world of mathematics. On behalf of the Editorial Board, it is with great pride and sincere privilege that I am writing this message to present MATRIX our annual mathematical e-magazine. Through this e magazine you will find the treasure of thoughtful articles, insightful analyses and captivating explorations into fascinating world of numbers, shapes and patterns. also how mathematics related with games ,anime and many more."There's nothing quite like the thrill of solving a difficult mathematics problem. In this issue, we celebrate the joy of problem-solving and share some of our favorite puzzles and brain teasers. Whether you're a seasoned mathematician or just starting out, we hope you'll find something to challenge and inspire you."

"Mathematics and art may seem like unlikely bedfellows, but they have a long and fascinating history. In this issue, we explore the many ways in which mathematics and art intersect, from the geometry of perspective to the fractals of nature." We extend our heartfelt gratitude to all the contributors, editors, and supporters who have made this edition of "Matrix" possible. Your dedication and passion for the world of mathematics shine through in every word and equation, enriching the minds of readers around the globe. So, without further ado, we invite you to dive into the pages of "Matrix" and embark on a journey of intellectual exploration and discovery. May the insights contained within these digital pages ignite your curiosity and fuel your love for the infinite wonders of mathematics.
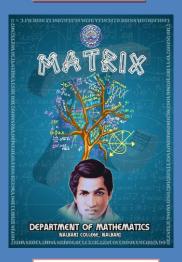
Warm regards!!
Team Matrix

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Cosmic Trailblazers

Barasha Kalita
6th Semester

Animals have played an extraordinary role in humanity's journey to the stars, serving as courageous pioneers in space exploration. Fruit flies were among the first living creatures to be sent into space. In 1947, the United States launched fruit flies aboard a V-2 rocket to study the effects of cosmic radiation at high altitudes. In 1948 Albert I was launched but failed to reach space due to a technical malfunction and died during the mission. After that Albert II, a rhesus macaque flew aboard a U.S. V-2 rocket on June 14, 1949 and became the first monkey in space. Laika, a stray dog was the first living being to orbit earth in 1957 aboard Sputnik 2 paving the way for future space travel. According to NASA space program, Gordo also known as old reliable, was launched from cape Canaveral on December 13, 1958 in the U.S PGM-19 Jupiter rocket on its AM-13 mission. Again in 1959 NASA sent the rhesus monkey Able and the squirrel monkey Miss Baker on space travel. They become one of the first primates to return alive from space. In 1960, soviet dogs, Belka and strelka spent a day in space aboard Korabl Sputnik. They were the first higher living organisms to survive an orbital trip in outer space. Ham also known as Ham the chimp and Ham the astrochimp, first huminid was launched on 31 January 1961. Ham's flight reached an altitude of approximately 156km and lasted about 16 minutes, during which he successfully performed tasks in response to signals. His mission helped demonstrate that living organisms could survive and function in space, paving the way for human spaceflight. Another chimp, Enos orbited earth in the same year on 29 November. On October 18,1963, Felicette, a French cat was launched from Hammaguir, Algeria and reached an altitude of about 156km . Felicette is the first cat to be sent into space and it was nicknamed as "Astrocat".

The longest animal spaceflight came in 1966 with two soviet dogs, Veterok and Ugolyok. They were launched into space on 22 February aboard the Kosmos 110 satellite. They spent 22 days, orbiting earth in a biological research spacecraft designed to study the effects of prolonged space travel on living organisms and landed on 16 March.

Again Soviet scientists sent tortoises,fruit flies, rats,mice,and many more like bees,worms,fish and spiders such as Arabella and Anita (1973), spun webs on Skylab, revealing how microgravity affects coordination and behavior.

These remarkable animals , often unsung heros helped humanity reach the cosmos, their sacrifices shaping the future of space exploration. Those brave creatures deepened our understanding of life beyond earth.

The Evolution of Mathematica: It's Contribution to Mathematics
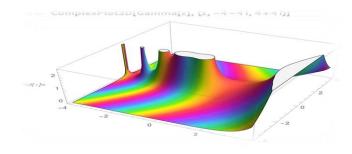
Smriti Deka
4th Semester

Introduction:

In the ancient period, scholars had been recording there ideas on various artifacts, Archaeologists have even found thousands of years old. Artifacts like stone tablets, leaf lets etc.. In which the ideas have been recorded but with the passes of time these artifacts tends to get damaged due to various factors. This is why in the modern day developer's have found different software for the documentation of such ideas where we don't have to worry about losing them. Mathematica is an example of such software that has assisted the mathematica and the scholars to record their ideas.

Development :

The software mathematica was originally conceived by the CEO of the research Institute,Stephen Wolfram. The programming large used in mathematica is the Wolfram language. The software was release in 1988.And was develope by Wolfram Research of Champaign, Illinois.
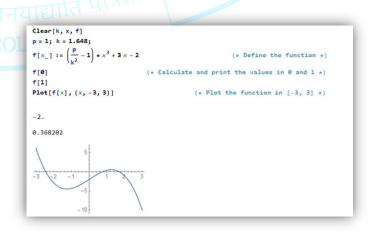
In its early stages it focused on symbolic computation but subsequent releases have included many advance features including interactive visualization tools, data analysis tools etc. These improvements show the softwares ability to adopt to the growing technical world and users demands across various decipeines, ensuring it's relevance and effectiveness in modern technological environments.

Uses and benifits :

Mathematica is used for a wide range of tasks like visual representation of 2D and 3D graphs, easy data analysis, easy documentation of verious reports etc. The easy to use interface of the software makes it so much popular among scientific engineering, computing and other academic and industrial field.

The basic math palette features included within the software provides the users numerous mathematical symbols and other arithmetic operators which are not generally found on the keyboard. With just a click on the desired symbols. We can use it on our work. Mathematica's excellent's in providing these useful symbols is particularly useful for tasks like calculus algebra, trigonometry and other complex mathematical problems. Even for simpler works such as typing "nth root " Of a given number symbolically or representing a factoring in its proper formate, mathematica's use is very simple and easy.

If any one wishes to obtain a graph of a complex equation of any kind we can easily provide the input and the complex equation will give us the output, i.e the solution or the graph with in seconds, Further for better visuals, aesthetic as well as for proper understanding we can change the color of the curve, or make the graph large and small according to the users desires.

Conclusion :

In conclusion, mathematica stands out as a powerful tool for every user. It's versatility in various fields, more importantly in the academic field has made this software so popular. With the evolution of technology and mankind, various other softwares like mathematica will also develope, thus enhancing our ability to create more ideas more freely.

Fact about Matrices

1. The Father of Matrices is Arthur Cayley.

2. A null matrix is a matrix where all elements are zero.

3. A matrix with an infinite number of rows or columns is called an empty matrix.

4. A matrix with m rows and n columns is said to be order of m×n.

Mathematics In Stock Market Investing

Arindam Sarma
6th Semester

Since stock market investing includes mathematical formulas, many consider it highly complicated. However stock market math does not require advanced math.

The math involved in the stock market encompasses a variety of concepts and calculations that help investors analyze stocks, assess risk, and make informed decisions. Some key areas of math used in the stock market:

    A. Basic Arithmetic

Price Calculation: Basic calculations of stock prices, such as total investment (number of shares $\times$ price per share).

Profit and Loss: Calculating gains or losses from buying and selling stocks.

    B. Percentage Calculations

Percentage Change: To determine how much a stock price has increased or decreased.

$$\text{Percentage Change} = \frac{New\ price - Old\ Price}{Old\ price} \times 100$$

Return on Investment (ROI):

$$\frac{Net\ profit}{Cost\ of\ investment} \times 100$$

    C. Financial ratio:

Price-to-Earnings (P/E) Ratio:

$$\text{P/E Ratio} = \frac{Stock's\ current\ price}{Earning\ per\ share}$$

Debt-to-Equity Ratio:

$$\frac{Total\ liabilities}{Shareholder's\ equity}$$

Conclusion: Although intuition is important, understanding numbers can greatly increase chances of making smart investments. By analysing financial ratios, using the power of compounding, and thinking about probabilities, math can greatly improve investing success.

The Math Of Macro

Jyotishmita Sarma
Batch 2021-24

Understanding Large Scale Strategies in Real Time Strategy Games.

The term Macro mainly refers to the high level, strategic decision and management resources ,units and ecomomy..

RTS (Real-Time Strategy) is a genre of video games. This gameplay involves managing resources, building units, and strategizing in real-time to achieve objectives, typically against one or more opponents ; shortly where players makes decisions and take actions in real, simultaneously with their opponents.The primary goals of RTS ;often include expanding one's territory, building a strong economy, and defeating opponents through strategic and tactical gameplay.RTS gameplay have some core gameplay elements that includes –

1. **Resource Management:**
    In this management players gathers and manage some resources like gold, wood, or minerals to build and maintain their empire or qarmy.

2. **Base Building:**
    Here construction and upgrading structure that produce units, research technologies, or provide economics benefits are done.

3. **Unit Production and Management:**
    This management is for creating and controlling units, which can include soldiers, vehicles, or other types of combat or support units.

4. **Strategic Planning:**
    His planning is for developing and executing strategies to achieve objectives, including positioning, timing, and tactical decisions.

5. **Real-Time Combat:**
    It helps in engaging in battles where players need to make quick decisions and adjust strategies dynamically based on the unfolding situation.

6. **Exploration and Map Control:**
    This criteria is for scouting the map to uncover resources, enemy positions, and strategic locations.

7. **Adaptability:**
    This means adjusting strategies and tactics in response to the actions of opponents and changing conditions in the game.

These 7 core elements are combine to create a complex and engaging experience that requires both strategic foresight and real-time decision-making.Some examples of Real-Time Strategy (RTS) games such as:-

i. **StarCraft series (1998-2010):**
A sci-fi RTS game with a strong competitive esports scene.

ii. **Warcraft III: Reign of Chaos (2002):**
A fantasy RTS game with a focus on storytelling and hero units.

iii. **Age of Empires series (1997-2013):**
A historical RTS game with a focus on building and resource management.

iv. **Command & Conquer series (1995-2013):**
A futuristic RTS game with a focus on fast-paced action and unit diversity.

v. **Company of Heroes (2006):**
A World War II RTS game with a focus on unit tactics and resource management.

vi. **Dawn of War series (2004-2011):**
A sci-fi RTS game set in the Warhammer 40,000 universe.

vii. **Total War series (2000-2022):**
A historical RTS game with a focus on large-scale battles and empire management.

viii. **Rise of Nations (2003):**
A historical RTS game with a focus on building and resource management.

ix. **Hearts of Iron series (2002-2016):**
A World War II RTS game with a focus on grand strategy and nation management.

x. **They Are Billions (2019):**
A steampunk RTS game with a focus on building and defense.

These games represent a range of settings, gameplay styles, and complexity levels within the RTS genre.By the way I choose this topic as i am somewhere interested in online games but though I never try it but somewhere i found it's interesting when my friends played with it.

So I want to know more about online games and among them i choose RTS gameplay and as a part of mathematics students I also want to know is there any mathematical analysis involvement in this games and I found a lot and it was interesting. So I will share a little bit.There are lots of Mathematical analysis and mathematical concepts that can significantly enhance understanding and optimization of large-scale strategies in Real-Time Strategy (RTS) games in several ways and help to develope more.The mathematical analysis such as –

a) Resource Management
b) Unit Composition
c) Micro and macro management
d) Pathfinding and navigation
e) Economic modeling
f) Probebilty and statistics
g) Optimization techniques
h) Network analysis
i) Machine learning
j) Simulation and modeling

g. Network Optimization
h. Discrete Mathematics
i. Optimization Techniques
j. Spatial Analysis
k. Time Series Analysis
l. Machine Learning

And also there are involvement of lots of mathematical concepts in RTS gameplay such as-

a. Graph Theory
b. Linear Programming
c. Dynamic Programming
d. Probebility Theory
e. Combination
f. Game Theory

So after lots of research i comes to conclusion that involvement of mathematics is everywhere. It is glad that by knowing this subject I can related with each and every topic of the world whatever I want to know.. By knowing this Mathematical concept it is easy for me to learn any kind of mathematics related topics where the use of mathematics was always hidden..
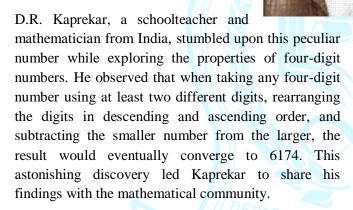
Mathematics is fun.

Did You Know??

➢ **Zero is not represented in Roman numerals.**

➢ **-40˚C is equal to -40˚F**

➢ **The word "Hundred" comes from the old norse term, "hundrath", Which actually means 120 and not 100.**

The Mysterious Kaprekar's Number: Unlocking the Secrets of 6174

Dibyajyoti Lahkar
2nd semester

Kaprekar's number, 6174, is a mathematical constant that has fascinated mathematicians and enthusiasts for generations. Discovered by Indian mathematician D.R. Kaprekar in the 1940s, this enigmatic number has been revealing the hidden patterns and beauty of mathematics.

D.R. Kaprekar, a schoolteacher and mathematician from India, stumbled upon this peculiar number while exploring the properties of four-digit numbers. He observed that when taking any four-digit number using at least two different digits, rearranging the digits in descending and ascending order, and subtracting the smaller number from the larger, the result would eventually converge to 6174. This astonishing discovery led Kaprekar to share his findings with the mathematical community.
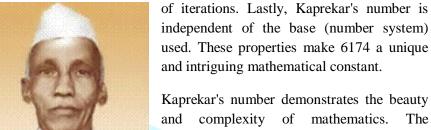
The Kaprekar routine is a simple yet fascinating process. Take any four-digit number, rearrange the digits in descending and ascending order, and subtract the smaller number from the larger. Repeat this process with the result. Surprisingly, regardless of the initial number, the Kaprekar routine will eventually yield 6174. For example, starting with 4321, the routine would proceed as follows:

$$4321 - 1234 = 3087$$

$$8730 - 0378 = 8352$$

$$8532 - 2358 = 6174$$

The Kaprekar's number 6174 exhibits several remarkable properties. Firstly, it is a fixed point of the Kaprekar routine, meaning applying the routine to 6174 results in 6174. Secondly, many numbers exhibit cyclic behavior, returning to 6174 after a fixed number of iterations. Lastly, Kaprekar's number is independent of the base (number system) used. These properties make 6174 a unique and intriguing mathematical constant.
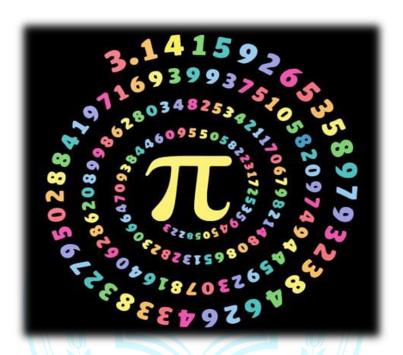
Kaprekar's number demonstrates the beauty and complexity of mathematics. The Kaprekar routine reveals hidden patterns in numbers, showcasing the concept of convergence, where different initial values lead to a single result. Moreover, Kaprekar's number transcends specific number systems, highlighting the universality of mathematical principles. These aspects have captivated mathematicians and inspired new discoveries.

Kaprekar's number has sparked interest in various areas. Researchers have applied the Kaprekar routine to develop efficient algorithms for solving mathematical problems. Additionally, Kaprekar's number has potential applications in cryptography. The study of Kaprekar's number has also led to insights into number patterns and properties, contributing to the field of number theory.

Researchers have explored variations and generalizations of Kaprekar's number. The routine has been applied to various number systems, and extensions to higher-dimensional numbers have been discovered. Connections to other areas of mathematics, such as algebra and geometry, have also been explored. These investigations have further enriched our understanding of Kaprekar's number.

Discovery Of Pi

Juri Choudhury
2nd Semester

Pi is the most important thing in Mathematics. Under 200 BC to 250 BC, the greek mathematician Archimedes first discovered the value of Pi and introduced to us. In that time Carriage is used to visit from one place to another. Carriage is one type of vehicle which was pulled by horses. In that vehicle present two or more than two wheels. Archimedes started to found the circumference of these wheels. He calculate many types of wheels cincumference.

When he saw that he realised the ratio of the circumference of the wheel and diameter is same in every time and he named that Pi. Archimedes got the value of Pi which was 3.141592653589793238462464338327950288 4197. It has 39 numbers after Decimal. The value of (Pi)"π" approximately considered as 3.14. Based the value of "π" and due to birthday of Albart Einstein we celebrate "π" day in every year on 14th March.

The Never Ending Man: Hayao Miyazaki

Jyotirmoy Das
6th Semester

Hayao Miyazaki (January 5, 1941, Tokyo, Japan) is one of the most celebrated figures in animation, has captivated audiences around the globe with his imaginative storytelling, richly detailed worlds, and profound themes. As a co-founder of Studio Ghibli, Miyazaki has created films that transcend cultural boundaries, appealing to both children and adults alike. His works are characterized by a deep respect for nature, strong female protagonists, and an exploration of complex human emotions.

Miyazaki's father was the director of Miyazaki Airplane, a manufacturing concern that built parts for Zero fighter planes. The family business instilled in Miyazaki a love of flying that became apparent in virtually all of his work. After having completed studies in economics at Gakushuin University, Tokyo, in 1963, he took a position as an entry-level animator at Toei Animation, a division of the Toei studio and Asia's largest producer of animation. While at Toei, he met fellow animators Takahata Isao and Ota Akemi. The former became a lifelong friend, collaborator, and business partner, and the latter, after a one-year courtship, became his wife. Miyazaki moved through the ranks at Toei, working on such projects as the television series Okami shonen Ken ("Wolf Boy Ken") and Takahata's feature directorial debut, Taiyo no oji: Horusu no daiboken (1968; Little Norse Prince).

After leaving Toei in 1971, Miyazaki, accompanied by Takahata, continued to work for various studios throughout the 1970s. Highlights from this period include the Panda kopanda (Panda! Go Panda!) film shorts and Miyazaki's first full-length film, Rupan sansei: Kariosutoro no shiro (1979; Lupin III: Castle of Cagliostro), an adventure story featuring the gentleman thief lupin and his compatriots.

Miyazaki's individual style became more apparent in Kaze no tani no Naushika (Nausicaa of the Valley of the Wind), a monthly manga (Japanese cartoon) strip he wrote for Animage magazine. The story followed Naushika, a princess and reluctant warrior, on her journey through an ecologically ravaged world. Its success inspired a film of the same name (released in 1984) and encouraged Miyazaki and Takahata to undertake a more permanent partnership arrangement. Together they launched Studio Ghibli in 1985. The following year Miyazaki's Tenku no shiro Rapyuta (Castle in the Sky) was released in Japan and Nausicaa was released in the United States as Warriors of the Wind. Although the original film's impressive aerial sequences remained intact, confusing edits and poor dubbing rendered Warriors of the Wind virtually unwatchable. It then took more than a decade for Miyazaki to consider another Western release. But even after that, Miyazaki and Studio Ghibli continued to produce works for the domestic market.

Miyazaki's filmography is a treasure trove of cinematic masterpieces. Here are some of his most iconic films:

i. **My Neighbor Totoro (1988):** This heartwarming tale follows two young sisters who befriend magical creatures in the countryside. Totoro, the film's titular character, has become an iconic symbol of Studio Ghibli. The film beautifully captures the innocence of childhood and the bond between family and nature.

iv. **Kiki's Delivery Service (1989):** This coming-of-age story follows Kiki, a young witch who moves to a new town to establish her own delivery service. It emphasizes themes of independence, self-discovery, and the challenges of growing up.

ii. **Princess Mononoke (1997):** This epic tale explores the conflict between industrialization and nature. Set in a mythical world, it follows Ashitaka, a young warrior who seeks to understand the struggle between humans and forest spirits. The film addresses environmental themes and the consequences of human actions on nature, making it particularly relevant in today's context.

v. **Spirited Away (2001):** Perhaps Miyazaki's most acclaimed work, "Spirited Away" won the Academy Award for Best Animated Feature in 2003. The film tells the story of a young girl named Chihiro who becomes trapped in a mysterious spirit world. Through her journey, she learns about bravery, resilience, and the importance of remembering one's identity. The film's stunning visuals and imaginative world-building have made it a classic.

iii. **Howl's Moving Castle (2004):** Based on Diana Wynne Jones's novel, this enchanting story revolves around Sophie, a young woman cursed to age prematurely. She encounters the mysterious wizard Howl and becomes embroiled in a conflict involving war and magic.

In 2005 Disney unveiled a restored version of Nausicaa on DVD. Featuring both the original Japanese soundtrack as well as a new professionally recorded English dub, this release marked the first time that the film was commercially available in its original form in the United States. Gake no ue no Ponyo (2008; Ponyo) was targeted to a younger audience than were most Miyazaki films, but nevertheless it was the top Japanese box-office draw of 2008. Miyazaki later cowrote the screenplays for the Studio Ghibli releases Karigurashi no Arietti (2010; The Secret World of Arrietty), which was based on Mary Norton's children's book The Borrowers, and Kokurikozaka kara (2011; From Up on Poppy Hill), a coming-of-age tale adapted from a manga series. The latter film was directed by Miyazaki's son Goro.

Kaze Tachinu(2013), The Wind Rises) was an impressionistic take on the life of engineer Horikoshi Jiro, who designed fighter planes used by the Japanese during World War II. The film was based on Miyazaki's manga of the same name, and it was nominated for an Academy Award in 2014. Miyazaki declared that Kaze tachinu would be his last feature-length film, and he began work on Kemushi no Boro (Boro the Caterpillar), a short film for the Ghibli Museum in Mitaka. Miyazaki's retirement appeared to be temporary, however; in 2016 he announced that Kemushi no Boro would be expanded to a feature-length release. The film marked Miyazaki's first project to be done entirely in computer animation.

In 2015 he received an honorary Oscar from the Academy of Motion Picture Arts and Sciences.

In 2023 Miyazaki again came out of retirement to release Kimitachi wa do ikiru ka (The Boy and the Heron). The story follows a 12-year-old Tokyo boy who relocates to the country after his mother is killed in a bombing raid during World War II. There he encounters a grey heron, who goads him into entering a locked tower that leads to a world shared by both the living and the dead. Critics noted autobiographical elements in the story and an elegiac tone. The film won a Golden Globe Award and a BAFTA Award for best animated motion picture, and won an Oscar for best animated feature at the 2024 Academy Awards.

Miyazaki's films often feature recurring themes such as environmentalism, feminism, pacifism, and the complexities of human emotions. He has a unique ability to create characters that resonate with audiences on a personal level, often portraying strong female leads who undergo significant growth throughout their journeys. Visually, Miyazaki's animation is renowned for its lush landscapes and intricate details. His use of hand-drawn animation gives his films a timeless quality that stands in stark contrast to the rise of computer-generated imagery in contemporary animation.

Hayao Miyazaki's impact on animation cannot be overstated. He has inspired countless filmmakers and animators worldwide with his innovative storytelling techniques and artistic vision. His films have not only garnered critical acclaim but have also achieved commercial success, making Studio Ghibli one of the most beloved animation studios globally. In addition to his films, Miyazaki has also influenced popular culture through merchandise, theme parks, and exhibitions dedicated to his work. His commitment to preserving traditional animation techniques in an increasingly digital world has sparked discussions about the future of animation as an art form.

As Hayao Miyazaki continues to create magic through his films, his legacy remains firmly rooted in the hearts of fans across generations. His ability to weave intricate narratives that explore deep philosophical questions while maintaining a sense of wonder is what sets him apart as a true master of animation. Whether you are experiencing "My Neighbor Totoro" for the first time or revisiting "Spirited Away," Miyazaki's enchanting worlds remind us of the beauty of imagination and the importance of connection—to each other and to the world around us.

Lets Play?

1. If

   23+1=4

   46+5=5

   87+3=12

   72+3=6

   Then

   86+7=?

2. Using only an addition, how do you add eight '8's and get the number 1000?

LaTeX — Technology's Legacy for Mathematical Achievements

Abhishek Roy
4th Semester

Introduction : To form new ideas that shape the world, the human brain has no limit. The documentation of such unlimited ideas has been a huge need since forever. Before paper was a thing, scholars had to use dried leaves and other such objects to preserve their thoughts and create a legacy for the future generations. But the risk of losing such valuable items is quite high. That is where the human brain comes into play once again creation of means where we don't need to worry about losing our ideas. So developers in this time have created various softwares to make this task possible. One such example is "**LaTeX**", which we are going to talk about here.

Development : The software LaTeX is basically an extension to TeX — a typesetting system. TeX was originally developed and written by "**Donald Knuth**" and is used for the creation of high quality documents, especially those consisting of complex mathematical formulae. Leslie Lamport figured out its complex nature and realised that it can be made as an easy to use version for the rest of the general public if TeX is worked upon a little bit further. So during the 1980's, Lamport started the development of what we know today as "LaTeX" (fun fact: 'La' in LaTeX comes from 'Lamport').

Benefits and uses : Now a question arises in everyone's minds, "What was the need for LaTeX when we already had TeX?" And the answer to that is fairly simple. LaTeX is far more user friendly. LaTeX's simplicity compared to its parent software has made it incredibly popular in the scientific and academic communities. While TeX has its own advantages for typesetting; using it required good knowledge about its detailed and complex natured commands. LaTeX filters out such complexities and focuses on creation of properly structured documents in such a way that it does not require knowledge about complex features.

```
<div class="side-bar">
    <ul>
        <li class="side-bar-item">
                <a routerLink="/mail"
                 class="nav-link">
                  <i class="fa fa-mail"></i>
                  MAIL
        </li>
        <li class="side-bar-item">
                <a routerLink="/char"
                 class="nav-link">
                  <i class="fa fa-chat"></i>
                  CHAT
        </li>
    </ul>
</div>
```

LaTeX is used to do various number of tasks like typesetting various mathematical equations, or plotting beautiful mathematical illustrations, charts, figures or just simply make an ordinary document, with precise handling of the format. These are all carried out by using commands that vary depending upon what we need. LaTeX's "math mode" is used to input the mathematical symbols in a peculiar fashion (if you notice the symbols used in your mathematics books, the font of the variables differs slightly than that of the original alphabet). Basic features such as Bold or Italics/emphasize are also present in it.

For including graphics in our LaTeX document, the software also provides us with the "picture environment" for simple usage. For more complex graphics, we can use PSTricks, which is a package used for making graphics within LaTeX.

Brief summary about LaTeX's commands :

- All LaTeX commands begin with **"\"** symbol.

- The simplest document consists of the commands **\documentclass ,\begin{document}** and **\end{document}.** Everything we write in the document are in between **\begin{document}** and **\end{document}** commands.

- For any mathematical term or equation we include the said term or equation within two **'$'** symbols **(eg $x=3$)** or within **'\[\]'** **(eg :- \[x=3\])**

- Commands for a few mathematical symbols include : **\infty** for '∞', **\sqrt** for '√', **\neq** for '≠', **\rightarrow** for '→' etc.

- We save our document by adding **'tex'** at the end of the name of our file. **(like "hello.tex").**

Conclusion : People have went ahead along with technology as its companion and has accomplished various milestones and will continue to do so. LaTeX is just one example in the field of mathematics and technology that that made studies way easier and entertaining. Creating the reports and documents through such softwares create interactive ideas in the minds of future software developers who will continue to create such magical and beautiful tools for the best of human use.

HTML TAGS

<a>	 	<b>
Hyperlinks	Break Row	Bold
<img>	<p>	
Image	Paragraph	Unordered List
		<i>
list	Ordered List	Italics
<div>	<h1-h6>	<form>
Make Section	Heading	Forms

LATEX & HTML

"Life is a maths equation and the goal is to turn negative into positives"

-Anonymous

The Fields Medal: Recognizing Excellence in Mathematics

Priyankur Sarma
4th Semester

Introduction:

The Fields Medal, often referred to as the "Nobel Prize of Mathematics," is one of the most prestigious awards in the field. Established in 1936 by the Canadian mathematician John Charles Fields, the medal honors outstanding achievements in mathematics, particularly for those under the age of 40. This article explores the history, significance, and criteria of the Fields Medal, as well as highlights some notable recipients.

History of Origin:

The idea for the Fields Medal emerged during the International Congress of Mathematicians (ICM) in 1932. John Fields sought to create an award that would recognize exceptional contributions to mathematics and inspire younger mathematicians. The first medals were awarded at the ICM in Oslo, Norway, in 1936, and since then, they have been awarded every four years, typically at the ICM.

Criteria for Awarding:

The Fields Medal is awarded based on several criteria:

Significant Contributions:

Recipients must have made groundbreaking contributions to mathematics, often in areas such as algebra, geometry, or number theory.

Age Limit:

To encourage young mathematicians, candidates must be under 40 years old at the time of the award. This age limit is a distinguishing feature of the Fields Medal, setting it apart from other prestigious awards.
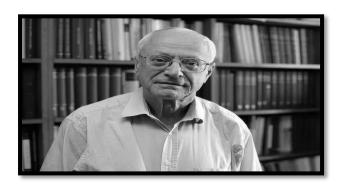
Impact on the Field:

skill he work recognized by the Fields Medal should not only demonstrate technical but also have a profound impact on the field of mathematics as a whole.
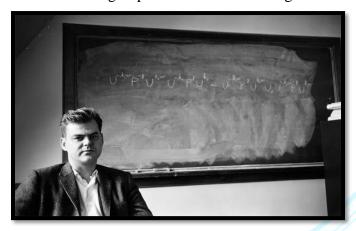
Notable Recipients:

The Fields Medal has been awarded to many influential mathematicians over the decades. Some notable recipients include:

Jean-Pierre Serre (1954): Recognized for his work in topology and algebraic geometry, Serre made significant contributions that laid the groundwork for many modern mathematical theories.

John G. Thompson (1958): Awarded for his work in group theory, Thompson's contributions have had lasting implications in abstract algebra.

Maryam Mirzakhani (2014): The first woman to receive the Fields Medal, Mirzakhani was honored for her contributions to the fields of geometry and dynamical systems.

Significance of the Fields Medal:

The Fields Medal holds significant cultural and academic weight in the mathematical community. It not only recognizes individual achievements but also serves to inspire future generations of mathematicians. The award highlights the importance of collaboration and innovation in mathematics, encouraging young researchers to push the boundaries of the discipline.

Conclusion:

The Fields Medal remains a symbol of excellence in mathematics, celebrating the achievements of outstanding mathematicians while motivating young scholars to explore and contribute to the field. As mathematics continues to evolve, the Fields Medal will undoubtedly continue to spotlight groundbreaking work and the remarkable individuals behind it. Through its history and ongoing legacy, the Fields Medal reinforces the idea that mathematics is not only a rigorous discipline but also a vibrant and dynamic field of inquiry.

Answer's House

1. **The answer is 7. First, add the first two digit on the left side of the equation and then subtract of the third digit to get the number on the right side of the equation.**

2. **Ans: 888+88+8+8+8=1000**

Programming in C

Kuldeep Sarma
Batch 2021-24

Introduction:

C is a general-purpose programming language created by Dennis Ritchie at the Bell Laboratories in 1970. It is a very popular language, despite being old. The main reason for its popularity is because it is a fundamental language in the field of computer science. C has influenced many modern languages like C++,Java and python.

Why Learn C??

C is still relavant due to:

- ➢ **Performance:** It provides fast execution with low memory consumption

- ➢ **Portability:** C programs can rule on various platforms with minimal changes.

- ➢ **Control over hardware:** Used in system programming, embedded systems, and OS development.

Basic Structure of a C Program:

- (#include <Stadio.h>)
- (int main())
- Statement & Expressions
- (return 0;)

Example: A Simple C programming

```
#include <Stdio.h>

Int main () {
        Printf ( "Hello, World!\n");
        Return 0 ;
}
```

Explanation:

- **#include <stdio.h>:** Includes the Standard Input-Output library.
- **int main():** The starting point of the program.
- **printf("Hello, World!\n");:** Prints output to the screen.
- **return 0;:** Indicates the program ran successfully.

Basic concept in c:

a) **Variables and Data Types:**

```
int age = 25;      // Integer
float pi = 3.14;   // Floating point
char grade = 'A';  // Character
```

b) **Input and Output:**

```
int num;
printf("Enter a number: ");
scanf("%d", &num);
printf("You entered: %d\n", num);
```

c) **Conditional Statement:**

```
if (num > 0) {
   printf("Positive number\n");
} else {
   printf("Non-positive number\n");
}
```

d) Loop (For, While, Do-While) :

```c
for (int i = 1; i <= 5; i++) {
    printf("%d ", i);
}
```

e) Function:

```c
int add(int a, int b) {
    return a + b;
}

int main() {
    int sum = add(5, 3);
    printf("Sum: %d\n", sum);
    return 0;
}
```

```c
 * This line basically imports the "stdio" header file, part of
 * the standard library. It provides input and output functionality
 * to the program.
 */
#include <stdio.h>

/*
 * Function (method) declaration. This outputs "Hello, world\n" to
 * standard output when invoked.
 */
void sayHello(void) {
    // printf() in C outputs the specified text (with optional
    // formatting options) when invoked.
    printf("Hello, world!\n");
}

/*
 * This is a "main function". The compiled program will run the code
 * defined here.
 */
int main(void)
{
    // Invoke the sayHello() function.
    sayHello();
    return 0;
```

Keywords of C Language:

There are 32 keywords in the Language of C-
Auto, Break, Case, Char, Const, Continue, Default, Do, Double, Else, Enum, Extern, Float, For, Goto, If, Int, Long,Rregister, Return, Short, Signed, Sizeof, Static, Struct, Switch, Typedef, Union, Unsigned, Void, Volatile, and While.

Conclusion:

C remains a powerful and widely used language in system programming, game development, and embedded systems. Learning C provides a solid foundation for understanding computer architecture and improving problem-solving skills.

Interesting Facts About C++

- **C++ was Originally Called "The New C""**
- **C++ has more than 35 Operators.**
- **C++ was First Standardized in 1998.**
- **C++ got the OOP features from Simula67 Programming language.**
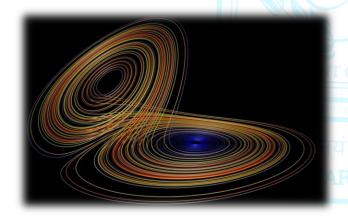
The Butterfly effect : Small Changes, Big Impacts

Swaksharjyoti Kashyap
Batch 2021-24

Introduction:

The butterfly effect is a fascinating concept in mathematics and chaos theory, illustrating how small changes in initial conditions can lead to vastly different outcomes. This phenomenon is often summarised by the metaphor of a butterfly flapping its wings in Brazil, potentially causing a tornado in Texas .This concept is a key feature of chaotic systems, which are deterministic but highly sensitive to initial conditions.

Origins and Defination:

The term "butterfly effect" was coined by Edward norton Lorenz, a meteorologist and mathematician, in the 1960s. Lorenz discovered this effect while working on weather prediction models. He found that tiny differences in the starting conditions of his simulations could lead to dramatically different weather patterns . This discovery highlighted the inherent unpredictability of weather and other complex systems.

Mathematically, the butterfly effect is a feature of chaotic systems. These systems are deterministic, meaning their future behaviour is fully determined by their initial conditions, with no random elements involved. However, they are also highly sensitive to those initial conditions. This sensitivity means that even infinitesimally small changes can grow exponentially, leading to vastly different outcomes over time ..
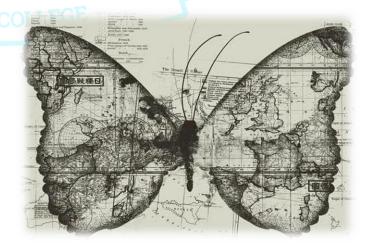
Mathematical Framwork:

The butterfly effect is a manifestation of sensitive dependence on initial conditions. This means that in a chaotic system, small differences in the initial state can lead to vastly different outcomes. In mathematical terms, this can be described using differential equations and iterative maps. One of the most famous examples is the Lorenz attractor, a set of differential equations that model atmospheric convection. The equations are:

$$dx/dt = \sigma(y-x)$$
$$dy/dt = x(\rho-z)-y$$
$$dz/dt = xy- \beta z$$

Where σ, ρ and β are parameters. These equations exhibit chaotic behaviour for certain values of the parameters, and small changes in the initial values of (x), (y), and (z) lead to vastly different trajectories.

The butterfly effect has significant implications for mathematical modelling and simulations. It highlights the limitations of long-term predictions in chaotic systems, as even minute inaccuracies in initial conditions can grow exponentially, making precise forecasting impossible.
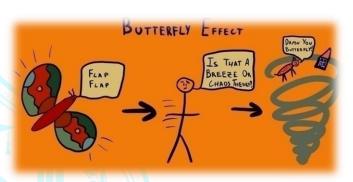
Implications and Applications:

The butterfly effect has significant implications and applications across various fields due to its demonstration of how small changes can lead to large, unpredictable outcomes . In meteorology, it implies that long-term weather forecasting is inherently limited. Even with precise measurements and sophisticated models, the chaotic nature of the atmosphere means that small uncertainties can grow, making accurate long-term predictions impossible.

Beyond weather, the butterfly effect is relevant in fields such as economics, biology, and engineering. For instance, in financial markets, small changes in investor behaviour can lead to significant fluctuations in stock prices. In biology, slight genetic mutations can result in substantial differences in an organism's development and evolution.

Conclusion:

The butterfly effect is a powerful reminder of the complexity and interconnectedness of the world. It challenges our intuition and underscores the limitations of prediction in chaotic systems. By understanding the mathematical principles behind the butterfly effect, we gain deeper insights into the behaviour of complex systems and the importance of initial conditions.

Vedic Mathematics

Vedic Mathematics is an ancient system of calculation which comprises a collection of techniques and sutras to solve mathematical problems in an easy and faster way.

Vedic Mathematics was discovered by Shri Bharathi Krishna Tirthaji between AD 1911 and 1918. Regarded as the Father of Vedic Maths, Tirthaji published his findings in a book titled Vedic Mathematics in 1957 . The system consists of 16 sutras and 13 sub-sutras.

Fractal Geometry: Nature's Hidden Patterns

Sagarika Bhagawati
Batch 2021-24

Fractal geometry is a branch of mathematics that studies complex shapes and patterns that repeat at every scale. It is built on mathematical principles that revolve around recursion, iteration and the concept of scaling. Unlike traditional geometry, which deals with smooth shapes like circles and square, fractals are often irregular and fragmented.

The history of fractals dates back to 1975,when fractals were discovered by Benoit Mandelbrot, One of the most famous examples of fractal geometry is the Mandelbrot Set. The Mandelbrot Set is a set of complex numbers that produces a intricate fractal when graphed.

In case of nature, Fractals is what dreams are made of.There are fractals which have infinite parameter but finite area, then there are fractals which are bound figure technically having no area. One of the most interesting thing about fractal is that if you take a small part of the given fractal, it would look exactly like the whole.

Much like the Fibocnacci sequence or the Golden Ratio. They are everywhere in nature, starting from clouds to shell. In nature, fractals are seen as spirals or branching patterns. It can be observed in trees,mountains,coastlines,ferns and even in the human circulatory and nervous systems.Example includes:

a. Seashells exhibit fractal patters in their spirals and overall structure.
b. Hurricanes display fractal geometry in their swirling patterns,demonstrating the scale-invariance of natural phenomena.
c. Snowflakes, each snowflake has a unique fractal design, illustrating the infinite variability and self-similarity of natural structures.
d. Human Lungs ,the branching pattern of human lung follows fractal geometry, optimizing surface area for gas exchange.
e. In Architecture, A temple in Khajuraho features fractal architectural elements, demonstrating the application of fractal principles in human design.

f. Medically its application in real life varies from identifying irregular heartbeat patterns and detecting tumors in the human body.

Thus , this mathematical harmony present in every aspect of the natural world shows us that our universe can be understood through the language of mathematics.
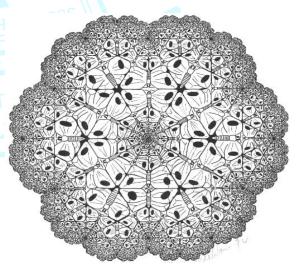

Fig 1: Snowflakes

Fig: Fractal Geometry

Sudarshan Chakra

Deepjyoti Baruah
4th Semester

Mathematical Concepts:

- Pi (π): The ratio of the circumference to diameter approximates π.
- Golden Ratio (φ): Observed in the proportions of the chakra's components.
- Fractals: Self-similar patterns in the chakra's design.
- Sacred Geometry: Incorporating shapes like triangles, squares, and circles.

Symbolism and Patterns:

- 108 spokes: Representing the 108 Upanishads, 108 beads in a rosary, and astronomical calculations.
- 16 petals: Symbolizing the 16 kalas (arts) or 16 dimensions.
- Lotus pattern: Representing spiritual growth, beauty, and the universe's cycles.
- Yantra geometry: Used in the chakra's design, representing the union of masculine and feminine energies.

Astronomical Connections:

- Sun wheel: The Sudarshan Chakra resembles the sun wheel, symbolizing time and cycles.
- Zodiac alignment: The 12 sectors of the chakra correspond to the 12 zodiac signs.

Spiritual Significance:

- ★ Unity and wholeness: The chakra represents the interconnectedness of all things.
- ★ Protection and destruction: The Sudarshan Chakra is said to protect devotees and destroy evil.
- ★ Cosmic order: The chakra symbolizes the harmony and balance of the universe.

The Sri Krishna Sudarshan Chakra embodies mathematical concepts, spiritual symbolism, and astronomical connections, reflecting ancient India's profound understanding of mathematics and the universe.
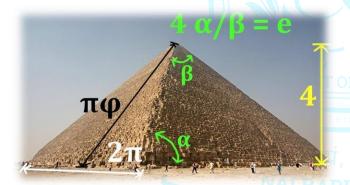
Mathematics in Historical Monuments

Tashmiya Najil
6th Semester

Mathematics has played a significant role in the design and construction of historical monuments across the world. Here are a few examples that illustrate the significant role mathematics has played in the designs of historical monuments, reflecting the ingenuity and creativity of ancient cultures :

Geometric Precision:

Pyramids of Giza (Egypt):

The ancient Egyptians employed geometric techniques to construct these massive structures, demonstrating a deep understanding of proportions, angles, and spatial reasoning.The sides of the pyramids of Giza aligned precisely to the cardinal directions, and the slope angles of the faces maintaining a consistent, carefully calculated angle, often linked to mathematical relationships like the golden ratio and approximations of Pi.
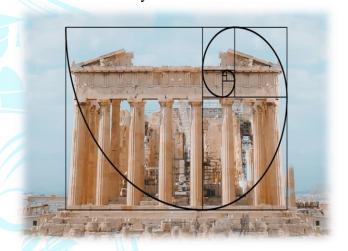

Taj Mahal (India):

The intricate inlays, arches, and domes of the Taj Mahal showcase the Mughal architects' mastery of geometric patterns and symmetries.The golden ratio is used in the arch widths and window heights.

Mathematical Proportions-

Parthenon (Greece):

The Parthenon in Greece exhibits mathematical proportions in its dimensions, the curvature of its columns, and the placement of its beams. The ancient Greeks applied the golden ratio (φ) to design the Parthenon's facade, creating a sense of balance and harmony.

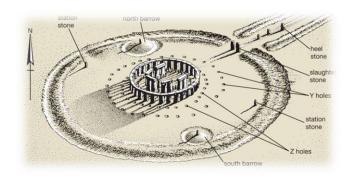

Roman Colosseum (Italy):

The Colosseum's architects employed mathematical proportions to design the amphitheater's elliptical shape, ensuring optimal viewing angles for spectators.

Astronomical Alignments-

Stonehenge (UK):
The megalithic monument of Stonehenge, near Amesbury, about 6 miles north of Salisbury, has been credited with various mathematical properties,The alignment of the stones corresponds to celestial events, such as the summer solstice sunrise, demonstrating the ancient Britons' understanding of astronomical mathematics.

Angkor Wat (Cambodia):
2. Angkor Wat is simple 4:5 and 6:7 rectangles are multiples of 216 metres. The side lengths directly map to precessional years (top) or seconds of the Earth's rotation (bottom). The temple's design incorporates astronomical alignments, with the central spire representing Mount Meru, the mythical home of the Hindu gods.

Fact About Vedic Mathematics

A. The Added Advantage of Vedic Mathematics is it will be useful for competitive exam.

B. The concept of Digital Root or Navashesh or Digital Sum helps to verify our answers in seconds.

C. The Urdhva-Tiryagbhyam sutra (Vertically & Crosswise) speeds up multiplication.

[25]

Lights, Camera, Calculus!

Dikshita Barman
2nd Semester

Forget explosions and superheroes. One of the most surprising trends in the movie world is the rise of…mathematics. From complex algorithms to elegant equations, math is having a moment in the spotlight, and it's captivating audiences in unexpected ways .Movies hold a significant place in our ives for a multitude of reasons. They serve as a powerful medium for storytelling, entertainment, and education, influencing our perspectives and shaping our understanding of the world. In addition to entertainment, movies can also educate and inform.

Many films portray mathematicians as brilliant, yet flawed individuals. This helps break down the stereotype of the cold, distant mathematician and shows that math is a human endeavour . Seeing characters grapple with complex problems and experience the thrill of discovery can be incredibly inspiring. It makes mathematics feel more accessible and less intimidating.They can demonstrate how mathematics is used to solve real-world problems, from cracking codes to predicting the weather, highlighting its practical applications and impact on our lives.

Let's be honest, the word "mathematics" doesn't usually conjure images of thrilling cinema. But films like "Pi" and "Fermat's Room" have turned mathematical concepts into the basis for suspenseful thrillers. They show us that math isn't just about textbooks and tests; it's about patterns, puzzles, and the fundamental building blocks of the universe. Biopics about mathematicians like Alan Turing ("The Imitation Game") or Srinivasa Ramanujan ("The Man Who Knew Infinity") showcase their incredible journeys, overcoming obstacles and making groundbreaking contributions. These stories can ignite a passion for mathematics and a desire to follow in their footsteps.

I remember watching "A Beautiful Mind" and being completely blown away. It wasn't just the story of John Nash's genius, but the way the film visually represented his mathematical ideas. It made me see math in a whole new light.

This newfound appreciation for math in film is more than just entertainment. It's inspiring a new generation to explore STEM fields. "Hidden Figures" showed us the power of representation, proving that talent and brilliance can come from anywhere.

Whether you're a math whiz or someone who breaks out in a cold sweat at the sight of an equation, there's a movie out there that might just make you see math in a whole new light. So grab some popcorn, settle in, and prepare to be mathematically entertained.
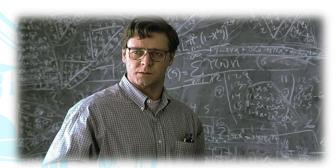
Movie 1: The Man Who Knew Infinity

Movie 2: Fermat's Room

Movie 3: The Imitation Game

Movie 5: Pi

Movie 4: Hidden Figures

Movie 6: A beautiful Mind

➤ **The most Valuable tool in Mathematics education is patience.**

➤ **Mathematics may not teach us to add love or subtract hate, but it gives us hope that every problem has a solution.**

➤ **Pure Mathematics is in its way the poetry of logical ideas – Albert Einstein**

The Divine Equation: Exploring the intersection of Mathematics and faith

Aishwarjya Barpujari
2nd Semester

Mathematics, often perceived as the language of logic, precision and structure, may seem distant from the realms of faith, spirituality and religion.

Yet, when we delve deeper into the two fields are not as disconnected as they appear. We often heard people say, "Science and faith cannot co-exist; the voice of reason or the voice of faith must drown out the other ".So, what to choose and what to abandon Well, I will not discard either. Instead I will say that i need both. Both mathematics and faith seek to understand the universe's underlying truths-one through numbers and equation, the other through believe and spirituality. Mathematics helps us see pattern in nature, like the symmetry of a flower or the spiral of a shell. For some, these pattern reflect the beauty of creation leading to a deeper sense of faith in a higher power. In math infinity is an idea that goes beyond limits. Many people connect this to the idea of an eternal God, imagining something greater than the physical world. Math is full of mysteries like prime numbers or the complexity of fractals. These unsolved puzzles can inspire a sense of wonder, much like faith can inspire encouraging people to seek deeper understanding. Numbers and geometric shapes often have symbolic meaning in religious texts and tradition. For example- the number 7 is often considered special in many faiths, and circles are often used to represent eternity and unity. So this is where I am reminded of a famous quote by Albert Einstein, "Science without religion is lame, religion without science is blind".

The history of zero satisfies this quote brilliantly. In India, the sanskrit word for "empty "and"blank" is sunya. This sunya is transliterated within the Indian system of numerology, as the idea of zero and indeed the symbol" O" as we know it today. Thus, zero stands as a bridge between the tangible world of mathematics and the abstract realm of fate-representing the point where nothing turns

into something. So, progress in both aspects allow a person to be more patient and curious to discover more about unsolved mystery of nature. As great mathematician Srinivasa Ramanujan said - **"An equation means nothing to me unless it expresses a thought of God"**

Thus, "The divine equation" is a term that can symbolize the hidden patterns and structures that unites these seemingly contrasting domain.

Fig: The Devine Equation

An equation means nothing to me unless it expresses a thought of God.
-Srinivasa Ramanujan
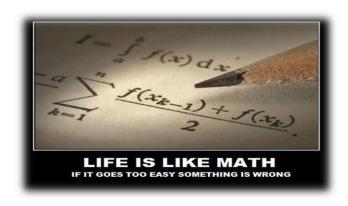
Amazing facts about Mathematics

Chanakya Deka
6th Semester

- Ramanujan's Taxi Number: The number 1729 is famous as the smallest number expressible as the sum of two cubes in two distinct ways: $1729 = 1^3 + 12^3 = 9^3 + 10^3$

  This was discovered by mathematician Srinivasa Ramanujan, giving it the name Hardy-Ramanujan number.

- Zero is an Even Number, but Not Always Considered Neutral: While zero is mathematically even, in some cultures and ancient texts, it was often viewed as a symbol of balance or neutrality, leading to debates about its classification.

- Euler's Polyhedron Formula: For any convex polyhedron, the relationship between vertices (V), edges (E), and faces (F) is always: $V - E + F = 2$

- The Ulam Spiral: If you write numbers in a spiral and mark the prime numbers, a curious diagonal pattern emerges. The reason for this prime distribution pattern is still an unsolved mystery.

- The Mirror of 1089: Choose any three-digit number where the digits are different. Reverse the digits, subtract the smaller number from the larger, then reverse the result and add it. The sum will always be 1089.

- Pi Contains Every Possible Number: Mathematicians believe that π is a normal number, meaning its digits are distributed so randomly that every possible number sequence exists within it — including your birthdate and every phone number.

- Perfect Numbers Are Rare: A perfect number is one whose proper divisors sum to the number itself (e.g., $6 = 1 + 2 + 3$). Only 51 perfect numbers have been discovered, with the largest one having over 24 million digits.

- Mathematics Can Predict Music: Fourier analysis allows any sound or piece of music to be broken down into simple sine waves, demonstrating how mathematics underpins the structure of sound and music.

- Gödel's Incompleteness Theorems: Kurt Gödel proved that no consistent set of mathematical axioms can prove all truths within its system. This shattered the belief that mathematics could ever be fully "complete."

- The Infinite Hotel Paradox: The mathematician David Hilbert proposed a hypothetical hotel with infinite rooms. Even if all rooms are occupied, it can still accommodate more guests by shifting the current guests to room numbers +1, demonstrating the counterintuitive nature of infinity.■

"norms of infinite-dimensional spaces are not equivalent in general anymore"

LIFE IS LIKE MATH
IF IT GOES TOO EASY SOMETHING IS WRONG

Mathematics In Sports

Dhimanjyoti Dutta
Batch 2021-24

We use math in commerce and business but we also use it in a variety of ways in sports, including analyzing statistics of games and players and measuring ball kick trajectory & lung volume. There are a variety of situations where working mathematically is needed in sports; percentages, velocity, acceleration, measurement skills, volumes, graphs, tables, and more! Here are a few examples of ways we use math in sports.

Shapes and Formations: Football coaches often use formations to describe how their team should line up when coaching a team. Mathematics can be applied to sports in many ways, including triangles to describe how players should position themselves so that their teammates can pass the ball to them in three ways.

Trigonometry in Sports: Trigonometry is the study of angles and their relationships. In many sports, angles are crucial to playing the sport correctly and succeeding. If we consider a soccer player attempting a free kick, the player must calculate the best angle to hit the ball in order to avoid the defensive team and score a goal. This requires an understanding of elevation angles and ball trajectory.

In basketball, the angle at which a player shoots the ball can certainly impact whether or not it makes it into the hoop. The best throwing angle, or launch angle, is often around 45 degrees.

Angles: Angles can be found in many other sports, particularly in their techniques. When throwing a javelin or kicking a ball, what is the optimum angle? Set up a smartphone or tablet and record the students throwing or kicking an object using an app like Angles or Angulus. After recording the distance the object traveled, we look at the initial angle at which the objects were kicked or thrown. Which angle produced the furthest distance? What sources of error are there in this test? Coaches use this data to help athletes improve. Tennis is another example. When serving the ball, a tennis player must think about the angle at which they hit the ball to ensure that it makes it into the service box. The angle and spin applied to the ball can affect its trajectory, making it more difficult for the opponent to return the serve.

Geometry in Soccer : A soccer field is a rectangle whose dimensions may vary within a range established by the rules. However, the measurements of the other geometrical figures that we find inside it are identical in all playing fields. In a soccer field, we can find squares, rectangles, semicircles, triangles.

Investigation or Analyzation on Different Fields Done by Students

Group 1: A study on unemployment in the age group 25-35 in five different villages of Nalbari Assam

Group 2: Analysis of five year's HSLC results of five different Schools.

Group 3: Problems in Teaching and Learning Mathematics.

Group 4: Analyzing the Economic impact of Fishing Industry in Nalbari District.

Group 5: Social Factors Affecting Maths Education

Group 6: A data collection of Below Poverty Line in different villages.

Celebrations

Teachers' Day 2024

Quiz Competition

National Mathematics Day

Farewell Party (Batch 2021-24)

Fresher's Party 2024

Jadab Das Memorial Lecture 2024

Tuesday, December 24, 2024, 12:39:00 PM
CCPV+GGM, college chowk, Nalbari, Majdia, Assam 781335, India
23m
Google

Achievements

Inter College Magazine Compition and Win 3ʳᵈ Place

College Week 2025

Jyotirmoy Das Win Gold Medal in Debate Competition at GU Inter-College South-West Zonal Youth Festival 2024

THANK YOU