

# CONVERGENCE

THE OFFICIAL NEWSLETTER OF THE MATHEMATICS DEPARTMENT OF MAITREYI COLLEGE

## WHAT'S INSIDE THIS ISSUE

- 01 *Indians: Ahead of their time*
- 02 *Aryabhatta Biography*
- 03 *Departmental Events*
- 05 *Investing Tips*
- 06 *Puzzle*
- 07 *Alumni Talks*
- 08 *Poetry Fragment*
- 10 *Picture Perfect*
- 11 *10 Apps you need in college*
- 12 *Cosmos & Maths*
- 14 *Editor's Note*



Credits: Yashika Mediratta

## INDIANS: AHEAD OF THEIR TIME

- By Dr. Khushboo Bussi and Ms. Nikita Mittal

Indians have always been way ahead of others, but many of them are still unheard and not talked about. Many of us are still unaware that Baudhyana, who was born in 800 BC discovered Pythagoras theorem long before Pythagoras was born (almost 1000 years before). Hemchandra (1150 AD) described Fibonacci sequence through music long before Fibonacci found it. It's also said that Gopala (1135AD) found it even before Hemchandra.

Indians never believe in boasting when it comes to natural intelligence and brilliance specially when it is about knowledge of natural phenomenons of science, mathematics or even arts. But being humble doesn't make you less intelligent. There are several instances which prove that we never believed in name business.

Our basic foundation books of Science, Mathematics and Arts are euro centric. Macaulay education system glorifies the people of the West. But that is not the case always. Many of the researches were done in India without prior knowledge and long before the West. We Indians invented zero, decimal system and binary digits long before their existence in the books. Nobody can deny the contributions of Aryabhatta to the number system and astronomy. Even the Indian culture inspired the Western people in their day to day life. The brick bonding in colonial era was inspired by Indus civilization. Sushruta, thought of plastic surgery, herbs as medicines and many minute tools for surgeries long before medicine came as a field.

The sad part is that we are loosing such great legacy due to our indifference to our culture and aping to West. This is really heartbreaking when you get to know that our heritage and culture is not appreciated by our people. Western people are patenting for those things which we know or have been using for ages. We did not only talk about science, astronomy or industries, we also exemplified tolerance. We believed in learning or teaching without violence and invasion.

Here, we are asking you to reconnect and consider your rich heritage and legacy before believing the false claims by western countries. We still need to acknowledge the freedom we got seventy five years ago. It's not just about the freedom from the britishers but also the freedom of soul and appreciate what is rightfully ours. Our rich heritage is one those things which we need to learn, understand, appreciate and pass on to next generations. Freedom is to nurture the critical thinking, one should be proud of his culture, color and custom without thinking ourselves inferiors. In the end, I'd suggest 'Stop thinking Westward and start thinking Inwards'.

# Aryabhata



## The father of Indian Mathematics

### Aryabhata's famous works and discoveries

Aryabhata, a name famous for his exceptional work in the fields of mathematics and astronomy, was one of the firsts and most prominent Indian mathematicians of the classical age. He is best known for his extraordinary knowledge of the astronomical field. He inspired many scientists, which helped India's rise to the forefront of mathematics and astronomy.

Aryabhata's masterpiece, 'Aryabhatiya' showed that it was composed 3,600 years into the Kali Yuga, when he was 23 years old, corresponding to 499 CE, it implies that he was born in 476 CE during Gupta Era. He was a native of Kusumpura, Pataliputra, best known as Patna (Bihar) nowadays. Bhaskara I also described Aryabhata as an Asmakiya, i.e. someone belonging to the Asmaka country.

Statements made by Aryabhata throughout his career:

1. In a yuga of 4920000 sidereal years, the Earth rotates eastward 1582297500 times and the Moon 57759936 times.
2. The Earth rotates by an angle of one minute of an arc in 4 sidereal seconds
3. The rotation of Earth causes the nakshatra din (sidereal days).

Due to his contribution to mathematics, Aryabhata was also honoured with the title of "Father of Indian Mathematics". Looking at his achievements, we can state that Aryabhata was the backbone of Indian mathematics.

The surviving text is Aryabhata's masterpiece, the Aryabhatiya, mainly dealt with cosmology & explained mensuration, quadratic, indeterminate, geometric equations, the duration of days and nights, the eclipse, and the shape of the earth. It also examines integer solutions to Diophantine equations of the form  $by = ax + c$  and  $by = ax - c$ . For this purpose, he promptly introduced a new and popular method, known as the Kuttaka method. He gave the value of  $\pi$  as 3.1416 which is a very close approximation to the modern value and the most accurate among those of the ancients. There are reasons to believe that Aryabhata composed a particular method for finding this value.

Aryabhata's definitions of cosine, sine, inverse sine, & versine gave birth to trigonometry. He gave a table of sines calculating the approximate values at intervals of  $90^\circ/24 = 3^\circ 45'$ . In order to do this he used a formula for  $\sin(n+1)x - \sin nx$  in terms of  $\sin nx$  and  $\sin(n-1)x$ . He also contributed two similar methods as long division to compute square root & cube root. Additionally, the place-value system, use of null coefficients, and zero could be clearly seen in his work.

Aryabhata dispensed with Rahu - Ketu and explained lunar & solar Eclipses due to shadows of the earth and the Moon with calculations of their timing & size.

Aryabhata perhaps identified two different locations on the same latitude by monitoring shadow lengths at noon and then proceeded to calculate the difference in time and terrestrial distance between these two locations. His computation of Earth's circumference was 39,968km (24,835 miles), whereas the accepted value of the same is 40,074 km i.e the difference is by an incredible 0.27%.

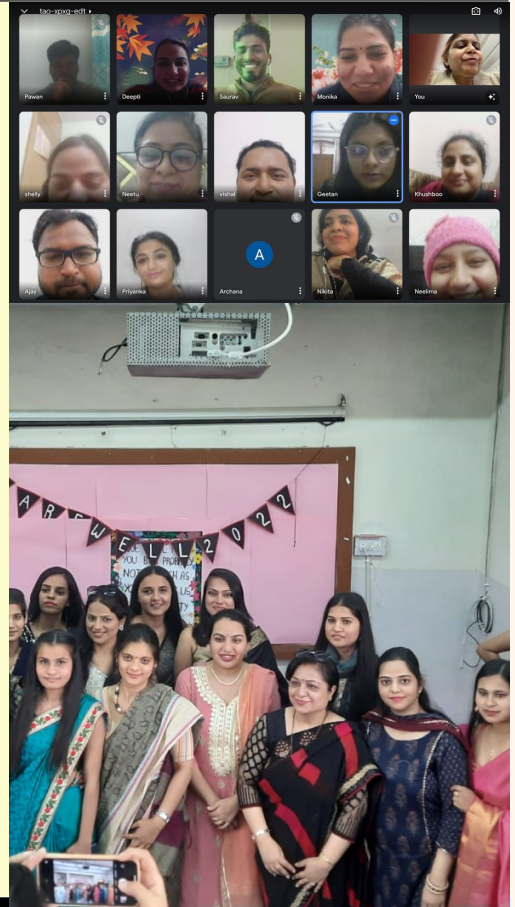
-By Kanika Singh, 2nd Year



# DEPARTMENTAL EVENTS

## WEBINARS & SEMINARS

- July 2, 2021: 'Exploring Future Applications of Mathematics through Optimization' by Dr. Jagdish Chand Bansal, Associate Professor at South Asian University
- July 16, 2021: 'Non-uniqueness of Fixed Points, Its Geometry and Applications' by Dr. Anita Tomar, Professor & Head of the Department of Mathematics of Government Degree College
- August 2, 2021: 'Use of Modern Optimization Techniques to solve Real-life Problems' by Prof. Kusum Deep, Mathematics Professor at IIT Roorkee
- August 5, 2021: 'Sumsets and related Direct and Inverse problems' by Dr. Ram Krishna Pandey, Associate Professor at the Department of Mathematics in IIT Roorkee
- August 12, 2021: 'A Winning Personality Through Meditation' by Mrs. Manju Soni and Kripal Maharaj from Science of Spirituality (SOS)
- August 21, 2021: 'Quantum Computing: Working with IBM's Qiskit' by Dr. S. Manjula Gandhi, an Alumnae of Maitreyi College, Associate Professor at Department of Computing, Coimbatore Institute of Technology
- September 13, 2021: 'The new educational landscape in the post COVID-19 era: A paradigm shift' by Dr. Rania Lampou, multi awarded STEM instructor and a part of Greek Ministry of Education & Religious Affairs, Directorate of Educational Technology and Innovation
- September 29, 2021: 'Introduction To Fractional Calculus' by Dr. Gunvant A. Birajdar, Assistant Professor at Tata Institute of Social Sciences



## PPT COMPETITION

The Department of Mathematics organized a Powerpoint Presentation Competition on the topic 'World in 2025' which was held on 18th August 2021 on Zoom Meeting Platform. The judge for the Competition was Dr. Durvesh Kumar Verma, an Assistant Professor at Miranda House. Results were as follows: 1. Purvi Bourai (12th Pass out) 2. Hiya Srivastava (2nd Year Student) 3. Shivangi Yadav (3rd Year Student)

## E-TEACHER'S DAY

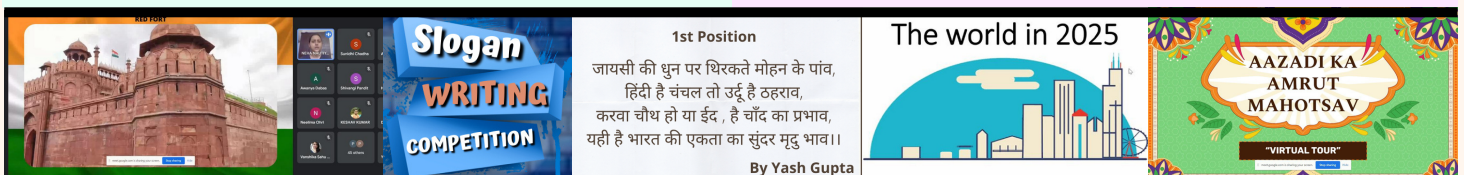
Teacher's Day was celebrated virtually by the Mathematics Department on 6th September 2021. The theme of the program was 'Teachers teach, what's your superpower?' Around 100 participants attended the event. Titles in the form of greeting cards saying "We don't see your cape or mask but we see your super powers everyday" were also presented to teachers. The event concluded with the cutting of cake.

## VIRTUAL TOUR OF FREEDOM STRUGGLE

We organised a virtual tour of the Freedom Struggle Landmarks of India to celebrate Azaadi ka Amrut Mahotsav on the occasion of 75th Indian Independence Day which was held on 19th August 2021 through Google Meet Platform with 70+ attendees. We talked about 10 freedom struggle landmarks of India and also showed a video on all of them. Also, a small quiz was conducted based on the presentation shown.

## SLOGAN WRITING COMPETITION

Slogan Writing Competition to celebrate the event Azaadi ka Amrut Mahotsav was held from 7th-10th September 2021. The theme of the Competition was "Diversity in India". The Competition was open to all and the entries were received in English and Hindi both. Three Best entries out of 31 were declared as winners on the basis of their creativity. The winners were awarded Recognition Certificates and Social Media Mentions.

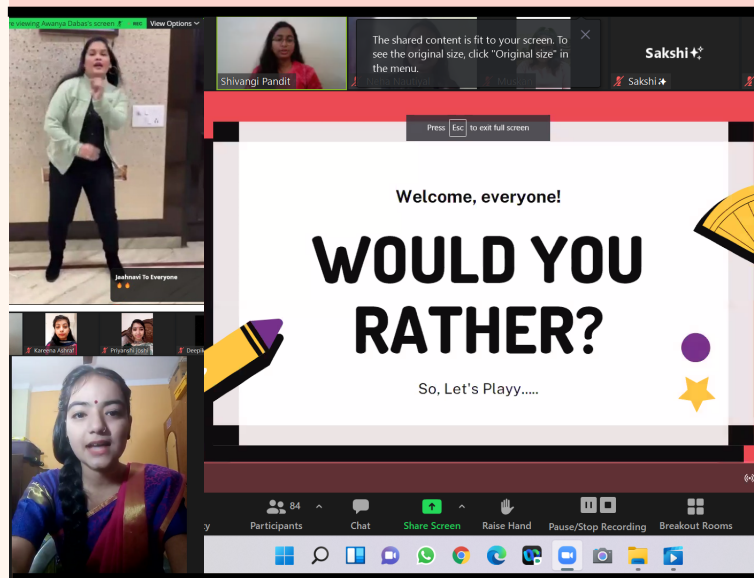


## ORIENTATION 2022

A virtual Orientation Ceremony, organised for the batch of 2024, witnessed around 70 attendees including freshers, students and faculty members. The event began with a welcome address by Ms. Awanya Dabas, followed by Ganesh Vandana to invoke the blessings of the almighty. The role played by the department in enabling students to be academically strong, think creatively, articulate their thoughts with confidence and conviction was shown through a presentation along with the details of various events organised by the department throughout the year. This was followed by a welcome song and a virtual tour of the beautiful campus of Maitreyi College. The Faculty Members were formally introduced, followed by the introduction of all the students of the fresh batch. After this, there were a few games lined up for the students.

## E-FRESHERS 2022

A virtual Freshers' Party for the new batch of 2021 was organized on 11th January 2022. Around 90 freshers, II & III year students, faculty members and the Office bearers attended the party dressed in Retro style as the Theme was 90s Era. The judge for Miss Departmental Freshers' contest was Dr. Anita (Hindi Department). The participants of the departmental Miss Freshers' Contest were requested to introduce themselves. The judging criteria was based upon three rounds- The Ramp Walk Videos (shared by the contestants in advance), The Talent Hunt Round and The Quiz round. To keep the audience involved short games called 'Would You Rather' and 'Caption This' were also organised. Ms. Priyanshi Joshi was declared the winner of the Miss Freshers' Contest.

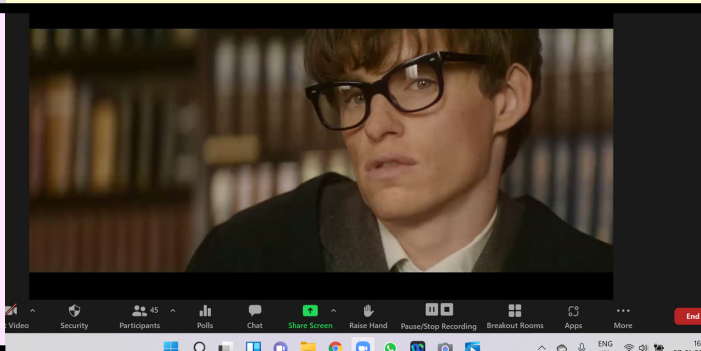


## MOVIE SCREENING

Online Movie Screening of the Movie- The Theory of Everything (biography of Stephen Hawking and his wife, Jane Hawking) was organised by the Mathematics society, Gradient on 27th January 2022. Around 60 students attended the screening. The movie focused on Stephen Hawking's youth and his motor-neuron disease, despite which, he, with Jane at his side begins an ambitious study of time, of which he has very little left, according to his doctor. He and Jane defy terrible odds and break new ground in the fields of medicine and science, achieving more than either could hope to imagine. The optimistic journey to beat the odds.

## MOVIEMATHON

The Department of Mathematics conducted Moviemathon online on 28th January 2022, based on the Movie- The Theory of Everything. The activity had two Rounds: Quiz Competition and Story Sketch Competition. 18 students from the Department of Mathematics participated in the competition.



## ABSCISSA'22

The Department of Mathematics, Maitreyi College organised its annual departmental fest, Abscissa'22 on 9th April 2022 virtually, which observed a participation of 532 students from different colleges PAN india. The event comprised of 5 interesting virtual competitions including Abacus 101: A Quiz Competition, Paper Presentation Competition, Maths Olympiad, Photography Competition & Meme Making Competition.

## FAREWELL 2019-2022

The Mathematics Department, organized a Farewell party on 26th April 2022, for its final year students to celebrate their graduation and wish them good luck for their future endeavors. The preparation of this event started a week ago, with 2nd and 1st year students reaching out to all their seniors and faculty members and inviting them for the farewell. The theme of the Party was "Vogue".



# INVESTING RATHER THAN JUST SAVING: A GUIDE FOR STUDENTS

*-Aadi Lochab, 3rd Year*



Small changes can make huge destination differences. With all the new changes in a college student's life such as moving to a new college, making new friends and getting to class on time, a student should also change one more thing that is to evolve from “saving” to “investing”.

Investing from a young age can be very helpful as it sets students up for a future of strong financial background. Investing seems like an uncommon concept to adopt for youngsters. “Why should I invest?” “How should I start?” “How much money is required for investment?” These are some of the questions which every student asks themselves. Most of the youngsters in India don't believe in investing due to less money or they believe that investing is done later in life. But investing at a young age will provide several advantages like how to make smart money and there is low risk of losing a large amount of money. In this article we will cover tips for a student who can invest pocket money or stipend wisely in learning stages of investments which can take their future to another heights.

Here are some ways for college students to start investing which are super secure:

- **Go for low- risk investments:** You can start with the easiest ways to boost savings by having a savings account. These accounts pay interest on your deposits (latest savings account interest rate from top banks of India is from 3.5%-4% p.a), while still offering you the ability to make withdrawals at any time.
- **Educate yourself with basic concepts:** There is more than one option, Eg: stocks, Mutual Funds NSE, Equity and BSE, others. It is necessary for a student to learn about these basic concepts of



finance. Do your research. It'll help you know better about the importance of investment. You can refer to a lot of instructions and guides that can help you get better in the investment field.

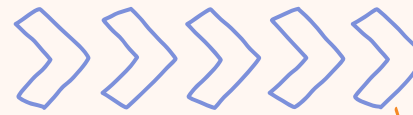
- **Choose the right type of investment for you:** Investment involves many financial portfolios. Before investing we need to figure out which type of investment can return more to you and which suits you best as a student. Continue adding up to your knowledge by reading books, keeping up with financial news, and joining seminars and lectures.
- **Mutual Funds:** Investing in mutual funds is now very easy for a student as it was two decades ago. You can start investing in mutual funds with as small an amount as Rs.100. It can help a student in saving a good amount of money for future requirements.
- **Crypto Investment:** The first Cryptocurrency introduced in India was bitcoin and its value has grown-up from the past few years. You can start investing in bitcoin with Rs.100 only but before investing in cryptocurrency you must understand the market completely.

Investments are made with the hope of making the future better by allocating money towards assets. Students who invest today, will have more worthy investments in future. Investments not only help you financially but it will also improve your spending habits. Early investments allow students to develop disciplined spending habits by focusing on budget and cutting expenses when needed.

*Everyday is an opportunity for you, so take advantage of your pocket money by investing it instead of just saving !!*



# THE MIND LAB 3.0



## - Futoshiki -

- This puzzle is played on a square grid.
- The objective is to place the numbers from 1 to 6 in the grids, such that each row and column contains only one of each digit. (For a 6 X 6 Futoshiki)
- Some digits may be given at the start.
- Inequality constraints are initially specified between some of the squares, such that one must be higher or lower than its neighbor.
- These constraints must be honored in order to complete the puzzle.

□	<	□	<	□	<	□	<	□	>	5
^			^		^				^	
□		4	<	□	>	□		□	>	□
^				^		^			^	
5	>	□		2		□		□	<	□
^				^		^			^	
□		□		3	<	□	>	□	>	□
^				^		^			^	
6	>	□		□	<	2		□	>	3
^			^		^				^	
□		6		5	>	□		3	<	□
^				^		^			^	

## Mystifying Enigma



### PARRANDO'S PARADOX

USE : Financial Risk analysis, Game theory

STATEMENT:

Consider two games GAME A and GAME B, with the following rules:

1. In GAME A, you simply lose ₹1 every time you play.
2. In GAME B, you count how much money you have left. If it is an even number you win ₹3, otherwise you lose ₹5.

Say you begin with ₹100 in your pocket, propose a conceivable combination of playing these two games to build a winning strategy with the end goal that you are in profit.



### BIRTHDAY PARADOX

USE : In Cryptography

STATEMENT :

What is the least number of people you would require, such that there is actually about a 70% chance that two of them will have the same birthday?

ANSWERS

4	>	3		1	<	5		6		2
^			^		^			^		
3	<	4		2	<	1		5	<	6
^				^		^			^	
2	<	5	<	6	>	3		1		4
^				^		^			^	
6	>	1		4		2		3	<	5
^				^		^			^	
1	<	2		5	<	6	>	4		3
^				^		^			^	
5	<	6	>	3		4	>	2	<	1
^				^		^			^	

Parrando's Paradox: BABABA  
Birthday Paradox: 30

-Credits: Shivangi Pandit (2nd Year), Khushi Setia & Nivedita Panwar (1st year)







# ALUMNI TALKS

## Shy to Strong

- Manvi Jain, Batch 2021

I don't know where to start! There are so many mixed feelings and it is really hard to describe them in a certain way. As a child, I was quite reserved and kept to myself.

My lack of self-confidence slowly became a problem for me. But after coming to Maitreyi, I quickly developed a new sense of self. I still remember my first day of college, I was extremely confused about the things happening around me. I was a little scared too, but I had decided to explore new things without fear. I had an entire imaginary world inside my head where I pictured what college life would be like. I thought a girls college would never live upto the standard I had set in my head.

But I am happy to say I was wrong. I have made lots of friends, and learnt many new things about myself and the world. Maitreyi has opened a world of opportunities for me. I took part in various activities and internships and even stood for department elections after my friends inspired me to stand up for myself. Not only this, whatever I have achieved today is just because of the positive environment of the college which motivated me to prepare for CAT and made me get offers from premium institutions like IIM-Bombay, IIM-Lucknow and FMS, and I finally started my journey at FMS.

The support, cooperation and motivation I have received from the faculty members of our department is just unparalleled. They have made me quite strong. I still wonder how can my happy days in the beautiful lawns of maitreyi end so soon, and I still miss my small gang and the charming vibes of the college

## College amidst COVID

- Nikita Grewal, Batch 2021

After completing 10+2, selecting Maitreyi College for pursuing BSc (H) Mathematics was the best decision ever. Maitreyi College, along with the Department of Mathematics turned out to be the best for me. I can say that the Department of Mathematics is the best department in Maitreyi, with the best faculty, who are very loving and caring and make us feel at home away from home.

They are not just teachers who give lectures but also good mentors, guides who show us the right path for the future.

I experienced a lot of different things, from seminars to movie screenings, from quizzes to the departmental fest, departmental trips and a lot of fun. We all gathered together and celebrated different events like a family and never got bored. Our department also recently took a great initiative, "Ramanujan Free Mathematics Classes for JAM", which helps students to prepare for various entrance examinations and get into premium institutions like IIT.

All teachers are very cooperative here, they are always available for you, whether during college hours or at any other time, whether it be some official work or personal work. Professors always keep us motivated to work hard. I got into IIT-Roorkee to pursue MSc Mathematics. I can say, this was possible only because of my teachers' cooperation and motivation. All memories of Maitreyi are, and will remain unforgettable forever. Three-years at Maitreyi were nothing less than amazing!

## Making Memories; Online & Offline

-Vaishnavi Panwar, Batch 2021

Maitreyi has been an integral part of my life. Gradient itself has influenced my life and made me better and more capable as an individual. From Day 1, Gradient has showered me with a lot of warmth and affection. I still remember the first day when we interacted with our seniors and classmates, all were so welcoming and warm. And then we had our mid-sem break which changed all of our lives and ways of studying. Nevertheless, one and a half year of college life at Maitreyi has been unforgettable. I was given a chance to be a part of the Students' Union of the Department for an year. Truly, it's tiring, but the feeling of accomplishment, the feeling of doing something for the department has been amazing.

The faculty, I have said this so many times, is the best of all other departments. They have handled and taught us with loads of patience and sincerity. I have had many good seniors too, who have helped me always and been there for me whenever I needed them. And the most important part are friends. We have had so much fun in the short span of time. May it be the classes, picnics, games, fests and of course the DJ programmes, all are unforgettable days of my college life. This sounds clichéd but Maitreyi has been like a family and second home to me. College ended too soon, I wish we all would have got more time together and a chance to make more memories. Gradient is the best!!!

# POETRY *Fragment*

## *Mathematics Chooses You*

Follow your heart and mind,  
Mathematics is one of its kind,  
When path taken to proof, matters more than the  
statement,  
If it clears the doubts, doesn't matter how much  
time went.  
Who knows it better than Fermat had,  
It took ages to prove what he said.  
And you often say, this is Magic!  
"Mathematics chooses you, not the other way".  
Whoever said it must've gone a rocky way to say.  
Numbers have their own charm and fame,  
Thanks to Ramanujan, some got special name.  
Sooner or later you will get to know it is ubiquitous,  
Till then keep living in a space where maths is just a  
phase.

- Dr. Khushboo Bussi

## *Maths*

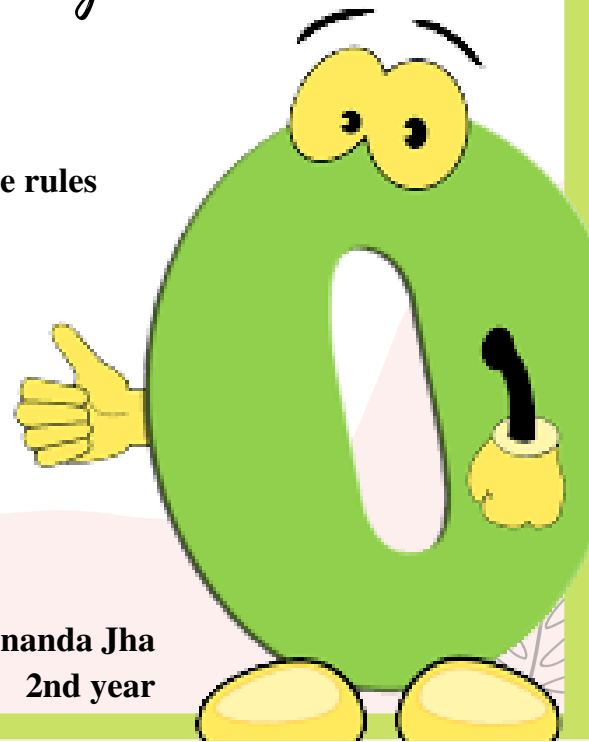
Maths you are the queen of science,  
You have various functions like sin.  
You consist of so many symbols,  
You have so many signs like deal;  
Maths is tough and has risk,  
When I start to solve you, I become brisk.  
You are related with statistics,  
You have more and more tricks.  
Feel so happy to find solution,  
For your questions;  
You have so many problems;  
But we have to solve it step by step.  
I have lots of love with you, it is undefined,  
You have various features, it is defined.  
I have lots of fun with you,  
I like you a lot that I knew.

- Shikha  
1st year

## *Mathematics: The Essence of Understanding*

What is Math? Collection of numbers? perhaps;  
Add, deduct and product of them? I guess.  
Well, it's more than that, math students know that.  
It has to do with patterns; some structure, some regularity, some rules  
that governs.  
Finding a pattern is not enough.  
Change your perspective, change your point of view,  
You will learn something new.  
 $16 \div 2 = 1+7$   
Alter your perspective, right is addition and left is division.  
Pattern and perspective, enables you to understand things,  
Beauty, joy, creativity it brings,  
Maths is really the essence of understanding.

-Sunanda Jha  
2nd year





## Imagine Infinity!!

Shapes of the Past,  
Numbers of the Present,  
Variables of the Future.  
Shapes are different for every little hand  
drawing them,  
Every grown-up touching them.  
Sometimes they miss a point,  
Only later to remember and disappoint,  
In finding it too late to mend, that broken  
shape.

Numbers are the same every time you see  
them,  
A constant in problems and mazes of wits.  
Yet, with 1 careless mistake,  
It changes, never to be fixed again,  
Because you wrote in pen,  
With the confidence of a youth,  
The bane and talent of adolescence,  
Variables change every time you try to  
simplify them.

Yet they never change their appearance,  
Staying the same throughout.  
Until that moment, reaching the last step,  
They just become additional numbers,  
That might be the right or wrong solution,  
Later confirmed with substitution.

- Preeti  
3rd year

## एक सपना

एक सपना लिए चली हूँ मैं, भारत को भारत से मिलाने का,  
दया दीन के उस भाव को वापिस से जगाने का,  
अपनों से अपनों सा पूरा व्यवहार दिखाने का,  
गैरों को भी बड़े प्रेम से अपना ही बनाने का,  
कर्म को अपना धर्म बनाके आगे बढ़ते जाने का,  
वृक्षों की भी पूजा करते, उन्हें कटने से बचाने का,  
जल वायु को स्वच्छ बनाके सुंदरता बिखेरने का,  
एक सपना लिए चली हूँ मैं, भारत को भारत से मिलाने का,  
दया दीन के उस भाव को वापिस से जगाने का।

- निशा चौधरी  
1st year

## Why Not?

Why do we always ask, why?  
Like, why to work hard?  
Why did that girl wear such clothes?  
Why to give equal opportunities to the black?  
Why to play with someone's feelings?

We always ask why, not understanding the load,  
That gets increased on the person being blamed.  
It puts the person on defensive,  
And not change his thoughts.

Why not lower this load by giving ideas?  
Why not work hard?  
Why not boys change the way they think?  
Why not stop and oppose racism?  
Why not go out and play some sport instead of  
playing with feelings?

We, as a society have always been the one to  
question!  
Then, why not give solutions along with the  
questions?  
Why not give possible ways to help?  
Why not use "WHY NOT"?  
If why not helps a person to be a better person,  
then, why not use why not?

Why not help people to make this place, a better  
place, a better world?

Start from now and change the way you  
question...  
It all starts with you.

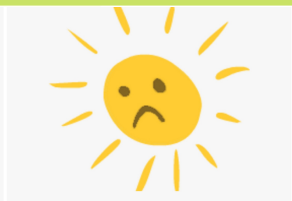
- Shivangi Pandit  
2nd year

M  
A  
T  
H  
'N'  
F  
U  
N

Why does sin hate  
to sit under the sun



COO'S HE MIGHT TAN!

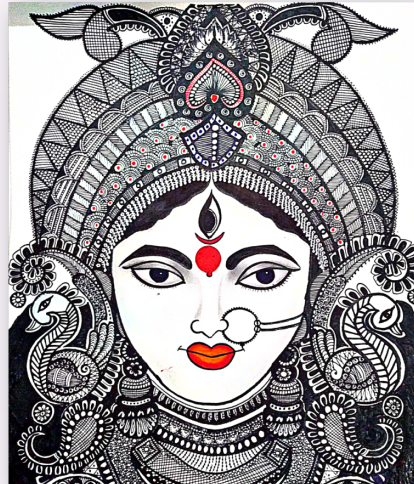




# THE PICTURE "PERFECT"



NIVEDITA PANWAR  
1ST YEAR



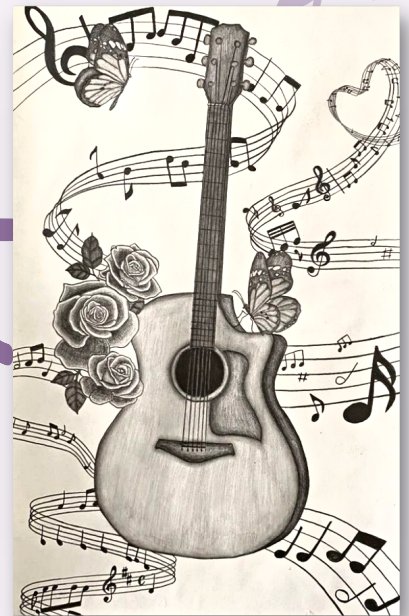
PALLAVI BEHARA  
2ND YEAR



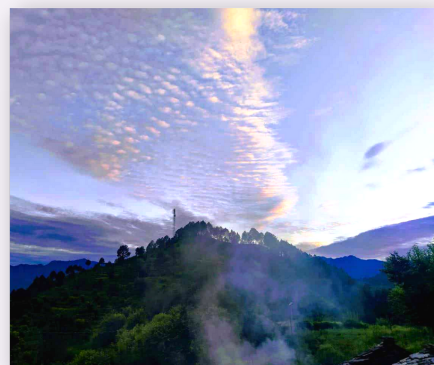
PALLAVI BEHARA  
2ND YEAR



NIVEDITA PANWAR  
1ST YEAR



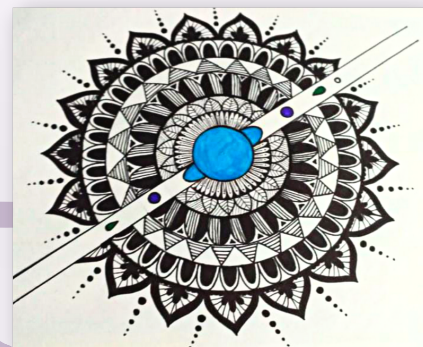
SHIKHA  
1ST YEAR



SRISHTI UNIYAL  
2ND YEAR



YASHIKA MEDIRATTA  
3RD YEAR



NISHA CHOUDHARY  
1ST YEAR



# 10 ONLINE RESOURCES YOU MIGHT NEED



## *By a Student, for the Students*

- Awanya Dabas, 3rd Year

Crisis require society and its people to renew themselves. Well, COVID has been nothing different! The pandemic has changed the way of living, working and studying suddenly and dramatically. One of the major sectors affected by the digital transformation post pandemic is the Education Industry; more specifically, the college-going students. From classes to placements, our college life has completely transformed into digital. Ever since COVID started, everything seems to shift online. On one hand where COVID is expected to leave soon, digitalisation of education might be here to stay. Researchers believe that the integration of IT in education will be further accelerated, and online education will eventually become an integral component of school and college education. And obviously enough, in order to succeed in digitised education in college, you're going to need some help from the internet! Here are a few resources that are quite useful:

(Disclaimer: None of these resources are being promoted, all of these have been mentioned just to help you out)

### **D2C**

D2C (Dare2Compete) is an online platform that provides various opportunities to the students, including hackathons, competitions, internships, scholarships, workshops and webinars organised by various premium institutions and organisations.

### **Office Lens**

Being a student of Delhi University, we all very well know the importance of good quality PDFs. When it comes to PDFs, Office Lens is the best in business! Since the government of India banned CamScanner, we were all struggling to find the best alternative to the application. Search no more, download Office Lens now!

### **Ally Learn**

This is specifically for all the mathematics students of Delhi University. Ally Learn is a youtube channel that has a detailed explanation of all the topics covered in the maths syllabus of Delhi University. It has more than 800 lectures on higher mathematics for UG, PG courses & competitive exams.

### **Internshala**

Many of you might have already heard of Internshala, but for those of you who haven't, It is a website that provides numerous paid and unpaid internships to college-going students. Currently, it is India's No.1 internship and online training platform, and has over 4000+ paid internships from some of the best firms of the country.

### **Canva**

One of the most commonly used apps, Canva is an online designing platform which helps you in creating designer posters, & templates. However, there are a few features that are not commonly used, but are very useful for a college-going student (like creating eye-catching presentations and professional resumes).

### **Duolingo**

An application that helps you learn different languages in a fun way. You get to beat the clock and earn points with gamified language learning in over 30 courses. Read, listen, speak and get rewarded!

### **myHomework**

Some students might find it a bit difficult to keep a track of classes, complete homework and submit assignments on time. If you are one of them, this application is for you. myHomework is a mobile application available both on Android as well as iOS. It helps you keep your work organised and well-planned.

### **Big think**

In these tough times, it is very hard to keep oneself motivated, Big Think does that for you! It is a youtube channel that has a lot of stimulating content from an array of experts, which also include a lot of popular names like Bill Nye and Neil deGrasse Tyson.

### **Unacademy**

In college, students tend to have a lot of free time, and it is best to utilise it in something productive. Platforms like Unacademy and Coursera work with different universities and organisations to have a huge range of online courses on several topics from all over the world. These courses give you an edge over other students of the same age.

### **Google Drive**

Everything being online, it is difficult to manage and organise data. Google Drive is an application that helps you keep all your data stored and organised at one place. You can store all your assignments, books, homeworks and other eResources at one place and find them whenever you want, without hassle.

# COSMOS & MATHS

WHAT DOES YOUR  
ZODIAC SAY



## ARIES

The way Aries detach themselves from people, is by far the scariest part about them because they can love you like they love maths and never speak to you again. Bossy like Geometry and baby like Probability, they can be both at the same time. Their life is a function of efforts and outcomes, a result of correlation between a problem and its infinitely many solutions. Often, they tend to become impatient, but can easily divide the obstacles and integrate their calibre.

One piece of advice for Aries personality:- Try to appreciate others because just like 0 is nothing without any other number behind it; so are you.

## TAURUS

Pat your back if you are a Tauran because your charismatic personality is directly proportional to your successful career. Anger, maybe a concern for you but that does not imply that you have an issue with adapting to your surroundings. Your focused and hard-working attitude shows that the ratio of your intellectual abilities to your negative attributes comes out to be a positive number; signifying that you belong to a small group of people which is a subset of socially stable people.

One piece of advice for Taurans personality:- Try to learn from your mistakes by applying 'Trial and Error Method' because that will help you admit defeat.

## VIRGO

Beauty comes in all shapes and sizes; that's what Virgos are known for. They are humble, industrious and quick thinkers. Diligent and hard-working individuals are the way we define Virgos. Surely, they are humble and modest but sometimes, they tend to criticize something to an extent which leads them to always thinking about things they need to accomplish or how they can get ahead on their next assignment, and their thoughts are constantly active.

One piece of advice for Virgos:- Watch what you say! The filters in your mouth can save big deals/relationships and your image in front of big decision-makers. Also, relax a bit to train your body for the next bigger goal.

## GEMINI

'If you are going to limit your dreams, at least tend them to infinity'. This phrase has been practically implemented by Geminis. Being inquisitive in nature, they try to integrate their persuasiveness with their leadership qualities. Their mind is a collection of so many thoughts that lead them to lose their focus.

One piece of advice for Gemini personality:- Don't try to be over competitive because the fiery combination of your methodical nature and brilliant personality can sometimes lead to inexperience which is not great in the long run.

## CANCER

Cancerians are emotional beings, They have the touch of compassion which acts like  $\sin^2$  mixed with a dash of goofy sense of humour; that's  $\cos^2$  and when these two combine, they make 1. But sometimes, the over-the-top humour can make them moody, resulting in a sudden retreat of emotions backed with the idea of dealing with those people who've taken them for granted; which makes these relations undefined.

One piece of advice for Cancer personality:- Don't hold on to feelings and people; for that matter. The way you cling on to people thinking that you are a frustum that needs to become a cone with the help of someone, it's not true. You are a self-dependent personality.

## LEO

They are natural leaders. There's a strange relation between performing artists and leos. High in confidence and goal-setting individualistic traits can be easily found in Leos. But there's one thing that keeps them from doing wonders: Jealousy that makes their smooth-going life as complex as  $iota$ . They can't see people eyeing their most precious objects/people. So, their self-centeredness can sometimes result in the worst arguments with their friends which can exponentially keep increasing.

One piece of advice for Leos:- Do not substitute your stubbornness with determination. These are two different things; rather vouch for ways to achieve your goal by working together.

**SCORPIO**

Scorpios are strong, enigmatic, independent characters who crackle with an intensity and charisma that makes them un-ignorable.

For all of that power though, they often remain unknowable to others, because they guard themselves and their private lives fiercely. Scorpios are loyal, smart, shrewd and stoic. They stand by their beliefs, and they don't crave anyone else's approval.

One piece of advice for Scorpians :-

Scorpios should get into the habit of being good listeners. If they listen to what people around them are saying, carefully, then there are improved chances of their being popular in the place of work and eventually would become more successful.

**SAGITTARIUS**

Sagittariuses have an independent streak like no other sign. Independence and the freedom to pursue what they want, when they want is of the utmost importance to a Sagittarius. They are travelers, risk-takers, and have a great mind for business and sports!

This means that Sagittariuses tend to be some of the most innovative people out there. Sagittariuses aren't afraid to blaze their own trails, even if that means doing it alone

One piece of advice for Sagittariuses :-

If you're a Sagittarius, keep an eye out for your tendency to subconsciously ignore people's ideas and opinions, since consensus is important to happy, healthy relationships.

**CAPRICORN**

Capricorn is symbolized by the sea goat, a mythological creature with the body of a goat and tail of a fish. This imagery speaks to Capricorn's bifurcated abilities: Capricorns are skilled at navigating both the material and emotional realms. They scale the steepest mountains — Capricorn rules the knees, making it easier for this sign to climb — while simultaneously building up their psychic fortitude. Capricorns are relentless: They are determined to overcome whatever stands in their way.

One piece of advice for Capricorns :-

Capricorn must remember to keep their eyes on their own paper: Do not look after what everyone else is doing/ has done, worry about yourself only.

After all, not everyone wants to climb the ladder straight to the top.

**PISCES**

Pisces, a water sign, is the last constellation of the zodiac. It's symbolized by two fish swimming in opposite directions, representing the constant division of Pisces's attention between fantasy and reality. As the final sign, Pisces has absorbed every lesson — the joys and the pains, the hopes and the fears — learned by all of the other signs. This makes these fishes the most psychic, empathetic, and compassionate creatures of the astrological wheel.

One piece of advice for Pisces:-

With such immense sensitivity, Pisces can easily get bounded between wrong and right. You just need to know that there are infinitely many solutions to everything that's going wrong and you can create your own path to find the one that's right for you.

**LIBRA**

Libra is represented by the scales (interestingly, the only inanimate object of the zodiac), an association that reflects Libra's fixation on balance and harmony. Libra is obsessed with symmetry and strives to create equilibrium in all areas of life. These air signs are the aesthetes of the zodiac: Ruled by Venus, the planet that governs love, beauty, and money, Libras adore high art, intellectualism, and connoisseurship. Suave Libras need to surround themselves with stunning objects and create environments that reflect their exquisite tastes.

One piece of advice for Libras:-

Don't let any extra element imbalance your beautiful equation with the world. You do you, prove yourself when needed because that's what's going to help you succeed.

**AQUARIUS**

'Like air, Aquarians don't have a single, clear shape and seem to defy categorization. While some Aquarians are quiet and gentle, others are exuberant and energetic. Aquarius loves to spend time deep in thought, especially when it pertains to the matters of society.

One piece of advice for Aquarius :-

Do not let your overthinking trouble your life. It's imperative that you understand how big of an impact you can have on this world just by being you and enjoying yourself. Don't think about anything else, just do whatever it takes to be you.



# EDITORIAL TEAM



***Mausam***



***Kanika Singh***



***Shivangi Pandit***



## EDITOR'S MESSAGE

Firstly, I would like to thank all the readers for reading another edition of 'Convergence' which for years now, has been keeping us abreast with the highlights of the year gone by! It is with utmost happiness that I express my heartfelt gratitude to our honourable principal, Dr. Haritma Chopra for being a perpetual torch bearer and a pillar of strength for every woman in our college, and Dr. Geetan Manchanda, HOD of the Mathematics Department for her constant support and guidance. I would also like to acknowledge the untiring patience, creative suggestions and hard work put in by Dr. Khushboo Bussi and Ms. Nikita Mittal, our facilitators.

What started as a baby step in the first edition of our departmental newsletter has been nurtured, pampered and celebrated with full glory in the third edition. The enthusiasm had doubled, hard work increased manifold and excitement kept brimming as we brought to the readers the fruits of the creative labour of the students and teachers in 'Convergence'. The dedication and unflinching perseverance put in by my fellow teammates is highly commendable and praise-worthy. The only reason this newsletter could have been possible is because of the deluge of articles, poems, stories & pictures submitted by the students, teachers and the alumni. I am highly thankful for each and everyone's contribution. Moreso, I feel extremely fortunate to have been given a chance to take over the coveted task of writing this editorial for 'Convergence'. It has no doubt been an amazing experience to work in unison and hope that it will all be worth it.

***-Awanya Dabas***

***Happy Reading :)***