Digitized Version of Wall Magazine

Department of Mathematics
Srikrishna College, Bagula

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MENTOR: SOMNATH CHAKRABORTY
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SONALI BISWAS
SRIJANA BAG
ANTAR BISWAS
SATABDI MAJUMDAR

MENTOR: TUSHAR KANTI BISWAS
SUSMITA DAS
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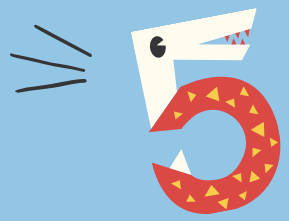
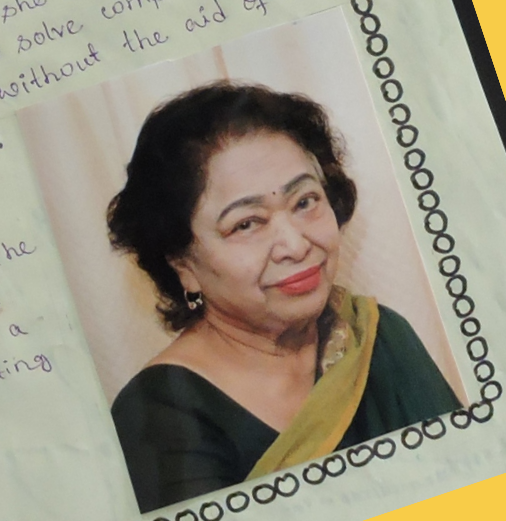


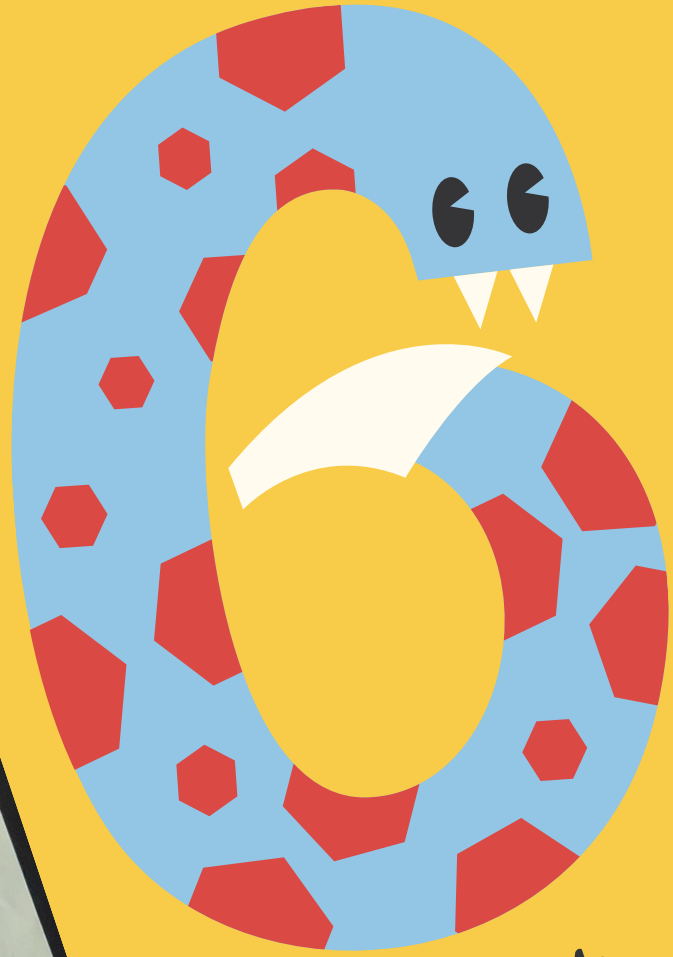
5 Indian Mathematicians and their contributions

SAKUNTALA DEVI

SHAKUNTALA DEVI

Shakuntala Devi, often hailed as the "Human Computer", made significant contributions to the world of mathematics. Born in 1929 in Bangalore, India, Devi demonstrated extraordinary mathematical abilities from a young age. Devi's exceptional talent for mental calculations became evident when she dazzled audiences with her ability to solve complex mathematical problems without the aid of any mechanical devices. Her efforts were instrumental in breaking down the stereotype that mathematics is a dry and daunting subject.





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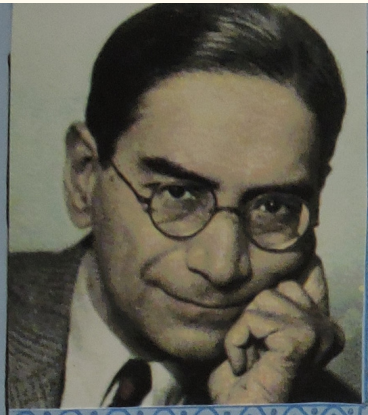
PRASANTA CHANDRA MAHALANOBIS



Prashanta Chandra Mahalan-obis, a pioneering Indian statistician and applied mathematician, made significant contributions that have had a lasting impact on the fields of statistic and mathematician. Born on June 29, 1893, Mahalanobis played a crucial role in shaping statistical science in India and beyond.

One of Mahalanobis's most notable contributions is the development of the Mahalanobis distance between a point and a distribution. It has applications in various fields, including image recognition, classifica-tion, and clustering.

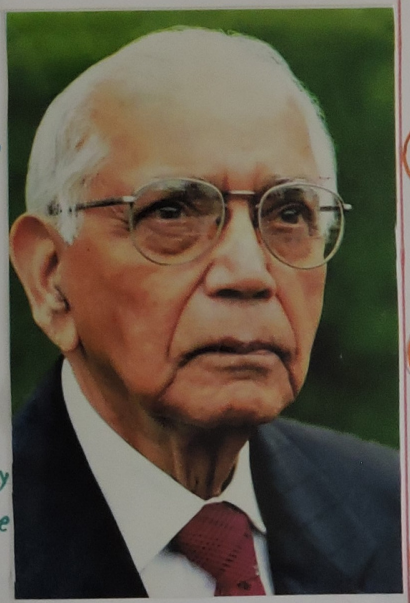
In addition to his work on distance metrics, Mahalanobis's was instrumental in establishing the Indian Statistical Institute (ISI) in 1931, which became a center for research and training in statistics.

In recognition of his outstanding contributions, Prasanta Chandra Mahalanobis was honored with numerous awards and accolades, including the Padma Vibhushan, one of India's highest civilian awards. His legacy lives on through the impact of his mathematical and statistical innovations, which continue to shape research and practice in these fields globally.

CALYAMPUDI RADHAKRISHNA RAO

C.R.RAO (Calyampudi Radhakrishna Rao)

Calyampudi Radhakrishna Rao, Commonly Known as C.R.Rao, is a distinguished Indian-American mathematician and statistician whose contri-butions have significantly shaped the fields of mathematics and statistics. Born on september 10, 1920, Rao has had a profound impact on both theory and applications in these disciplines.



He was professor emeritus at Pennsylvania state Uni-versity and Research Professor at the University at Buffalo. Rao was honoure-d by numbenous colloquia, honorary degrees, and festschrifts and was awarded the us National Medal of science in 2002. The Times of India listed Rao as one of the top 10 Indian Scientists of all time.

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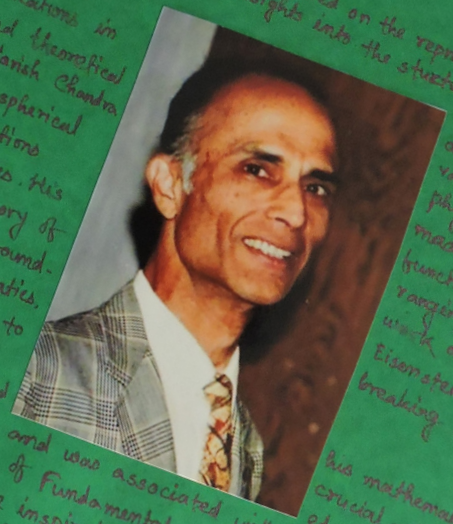
HARISH CHANDRA

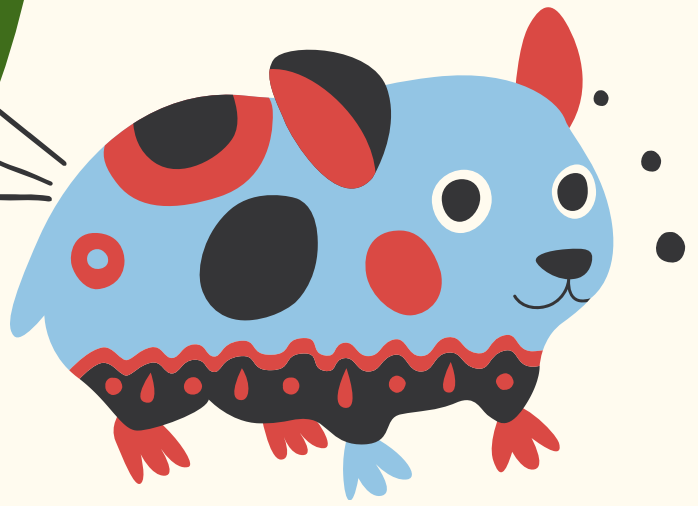
▲ Harish Chandra, born in 1923 in Kanpur, India, was a pioneering mathematician whose contributions have left an indelible mark on the field of mathematics, particularly in the areas of representation theory and harmonic analysis. His work has had a profound impact, influencing generations of mathematics and mathematical physics.

▲ Harish Chandra focused on the representation theory of semi-simple Lie groups, providing deep insights into the structure and classification of abstract algebra and mathematical representations. His work laid the foundation for the study of infinite dimentional representations and their applications in various branches of mathematics and theoretical physics.

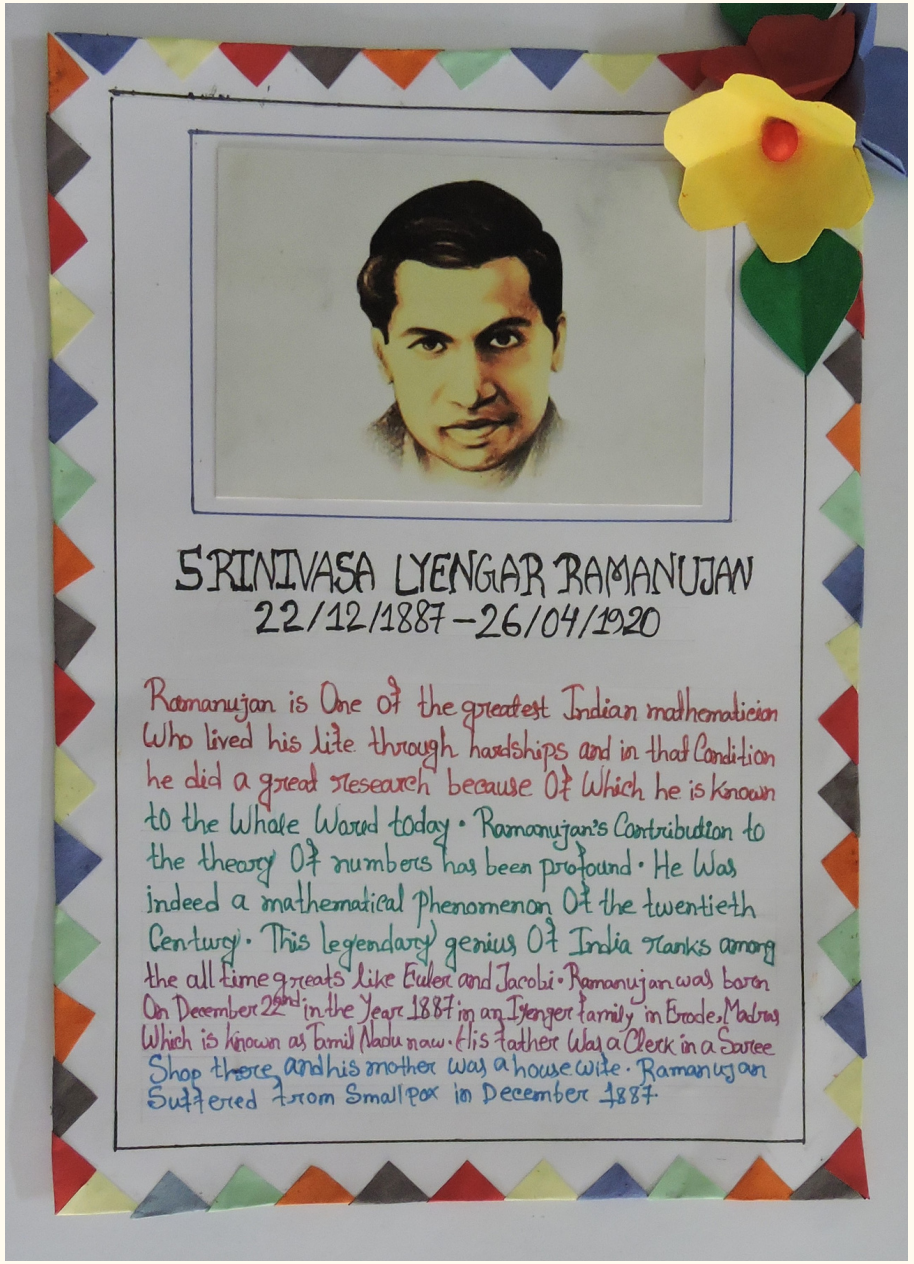
▲ Harish Chandra made important contributions to the theory of spherical functions on symmetric spaces, a topic with applications ranging from pure mathematics to quantum mechanics. His work on the Plancherel theorem and the theory of Eisenstein integrals in widely regarded as ground-breaking and has influenced diverse areas of mathematics.

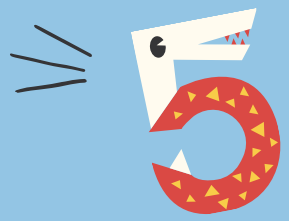
▲ In addition to his mathematical prowess, Harish Chandra played a crucial role in fostering mathematical research and education. He held various academic positions and was associated with prestigious institutions including Tata Institute of Fundamental Reseach in Mumbai. His mentorships and guidance inspired numerous mathematician and his legacy continues through the many scholar who have been influenced by his work.





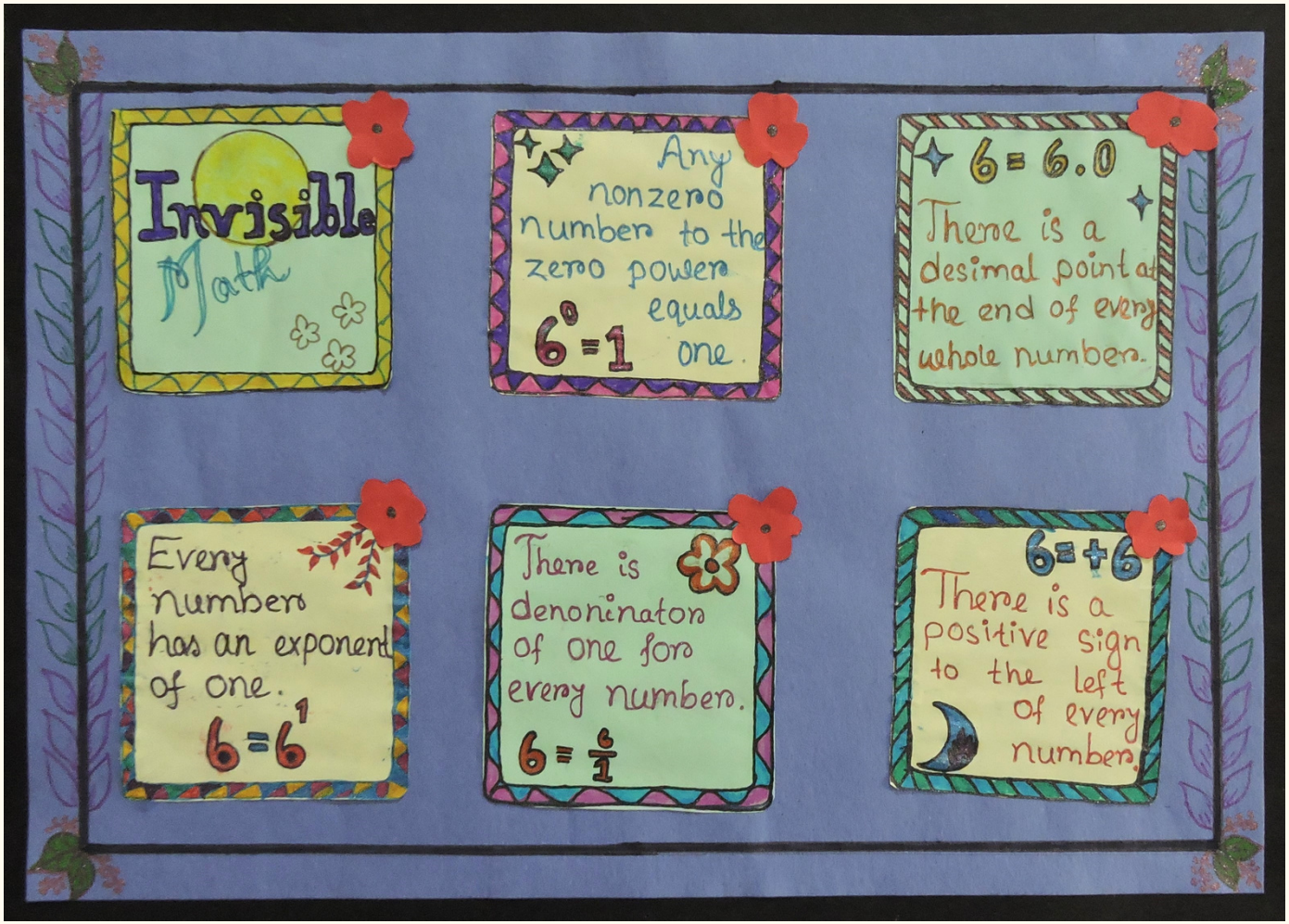
SRINIVASA RAMANUJAN



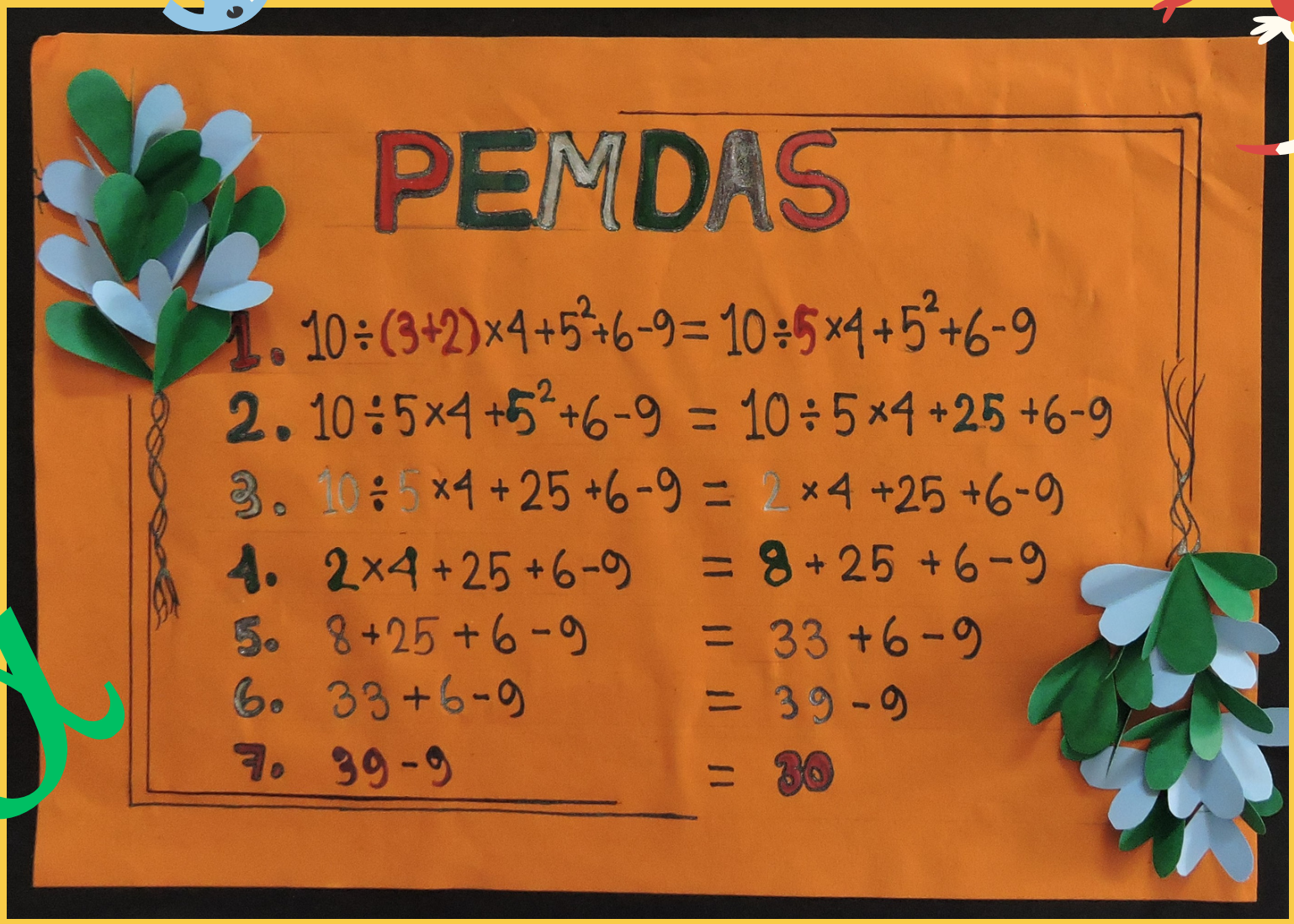


Basic Mathematics

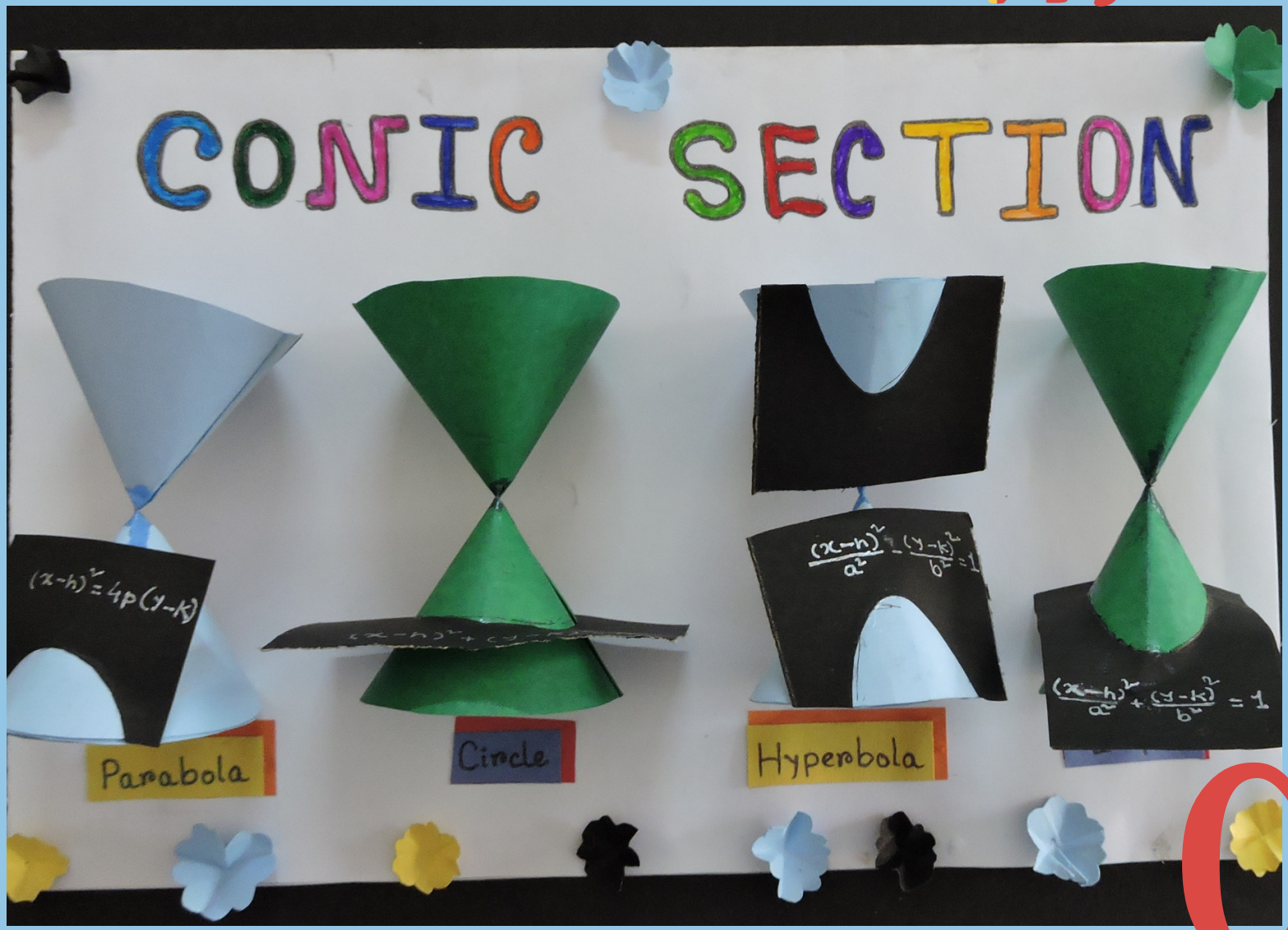
INVISIBLE MATH



PEMDAS

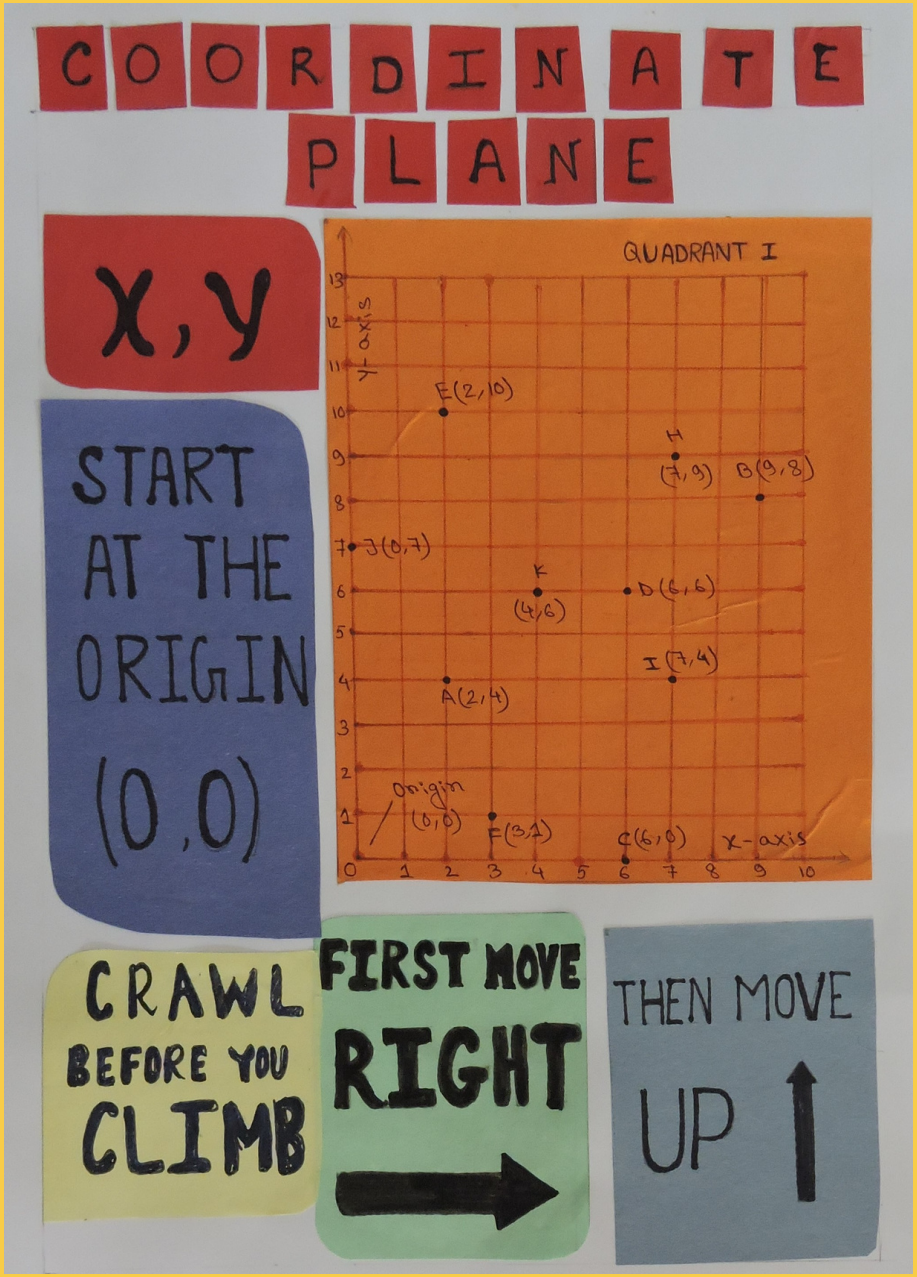

PEMDAS
1. $10 \div (3+2) \times 4 + 5^2 + 6 - 9 = 10 \div 5 \times 4 + 5^2 + 6 - 9$
2. $10 \div 5 \times 4 + 5^2 + 6 - 9 = 10 \div 5 \times 4 + 25 + 6 - 9$
3. $10 \div 5 \times 4 + 25 + 6 - 9 = 2 \times 4 + 25 + 6 - 9$
4. $2 \times 4 + 25 + 6 - 9 = 8 + 25 + 6 - 9$
5. $8 + 25 + 6 - 9 = 33 + 6 - 9$
6. $33 + 6 - 9 = 39 - 9$
7. $39 - 9 = 30$

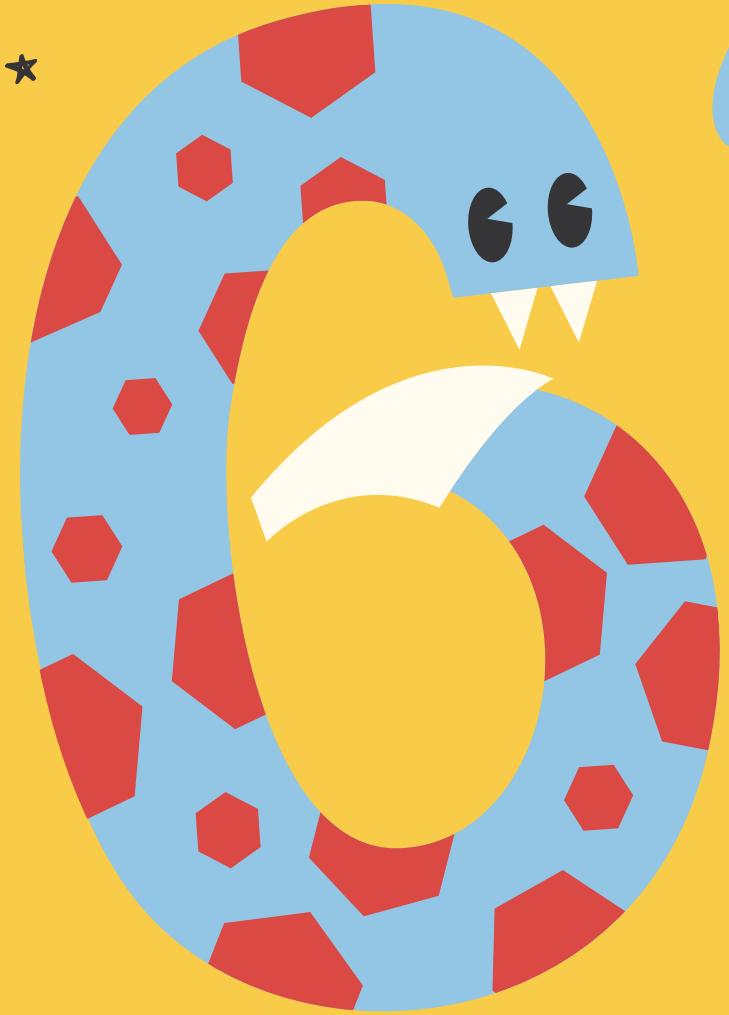
CONIC SECTION



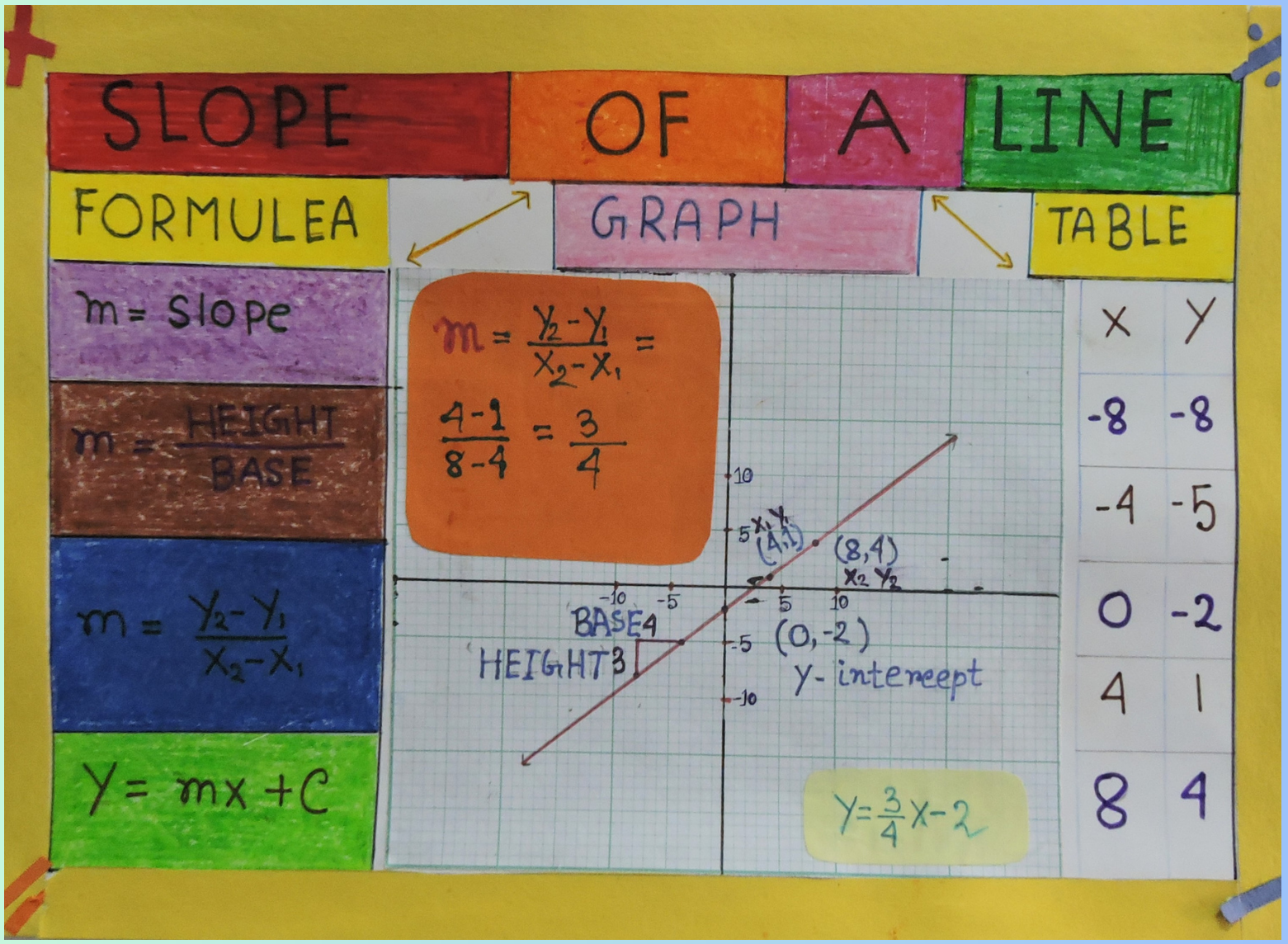
AREA AND PERIMETER

COORDINATE PLANE

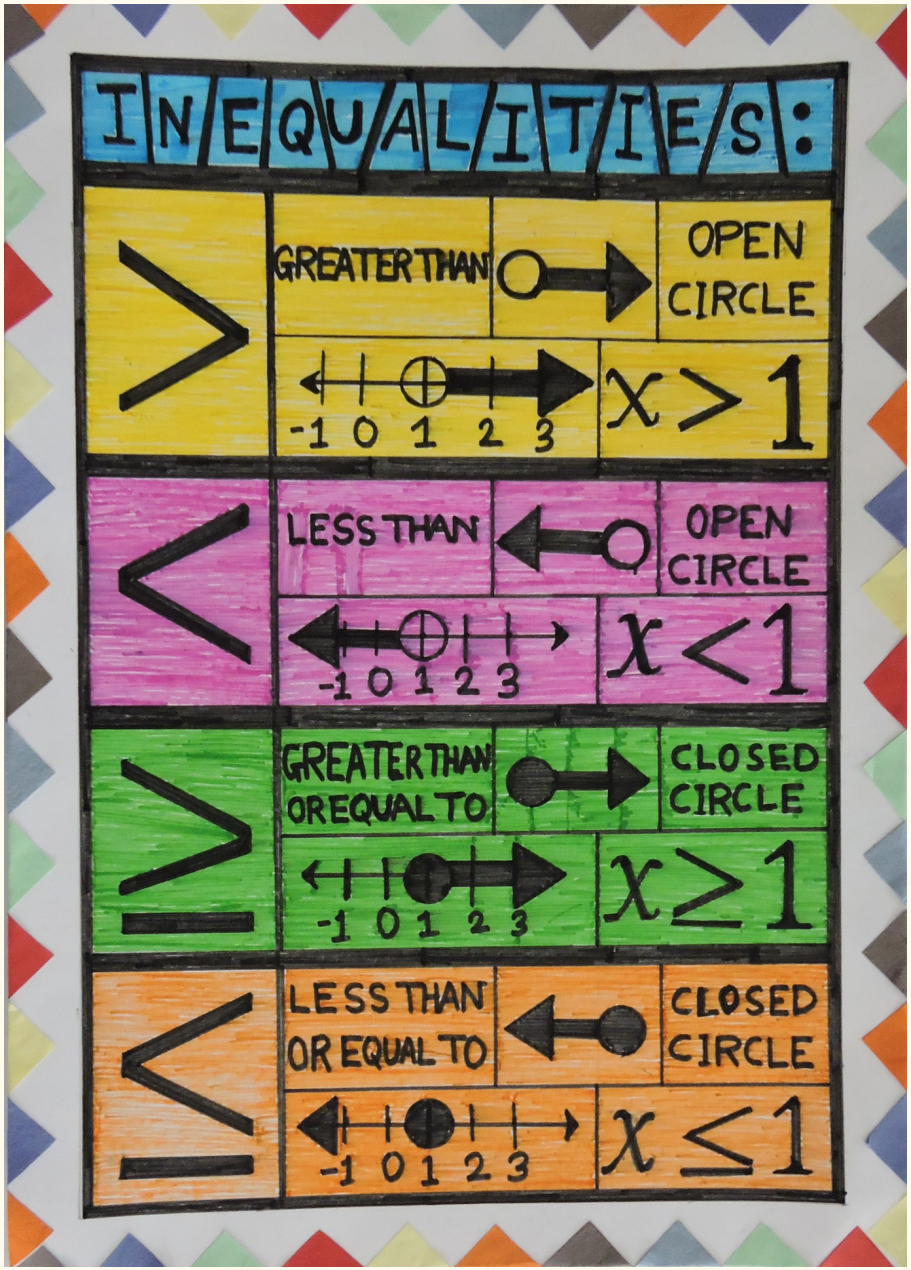


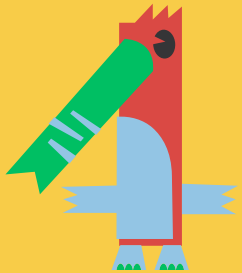


SLOPE OF A LINE

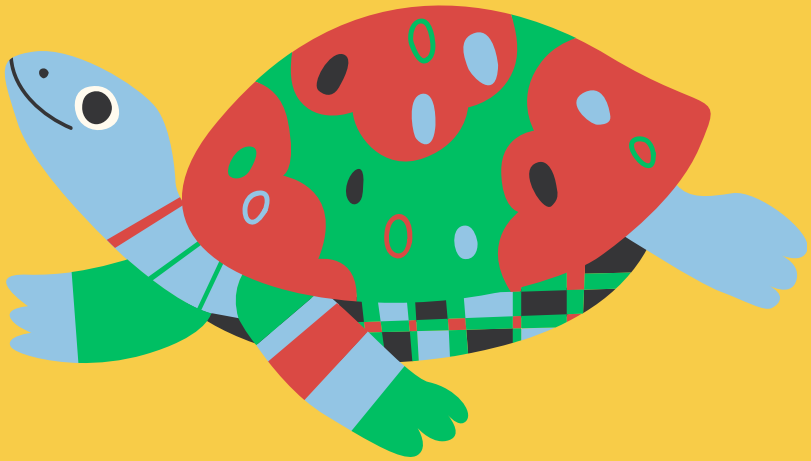


INEQUALITIES





Selected Topics of Mathematics



MAGIC SQUARE

MAGIC SQUARE

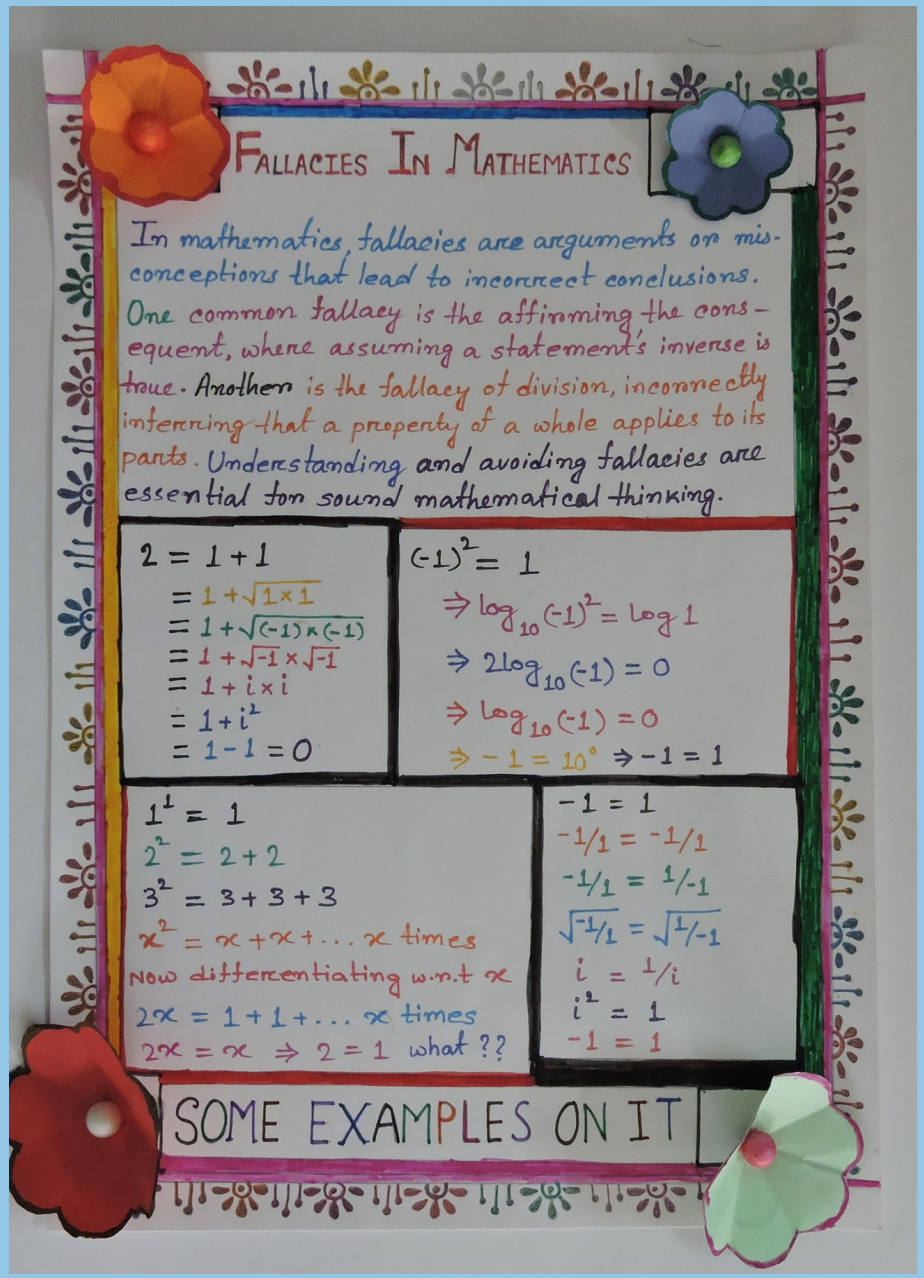
A magic square is a square grid of numbers arranged in such a way that the sum of the numbers in each row, column, and diagonal is the same. This sum is known as the "magic constant" or "magic sum".

4	3	8
9	5	1
2	7	6

One of the earliest known magic square grid is the Lo Shu Square. The Lo Shu Square is a 3×3 magic square with a magic constant of 15.

There are odd order magic squares (3×3, 5×5) and even order magic squares (4×4, 6×6 etc.). Magic squares continue to inspire awe and curiosity.

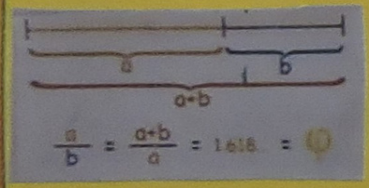
FALLACIES IN MATHEMATICS

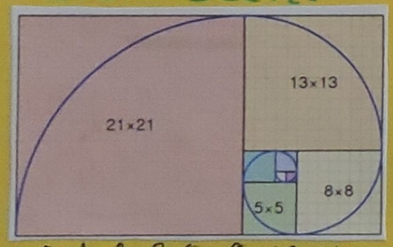


GOLDEN RATIO 1.6180339

GOLDEN RATIO

Golden Ratio is a special number approximately equal to 1.618 which is represented by a Greek letter "phi". It is an irrational number. This is the most beautiful number you have ever seen.





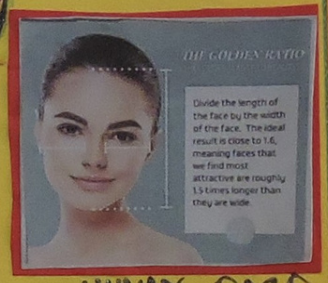
0, 1, 2, 3, 5, 8, 13, 21 ....

0 + 1 = 1
1 + 1 = 2
2 + 1 = 3
3 + 2 = 5
5 + 3 = 8
8 + 5 = 13

FIBONACCI SERIES: The Fibonacci Series is a set of numbers that start with 0 or 1, followed by a one, and proceeds based on the rule that each is equal to the preceeding two numbers.

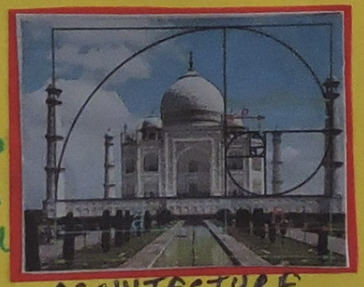
F(0) = 0, 1, 1, 2, 3, 5, 8, 21 ....

HUMAN EAR

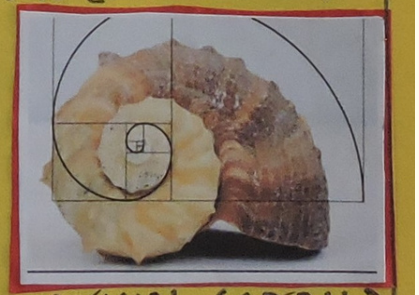


HUMAN FACE

NATURE (SUN FLOWER)

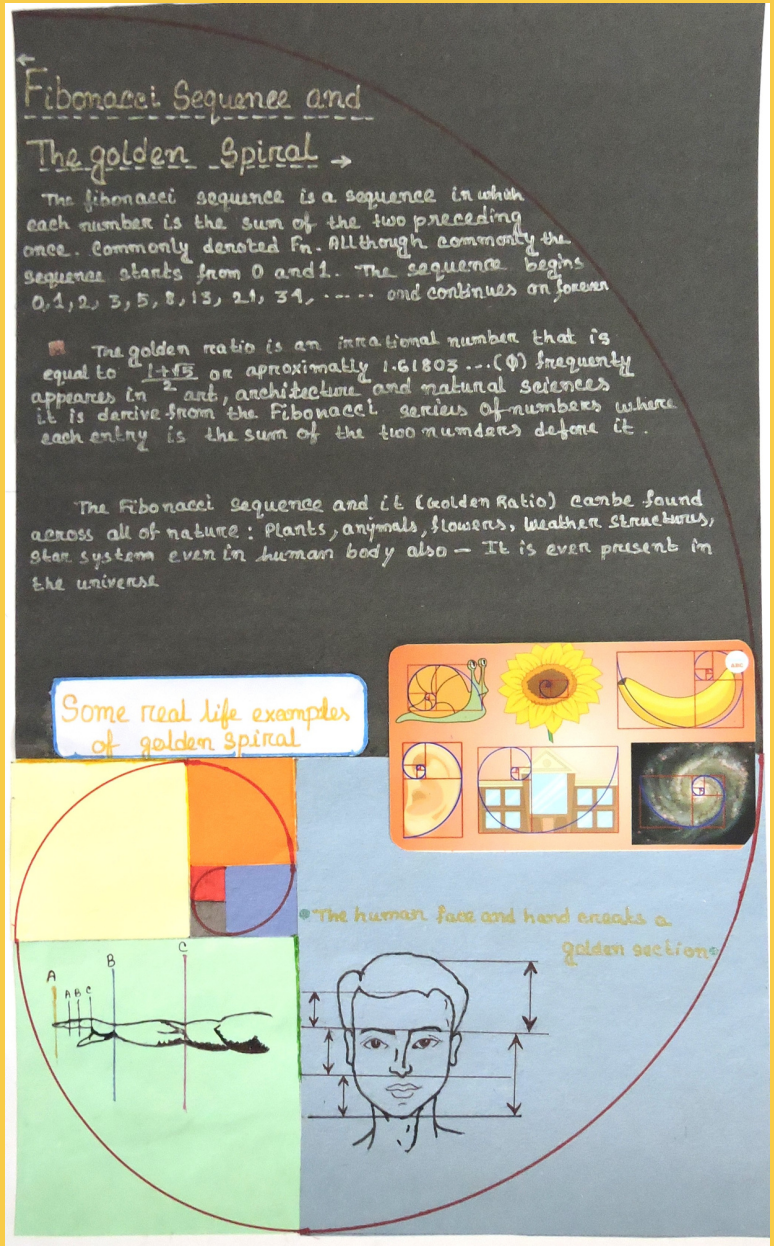


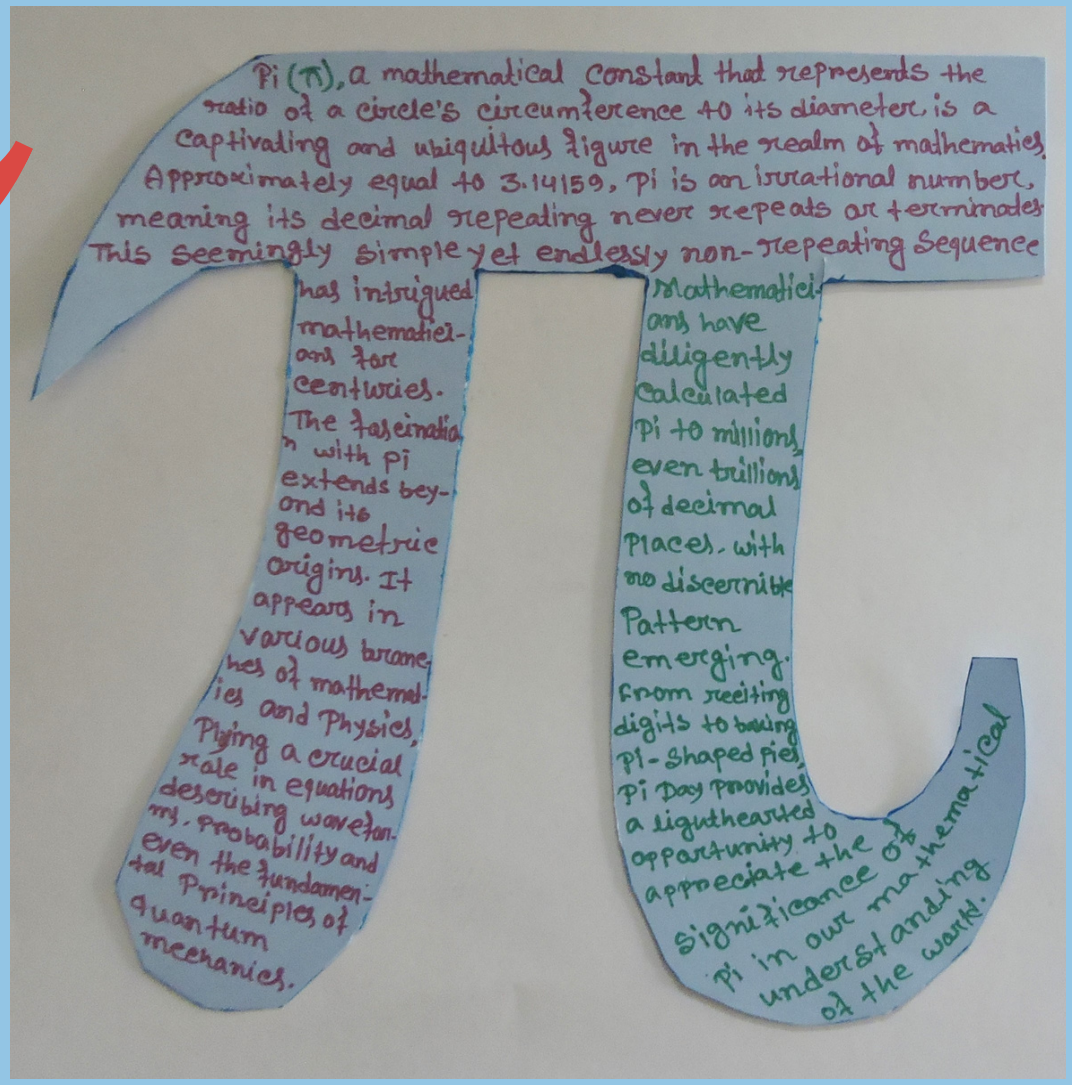
ARCHITECTURE (TAJMAHAL)



ANIMAL (SNAIL)

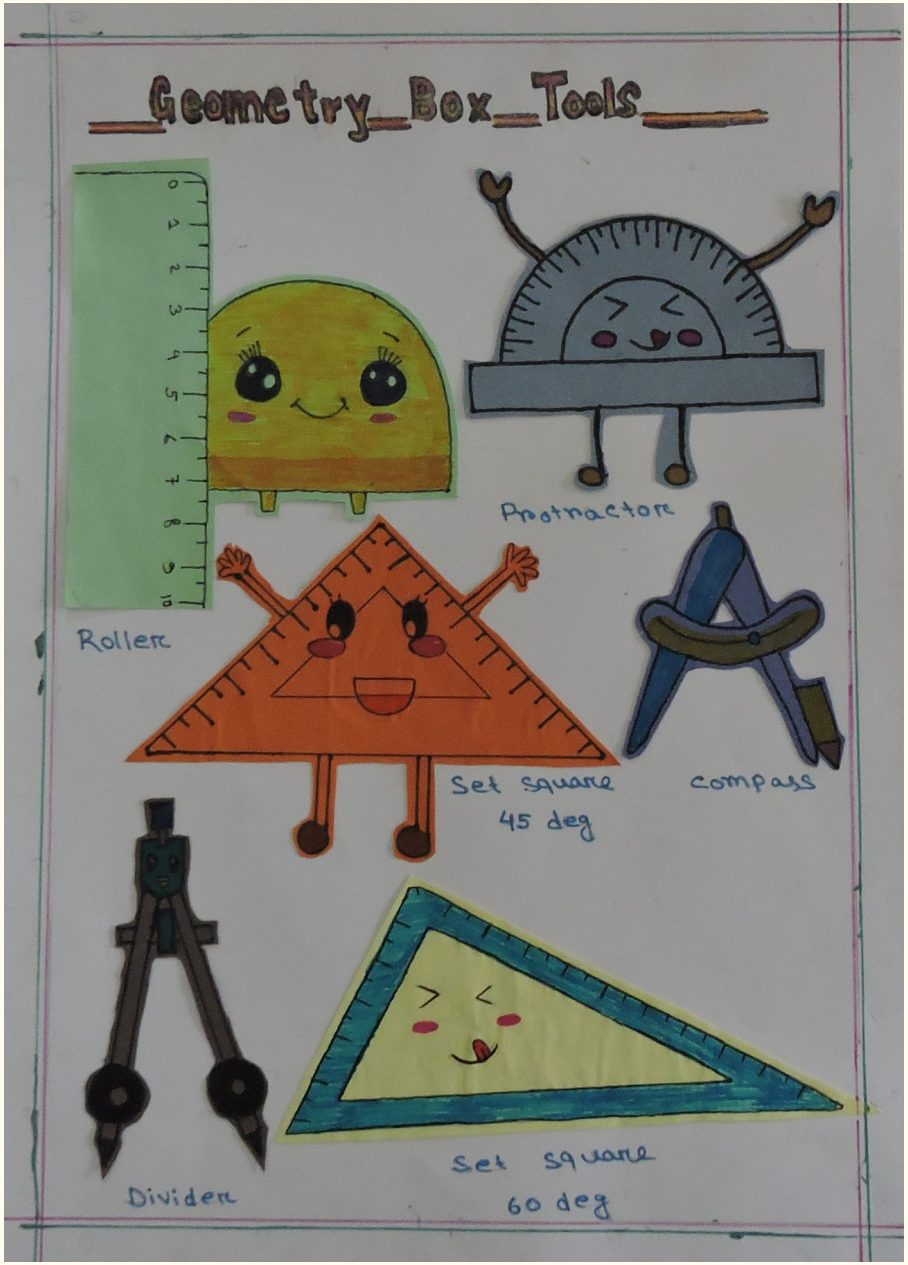
FIBONACCI SEQUENCE AND THE GOLDEN SPIRAL



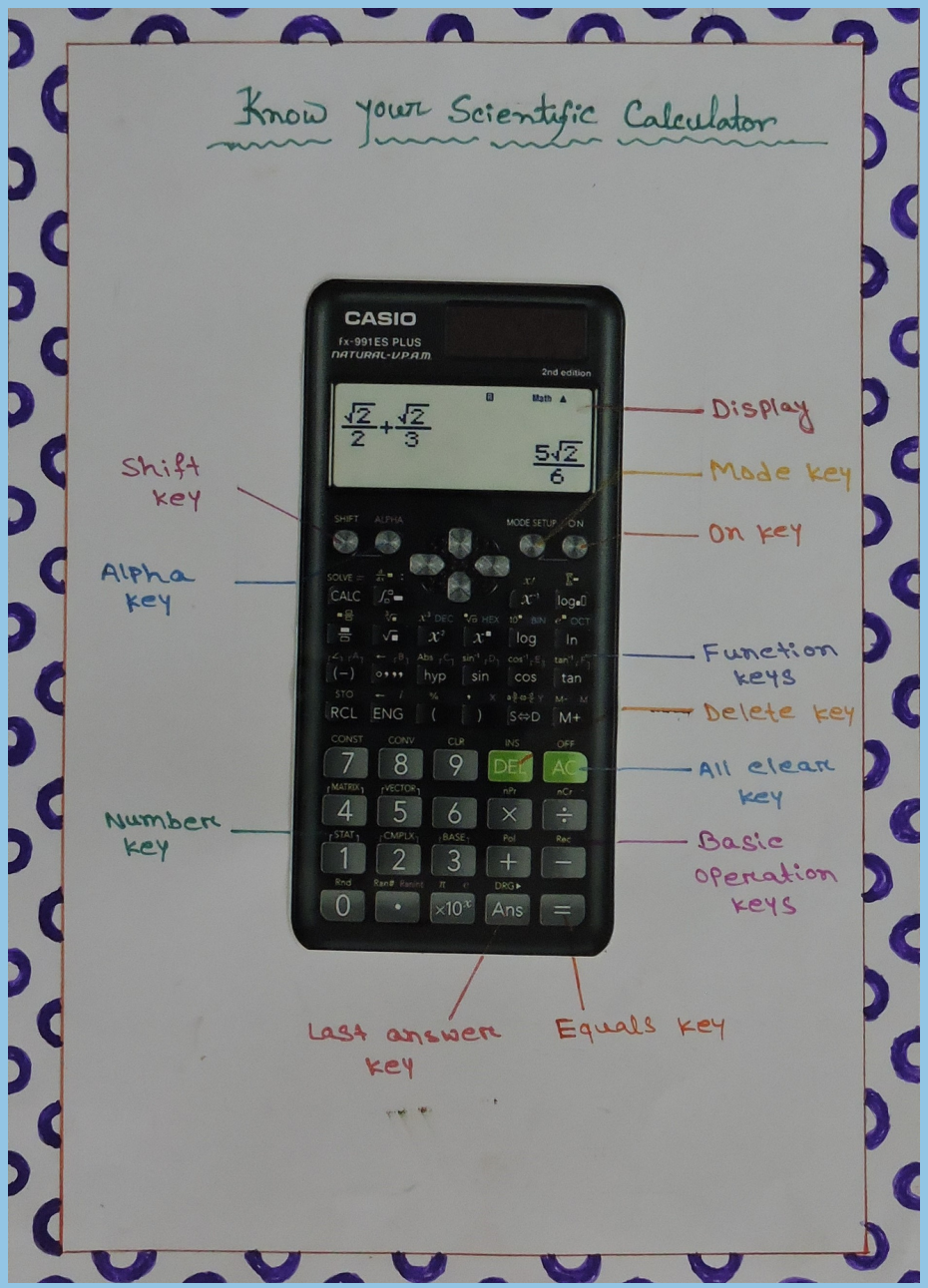

Pi (π), a mathematical constant that represents the ratio of a circle's circumference to its diameter, is a captivating and ubiquitous figure in the realm of mathematics. Approximately equal to 3.14159, Pi is an irrational number, meaning its decimal repeating never repeats or terminates. This seemingly simple yet endlessly non-repeating sequence has intrigued mathematicians for centuries. The fascination with pi extends beyond its geometric origins. It appears in various branches of mathematics and Physics, playing a crucial role in equations describing wave functions, probability and even the fundamental principles of quantum mechanics. Mathematicians have diligently calculated Pi to millions, even trillions of decimal places, with no discernible pattern emerging. From reciting digits to baking pi-shaped pies, Pi Day provides a lighthearted opportunity to appreciate the significance of pi in our mathematical understanding of the world.

Mathematical Tools

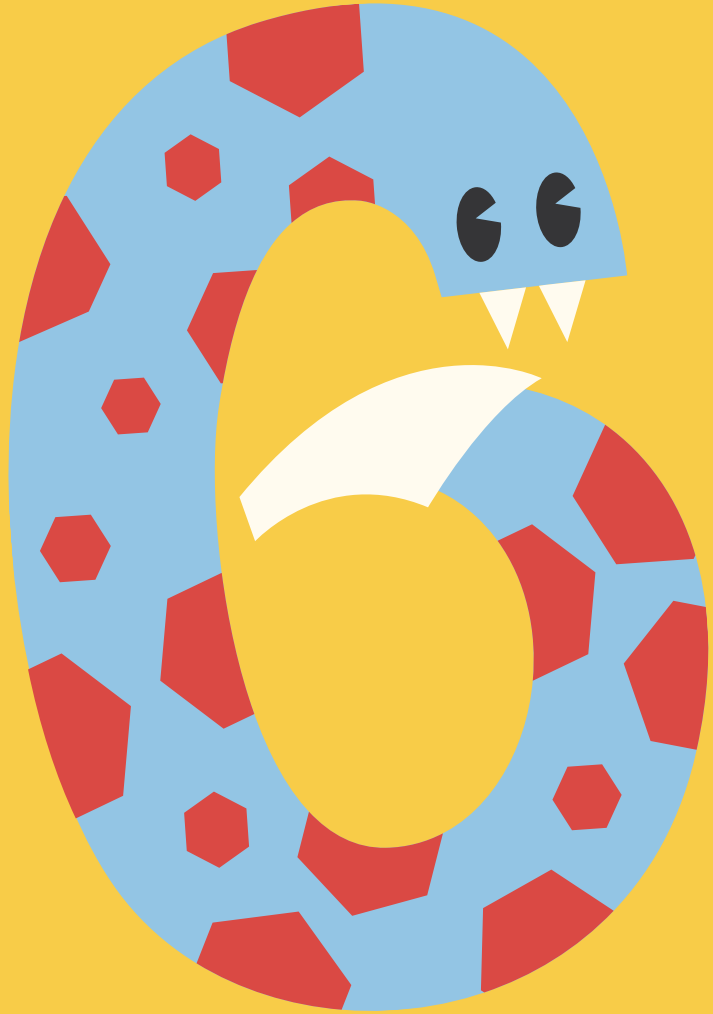
GEOMETRY TOOL BOX



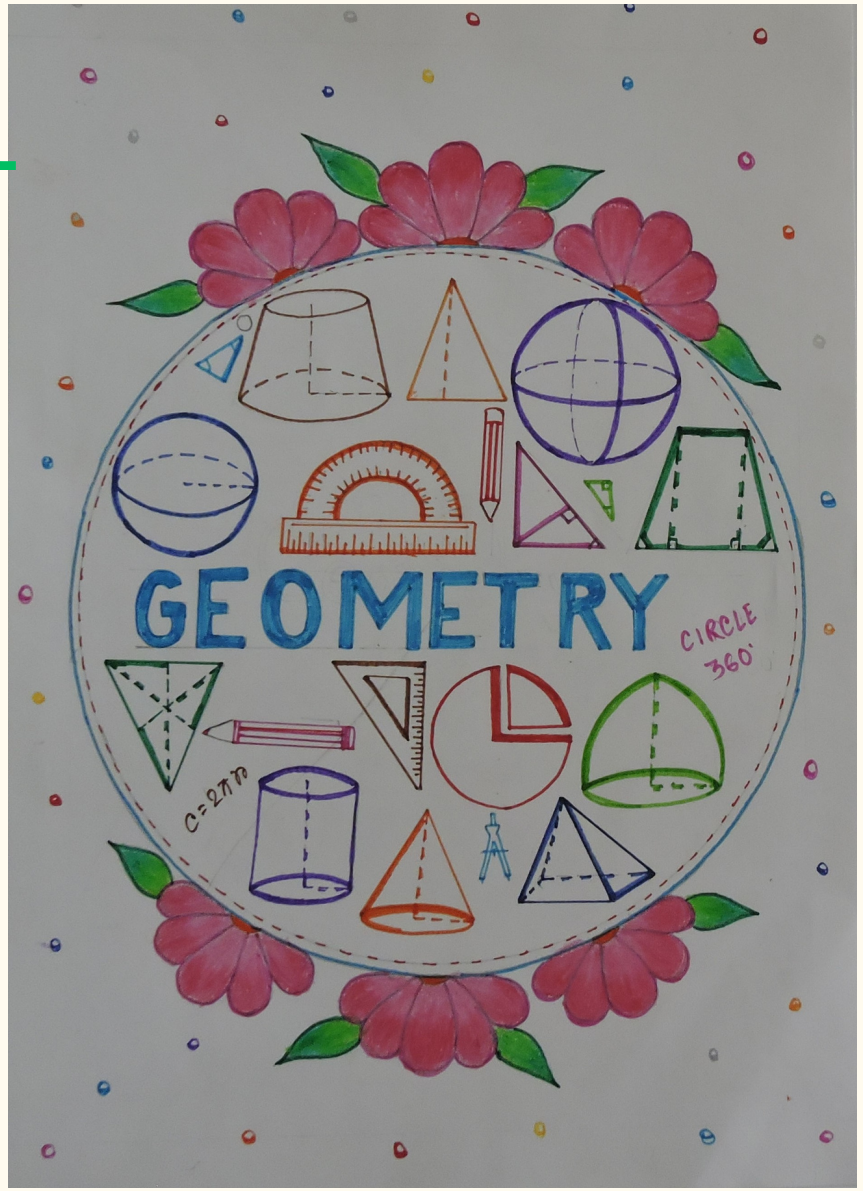
KNOW YOUR SCIENTIFIC CALCULATOR



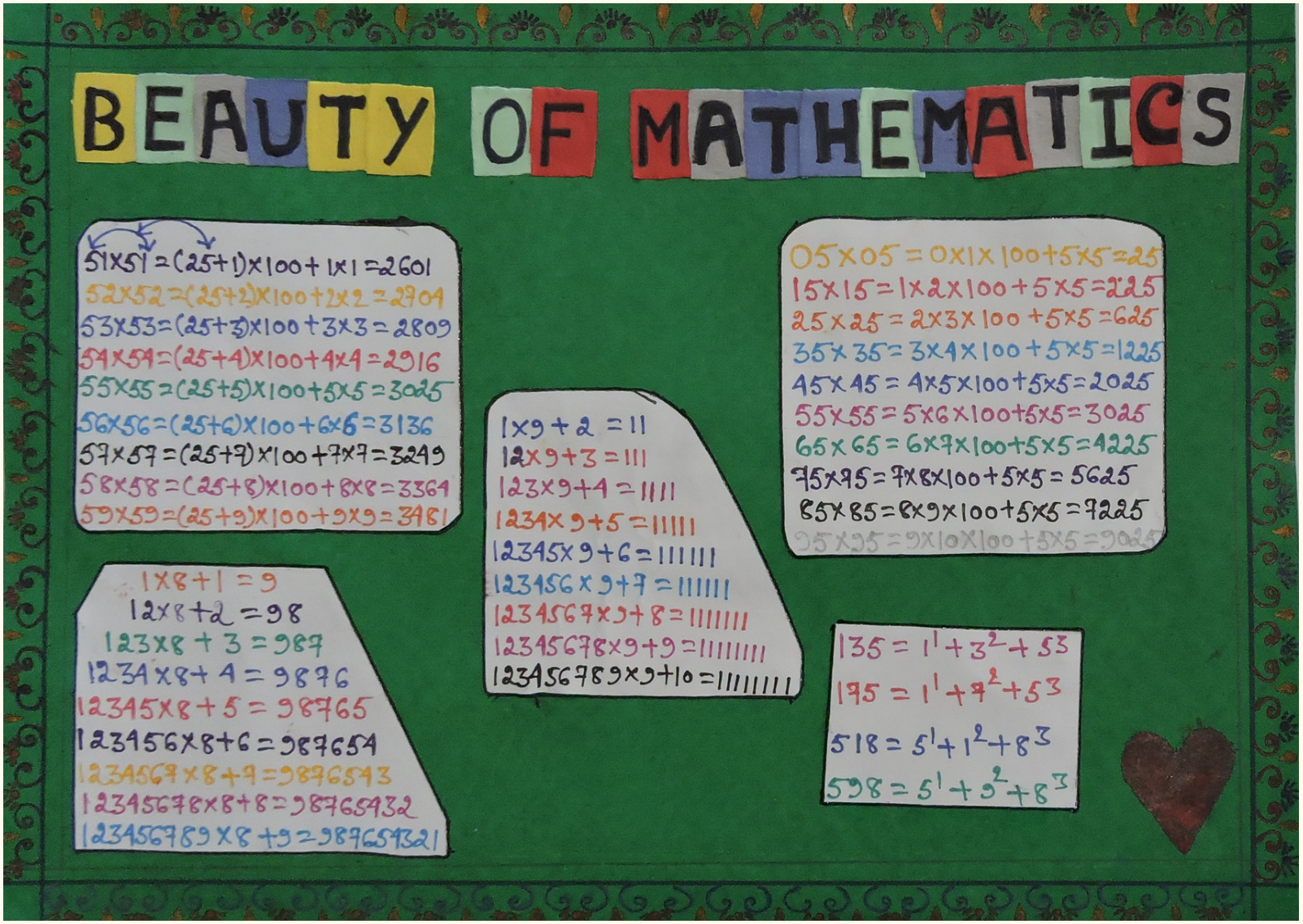
Mathematics & Art



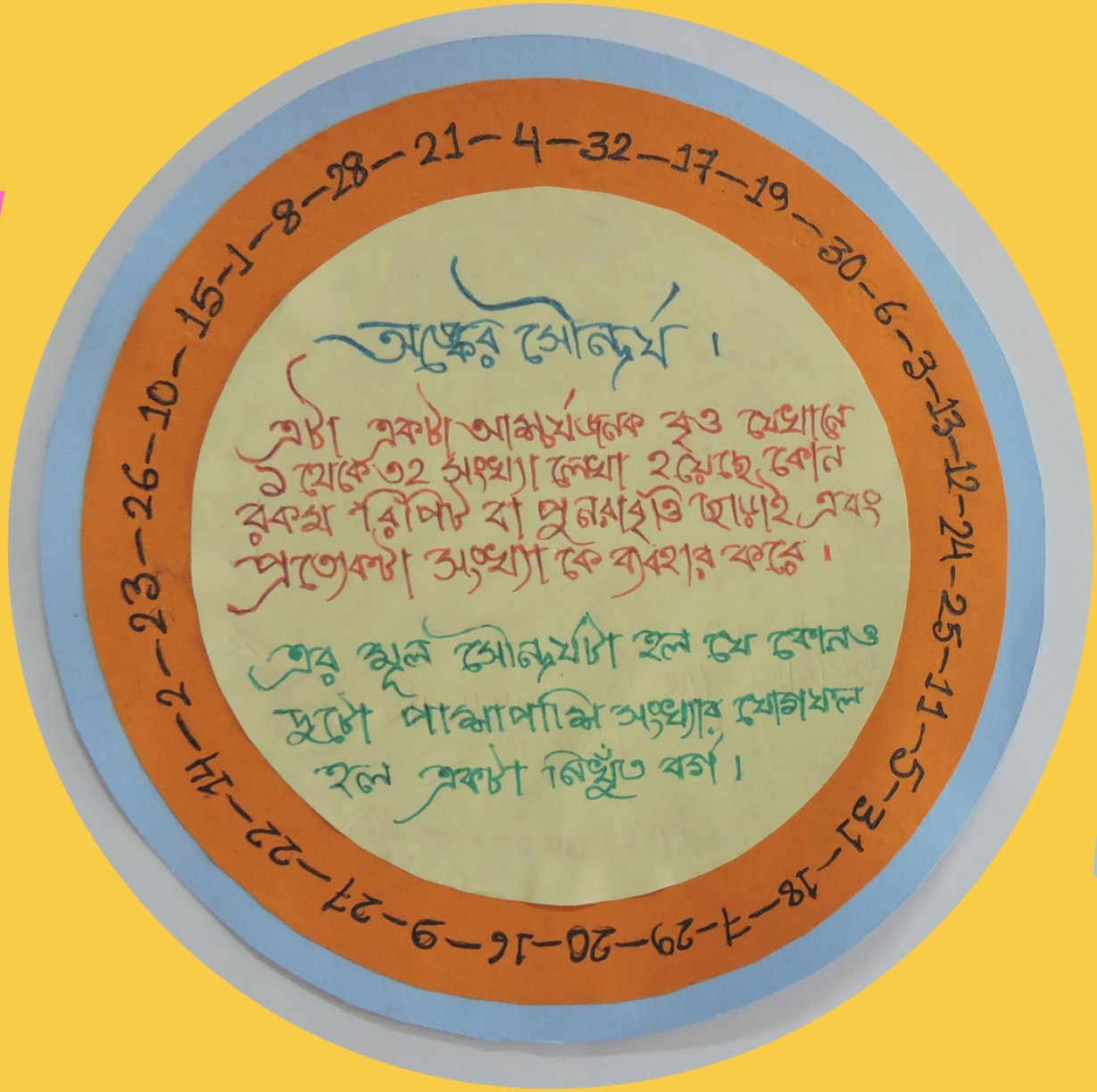
Γ GEOMETRIC DRAWINGS



BEAUTY OF MATHEMATICS



BEAUTY OF MATHEMATICS



REAL LIFE CURVE

REAL LIFE CURVE

Class of Curves : $r = a \sin n\theta$

Fig- 1.1 Flower

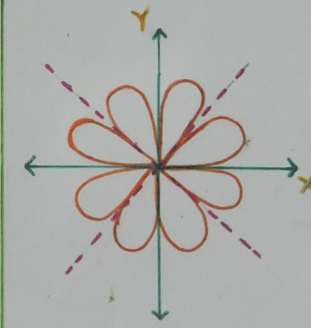
We begin with a particular case when $n = 4$ ($r = a \sin 4\theta$)
The following table of Corresponding value of r and θ will enable one to trace the curve :

4θ		Intermediate Values	$\frac{2\pi}{3}$	Intermediate Values	$\frac{4\pi}{3}$	Intermediate Values	π	Intermediate Values	2π
θ		"	$\pi/6$	"	$\pi/3$	"	$\pi/4$	"	$\pi/2$
r		Positive Increasing	a	Positive Decreasing	a	Positive Decreasing	0	Positive Increasing	0

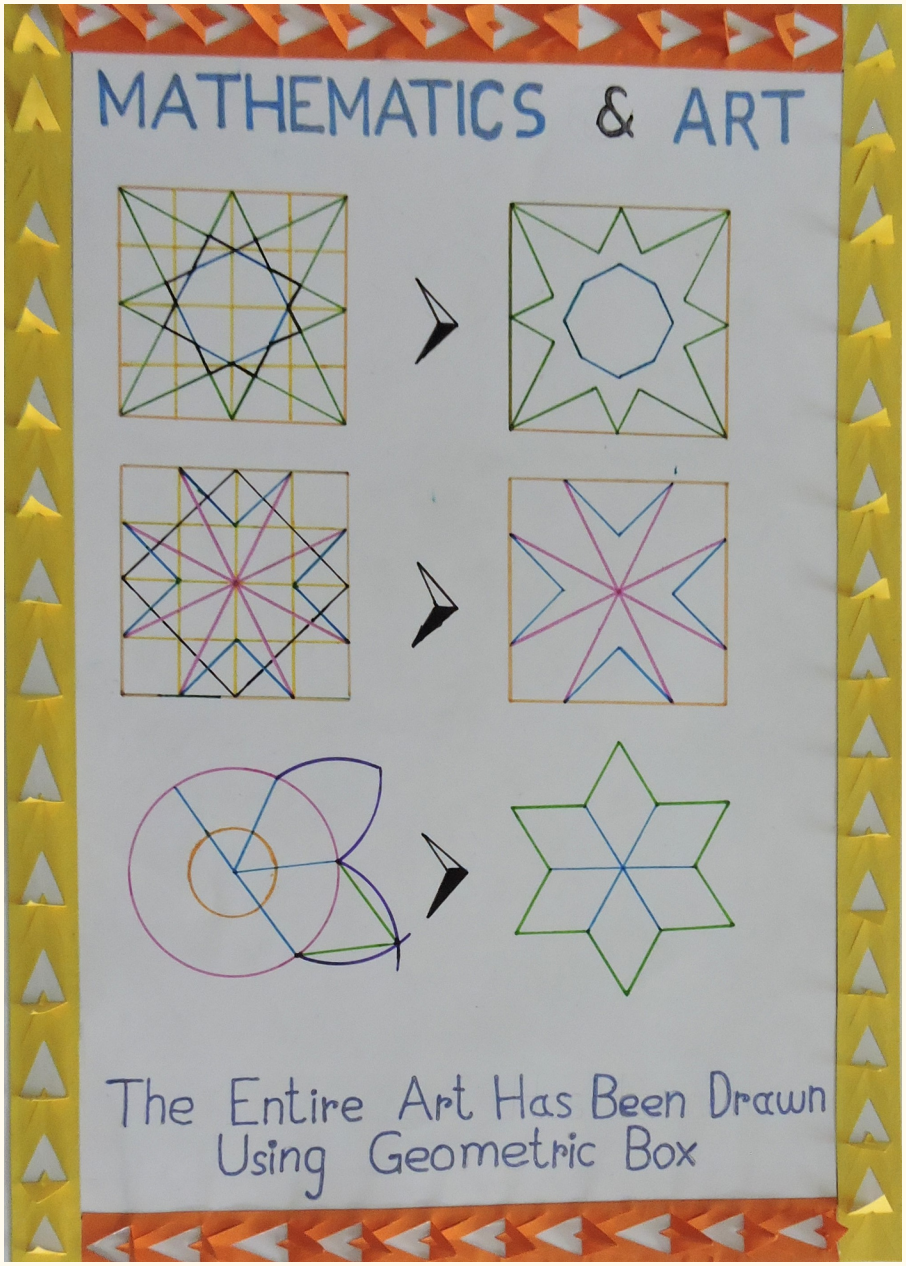
Observations :

1. r is never greater then $|a|$; there is no asymptote. Here $\phi = \frac{1}{4} \tan 4\theta$
   Hence $\phi = 0$ whenever r vanishes.
2. The curve consists of a series of similar loops as shown in Fig. 1.2, all being arranged symmetrically about the origin and lying entirely within a circle of radius a and the center at the origin.

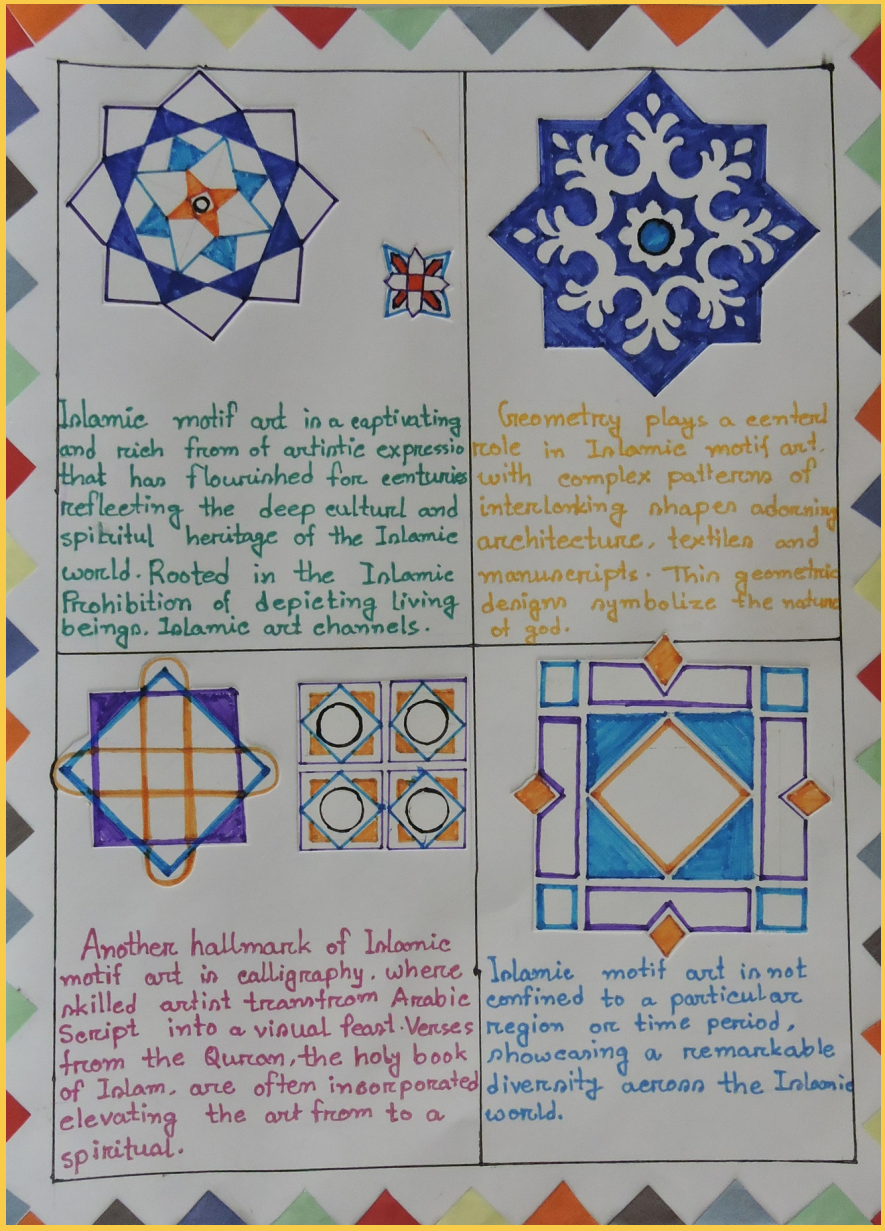
So, Flower have a beautiful mathmatical structer shown in Fig. 1.2.



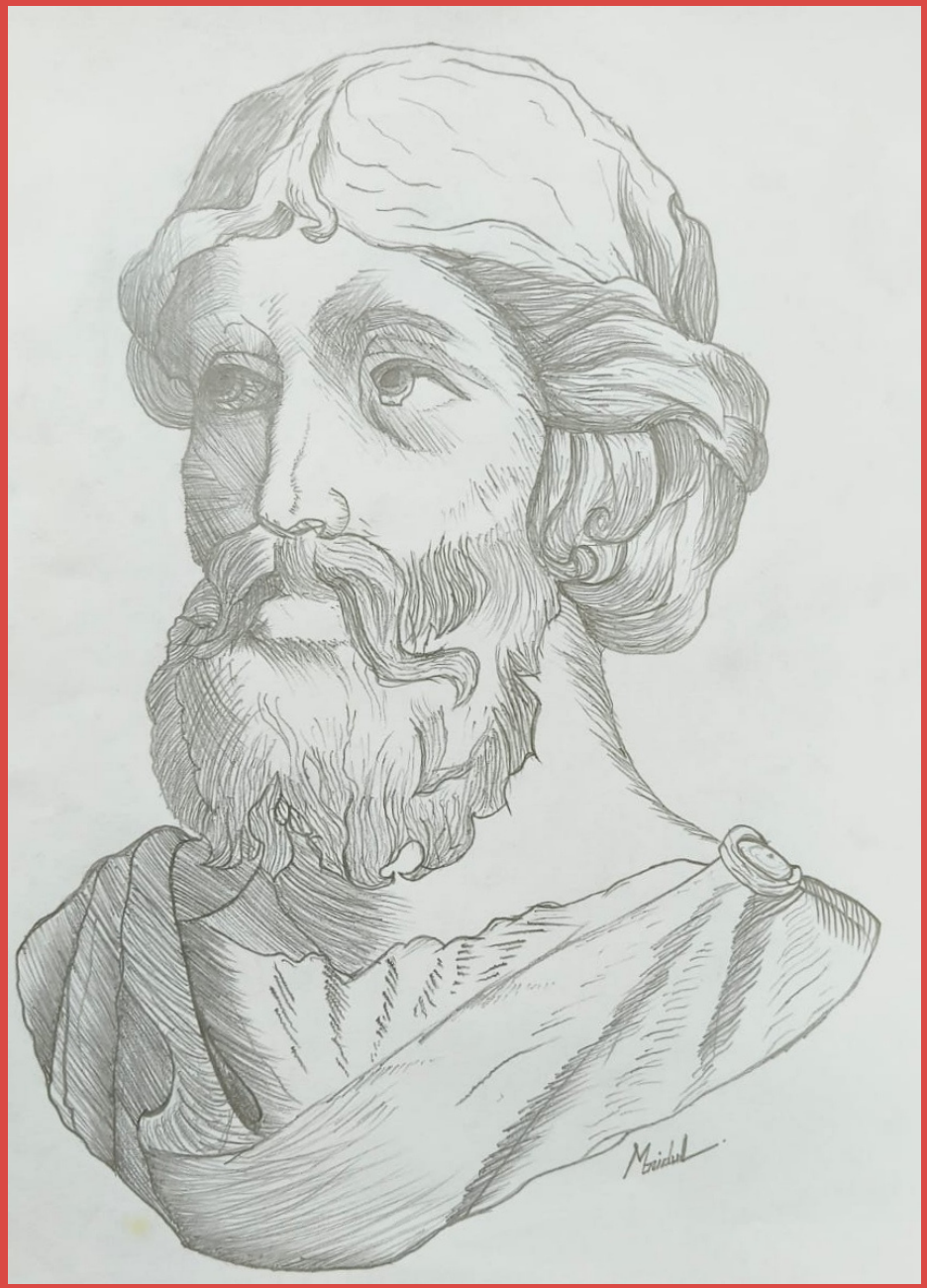
MATHEMATICS & ART



ISLAMIC MOTIF ART

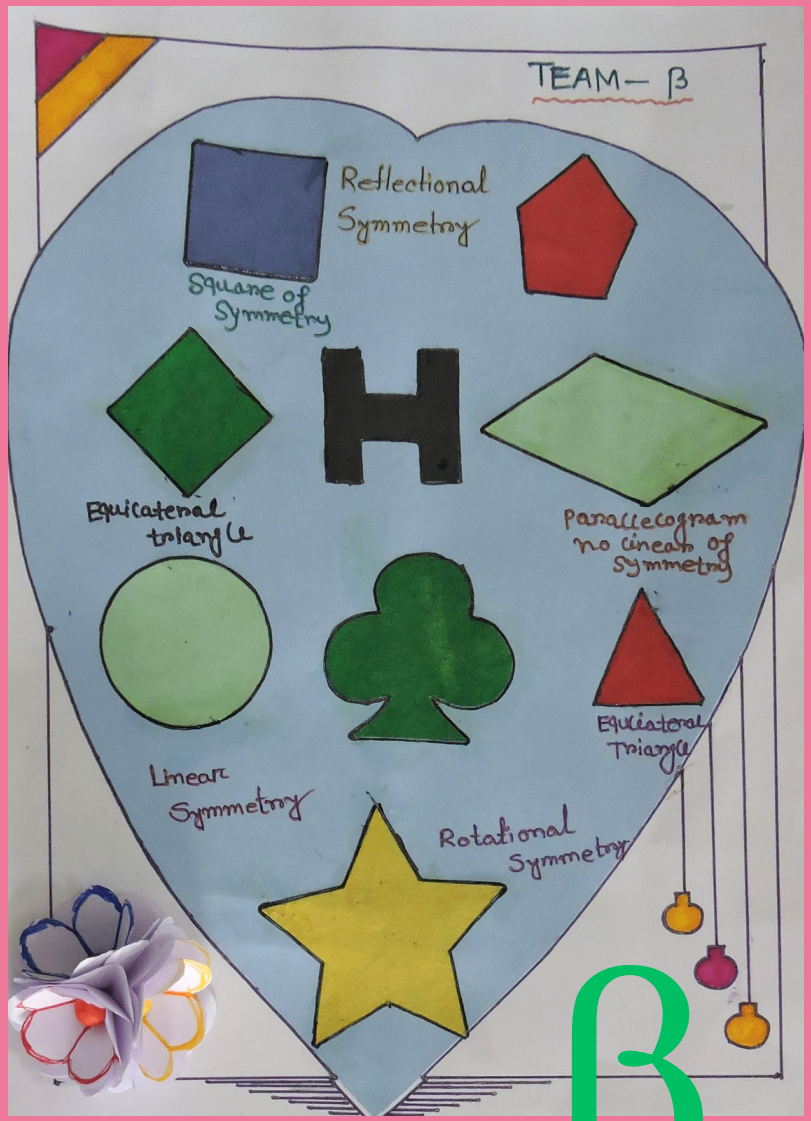


PYTHAGORAS



FEW REAL LIFE EXAMPLES

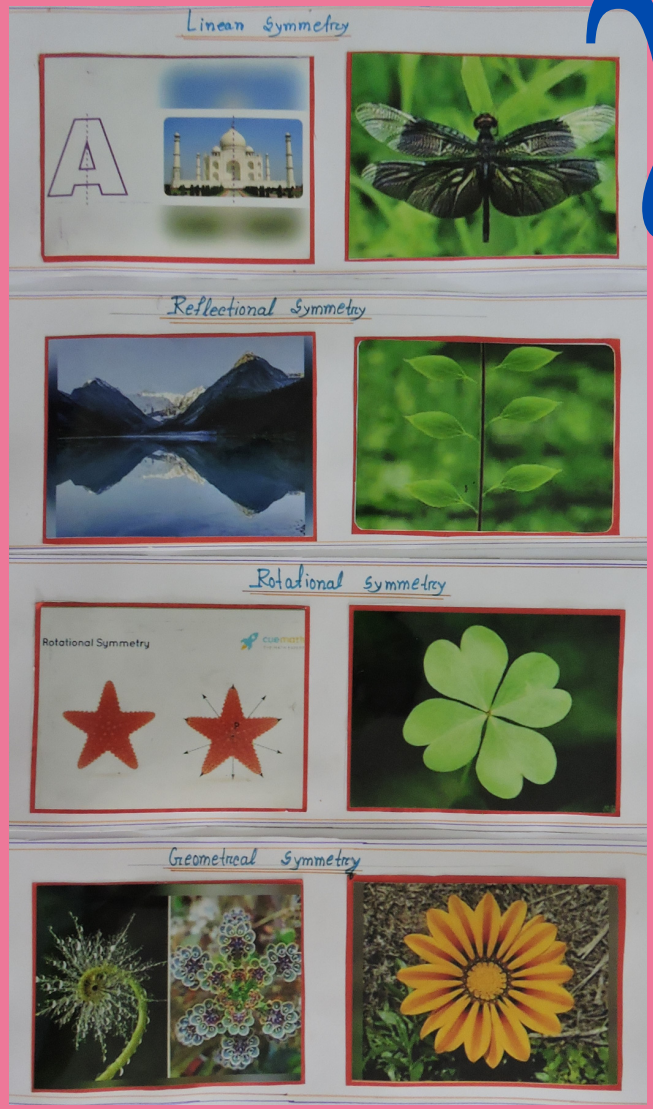
SYMMETRY IN MATHEMATICS



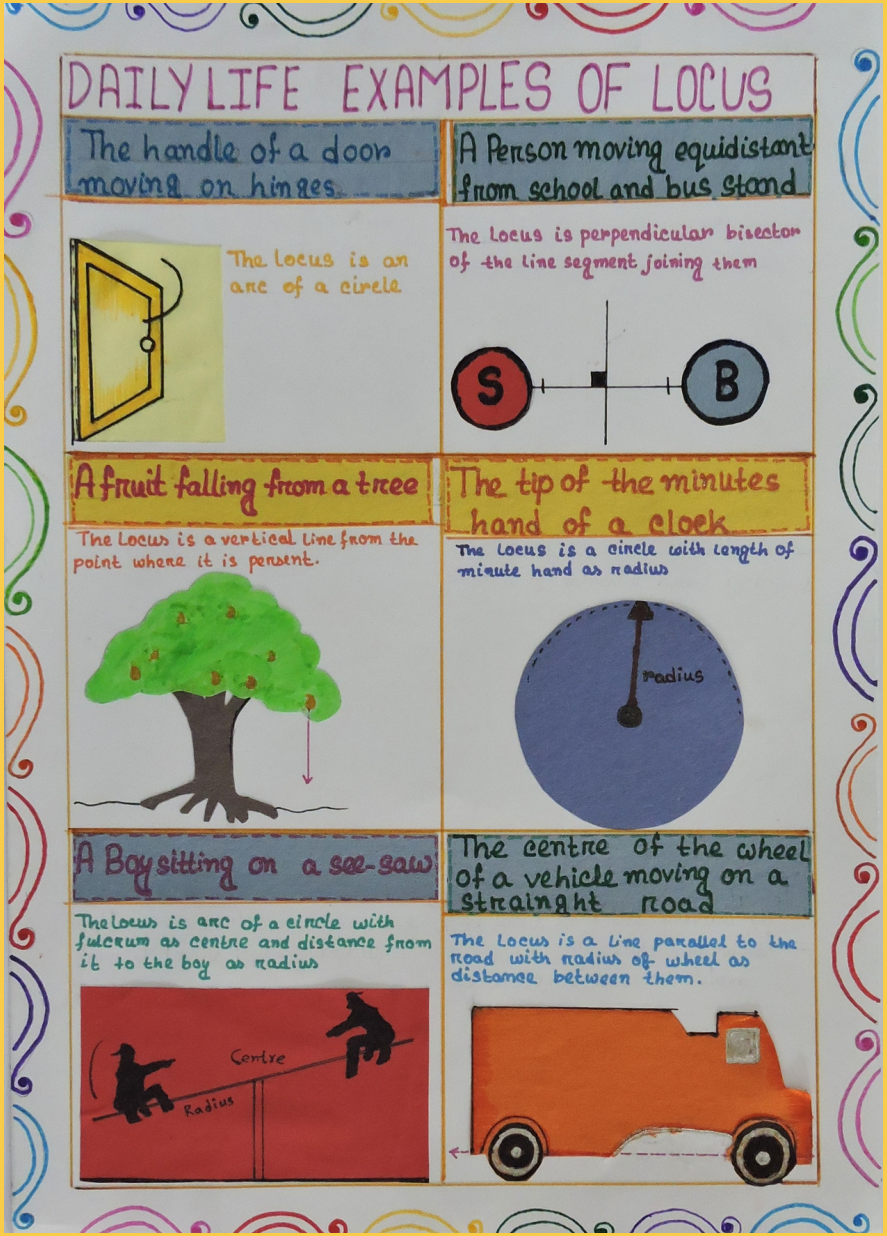
β

SYMMETRY IN REAL LIFE

γ



DAILY LIFE EXAMPLES OF LOCUS




SHAKUNTALA DEVI
GOLDEN RATIO
GEOMETRY
INFINITY & BEYOND
MAGIC SQUARE
BEAUTY OF MATHEMATICS
AREA AND PERIMETER
MATHEMATICS & ART
PEMDAS
CONIC SECTION

THE END