RAMANUJAN

The Annual News Bulletin of

DEPARTMENT OF MATHEMATICES & STATISTICS

GOLAGHAT COMMERCE COLLEGE

YEAR : 2021-22 :: Vol :-V

MESSAGE FROM HOD

The Department of Mathematics & Statistics was established in 1972 . The Department offers courses of Mathematics, Statistics, Business Mathematics and Business Statistics. Apart from emphasizing consistent and good academic performance, the department provides a platform for the students to apply mathematical concepts and to develop the ability to transfer the mathematical of thinking and reasoning to real life situations. Mathematics is important for all professions in the world. Every aspect of life is highly dependent on the use of numbers and arithmetic.

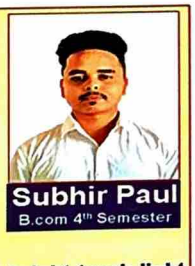
Math is the language of science. It is used to develop the rest of science and interpret its theories, especially physics, chemistry, astronomy, geography, etc. It enables thinkers to test their ideas by doing many experiments. Mathematics is the most important part of banking and financial matters. It is necessary to be accurate in the accounts to be able to maintain the money in an optimal manner.

Mathematics helps people manage money by balancing the checkbook or shopping at the most expensive prices. It helps calculate bills (collection and subtraction of income and expenses), financial obligations of taxes, insurance, loans, and others.

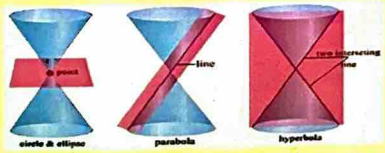
I thank my students of B. Com 4th Semester for their efforts in publishing the fifth Volume of our Departmental Bulletin " Ramanujan". I thank our Respected Principal Sir of our College who encourages us and helps us in all steps in all our departmental activities. I also thank Mrs Tulumoni Gogoi for all her co-operation in publishing the Bulletin.

Dr. Karabi Devi

CONIC SECTION IN THE VICINITY OF LIGHT



Subhir Paul
B.com 4th Semester

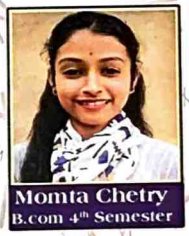


During a dark night in a dark room, shine a bright torch light with a rounded head on to the floor. Point the torch straight down; we would get a disc shape . Town it slightly and the disc becomes distorted . If we rotate the torch for enough , the image on the floor will stretch away from us indefinitely. The outline of the shapes formed by the torch on the floor are known as the conic sections: the distorted disc is called an ellipse until it stretches off to infinity when it becomes a hyperbola . At the precise touch angle for which the ellipse become a hyperbola, the special curve produced is known as a parabola.

Since their first discovery , credited to a Greek man menaechmus from around 350 BCE , conic sections have been observed in a variety of situations. The Earth- travel round the sun in the shape of an ellipse , radio dishes and car headlight are parabola shape because of the light is reflected from their surface.

The Greeks gave the official definition of comic-section as the curves formed through the intersection (section) of a cone (Comic) and a plane . The curves are the outline of the intersection region . In the example at the beginning, the cone was the beam of the torch, the plane was the floor and the intersection was the image on the floor , it has since proved most formed through intersection of a plane and two comes, one above the other.

ROMAN MATHEMATICS



Momta Chetry
B.com 4th Semester

Roman numerals originated as the name might suggest-in ancient Rome. There are seven basic symbols I, V, X L, C and M .The first usage of symbols began showing up-between 900 and 800 BC. The numerals developed out of the need for a common method of counting ,essetials to communication and trade

A single line or "I" reffered to one unit or finger , the "V" represent five fingers ,specially the v shaped made by thumb and forefinger 'X' equal two hands. Larger Roman numerals developed from other symbols .M=1000 –originally the Greek letter phi – represented this value .It was sometimes represented as a C,I and backward C,. Its only a coincidence the mile is the latin word for a thousand .

D=500- The symbol for this number was originally IC or inverse- half of CIC(C inverse)

C=100 –The original symbol was probably theta and later became a C .It only coincidentally also stands for Centum, the latin word for hundred.

L=500-This value was originally represent by a superimposed v and I ,or by letter Psi - - which flattened out to look and inverted T and then eventually came to resemble on L.

Roman numerals universally understood , sophisticated math system and made trading more important .Eventually ,Roman numerals give way to the more versatile Arabic or Hindu numerals system , where numbers are read as a single number in sequence like 435 as four hundred thirty five .

As the roman Empires collapsed a thousand years later , Christianity , (ironically one of Rome's earliest targets for persecution , continued to use the culture number system .

Today Roman numerals appear in building cornerstones and movie credit and tittles . They are also used in name of monarch ,popes ,ships and sporting events loke Olympics and super bowl.

"ANUPAM SAIKIA" PRIDE OF ASSAM


Anuswari Maheswari

Anupam Saikia is an Indian mathematician who was born in Assam. He qualified his school from Govt. Higher Secondary School, Golaghat,Assam in the year 1989. Then he did his pre-university studies at Cotton College, Guwahati till 1991 and further he joined St. Stephen's College, in Delhi for his Bachelor's in Mathematics. After his B. Sc degree in 1994, he joined Trinity College, Cambridge and became a wrangler in 1996. He pursued his PHD degree from the Department of Pure Mathematics and Mathematical Statistics, the University of Cambridge, which he received in 2001 for a thesis titled Iwasawa Theory of Lubin - Tate Division Towers and P - Adic L-functions under the supervision of John Coates. He was awarded the 'Smith and knight Prize' in the annual mathematics essay competition for second-year PhD students at the University of Cambridge in 1999.

He is a member of the editorial boards of the journal of the Ramanujan Mathematical Society and the Bulletin of the Mathematics Teachers Association (India).

STARLINK


Isdor Minz

SpaceX's satellite internet system

In 2019, SpaceX launched the first 60 satellites of Starlink. Since then, over 2,000 have reaches orbit, set to become part of a constellation of more than 12,000. Known as Starlink, the project aims to bring high-speed internet to every corner of the planet. SpaceX founder and CEO Elon Musk announced the Starlink concept in Jan. 2015, explaining the company intended to launch only about 4,000 broadband satellites into low-Earth orbit to provide low-cost internet. For perspective, there were only about 2,000 operational satellites in orbit before Starlink, and humanity have launched only around 9,000 craft into space in all of history.Currently, fast internet access is only available in places with fibre optic cables. In remote locations, communications satellitespro-vide links to the internet, but the connections are notoriously slow. These satellites sit in geostationary orbit, meaning they travel at the same speed as Earth's rotation and therefore remain positioned above the same point on the ground, according to the European Space Agency (ESA). This makes it easy for receiving satellite dishes to connect with them, but the downside is that transferring data in this way takes time.

BIOINFORMATICS


Santana Gupta

Bioinformatics is an interdisciplinary field that develops methods and software tools for understanding biological data, in particular When the data sets are Large and Complex, Bioinformatics is an emerging field of science that deals with the application of Computers to the Collection, Organization , analysis manipulation, presentation, and sharing of biological data. Bioinformatics is disciplinary field directly involving molecular biology, genetics, Computer Science, mathematics and statistics.

The Central Component of bioinformatics is the study of the best way to design and operate biologic data base. As a large amount of nucleotide and protein sequence data are obtained via various research techniques, along with Other type of information stored primary and Secondary biological data bases, scientists started to use Computers to obtain and analyze biological data in their daily research with bioinformatics. tools

To help the biologists access the databases effectively and use the analysis tools efficiently, bioinformatics has eventually. become a vital part of biological education.

Bioinformatics is an evolving discipline, and complex Software programs are now being used for retrieving, Sorting out, analyzing, predicting, and storing DNA and protein using various programs and databases available on the world. Wide Web.

A Part from the analysis of genome sequence data, bioinformatics is now being for a vast array of other vital ecological tasks, including analysis of gene Variation and expression, analysis and prediction of gene and protein structure and function. Bioinformatics can be used for different other fields of biology of different groups of living beings.

NASA


Tauhidul Hussain

NASA stand for national Aeronautics and space Administation NASA was established in 1958, succeeding the National Advisory Committee for Aeronautics (NACA). The new agency was to have a distinctly civilian orientation, encouraging peaceful applications in space science.Since its establishment, most US space exploration efforts have been led by NASA, including the Apollo Moon landing missions, the Skylab space station, and later the Space Shuttle. NASA is supporting the International Space Station and is overseeing the development of the Orion spacecraft, the Space Launch System, Commercial Crew vehicles, and the planned Lunar Gateway space station. The agency is also responsible for the Launch Services Program, which provides oversight of launch operations and countdown management for uncrewed NASA launches.Beginning in 1946, the National Advisory Committee for Aeronautics (NACA) began experimenting with rocket planes such as the supersonic Bell X-1. In the early 1950s, there was challenge to launch an artificial satellite for the International Geophysical Year (1957–1958). An effort for this was the American Project Vanguard. After the Soviet space program's launch of the world's first artificial satellite (Sputnik 1) on October 4, 1957, the attention of the United States turned toward its own fledgling space efforts. The U.S. Congress, alarmed by the perceived threat to national security and technological leadership (known as the "Sputnik crisis"), urged immediate and swift action; President Dwight D. Eisenhower counseled more deliberate measures. The result was a consensus that the White House forged among key interest groups, including scientists committed to basic research; the Pentagon which had to match the Soviet military achievement; corporate America looking for new business; and a strong new trend in public opinion looking up to space exploration.The agency's leader, NASA's administrator, is nominated by the President of the United States subject to the approval of the US Senate, and reports to him or her and serves as a senior space science advisor. Though space exploration is ostensibly non-partisan, the appointee ususlly is associated with the President's political party (Democratic or Republican), and a new administrator is usually chosen when the Presidency changes parties. The only exceptions to this have been:

Democrat Thomas O. Paine, acting administrator under Democrat Lyndon B. Johnson, stayed on while Republican Richard Nixon tried but failed to get one of his own choices to accept the job. Paine was confirmed by the Senate in March 1969 and served through September 1970.

Republican James C. Fletcher, appointed by Nixon and confirmed in April 1971, stayed through May 1977 into the term of Democrat Jimmy Carter.

The first administrator was Dr. T. Keith Glennan, appointed by Republican President Dwight D. Eisenhower. During his term he brought together the disparate projects in American space development research.

NASA Headquarters in Washington, DC provides overall guidance and political leadership to the agency's ten field centers, through which all other facilities are administered. Four of these were inherited from NACA; two others were transferred from the Army; and NASA commissioned and built the other four itself shortly after its formation.

ASTRONOMY

Alankrit Parashar
B.com 4th Semester

Astronomy means the study of the laws of the stars.It is a natural science that studies celestial objects and phenomena.It uses math's , physics and chemistry in order to explain their origin and evolution .It includes the study of planets,moons,stars,galaxies and comets. More generally, astronomy studies everything that originatesbeyond earth's atmosphere. Cosmology is one of a branch of astronomy that studies the universe as a whole

It is one of the oldest natural sciences .The early civilizations in recorded history made methodical observations of the night sky .These include the Babylonians,Greeks,Indians,Egyptians,Maya and many ancient indigenous people of the Americas.In the past, Astronomy included disciplines as diverse as astrometry ,celestial navigation,observational astronomy and the making of calendars.But nowadays it is often said to be the same as astrophysics.Professional Astronomy is split into observational and theoretical branches. Observational Astronomy is focused on acquiring data from observations of astronomical objects .This data is then analyzed using basic principles of physics.Theoretical astronomy is oriented towards the development of computer or analytical models to describe astronomical objects and phenomena.These two fields complement each other .Theoretical astronomy seeks to explain observational results and observations are used to confirm theoretical results.

Astronomy is one of the few sciences in which amateurs play an active role. This is specially true for the discovery and observation of transient events .Amateurs astronomers have helped with many important discoveries, such as finding new comets.

PERIODIC TABLE

Silpa Dam
B.com 4th Semester

The periodic table was one of the most important development in the field of chemistry. Periodic table is a table of the chemical element arranged in order of atomic number, usually in rows, so that elements with similar atomic structure appear in vertical columns. The periodic table played a crucial part in the field of chemistry as it allowed for a way of organising the elements so that it was possible to make predictions about both their chemical and physical properties based on the elements position in the table.

HISTORY OF PERIODIC TABLE

The modern periodic table arranges the elements by their atomic numbers and periodic properties. Several Scientists worked over almost a century to assemble the elements into this format. Among the Scientists who worked to create the periodic table were Antoine Lavoiseir, Johann WolfgingDobereiner, John Newlands and Henry Moseley. In 1869 Russian Chemist Dmitri Mendeleev created the modern periodic table which was accepted generally for the first time. He created the framework that became the modern periodic table, leaving gaps for elements that were yet to be discovered.

USES OF PERIODIC TABLE

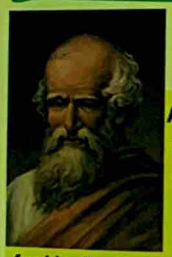
Before all naturally occurring elements were discovered, the periodic table was used to predict the chemical and physical properties of elements in the gaps on the table. Today, the table can be used to predict properties of elements yet to to be discovered. Nowadays, the table its useful for modern students and Scientists because it helps to predict the type of chemical reactions that a particular element is likely to participate in. Rather than memorizing facts and figures for each element, students and Scientist needs only glance at the table to learn much about the reactivity of an element, whether it is likely to conduct electricity, whether it is hard or soft, and many other characteristics

CONCLUSION

The periodic table plays a very significant role as it is organized to provide a great deal of information about elements and how they relate to one another in one easy to use reference. Thus, periodic table makes trend in element properties apparent and easy to understand. The table provides important information used to balance chemical equations.

ARCHIMEDES

Smriti Gogoi
B.com 4th Semester



Archimedes was born 287BCE in Syracuse on the island of Sicily. He was well known for his inventions and scientific discoveries.

The most famous mathematician and inventor in ancient Greece. Archimedes is especially important for his discovery of the relation between the surface and volume of a sphere and its circumscribing cylinder. He is known for his formulation of a hydrostatic principle and a device for raising water, still used, known as the Archimedes screw.

There are nine extant treatises by Archimedes in Greek. The principal results in On the Sphere and Cylinder are that the surface area of any sphere of radius r is four times that of its greatest circle and that the volume of a sphere is two-thirds that of the cylinder in which it is inscribed. Archimedes was proud enough of the latter discovery to leave instructions for his tomb to be marked with a sphere inscribed in a cylinder.

On Conoids and Spheroids deals with determining the volumes of the segments of solids formed by the revolution of a conic section about its axis. In modern terms, those are problems of integration.On Spirals develops many properties of tangents to, and areas associated with, the spiral of Archimedes—i.e., the locus of a point moving with uniform speed along a straight line that itself is rotating with uniform speed about a fixed point.

On Floating Bodies survives only partly in Greek, the rest in medieval Latin translation from the Greek. It is the first known work on hydrostatics, of which Archimedes is recognized as the founder.

The world's greatest scientist Archimedes was died during the Siege of Syracuse in 211 BC.

DARK MATTER

Kunal Dhar
B.com 4th Semester

The ancient Greeks had a great idea the universe is simple in their minds, all you needed to make it were four elements: Earth, Air, Fire, and Water. As the theory goes it says that by combining the four basic elements in different ways you can produce all the wonderful diversity of the universe. Earth and fire, for example, give you things that are dry Air and water, things that are wet. But as theories go, they had a problem: it didn't predict anything that could be measured, and measurement is the basic of experimental science worse still, the theory was wrong. But the Greeks were great scientists of the mind and in the 5th century B.C., Leucippus of Miletus came up with the most enduring scientific idea ever. "Everything we see is made up of tiny, indivisible bits of stuff called atoms".Centuries of scientific thoughts and experimentation have established that the real elements things like hydrogen, carbon and iron can be broken down into atoms.

Dark matter is the stuff that makes it possible for galaxies to exist. When scientists first measured the motion of groups of galaxies in the 1930's and weighed the amount of matter they contained they were in for a surprise. They found there was not enough visible stuff in those groups to provide enough gravity to hold them together. From what we can see, they ought to fly apart but they don't. Everything we see with telescope, consists of 15% of the total mass of the universe. Everything else 85% of it doesn't exist or absorb light. We can't see it with our eyes, we can't detect it with radio waves or microwaves or any other kind of light. Places with high concentration of Dark Matter bend light passing near by so there is something there that is interacts with gravity.

Constant advanced studies have shown one of the strongest things we have learned to far is that most of the material in the universe is made of something entirely different than you and me. But without it the universe as we know it wouldn't exist.

TURING PATTERN

Raj Gupta
B.com 4th Semester

The Turing Pattern is a concept which was introduced by thefamous English mathematician and theoretical biologist Alan Turing in a papertitled. "The Chemical Basis of Morphogenesis" in 1952.It helps to describes how patterns in nature such as stripes and spots can arise naturally and autonomouslyfrom a homogeneous or uniform state.

In his classic paper,Alan Turing examined the behaviour of a system in which two diffusible substances interact with each other and found that such a system is able to generate a spatially periodic pattern even from a random or almost uniform initial conditionTuring hypothesized that the resulting wavelike patterns are the chemical basis of morphogenesis.

The original theory, a reaction-diffusion theory of morphogenesis has served as an important model in theoritical biology.Reaction–diffusion systems have attracted much interest as a prototype model for pattern formation. Patterns such as fronts, hexagon, spirals,stripes and dissipative solitons are found assolutions of Turing-like reaction-diffusion equations.

MATHEMATICS

Priya Sahu
B.com 4th Semester

Mathematics is the only place where truth and beauty means the same thing. Mathematics rightly viewed, posses not only truth but supreme beauty. Mathematics expresses values that reflect the cosmos, including orderliness, balance, harmony logic and abstract beauty. The study of complex mathematics was not found until around 3000 BC. The use of arithmetic, algebra and geometry was made by Babylonians and Egyptians for building and construction as well as for astronomy.

At the beginning of the 6th century BC, Greek mathematics was introduced by the ancient Greeks.

Archimedes is known as the father of mathematics. He lived between 287 BC-212 BC and Emmy Neother is known as mother of mathematics she developed some theories of rings, fields, and algebras.

About 778 AP the mathematician Mohammed ibn Musa, al-Khawarcigni was the first to work on equations that are equal to zero. Though he called it "sifr". By the nine century, the zero was part of the Arabic numeral system in a similar shape to the present-day oval we now use. This zero plays a vital role in mathematics.

Hindu - Arabic numerals, set of 10 symbols 1, 2, 3, 4, 5, 6, 7, 8, 9, 1º - that represent numbers in the decimal numbers system. They originated in India in the 6th on 7th centuries and were introduced to Europe through especially al- Khwarizmi and al-Kindi, about 12th century.

Algebra, Geometry, calculus and statistics and probability are considered to be the 4 main branches of mathematics.

Mathematics provides an effective way of building mental discipline and encourages logical reasoning and mental rigour. In addition, mathematical knowledge plays a crucial role in understanding the contents of other subjects such as science, social studies, and even music and art. Mathematics is very useful in everyday life we use math concepts as well as the skills, we learn from participating in math problems every day. Mathematics gives us a way to understand patterns, define relationships and predict the future. It helps us to do many important things in our daily lives.

Respected French mathematics and physicist Simeon Denis poisson said that Life is good for only two things, discovering mathematics and teaching mathematics.

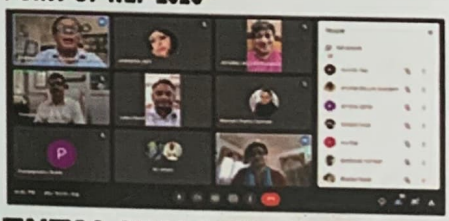
BOOLEAN ALGEBRA

Ubedur Rahman Borah
B.com 4th Semester

Boolean algebra, symbolic system of mathematical logic that represents relationships between entities—either ideas or objects. The basic rules of this system were formulated in 1847 by George Boole of England and were subsequently refined by other mathematicians and applied to set theory. Today, Boolean algebra is of significance to the theory of probability, geometry of sets, and information theory. Furthermore, it constitutes the basis for the design of circuits used in electronic digital computers.In a Boolean algebra a set of elements is closed under two commutative binary operations that can be described by any of various systems of postulates, all of which can be deduced from the basic postulates that an identity element exists for each operation, that each operation is distributive over the other, and that for every element in the set there is another element that combines with the first under either of the operations to yield the identity element of the other.The ordinary algebra (in which the elements are the real numbers and the commutative binary operations are addition and multiplication) does not satisfy all the requirements of a Boolean algebra. The set of real numbers is closed under the two operations (that is, the sum or the product of two real numbers also is a real number); identity elements exist—0 for addition and 1 for multiplication (that is, $a + 0 = a$ and $a \times 1 = a$ for any real number a); and multiplication is distributive over addition (that is, $a \times [b + c] = [a \times b] + [a \times c]$); but addition is not distributive over multiplication The advantage of Boolean algebra is that it is valid when truth-values—i.e., the truth or falsity of a given proposition or logical statement—are used as variables instead of the numeric quantities employed by ordinary algebra. It lends itself to manipulating propositions that are either true (with truth-value 1) or false (with truth-value 0). Two such propositions can be combined to form a compound proposition by use of the logical connectives, or operators, AND or OR. (The standard symbols for these connectives are and , respectively.) The truth-value of the resulting proposition is dependent on the truth-values of the components and the connective employed. For example, the propositions a and b may be true or false, independently of one another. The connective AND produces a proposition, a b, that is true when both a and b are true, and false otherwise.

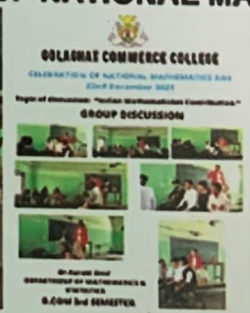
ACTIVITIES OF THE DEPARTMENT

NATIONAL WEBINAR ON "RE-EMERGENCE OF LIBERAL EDUCATION: A FOCAL POINT OF NEP 2020"



DEPARTMENTAL WALL MAGAZINE

CELEBRATION OF NATIONAL MATHEMATICS DAY



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