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Fundamental Concepts of History of Mathematics

*Dr. Rupen Chatterjee

Department of Mathematics, NabagramHiralal Paul College, Nabagram, Hooghly, West Bengal Pin:712246, India (Affiliated to Calcutta University)

Abstract

The science of structure, discipline, and relationships arose from the first practice of calculating, measuring, and describing the shape of an object. It involves logical reasoning and quantitative computing. And the development of the ideal and the abstraction of the subject has reached an extended level. Beginning in the seventeenth century, mathematics was an essential complement to the physical sciences and technologies and, more recently, began to play a similar role in the quantitative aspects of the life sciences. In many cultures influenced by the need for practical study, for example, the mathematics of trade and agriculture far exceeded calculations. This growth was most pronounced in sophisticated societies sufficient to sustain this activity and to build on the free time of thought and the capacity to build on the successes of previous mathematicians. The field of study known as the history of mathematics is practically the study of the source of discovery. Examples of new mathematical developments in mathematical methods and the study of mathematical methods of identifying the past and to a lesser extent in the modern age and before the spread of knowledge worldwide have appeared in only a few places. From 3000 BC, the Mesopotamian kingdoms of Sumer, Akkad and Assyria, followed by ancient Egypt and the Levantine kingdoms, began to use arithmetic, algebra and geometry for fiscal, commercial, commercial and natural purposes, as well as time and astronomy. for astronomy. The oldest available mathematical texts are Mesopotamia and Egypt - Polimpton 322 (Babylonian period 2000-1900 BC), Rind's Mathematical Papyrus (Egyptian Circus 1800 BC) and Moscow Mathematical Papyrus (Egyptian Circus 1890 BC). All these texts contain references to the Pythagorean triad, so the Pythagorean theorem seems to be the oldest and most extensive mathematical development after mathematics and geometry.

Keywords:*Mathematics, History, Calculating, Measuring*

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***Author's Correspondence**

Dr. Rupen Chatterjee

Department of Mathematics, NabagramHiralal Paul College, Nabagram, Hooghly, West Bengal Pin:712246, India (Affiliated to Calcutta University)

Rupen@hiralalpaulcollege.ac.in

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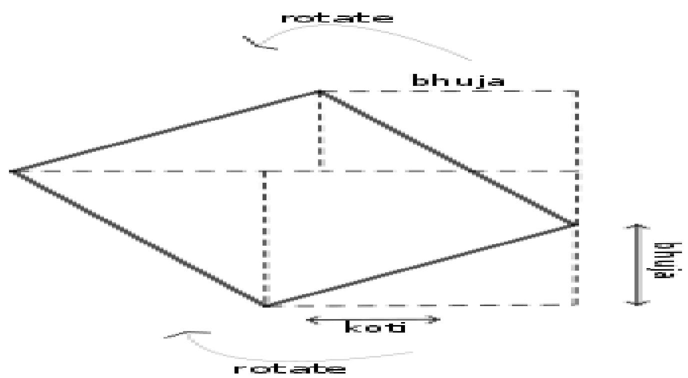
Introduction

The study of mathematics as "visual arts" began in the sixth century BC. With the Pythagorean people coining the ancient Greek word "mathematics" from (mathematics), meaning "the subject of study," the Greek mathematical system was improved. (mainly from the conceptualization and validity of mathematical implementation in terms of evidence) and expanding the topic of mathematics. Even if they paid little or no attention to math. But the ancient Romans used mathematics for research, civil engineering, mechanical engineering, research, lunar and solar calendars. and even in the applied industry Chinese calculations using initial numerals and the first negative numeral and system. Hindu-Arabic numerals and rules of use throughout the world began in India today in the first millennium and were transmitted to the Western world by Islamic mathematics for the work of Muhammad bin Musa al-Islamic mathematics developed and Expand the mathematics of the known civilizations surrounding Khabarizmi today. These traditions differ from that of Tih, the arithmetic created by the developing Mayans of Mexico and Central America. which gives imagination in terms of Mayan value and population. Many Greek and Arabic texts and maths have been translated into Latin since the twelfth century. which led to the development of mathematics in ancient Europe. Mathematical research from the early Middle Ages to the Middle Ages usually took place at the end of the century. After the Renaissance in the 15th century, a new mathematical system called Newtalideveloped rapidly. by collaborating with new scientific discoveries that continues to this day These include the pioneering work of Isaac Newton and Gottfried Wilhelm Leibniz and the unmatched development of the seventeenth century system. In the late 19th century, it was established International Congress of Mathematicians And there is continuous progress in this area. Connect students with case studies and literature. And it allows them to solve interesting and important problems with a deeper approach to the literature in mathematics. These national challenges explore all the problems students face in the classroom. If a problem arises, it goes back in time to the reader and presents the mathematical problems of those days. Often the same problem with today's mathematics. this general knowledge as well as knowledge of mathematical formulas of the last century. can help promote learning Students can enjoy the excitement and satisfaction of solving problems that existed centuries ago. In a sense, these problems have affected students in the past.

History of Mathematics

India

The first civilization of the Indian subcontinent was the Indus civilization (mature period: 2600-1900 BC), which grew in the Indus river basin. Their cities were built with geometric regularity, but no mathematical documents of this civilization have survived. The oldest mathematical records in India are the Sulba Sutra (marked separately between the 7th and 2nd centuries BC), which complements religious texts that provide simple rules for building altars of various sizes, such as squares. , rectangles, parallelograms, etc. As in Egypt, concern for temple activities indicates the origins of mathematics in religious rituals. Sulba formulas provide methods for constructing circles in the same area as a given square, which involve different approximations to the value of π. All these results are present in Babylonian mathematics, indicating the influence of Mesopotamia. It is not known how much the Sulba formula influenced Indian mathematicians later. Like China, there is no continuity in Indian mathematics; Significant progress is divided by long-term inactivity. Panini (5th century BC) formulated the rules of Sanskrit grammar. Its notation is similar to modern mathematical notation and meta-rules, conversions and iterations have been used. Pingala (2nd, 3rd - 2nd centuries BC) used an instrument related to the binary number system in his prosody treatise. His discussion of the mixture of meters coincides with the initial version of the binary theorem. Pingal's writings also contain the basic idea of the Fibonacci number (known as the Matrameru). The next notable mathematical documents in India after the Sulba Sutras are Siddhanta, a book of astronomy from the 4th and 5th centuries (Gupta period) that shows strong Hellenic influences. It is important to note that these contain the first examples of half-gender-based trigonometric relationships, such as modern trigonometry, such as Ptolemy's trigonometry. Due to several translation errors, the words "sign" and "cosine" come from the Sanskrit "zia" and "kozia".



Explanation of the sine rule in Yuktibhāṣā

In about 500 AD, Aryabhata wrote a small volume in Aryan to supplement the rules of calculation used for astronomy and mathematical menstruation, although there is no sense of logic or deductive method in it.

Although about half of the entries are incorrect, the decimal system first appears in Aryabhatia. Centuries later, the Muslim mathematician Abu Raikhan described BiruniAryavatya as "a mixture of ordinary stones and precious crystals." In the seventh century, Brahmagupta identified the Brahmagupta theorem, the personality of Brahmagupta and the Brahmagupta formula, and for the first time in Brahma-Sput-Siddhanta, he interestingly explained zero, both a substitute and a number, decimal, and explained to Hindus: the system of Arabic numerals. Through the translation of this Indian text on mathematics (c. 7070), Islamic mathematicians became familiar with this number system, which they adapted to represent Arabic numerals. Islamic scholars brought knowledge of this number system to Europe in the twelfth century, and have now moved all the old number systems around the world. To represent numbers in the Indian-Arabic numeral system, different sets of characters are used, all of which are derived from Brahmi numbers. India has its own symbols, numbered by about a dozen major scriptures. The works of Pingala of the 10th century were studied in Halayudha according to the Fibonacci sequence and Pascal's triangle, and there is a description of the formation of the matrix. In the XII century, Vaskara II lived in India and wrote a lot on all the branches of mathematics known at that time. There is debate among mathematician historians about how much he invented the computation, according to which his work contains mathematical or non-finite object equivalents, derivatives, the average quality theorem, and the derivative of an equal amount of a sinusoidal function. In the 14th century, Madhav of Sangamgram, the founder of the Kerala school of mathematics, received the Madhava-Leibniz series and a modified series from it, the first 21 terms, which he used to calculate the comp value as 3.14159265359. Madhav also received the Madhava-Gregory series for the definition of architects, the Madhava-Newton energy series for the definition of sine and cosine, and Taylor for the sine and cosine functions. In the 16th century, Jyastadev united many developments and divisions of the Kerala school. Yuki-B. Through Jesuit missionaries and traders who operated at that time in the vicinity of the old port of Muziris and, as a result, directly influenced subsequent European events in subsequent analyzes and calculations. However, other researchers argue that Kerala has not developed a systematic theory of school differences. Both the consolidation and there is direct evidence that their results were transferred outside of Kerala.

Egyptian

Egyptian mathematics refers to mathematics written in the Egyptian language. From the Hellenistic period the Greeks replaced the Egyptians as the written language of the Egyptian scholars. The study of mathematics in Egypt continued as part of Islamic mathematics during the Arab Empire, when Arabic became the written language of Egyptian scholars. The most extensive mathematical text in Egypt is derived from Rinda Papyrus (sometimes named Ahms Papyrus after its author), c. 1650 BC, but copies of ancient documents of the Middle Kingdom from 2000-1800. B.C. This is a guidebook for students studying arithmetic and geometry. In addition to field formulas and methods of multiplication, division and working with unique fractions, it also contains evidence of other mathematical knowledge, including mixed and prime numbers; It means arithmetic, geometric and harmonious; And a simple understanding of both the Erotothinis CV and the perfect number theory. He shows how to solve first-order linear equations, as well as geometric drawings and series. Another important lesson in Egyptian mathematics is the Moscow Papyrus, which dates from the Middle Kingdom period, beginning in 1890 BC. Today it is called works of words or stories that were clearly intended for entertainment. A problem is considered particularly important because it provides a method for determining the size of a pyramid (filled pyramid). Towards the end, the Berlin Papyrus 19 6619 (c. 1800 AD) shows that the ancient Egyptians could solve second-order algebraic equations.

Greek

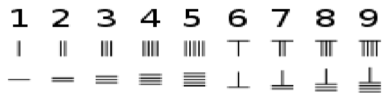
Greek mathematics is much more complex than mathematics developed by previous cultures. The remaining records of pre-Greek mathematics show persuasive reasoning, which is repeatedly observed. Fingers were used to make rules. Instead, Greek mathematicians used negative thinking. The Greeks used logic to draw formulas from definitions and audio files. And use mathematical rigor to prove that the origins of Greek mathematics lie in Thales of Militia (c. 624 - c. 546 BC) and Samos vs. Pythagoras (c. 582 - c. 507 BC), although the degree of influence is debatable. But they may have been inspired by Egyptian and Babylonian mathematics. Legend has it that Pythagoras traveled to Egypt with Egyptian priests to study mathematics, geometry, and astronomy. His achievement with the first application of cutting-edge thinking in geometry. Four decisions were made from Thales's theorem. As a result, he became the first true mathematician and the first instinct of mathematical discovery. Pythagoras founded the Pythagorean school. The Pythagoreans invented the term "mathematics", from which they began to study mathematics. The first evidence of the Pythagorean theorem was responsible to the Pythagorean people, although the theorem has a long history Numbers exist. Although Christians (Babylonians and Chinese) Nicholas (60–0 AD) 102 AD) provided a table of the oldest Greco-Roman standards, it is still the oldest Greek standard table found in the first century AD (now in the British Museum). Found in wax slabs Link to Neo-Pythagoras value The table of Western discoveries is evident in the post-medieval name: Mensa Pythagoras. Around the same time, Eratosthenes of Siren (2–19–44 BC) created a sieve of Erotostinis in search of original images in the third century BC. Which is generally regarded as the "golden age" of Greek mathematics. There was progress in authentic mathematics. With relative decline, however, applied mathematics has made great strides in the next century. In particular, trigonometry astronomer Nietzsche was considered the founder of trigonometry for compiling the first known trigonometry tables in response to the wishes of Hipparchus (190-10 BC) and was responsible for the systematic use of 3 36060-degree circles. In Jeronska, Alexandria (c. 10- AD0 AD) Aaron's formula, which determines the area of a measured triangle and determines the probability of the square of the negative number being negative, Alexandria Menelaus (100 AD) The most influential antiquity was Ptolemy's Almagest (90-168 AD), an astronomical manual where astronomers used trigonometric tables in the next millennium. Known for the theorem, her collection was an important source of knowledge of Greek mathematics, along with the Pops configuration and the Pops graph. Pops is considered the last major inventor of Greek mathematics, and later worked primarily on commentary on her previous work.) He answered it Authorized by his father (Theon of Alexandria) from the librarian of the Great Library and wrote many articles on applied mathematics. He was publicly stripped naked and killed by the Christian community in Alexandria over political controversy. The Alexandrian language is sometimes considered the end of the Greek mathematical age. Although his work on personalities such as Praclaus, Simplicus, and Eutokias lasted another century in Athens, Proclaus and Simplicus were more philosophical than mathematicians. However, the commentary on the previous text is a valuable source of Greek mathematics. It marks the end of the Greek mathematical era when Emperor Justinian closed the Neoplatonic Academy in Athens in 29 AD. Although the Greek tradition continued in the Byzantine Empire with trolls and mathematicians such as AngemaiusIsidora, the architect of the Hophia Sophia Militas, most opinions were about Byzantine mathematics. The center of some inventions and mathematical innovations is elsewhere.

Romanian

Although ethnic Greek mathematicians continued to rule during the time of the late Roman Republic and later the Roman Empire. However, there were no great Latin mathematicians in this region. Ancient Romance Cicero (10-33 BC) was an influential Roman politician who studied mathematics in Greek texts. It was believed that Roman landscapes and mathematicians were more interested in mathematics than the theoretical mathematics and geometry used by the Greeks. It is not clear whether the Romans adopted their number system directly from the Greek precedent or from the Etruscan numbers used by the Irskan civilization centered in Tuscany in central Italy. Using these calculations the Romans specialized in identifying financial frauds and in the management of income tax. One of the Roman grammars (i.e. topography), Siculus Flacus, recorded the region of Moore which helped the Roman landscapes to measure the area of land and the allotted land. In addition to trade and tax administration, the Romans regularly used mathematics to solve engineering problems, such as building bridges, building roads, and preparing for military campaigns. Tessera tiles were made that required accurate measurements. An average of eight square millimeters, a piece of AfsTesalalatam and a thin piece of Apas vermicelli with an average volume of four square millimeters. The basics of mathematics were also needed to create the Roman calendar. The first calendar dates to the 8th century BC. The Republican lunar calendar has 355 days in contrast to the Roman Empire and includes 356 days plus leaps every two years, which is less than ten and four parts of the solar year. And this difference was deleted by adding an extra month to the calendar after February 23 This calendar was canceled by the Julian calendar. This is a solar calendar organized by Julius Caesar (100-44 BC) and made by Sochi, Alexandria to include jumping days in a 355-day cycle, a four-year calendar of 11 years 14 years and seconds This error was later corrected by Pope Gregory XIII. Calendar. (King 1572-1585) In fact, the same solar calendar today is the Standard International Calendar. At the same time the Han and Romans invented wheel counters for measuring distances. Which is a Roman model described by civil engineer and architect Vitruvius (BC 80). Europe in the fifteenth century. The vitrometer of the Vitruvius shows the wheels of the same 4-foot (1.2 mm) chariot derived from the Anticith movement from which it was based. With a similar method and technology that rotates four hundred times per Roman mile (approximately 4590 ft / 1400 m) with each revolution Trunion Axel combines a 400-tooth sproke to create a second gear that throws pebbles into the box. Each pebble travels a mile with the stone.

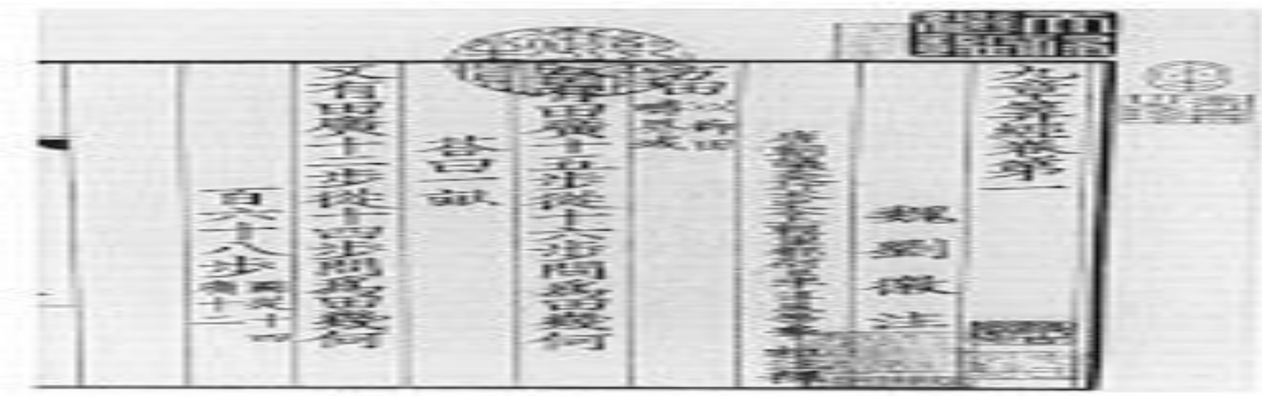
Chinese

Early Chinese mathematical analysis showed its unique development compared to other parts of the world when scientists took on a completely independent development. The oldest mathematical text in China is ZhubiSongjing, variously dated 1200 BC. And 100 BC, although sometime around 300 BC. This seems reasonable during a period of warring states. However, the Tsinghua Bamboo Landslide, which has the oldest multiplication table (although the ancient Babylonians had 60 bases), dates back to 305 BC and is probably the oldest mathematical text in China.



Counting numbers on rods

Of particular note is the use of the decimal positional number system in Chinese mathematics, the so-called "number of rods", in which separate digits were used for numbers from 1 to 10, and additional digits were used for ten energies. Thus, the number 123 will be written using the character "1", then the character "100", then the character "2" and the character "10", and then the character "3". At the time, it was the most advanced number system in the world, probably in use several centuries before the common era and before the development of the Indian number system. Rod numbers allow the desired number of images in Sun Pan or Chinese Abacus to represent the maximum number. The date of Sun Pang's invention is not specified, but the first written mention dates back to 1900 in Xu Yu's additional note on the art of figures. The earliest extant work on geometry in China belongs to the philosopher Maestro Canon around 330 BC. E., Compiled by the followers of Moses (470–390 BC). Mo Jing has described many different aspects of the physical sciences and has also proposed a number of geometric theories. It also defines the concepts of circle, diameter, radius, and volume.



Nine chapters on the art of mathematics, one of the earliest surviving mathematical texts in China (2nd century AD)

In 212 BC, Emperor Qin Shi Huang ordered the burning of all books in the Qin Dynasty, except for the authorized books. This decree was not made public, but, as a result of this order, very little is known about ancient Chinese mathematics before this date. After the burning of books in 222 BC, the Han Dynasty (202 - 220 BC) produced mathematical compositions that probably expanded into the now-lost works. Most important of these is The Nine Chapters on the Art of Mathematics, the full title of which was published in 179, but some parts already existed under other titles. It contains 246 words, including agriculture, business, the use of geometry to extend height, and Chinese pagoda towers, to describe the proportions of the size of engineering, togography, and the elements of rectangular triangles. He made mathematical proofs for Pythagoras' theorem and mathematical formulas for Gaussian annihilation. The text also provides the value of π, which Chinese mathematicians initially came close to 3 until Liu Jin (died: 23 AD) provided 3,1457 and later Zhang Hang (78-139). As well as 3,162 Leo Hui commented on nine paragraphs of the third century with a square root of ten thousand. And gave the correct value of 5 of 5 decimal places (e.g. 3.14159). Although it is a matter of resistance rather than a theoretical point of view, in the 5th century AD. Xu Changzhi calculates the value of π to seven decimal places (i.e. 3.141592), which remains the most accurate value for the next 1000 years. He also established a method which would later be called Cavalli's principle for finding the quantity of a sphere. The sign of the great value of Chinese mathematics occurred in the second half of the Singh dynasty (960-1279) in the thirteenth century, with the development of Chinese algebra. The most important text of the time was the Precious Mirror of the four elements of Zhu Shiji (1249–1314), which worked on the simultaneous solution of high-order algebraic equations using a method similar to Horner's. The Precious Mirror also contains a picture of Pascal's triangle with the coefficient of binary expansion by the eighth force, although both have appeared in Chinese texts since the 1100s. The Chinese use the intricate scheme diagram as described in Magic Square and Magic Circle. In ancient times and filled by the Young Hui (1238–1298 AD). Even after the development of European mathematics during the Renaissance, European and Chinese mathematics remained separate traditions, with significant Chinese mathematical production declining since the thirteenth century. Like the Jesuit missionaries, Matteo Riksi carried mathematical ideas back and forth between the two cultures from the sixteenth to the eighteenth centuries, although more mathematical ideas entered China than were published during this time. The Japanese mathematics, Korean mathematics, and Vietnamese mathematics traditions are traditionally derived from Chinese mathematics and are seen as part of the Confucian East Asian cultural field. Korean and Japanese mathematics were strongly influenced by algebraic compositions produced during the Chinese dynasty, while Vietnamese mathematics was one of the most popular works of the Ming dynasty in China (1368–1644). For example, although Vietnamese mathematical texts were written in Chinese or Native Vietnamese script Ch-enam, they all answered numbers to solve problems with algorithms in Chinese solving followed. It was more in private schools in Japan.

Islamic empire

He made important contributions to mathematics, founding Islamic empires in Persia, the Middle East, Central Asia, North Africa, Iberia and various parts of India in the eighth century. Although most Islamic texts on mathematics were written in Arabic, most were not written by Arabs because Arabic was used as the written language of Arabs and non-Arabs in the Islamic world as Greek in the Greek world. In the ninth century, the Persian mathematician Musammad ibn Mus-al-Khurizmi wrote an important treatise on Hindu-Arabic numbers and methods for solving equations. His book Calculating With Hindu Numbers, written around 622, including Al-Kindi, played a key role in the spread of Indian mathematics and numbers in West Bengal. The word "algorithm" comes from the Romanization of his name, and the algebraic word in the title of one of his works is "F-Haseeb al-Abrwal-Muqbabal" al-Kitab al-Mukhtar (Collection of books on completion and balancing). He gave a detailed explanation of the algebraic solution of quadratic equations with positive roots and was the first to teach algebra in basic form and for his own interests. He also referred to the basic method of "reduction" and "balancing" as shifting the decreasing terms on the opposite side of the equation, eliminating terms such as opposite sides of the equation. This is the operation that al-Khwarizmi originally called al-Jabr. And his algebra "was no longer associated with the type of problem solving, but with a description that began with primitive terms, in which combinations should give all possible prototypes for equations, which is undoubtedly the real object of research." He also studied the equation in his own interests and "in general, because it occurs not only when solving a problem, but also when requesting a definition of the problem of an infinite class in particular." In Egypt, Abu Kamil extended algebra to irrational numbers by adopting square roots and the fourth as solutions and coefficients of quadratic equations. He also developed methods for solving three simultaneous nonlinear equations, including three unknown variables. A unique feature of his work was that he tried to find possible solutions to some of his problems, including a solution that found 266 solutions. His writings formed the basis of the development of algebra and later influenced mathematicians such as al-Karazi and Fibonacci. Al-Karaji made further advances in algebra in his book Al-Fakhri, where he developed the method of adding unknown numbers to integers and the roots of integers. Something very close to proving the mathematical obsession can be found in a book written by Al-Karazi around 1000 AD, who used it to prove the sum of binomial theorems, Pascal's triangles and whole cubes.

Historical mathematician F. Uppek praised al-Karazi as "the first to introduce the theory of algebraic calculus." He also translated the work of Abul Waf Diophantus into Arabic in the 10th century. He performed the integration to find the volume of the paraboloid and was able to generalize his results to many years of integrations up to the fourth degree. Towards the end of the eleventh century, Omar Khayyam had written a book discussing Euclid's difficulties, which he considered to be errors in Euclid's elements, especially in a parallel manner. He was also the first to find simple geometric solutions to dense equations. He had a great influence on calendar reform. In the thirteenth century, Nasir ad-Din at-Tusi (Nasir ad-Din) made progress in spherical trigonometry. He also wrote an influential essay on Euclid's parallel postulate. In the 15th century, Giat al-Kashi calculated the value to 16 decimal places. Kashi also had an algorithm for calculating the ninth root, which was a special phenomenon of the methods proposed by Rafini and Horner many centuries later. Other achievements of Muslim mathematicians of that time include the addition of a decimal point to Arabic numerals, the discovery of all modern trigonometric functions except sine, the introduction of al-Kindi's cryptanalysis and frequency analysis, and the development of the analytical geometry of Ibn al-Kindi. Haytham and al-Haytham. Development of the Al-Kalasadi algebraic notation system 6 During the Ottoman Empire and the Safavid Empire in the 15th century, the development of Islamic mathematics came to a stand still.

Maya

In pre-Columbian America, the Maila civilization flourished in Mexico and Central America around the first millennium, creating a unique mathematical tradition that was completely independent of existing European, Egyptian, and Asian mathematics due to geographical isolation.Mayan numbers used 20 basic systems instead of ten, which formed the basis of the decimal system used in most modern cultures. The Maya used mathematics to create the Mayan calendar, as well as their native Mayan astronomy to predict astronomical events.Although the concept of zero has been accepted in mathematics in many modern cultures, Maya developed the perfect symbol for it.

Medieval European

The European interest in mathematics stemmed from problems very different from those of today’s mathematics. With the taking elements of the theory of mathematics finds the keys to understanding the discipline created by nature, as is often proved by Timothy Plato and the biblical passage (in the book of Wisdom) directed by God measures all things, quantities and weights. Botias introduced mathematics into the curriculum in the 6th century, forming the term quadrangle to describe the study of mathematics, geometry, astronomy, and music. He is the author of De InstittiArithmetica, an inaccurate translation from Greek mathematical meanings to the entry of Nicocomas; Music at Institute D, derived from Greek sources; And a few excerpts from the elements of Euclid. His work was deceptive, useless, and the basis of mathematical research until Greek and Arabic works were revived. In the twelfth century, European scholars traveled to Spain and Sicily to study Arabic literature, including the arming and balancing of al-Harizmi's compositions, Chester Robert's Latin translation, and translations of all elements of Euclid in different languages. Gagana. Edellard's edition is of Bath, Hermann's of Carinthia and Gerard's of Cromona. These and other new resources lead to mathematical innovation. Pisa Leonardo, now known as Fibonacci, traveled with his merchant father to Bedzaya, Algeria, where he gained knowledge about Hindu-Arabic numeracy. (In Europe, Roman numerals are still used.) There he built an arithmetic framework (specifically, an algorithm) that is more efficient and business -friendly thanks to the value of Arabic numerals. Leonardo wrote the Liber Abasi in 1202 (revised in 1254), introduced the method in Europe, and began a long period of popularity. The book also brought to Europe what is now known as the Fibonacci sequence (known by Indian mathematicians hundreds of years ago), which was used as an unforgettable example in the text. In the fourteenth century, new mathematical ideas for the study of various problems emerged. An important contribution of the development of the mathematics of local activity. Hutsbury and others. Determine the mathematical distance determined by the uniform velocity of a body (today solutions are by combination), stating that "a body movement must gain the same or lose this increase [of speed]" if an appointed time [distance] is completely lost. He continued at the same time with a moderate [speed], but equal to where he was going to win. Nicole Orem of the University of Paris and Giovanni de Casali of Italy separately presented a comparative picture of this relationship, arguing that the area below the line represents the least representative of the total distance. In mathematical discussions, following the elements of Euclid, Orem performed a detailed general analysis in order to show that each increase over time, which the body produces, as the number increases, any cost increases. Since Euclid proved that the sum of the odd numbers is a numerical square, the sum of the positives obtained by the multiplier body is the time square.

Renaissance

The Renaissance involved the development of mathematics and architecture. And Germany) Rupee school tuition (now known as Abacus in Italy), where they learned useful skills for trade and commerce. The world may not need algebra when conducting experimental work, but for complex unadulterated trading operations, in a combination of computed interests, a basic understanding of arithmetic was necessary and an understanding of algebra was valuable. Luca Pacioli's Suma de Arimetic, Geometria, Properity Important Propertialit (Italian "Arithmetic, Geometry, Radius and Order Analysis") was first published and published in Venice in 1494. It included a 27-page text in the record, "Particulis de Computis Basic Articles" (document "Data and record details"). Originally written and sold by a textbook used by Pregnant Merchants Connoisseur, it is a modern fun recipe related to math puzzles and is designed to include and help their kids learn. In Summa Arimatica, Pacquiao first introduced the symbols for plus and minus in a printed book, which became a feature of the Italian mathematics of the Renaissance. Suma Arithmetic is the first popular book published in Italy to include algebra. Pacquiao got a lot of his ideas from a proverbial copywriter named Piero della Francesca. In Italy, during the first half of the sixteenth century, Del Ferro and Tartaglia found answers to dense images. Cardano published in his book 1545 Ars Magna, including answers to the compound terms found by his son Ludovico Ferrari. In 1572, Bombelli published his Lalgebra, where the proverb showed how to deal with the many kinds of thinking that could create Cardano's intention to experiment with dense equations. The first Steven de Thiende (Art of the Tenth) book, first published by the Dutch in 1585, contains the earliest references to them in the decimal range, which later influenced all composition of the alphabet of numbers. Driven by the need for navigation and the growing need for accurate mapping of different regions, trigonometry has become a core branch of mathematics. Bartholomew Pitiscos first used the term pregnancy, his Trigonometria chart was published in 1595. Regiomontanas of Sin and the Universe was published in 1533. In the Renaissance, artists sought to create the natural world real, together, and for the rediscovery of Greek philosophy, under the direction of artists, the study that formed the numbers. They were also engineers and artists of the time and everyone who needed math. Developments in the field of painting as well as the geometry involved have been studied in depth in any scene.

Mathematics during the Scientific Revolution

17th century

In the seventeenth century, the number and science increased throughout Europe. Galileo observed the moon Jupiter in orbit around the planet with a telescope based on toys brought from the Netherlands. Tycho Brahe collected a large amount of numerical data to describe the position of the planets in the sky. In his position as Brahe's assistant, Johannes Kepler first rose and made significant contact with the problem of planetary orbit. Kepler's data were simplified by the discovery of logarithms by John Napier and JostBergi. Kepler succeeded in constructing a mathematical law of planetary motion. The detailed geometry developed by Rena Descartes (1596-1650) allowed the Cartesian coordinator to graph this cycle. Isaac Newton discovered the laws of physics by interpreting Kepler's laws, appreciated many of his earlier works, and combined ideas now known as calculus. Individually, Gottfried Wilhelm developed Leibniz, calculus and many of the symbolic calculations that are still in use today. Science and mathematics have become an international field that has spread rapidly throughout the world. In addition to the application of mathematics to the study of the sky, applied mathematics and communication by Pierre de Fermat and Blaise Pascal began to expand into new fields. Pascal and Fermat were the basis for the discussion about sports, exploring learning opportunities and rules about attachments. Pascal tried to argue with his bet for a new increase in the probability of a life dedicated to religion and, for this reason, the chances of success were low, but the rewards are endless. In a sense, the development of educational institutions in the 18th-19th centuries.

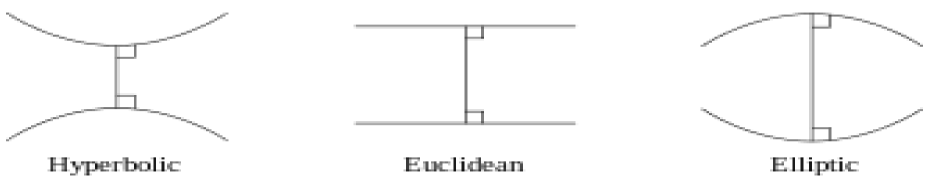
18th century

It is estimated that the 18th century Leonard Euler (1707-1783) was considered the most educated mathematician of the eighteenth century. His work ranges from the study of graphic theory and the conjugation of the seven bridges in Königsberg to many contemporary mathematical numbers and statistics. He was instrumental in the study of calculus, calculus and complex analysis. This is evident from the history and symbols in his name. Other important European mathematicians in the eighteenth century were Joseph Louis Langaras, the algebra of number theory, algebra, differential and differential calculus and Laplace who sometimes wrote important works of Napoleon at the beginning of the machines and statistics.

Modern

19th century

Throughout the nineteenth century mathematics gradually became abstract Carl Friedrich Gauss (1777-1855) showed this tendency.He revolutionized the work of complex variables, geometry and continuous change.This makes him a huge contribution to science.He also gave the first satisfactory proof of the basic theorem of algebra and the law of quadrilateral compensation.



Line behavior with a common perpendicular for each of the three geometry types

Two forms of Euclidean geometry developed in this century. Where parallel hypotheses of Euclidean geometry no longer exist. Russian mathematician Nikolai Ivanovich Lobachevsky and his Hungarian mathematician Janos Bole. Define and study hyperbolic geometry individually. The sum of the angles of the triangles in this geometry is no less than 180. Equality is not found here. And Rimon also developed Rimonian geometry by adding more than 180 angles to the triangles, combining and summarizing three types of geometry to give rise to the concept of perennials. Which summarizes the concept of curves and surfaces. In the nineteenth century good abstract algebra was introduced in Germany, Hermann Grossman gave the first version of vectorspace. Although William Rowan Hamilton of Ireland created chaotic algebra. The British mathematician George Bull developed an algebra that soon evolved into Boolean algebra. Where numbers are only 0 and 1, Boolean algebra is the starting point of mathematical reasoning and has important applications in electrical and computer engineering. Augustine-Louis Cauchi, Bernhard Rimon and Carl Westresis explored the limits of mathematics for the first time, while Norwegian Nels Henrik Abel and Frenchman Everest Gallows proved that there was no common algebraic method. To solve a perennial equation of more than four degrees (the Abel-Rufini theorem), other 19th-century mathematicians used it to prove that it was not enough to separate any desired angle to create the right-hand and the compass alone. Double the cube size of a given cube. Or to create a square equal to a given section, the parameter space and the number of hypercomplexes have been considered and vice versa. In 19th century geometry, the limit of three dimensions was exceeded. Abel and Galloway's research group on the solution of multiple equations formed the basis for further development in the field of theory and abstract algebra. See group theory as the ideal way to study symmetry See In the late nineteenth century, George Cantor laid the first foundations of set theory. Which allows rigorous practice of the concept of eternity. And became the lingua franca of almost all mathematics. Cantor's set theory and Perono, L.E.J. Brower, David Hilbert, Bertrand Russell and A.N. The rise of mathematical reasoning in the hands of Whitehead started a long debate on the basis of mathematics. A number of national mathematical societies were formed in the 19th century: the Mathematical Society of London in 1865, the Mathematical Society of France in 1872, the CircoloMathematico of Paris in 1884, the Mathematical Society of Edinburgh in 1883, and the American Mathematical Society in 1888.

20th century

Mathematics became an important profession in the twentieth century. Thousands of new doctoral awards are given each year and are employed in both teaching and the arts. Attempts were made to list the fields of mathematics and their applications in the Clean Encyclopedia. In 1900 he made a list of 23 solved mathematical problems in his speech at the International Congress of Mathematicians. This is important for many mathematicians of the twentieth century to expand the field of mathematics, as today ten are approved, seven are partially approved and two are still open. Tried. In 1977, Wolfgang Hacken and Kenneth Apple demonstrated a four-letter theory to oppose the use of computers for this purpose. It differs from the standard axis of set theory. (This cannot be proven or disproved) This was confirmed by Thomas Colister Hales Kepler in 1998. There have been mathematical interactions of unprecedented amounts and boundaries, for example the classification of finite general groups. (Also note how differential geometry became independent when Albert Einstein used it in general relativity from 1955 to 2004 and the need for about 100 authors in 500 journal articles of thousands of pages. Types have changed. In short, the qualitative study of kinetics began with great progress in the 1890s. The theory of measurement developed in the late 19th and early 20th centuries. There are ergonomic theories. The node theory is led by Quantum Mechanics to develop functional analysis. , Fixed point theory, Renault Thom's monotheism and catastrophe theory. X of numbers Failing to limit the theory by expanding the field to hyperreal numbers here is an infinite and infinite amount. John Horton Conway has discovered a number of amazing related games, starting with the continuous development and improvement of computers, analog mechanical machines and later digital electronic machines, helping the industry to produce, distribute and transmit large amounts of data. The NIAAC used the following number theory and Lucas-Lehr experiments; King Peter Rickers Theory of Function; Claude Shannon's information theory; Signal processing; Data analysis; Optimization and other aspects of function research have included many mathematical representation calculations and continuous operations over the past century. However, the development of computer and communication networks has led to the proliferation of personal ideas and investments. The speed and data processing capabilities of computers, including graph theory, allow you to solve mathematical problems that take longer to calculate with pencil and paper. It takes us to fields like number analysis and symbolic calculations. On the other hand, in 1929 and 1930 the decision of addition and multiplication was proved to be true or false. Also all the statements related to natural numbers, i.e. these are determined using an algorithm. In 1931, Kurt Godell discovered that this did not apply to addition or multiplication by natural numbers. This system is called peno imperfect mathematics. (Piano arithmetic is consistent with a number of theories. An evolution of Godel's two incomplete theories. And David Hilbert's dream of perfecting and consolidating all mathematics. Theta Ha function. Gamma function, modular also studied. Erdogan's papers have published more articles than any other mathematician, no, it leads to the number of mathematicians, measured by the general authority of mathematical work, the ear describes a "joint distance" between the individual and Paul Erdogan. Algebra has been studied, for example, in many fields of education. In the age of knowledge, the development of knowledge led to specialization. The development led to online publishing.

21st century

In 2000, the Clay Mathematical Institute announced the Seven Millennium Prize, and in 2003 the Penkari conjecture was solved by Gregory Perelman (who refused to accept any award for criticizing the creation of mathematics). Most math journals now have both online and print versions, and many online journals have been launched. There is a growing push for open source disclosure pioneered by RXB. First of all, I want to conclude that Western historians have seriously neglected the work of Indian mathematicians, although the situation is improving somewhat. The main point I wanted to focus on was the answer to two questions: first, why Indian works are being ignored; this seems to have been the inspiration and goal of the scientists who contributed to the Eurocentric view of the history of mathematics. This raises a secondary question as to why this negligence should be viewed as a serious injustice. I have done a lot of detailed research (and analysis) on the major achievements of the Indian subcontinent and tried to answer them in order to prove how they work in prehistoric European writings (whether ancient Greek or late Renaissance). We have developed this “answer” by providing compelling evidence that we subsequently had a negative impact on European affairs. I have also included a discussion of the Indian decimal system of values, which is undoubtedly India's largest contribution to the development of mathematics and its applications in science, economics and beyond. My first “question” is not easy to discuss because we see different types of “positions” in the history of mathematics. If we "follow" the latest Eurocentric model, then all mathematics is considered European, and even in the latter positions the contribution of Europeans is not taken into account. When visiting the huge art museum, you can usually see different groups of schoolgirls who have admired and studied painting, sculpture and artwork with their teachers for centuries. Their teachers or mentors draw the students' attention to the artist's techniques: color, tone, light and shadow, and even the meaning of the scene being described. As part of the study, any painting or sculpture becomes a witness to the genius of its creator and gives some idea of the period in which the artist lived and how he worked. Are being studied. This teaching is both cognitive and sensitive. These are the mathematical problems of history. They are, in a sense, intellectual and educational works of art that testify to the manifestation of human talent. However, unlike museum exhibits, visitors can capture these issues by participating in the process of resolving them. Questions that arose thousands or thousands of years ago can be understood and answered in today's class. Historical questions and problem-solving topics may be the focus of the lesson itself, but such questions are more likely to intersect more effectively between class activities and homework assignments. Teachers who like to quote "questions of the week" will find historical questions to be perfect. A large number of historical problems can be found in textbooks on the history of mathematics or in parallel with other problems of the time. Finding and using math problems in a textbook is a useful and rewarding experience for math teachers. The future of both the very nature of mathematics and the development of individual mathematical problems is a widely discussed problem - many of the past predictions of modern mathematics were irrelevant or completely false, so there is reason to believe that many predictions today may follow the same. track. However, the subject continues to carry significant weight, and many prominent mathematicians have written that they are generally motivated by the desire to establish a research agenda for specific attempts at solving specific problems or to clarify the general discipline of mathematics and its potential. Caused by the desire for an extrovert. Examples of agenda items for the future, as well as historical, historical and recent progress in specific areas, include the Felix Klein Erlangen program, the Gilbert problem, the Langlands program and the Millennium Prize problem. In the AAX Math

Subject Classification section of the History of Mathematics and Mathematicians, subsection 01A67 was titled Future Probability. The accuracy of mathematical predictions has changed dramatically and has improved tremendously with the advancement of technology. However, it is important to note that many of the predictions made by the following researchers may be misleading or untrue.

Motivations and methodology for speculation

As Henry Poincar, writing in 1906, stated, "the real method of predicting the future of mathematics is to study its history and its present state." Historical methods may involve the study and comparison of earlier prophecies. Now industry standards see how results like Hilbert's problem-solving progress have been achieved. But the study of mathematics itself is now problematic: the general clarity of the subject raises the question of the conduct of mathematical knowledge. Technological advances have also greatly affected the outcome of many prophecies; Because of the uncertainty of the future of technology, this causes some uncertainty about the future of mathematics. This may lead to future predictive technology success as well as predictive mathematical success. Supported by government research and other funded organizations, future concerns are part of the reason for the funding gap. Changes in the demand for mathematics in the workplace should also be taken into account in the teaching of mathematics; The course design will cover both now and six areas of mathematics. Laszlo Lovas, Experiments in Mathematics: How Did They Change Schools. Explain how community and mathematical research is happening and say that this means a change in the way we work: larger organizations mean more resources to spend on (coordination and communication); In math, it means more time for research and a textbook.

The Areas of Mathematics

Algebra

Algebra is one of the most important fields of mathematics, which is usually taught in its primary form in elementary school. Regardless, it can become difficult. It often examines their structures as well as their properties and activities to solve fairly simple problems. Many use it as a way to solve simple or somewhat complex mathematical solutions, although it only becomes algebra with the introduction of "variables" - usually represented by letters or other symbols that have no definite, defined meaning. They are different because they may depend on the changing nature of the other elements of the equation. It is divided into many sections, basic algebra is the most used in everyday use. It is named as discussed above by the Persian thinker who came up with various ideas about this concept.

Arithmetic

For many people, mathematics is the skill - as most people call it - to calculate the amounts in their minds without using paper and pen, computer or any other computer. But in reality, everything is much easier. Arithmetic works with numbers, their values and relationships, as well as activities - addition, subtraction, multiplication and division. It is one of the foundations of number theory, which deals with decimals and is inherent in any economy, budgeting, accounting (even family financing). Maybe it's the field of mathematics that each of us needs to determine every moment, time, measurement, distance, etc. in our lives.

Calculus

This is another field of mathematics that to many it seems more difficult than the truth. It is the study of change including distance and time. It differs from the above mathematics in that it examines change by breaking things down to infinity rather than looking for answers based on an integer. Calculus has two branches: differential calculus, which studies instantaneous velocities such as curve and opal and integral calculus, which studies volume and accumulation and studies the parts below and below the curve. Proto-calculus may have existed earlier, but it is thought to have been invented by Isaac Newton and Gottfried Wilhelm Leibniz. It has many uses, especially in science, design, engineering and economics.

Combinatorics

Less well known to many outside of mathematics and the natural sciences, attachment is the science of finite combinations or structured things. For example, he tries to solve simple questions with complex answers, such as the number of possible combinations to change all available currencies if presented with a $ 1 note, or the total number of sudoku puzzles we can use. There is no established standard definition here, but it has been described primarily as a calculation theory and considering the combination and sequence existing in a limited range of possible answers to a puzzle. This usually includes graph theory among others.

Computational Mathematics

For understanding, this is a new area of mathematics, although it existed before the era of information technology. How we use this term depends on every aspect of the relationship between calculus and mathematics. This may refer to the application of mathematical principles to the application of applied mathematics and calculus, or to the use of computed power to solve or model mathematical difficulties. Computer applications can be used in any area of scientific mathematics and have special applications for data modeling and analysis, such as measuring air by carbon time and regional time.

Fundamentals of Mathematics

There are "fundamental" aspects to many aspects of science, including the study of important fundamentals. The math is no different. The field is provided for practicing mathematics based on algorithmic, rational and fundamental philosophy. Just return to the subject and study the most important subjects in mathematics: numbers, sets, functions, geometric statistics, and basic mathematical arithmetic. Now he has added to all problems and theories, and also many important changes, especially in Euclid, Newton and Einstein.

Geometry

Explore 2D and 3D large objects - lines, points, circles, corners, perimeter, and volumes. This means that (and in particular) it is an integral part of many professions, including architecture, design and navigation, civil engineering in specially designed environments, computer-aided design, MRI and other imaging techniques, and many others.

Topology

It refers to the properties of space as if they were mathematical subzones called stresses and distortions, such as cracks, bends, stretches, contractions, and tears. This is most useful for landscape modeling.

Mechanics

Mechanics studies the behavior of physical bodies in terms of direction, force, and change through mathematics. He also studied the long-term effects of physical organization and environmental changes, beginning with Aristotle and Archimedes and widely developed during the Renaissance and early understanding. Kepler, Newton and Galileo are used to physics and why these two branches are affected today, but this is not the limit of their influence. Recently, he has withdrawn from activity and added energy to things.

Operation Research

As far as analysis is concerned, the use of progressive methods in decision-making uses general methods. It is a method of real mathematics that uses many principles and concepts to solve real-world problems. Sometimes referred to as "management science" or "science", it uses computational science, modeling, statistical analysis, and powerful technologies. It can be used in integrated engineering, environmental, industrial, operational management and can use both quantitative and qualitative data depending on availability. It used to be a reserve for statistics and the search for skills and qualifications in military applications during the Second World War, but it grew with computing power and not only.

Probability

According to Blaise Pascal, mathematics can end. While this is widely perceived as a financial issue, it also includes other financial services such as insurance, money management, retail and commercial markets. However, there is more use of space. This is often expressed as a percentage (0% ability and 100% security), which is not always the case. Numeric shows multiple sets, not 0-1.

Statistics

Data refers to the collection and processing of complex data, its interpretation and presentation. This is important in any scientific study such as population measurement, distribution of population, health and property cases, and percentage change. Today it includes data collection methods as well as aggregation processes to produce an accurate and complete large-scale model. For example, people who live outside church on Sunday asking about church attendance and whether they are Christians may lead us to conclude that 100% of the population goes to church and 100% goes to church every Sunday. Hence, the data collection philosophy is a data collection tool.

Mathematics in general

Subject divisions

Stephen Krantz writes: "The proof is in the pudding. A Changing View of the Nature of Mathematical Evidence ". Maybe in 100 years we won't be talking about mathematicians like college and university mathematicians. surprise if the concept of "mathematics faculty" has given way.

Experimental mathematics

Experimental mathematics is the use of computers to create large datasets that can automate the discovery of patterns that can make assumptions and ultimately form the basis of new theories. The article "Experimental Mathematics: Recent Developments and Prospects" [8] describes the expected increase in computer power: better hardware in terms of speed and memory size; The best software for the growth algorithm; More advanced visual capabilities; A combination of numeric and symbolic methods.

Semi-rigorous mathematics

Doran Zellberger examines the period when computers became so powerful that things changed to determine how much basic math questions would cost: "Because a wide range of recognition and perhaps even other types of theorems become valid. we see a lot of results on a regular basis. How can we look for evidence (or deviations) for which we cannot pay, or do not want to pay for such evidence, because "almost certainty" can be bought so cheaply that I can imagine a sheet of paper Abstract, C. 2100, which states "We show in a very precise sense that Goldbach's estimate is correct with a probability of more than 0.99999, and its full truth can be determined with a budget of 10." Some people disagree with the prediction. Silberger's example, for example, has been described as provocative and completely wrong, although it has also been said to be interesting enough to suggest theoretical decision-makers who have already invested in research. "As a result of financing.

Automated mathematics

In Roof Construction and Classification, Timothy Gowers writes about three levels: 1) Computers are just boring at the moment, 2) Soon the database of mathematical concepts and proofs will move to the middle, when computers will be very useful in theory, but not satisfactory, 3) In a century, computers will be better than people proven theoretically.

Mathematics by subject

There are very different predictions for different aspects of mathematics; For example, it is believed that every subject in mathematics has been replaced by computers, some industries are used to help human achievement through the acquisition of technology, while computers are predicted to completely replace humans.

Pure mathematics

Combinatorics

In 2001, Peter Cameron predicted the future of the United Nations in Solidarity Entering the Third Millennium. Find out more about current trends and future directions. We have divided the factors into four groups: computer effects; Increasing the practice of combining; His strong connections to the rest of his mathematics; And radical changes in society. What is clear, however, is that the connectors will continue to attempt to officially specify.

BalaBalllobs writes: “Gilbert, I think that a thing only survives when it has a lot of problems. This is what makes the connector so much more alive. I have no doubt that alloys will appear in about a hundred years. Now it will be a question "But it will continue to grow because it still has many, many problems."

Mathematical logic

In 2000, mathematical reasoning was discussed in the book Perspectives of Mathematical Logic in the First Century of the Twentieth Century, including set theory, mathematical reasoning in computer science, and proof theory.

Applied mathematics

Numerical analysis and scientific calculation

On Numerical Analysis and Scientific Computing: In 2000, Lloyd N. Treffethen predicted scientific computing 50 years ago with the conclusion "People will get stuck" and in 2006 it was written in Princeton Compomania Mathematics. It is predicted that by 2050 the majority of numerical programs will have 99% smart packages and only 1% algorithms and there will be a difference. The (one step) analysis between linear and nonlinear problems including front problems and reverse (repetitive) problems and algebra is lost because everything is solved by repetitive technology. In a flexible, intelligent system that mixes, matches and integrates algorithms as needed.

Data analysis

In Data Analysis: In 1999, Mikhail Gromov stated in Possible Trends in Mathematics in the Coming Decade that the lack of structure between individual data points gives rise to a global structure such as Gauss's law, where theoretical probability theory is applied, but one of today. problems is the application of structural probability.Development of methods for structural analysis of non-structural data. Such techniques may include advances in wavelength analysis, large-scale techniques, and backscratching.

Control theory

A list of major challenges for control theory is presented in the Future Directions in Control, Dynamics and Systems: an overview, key challenges and new courses.

Mathematical biology

Mathematical biology was one of the fastest growing fields of mathematics at the beginning of the 21st century. "Mathematics is the next microscope in biology, I wish you better; biology is the next physics in math, I want it better ”- this is an article by Joel E. Cohen.

Mathematical physics

Mathematical physics is a huge and varied subject. Here are some tips on how to look or have a meeting with Future Research.

The Future of Mathematics

Others are visible

The fact that government budgets for science and technology focus on these issues and the high chances of a return on investment has been criticized on all sides. Since mathematics cannot be left to chance, research and budgeting can be accomplished by engineering and scientific work, which may be more justifiable than this. Part of the problem, as noted by Congressman George E. Brown, Jr. in 1997, is how science is involved in numbers to reap the benefits of investing in engineering and mathematics in the government, but without understanding why it is important. ... Much of our research in science came from advances in mathematics.

Keep the math happy

The number of students studying science, especially mathematics, has been greatly reduced. Many educators and decision makers in the Western world see this situation and believe that the way math is taught needs to be reformed and made appropriate to today's student standards. Perhaps the problem is more theoretical; Perhaps the problem of how to learn is that there is no appropriate practice using and methods of solving problems associated with the 21st century. There is also a lack of reasoning and critical thinking in mathematics in other parts of the world, but reasoning and critical thinking for people's everyday lives is due to reasoning and speculation.

Myths about good reading and math

Despite small budgets for education, China has the best numerical conditions in the world. There is a similar trend in Japan. All countries believe that even gifted students can learn advanced mathematics, probability theory, analysis and critical thinking, and that they are taught from the beginning of their years. In contrast to the United States, Canada and European countries, mathematics is difficult to access only to gifted students. If Western countries are willing to prosper and improve the standards of mathematics in this century, education may change, but there may still be incentives to dismiss student stories about mathematics.

The comparison of the answer

The modern history of mathematics is a metaphorical complexity and a puzzle that was later solved. Today there are hundreds of unresolved numerical problems and six of the millennium number of unsolved problems. Whoever plays them will receive the prize of one million dollars. The fact that there are many of them and we are making progress in solving them, shows that students want to solve them, despite the declining interest in this field. These may be some of the challenges associated with discovering new levels that are facilitated by technology.

Conclusion

Mathematics can be defined as "the study of the relationship between quantity, and properties, and the determination of unknown quantities, and properties" (according to the Microsoft Encarta Encyclopedia) or ""The study of quantity", its structure, space and transformation. Either as shapes (such as geometry) or numbers (mathematical) or as a generalization of these two fields. (Algebra) Some people make patterns easier to find. Mathematics extends to mathematical or symbolic reasoning and it is seen as a more necessary science of relationships or references. (Although some find it very limited.) Today, mathematical chains contain numbers - algebra, geometry, analysis (calculus), mathematical reasoning, and set theory. As well as other applied mathematics such as probability theory and statistics - amazing matrix group theory, sequence theory, node theory. Groups involved in field studies and prominent areas include geometry, fractal geometry, graph theory, functional analysis, complex analysis, unit theory, catastrophe theory, chaos theory, measurement theory, model theory, division theory, control theory, game theory, and complexity theory. Much more. The history of mathematics is long and interesting. It was founded in Mesopotamia and Egypt following mathematical advances in agriculture. And the revolutionary development of ancient Greece and the Hellenistic Empire. The Islamic Empire in the Middle Ages lasted until the end of the Middle Ages and the time of the Renaissance, before mathematical discoveries returned to Europe, then in Europe in the seventeenth and eighteenth centuries. Numerous revolutionary events took place that ushered in the increasing complexity and abstraction of mathematics in the nineteenth century. And finally, this is the bold and sometimes destructive invention of the 20th century. This series of related sections occurs like a chapter in a book. Read the human stories behind the inventions and how they were created - and sometimes die - that men and women dedicate their lives to ... **THE STORY OF MATHEMATICS**.

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