Application of Mathematics in Real Life

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ABSTRACT:

Mathematics is the most beautiful and the most powerful creation of the human spirit. Life is a mathematical equation. It is the language of the universe. So, the more equations you know, the more you can converse with the cosmos. In order to gain the most, you have to know how to convert negatives into positives. Mathematics has a vital role to play in our lives. We use mathematics all the time as it helps us to think analytically and critically about the world around us.

Keywords: Mathematics, application, life

MATHEMATICS IN REAL LIFE:

According to a few people mathematics seems to be just the use of some formulae to solve some simple and complicated equations and performing calculations to solve certain problems which are not applied in in real life. But the fact is that mathematics is the universal language which is applied in almost every aspect of life. Mathematics has a variety of applications in our day -to -day life. A few important applications of mathematics can be enlisted as follows:

MANAGING FINANCE: Mathematics has a vital role in various financial and banking sector. Basic Algebra is used by financial and banking personnels to make routine budgets, expenditure, saving and investment purposes. Since banking refers to managing money, mathematical concepts are of great use for preparing and managing our finances. If a person plans to take a loan for purchasing any valuable item, then he can calculate the interest he has to pay on the loan and accordingly choose the best option available. Apart from this, mathematics is also useful in planning a trip. We need to prepare the budget for the trip, the duration and mode of travel, destination, boarding and lodging according to the budget and other essentials for success of the trip using the basic concepts of mathematics like, Algebra, Calculus, Mathematical Operations. Shopping is yet another area where the importance of mathematics is observed. Shopping can be done at the best price by calculating the prices after discounts available on various products.

TIME MANAGEMENT: Mathematics not only helps us to understand the management of time but also teaches us to value it. Time is used to measure, calculate and compare the duration of events or the intervals between them both on the earth and in the sky. The natural timekeepers in the sky are the daily passage of the sun and the monthly phases of the moon. Egyptians were the first to use the

concept of time. They broke the period from sunrise to sunset into twelve equal parts, giving us the forerunner of today's hours. Nowadays we use clocks to measure time. There are only 24 hours*7 days= 168 hours in a week and this is the same for each individual on this planet. Thus, time management and time budgeting is necessary for all of us.

AUTOMOBILE INDUSTRY: The automobile industry uses the concept of dynamics to manufacture their vehicles. Speed, Time and Distance are the three basic constraints on which the automobile industries manufacture their products. Various manufacturers produce their vehicles on the basis of demands of the customers. This concept of demand and supply is analysed using operation research in order to optimize the cost and profit. The basic knowledge of geometry and ratio and proportion are also used for shaping and sizing of vehicles.

WEATHER FORECASTS: The concept of probability and other statistical methods find their application in the weather forecasts made by the weather department. Numerical weather prediction uses mathematical models of the atmosphere and oceans to predict the weather based on current weather conditions. As compared to the weather forecasts made during and before the 20th century, the recent weather predictions are quite fast and accurate as these days, mechanical calculators are used for calculations and completely three-dimensional observations required for accuracy are now available on the surface. Statistical analysts perform various experiments to find out the expected weather conditions of different areas in the near future. These forecasts help the common people to make proper arrangements for themselves to safeguard their life and belongings well in time which would otherwise be badly affected by unexpected natural disaster.

CONSTRUCTION INDUSTRY: The importance of mathematics is well known in the construction industry. Starting with the preparation of budget till the completion of the construction, various branches of mathematics like, Cost Analysis, Arithmetic, Geometry, Calculus, Statistics and Trigonometry are used. The interior designers plan the interiors based on the area and volume calculations to estimate and design the proper layout of any room or building. The construction of a dam or a bridge also involve mathematical modelling. A lot of mathematical concepts, calculations, estimations, targets etc. are to be followed in order to excel in the field of construction industry.

SPORTS: Mathematics enhances the cognitive and decision- making skills of a person. These skills are very important for a sportsperson as these reasoning skills help them to take right decision instantly for their team. All sports activities require precise estimations and decisions on the spot for successful completion of the sport. The theory of probability and game theory are also used by players to improve their performance. In the recent times the demand of exercising is on the rise. People have become aware of the importance of physical exercise to reduce obesity and remain healthy. The equipment used in the gymnasium are designed using mathematical operations and the workout schedule to be followed by different people for their exercises also use basic mathematical, analogical and logical reasoning.

MUSIC: Albert Einstein remarked that "Pure Mathematics is in its way, the poetry of logical ideas." Music not only gives us pleasure but has the honour of depending on Mathematics, as it involves

number and measure. Music theory analyses the pitch, timing and structure of music. It uses mathematics to study the elements of music such as counting, rhythm, scales, intervals, patterns, symbols, time signatures, harmonies, tone, pitch etc. The music composers use mathematical notations for their compositions and musicians also use number theory to generate music. All musical instruments are designed using mathematical reasoning and demonstrations, for example the guitar frets work on Pythagoras ratios. In fact, the main idea of the building blocks of music was discovered by Pythagoras in its simplest form. Pythagoras attributed various numbers and forms to physical elements, for example, the number five is the cause of colour, six of cold, seven of health and eight of love. Pythagoras believed that wherever there is harmony there are numbers and where there is music there is harmony.

FOOD PREPARATION: Mathematics has extensive use to cook different varieties of food. It is very important to add all the ingredients to recipes in correct ratio and proportion. Mathematics is also used to figure out the quantity of the different ingredients accurately in order to increase or decrease the amount of a dish according to the number of people to whom the dish is to be served. Different dishes are cooked at different temperatures to maintain their nutrients and taste. At times a certain recipe might provide cooking temperature in degree Celsius but the range of your cooking might be displaying temperature in Fahrenheit, and vice versa. If you know the conversion formula for temperature in different units, you can easily figure out the temperature required by your cooking range. Geometry finds its application in the shapes and sizes of various vegetables to make them presentable. Geometrical characteristics are related to the arrangement of the physical constituents of the food product such as shape, size and orientation of particles within the food. Geometric shapes stimulate our visual senses in a logical and thought -provoking way rather than an emotional way. A lot depends on our state of mind while we consume food and if it is pleasing and appealing, then it will be more beneficial for our mental and physical health. Baking art also requires the understanding of flat shapes like, circles, squares, triangles etc. and three-dimensional shapes like cubes, spheres or rectangular prism.

FASHION DESIGNING: Starting from taking measurements, estimating the shapes, sizes, numbers and quality of various garments, choosing colour combination themes, estimating the cost and profit till the production of the cloth as per the taste and requirements of the customers, mathematics is involved in each and every stage. Basic mathematical skills involving Geometry, profit and loss, ratio and proportion and operation research are used by fashion designers to produce the best products as per the demand of their customers.

ASTROLOGY: Astrology and mathematics are interconnected in numerous ways. Astrology is based on the study of planetary movements, positions and other aspects which are measured and calculated mathematical principles. Astrologers use rigorous mathematical calculations to find out the planetary positions and aspects at a particular instant of time that are used for the predictions made by them. Moreover, certain astrologers also use the concept of probability and calculus to determine the happening of certain events based on the planetary movements and their rate of change in order to

analyse and make their predictions for an individual. Vedic mathematics and trigonometry are also used by astrologers and algebra is used in numerology to make futuristic predictions.

COMPUTER APPLICATIONS: The study of computer application is next to impossible without mathematics. It is in fact the foundation on which the entire building of computer science stands. Computers use binary language which uses only two digits namely, zero and one (0 & 1). The entire work done by the computer is using binary language but the output received or displayed on the screen is in English, Hindi or other common language used by the computer operator. This conversion is based on the theory of coding. The concepts like computation, coding, algorithms and flow charts, cryptography etc. are a few of the numerous applications of mathematics in the world of computer science. They form the base for various computer applications like, Word, Excel, Power point, Turbo-C, Scilab, Matlab etc. Artificial intelligence (AI) is another field of computer science based on mathematics. In fact, AI is not magic; it's simply mathematics. The primary purpose of AI is to prepare models that can act as human replica. These models are designed using the concepts of Linear Algebra, Calculus, Game Theory, Probability and Statistics.

CONCLUSION:

Mathematics is the science that uses easy words for hard ideas. It is in fact, 'the most beautiful and the most powerful creation of human spirit' as stated by Stefan Banach. It helps us to think logically and analytically. Mathematics not only strengthens our critical thinking but also helps us to identify and solve any known or unknown problem of our life in an efficient manner. Mathematics may not teach us to add love or subtract hatred, but it gives us the hope that every problem has a solution.

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