Increasing Students' Interest in Mathematics
Through Some Real-Life Examples

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ABSTRACT

In this article, taking into account the contribution of mathematics to the modern branches of science and technology, some real examples of the processes that can be used to increase students' interest in mathematics are highlighted.

Keywords: mathematics, what is mathematics, what kind of science is mathematics, why do I need mathematics, where can mathematics help me, mathematical scientists, mathematical problem, life solution.

The issue of improving the quality and effectiveness of education and training competitive personnel in higher education institutions is implemented on the basis of effective organization of mathematics training using educational technologies and modern interactive methods.

At a meeting with scientists, young researchers, heads of research institutions and representatives of the production sector on January 31, 2020, President Shavkat Mirziyoev said, "Mathematics is the basis of all exact sciences. A child who knows this subject well will grow up to be intelligent, broad-minded, and work successfully in any field," said Shavkat Mirziyoev.

"Mathematical science, which our great ancestors laid the foundation stone of, is gaining greater importance today due to the rapid development of modern branches of science and technology..." said President Sh.M. Mirziyoev's

July 2019 "Further Development of Mathematics Education and Sciences by the State" in the decision on support" [1].

This decision means that for the perfect learning of knowledge, not only in the field of mathematics, but in all fields, it is necessary to have clear goal-oriented plans and realistic results.

In non-mathematics fields of study, in particular: natural, humanities, medicine, construction, engineering, and agriculture, students should ask their teachers on the first day of mathematics class, "Why do I need mathematics?", Mathematics - what is it?, Mathematics what kind of science and Where can Mathematics help me? They ask many similar questions.

The French mathematician Poisson Simeon Denis (1781-1840) said: "There are two decorations in life: doing mathematics and teaching it."

Unlike many scientists and colleagues, we decided to give the following answers to these questions: in order to increase the interest of our readers and students in mathematics and to explain that mathematical knowledge is necessary for all professions in life.

Mathematics - teaches to choose words accurately and correctly.

The great German physicist Albert Einstein (1879-1955) said, "Pure mathematics, in turn, is the poetry of logical thought."

We know Omar Khayyam (1048-1123) as a great poet, but he was also a mature mathematician and he contributed to the development of mathematics. In 1077, Omar Khayyam explained some geometrical figures from the book of Greek scientist Euclid and showed ways to find the roots of whole numbers, even he developed a new exact calendar in 1079.

Accuracy is the courtesy of all mathematicians. It is very difficult to argue with him, because each term and each phenomenon has its own specific definition.

Mathematics - teaches you to see several steps ahead and find solutions to problems.

Solving a math problem is like playing chess. Any wrong, careless step can have disastrous consequences.

How many times have you stopped doing math homework because you put a minus instead of a plus? Even the smallest mistake can ruin all plans and become a big obstacle. And mathematics teaches us to be careful and responsible for our actions.

Carlyle (1795-1881), an English scientist and writer, said, "Anything can be proved with the help of numbers."

Mathematics - teaches not to be sick and to heal those who are sick.

We consider Abu Ali Ibn Sina (980-1037) to be the father of medicine, but he was also a great mathematician and contributed to the development of mathematics. Ibn Sina used the analytical methods of mathematics to study the history of diseases, to find cures for diseases and to prepare ointments from natural herbs.

Ibn Sina introduced the following ideas to mathematics:

1. If a number is divided by 9: 1) 1 or 8 remains, then when the square of this number is divided by 9, 1 remains; 2) if 2 or 7 remains, then when the square of this number is divided by 9, 4 remains; 3) if 4 or 5 remain, when the square of this number is divided by 9, 7 remains; 4) if 3 or 6 remain, the square of such a number is divided by 9 without a remainder;

2. If there is $\frac{A}{B} = \frac{C}{D}$ proportion in that case about $\frac{B}{A} = \frac{D}{C}$

3. Formulas for finding sums of sequences, particularly arithmetic and geometric progressions.

Nowadays, these rules of mathematics are used in medicine all over the world.

Mathematics-teaches creativity, that is, the construction of beautiful and beautiful structures.

We know the Italian scientist Leonardo da Vinci (1452-1519) as a great painter, but he was a mature mathematician, he was a scientist who studied geometry and trigonometry perfectly. Drawings of Leonardo da Vinci were used in the creation of mechanical calculating machines and in the construction of buildings.

According to American mathematician Morris Klein (1908-1992): "Geometry is a very ancient science, and trigonometry was created on top of geometry. Trigonometry is related to astronomy and has been used for navigation and calendars for over 2,000 years."

In geometry $sin(\alpha), cos(\alpha), tan(\alpha), ctan(\alpha)$ and these type of functions are called trigonometric functions.

For example, the following picture shows a right triangle: where, α is an acute angle, a and b are legs, and c is a hypotenuse.
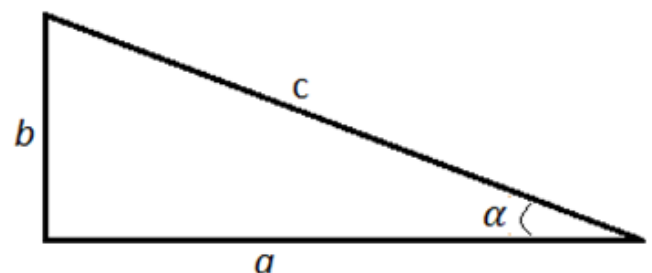
$$sin(\alpha) = \frac{b}{c}, \; cos(\alpha) = \frac{a}{c}, \; tan(\alpha) = \frac{b}{a}, \; ctan(\alpha) = \frac{a}{b}$$

Trigonometry is widely used by specialists such as architecture, astronomy, physics, engineering and even investigators [4. 44 p].

Mathematics-teaches economic prosperity.

Therefore, economists, accountants, traders, entrepreneurs and bankers must also know mathematics.

Leonardo da Vinci said: "If any human research is not proved on a mathematical basis, that research can never be considered true."

We want to multiply the money we have accumulated over months or years by putting it in the bank or by betting on a trade. We hesitate to bet our money on the trade because we are at work during the day so we cannot participate in the trade.

A reliable way is to put our money in a bank and become a depositor of this bank.

For example: We have the opportunity to make a deposit in one of the banks A and B for one year. Bank A adds n % to the deposit every month. And bank B increases the money by m % once at the end of the year. Which bank will give us more income to keep our savings? We can determine this through the following mathematical formulas and compare the two banks[3]:

For bank A

$$p + \frac{p}{100} = p \cdot \left(1 + \frac{1}{100}\right)$$
$$= p \cdot \frac{101}{100} + p \cdot \left(\frac{101}{100}\right)^2 + \cdots + p$$
$$\cdot \left(\frac{101}{100}\right)^{12}$$

For bank B

$$p + \frac{p}{100} \cdot m = p\left(1 + \frac{m}{100}\right) = p \cdot \frac{100 + m}{100}$$

Another example: The function to determine the economic profitability of an enterprise is as follows: $R = \frac{x}{y} - 1$ where R - the profitability of the farm, x - the price of each product, y - the price of each product. As can be seen from the last relation, if:

1) $x > y$ is correct, that is, if the price of the product is greater than the price of its actual price, $R > 0$ is right and the economy is profitable;

2) If $x=y$ is correct, the farm is self-sustaining $R = 0$;

3) $x < y$ is correct, will be the farm that will suffer ($R < 0$).

Based on the above considerations and ideas, the following definition of mathematics can be given.

Mathematics - teaches quantitative relationships of objects and spatial forms in the material world. Mathematics can be called the most beautiful science, because it has simplicity, beautiful discussion, beautiful formula, beautiful applications, many examples can be given.

The main goal of teaching mathematics to students: to acquaint students with the beauty of the existing specializations in the world and to teach them the discipline and logical thinking that is so necessary in mathematics. This is very important, because a person who has learned to think logically in mathematics can apply it in any field of life [2].

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