

IGOR KAZARINOV

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**How to significantly improve  
understanding of the basics  
of mathematics in a very short time**



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«Издательские решения»

## **Kazarinov I.**

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This book will tell you how to find and effectively correct missed data in mathematics and how to apply some simple and effective exercises that will consider by save your time and nerves when studying mathematics and preparing for exams. Also it will show in details some other major pitfalls — mathematical skills which were not learned and understood by a huge number of students and this prevents them from getting correct and confident answers when solving mathematical problems and tasks.

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# **How to significantly improve understanding of the basics of mathematics in a very short time**

**Igor Kazarinov**

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## **HOW TO SIGNIFICANTLY IMPROVE THE UNDERSTANDING OF THE BASICS OF MATHEMATICS IN A VERY SHORT TIME**

Do you (or your child or student) have any difficulties with math? Don't you understand the textbooks and explanations? You don't want to spend a lot of time for this hated math, do you?

This book will teach you how to find and effectively correct your missed data in mathematics and how to apply some simple and effective exercises that will considerably save your time and nerves when studying mathematics and preparing for exams. Also the course shows in details some other major pitfalls – mathematical skills which were not learned and understood by a huge number of students and this prevents them from getting correct and confident answers when solving mathematical problems and tasks.

The book was created: 1) for parents who want to improve their children's knowledge.

2) For teachers and tutors who want to get results faster and with less effort and nerves.

3) For middle and high school students who want to pass successfully their exams but do not know how to find all their missed knowledges.

## **Purpose of the book**

In a simple and understandable form explain the basic math theory and teach how to use effective exercises which correct the difficulties in mathematics found in almost 90% of schoolchildren. These difficulties and problems are not noticed by neither teachers nor students, nor parents! As a result students don't understand mathematics and begin to hate it and then other exact scientific subjects.

All exercises in this book are very powerful, quick and helpful. You need to do all practical exercises to very good results – this is the only way to help your student to understand basics of mathematics.

## THE PRELIMINARY PART

One of the most important moment in understanding of mathematics: I ask a student “Do you need mathematics?” And “Why do you need it?”

If he answers “yes” to first question and can say – why, then I ask – does he agree that it is worth to spend his time studying it? If he agrees, then we TOGETHER WITH HIM start working.

Why do you need to ask these questions? The fact is that children in schools were taught almost the same way as trainers do with animals – children were put in classrooms and without asking students’ desires they were told: “Now we will study mathematics and then gramma! Sit quietly and listen trainer’s words!” (A little mistake! I should have written – teacher’s words!).

Unfortunately it was found out as a result of an investigation of education – learning without the student’s own desire gives very weak results and leads to various problems (including physical and mental health problems) both among the pupils themselves and their teachers and parents. If you look at education from this point of view – you will find a lot of evidence for this fact.

So if my student has any disagreement then I communicate with him or her, I give examples from life and other arguments in favor of studying the subject, until he understands the importance of studying. Only after that it make sense to do anything.

Students often do not know – why they need mathematics.

Here is the simplest definition of mathematics (dictionaries and textbooks often give definitions that even adults hardly can understand!): **Mathematics is a science which studies quantities and forms.**

## HOW TO DO AN EXERCISE FOR ADDITION AND SUBTRACTION

I ask the student to write an example:  $A + B = C$ . (If the student does not know yet how letters are used in mathematics then I write numbers:  $3 + 5 = 8$ ).

Then I ask him – what is the name of this action. The correct name is “addition”. But I was told many other words that have the same meaning but are not used in mathematics textbooks and in tasks and problems: “plus”, “plusing”... In this case I tell that the student is right but although our language is rich in similar words, it is customary to use only one word – “addition” – in textbooks and in mathematics lessons and in other exact subjects (physics and chemistry). And that “addition” is the precise word that is very important for the mastery of mathematics. When they firmly understand the word “addition” – then let them, if they want, entertain themselves inventing synonyms for the official word “addition”.

After that I show them the examples with addition and I ask them to name this action aloud. I also check the same for “subtraction”. And I’ve heard such names as “minus” and “calculation” ... After the student agrees that it is necessary to know exactly the correct names for all math actions I start to train him showing on examples with addition, then with subtraction in a random order, till he starts to give names of mathematical actions quickly and confidently. Ideally the student become cheerful from this training – when he fully learned these names.

This should be done in the form of a game and without negative emotions. (You can easily see that any negative emotions only delay the learning process.) When the student becomes quick and cheerful this training can be completed. After achieving this result chances to forget these names are very little. You can also show examples with multiplication and division actions (if the student already knows about them). According to my practice students know the names of more complex actions perfectly. (Maybe because they do not call signs when they read formulas, because “+” they read as “plus” and not “add”, and “-” read “minus” instead of “subtract”, whereas they never say “point” or “dot” when multiplying or “colon” in division!).

Then I ask: “What is the name of A?” (The correct answer is “addend”. And you’ll be surprized how many students DO NOT KNOW such a simple fact!). Then I ask about B (“addend” or “summand”) and finally about C (“sum”). All these words can be seen in a good explanatory dictionary to add confidence that it wasn’t we who invent these terms. Then I ask the student to explain by his own words what the “summand” (“addend”) and “sum” mean.

## **Конец ознакомительного фрагмента.**

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