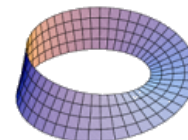


Dr. Aart



General information »

Why do we learn mathematics?

Theory mathematics

- ☒ Arithmetic
- ☒ Differentiation and integration
- ☒ Equations & inequalities
- ☒ Formulas, graphs & relations
- ☒ Fractions
- ☒ Geometry
- ☒ Logarithms
- ☒ Percentages
- ☒ Probability
- ☒ Sequences
- ☒ Simplifying formulas
- ☒ Statistics
- ☒ Trigonometry
- ☒ General information
- ☒ Why do we learn mathematics?
- ☒ How do I learn for a test?
- ☒ Problemsolver DWO (Dutch)
- ☒ Working with the DWO
- ☒ TTO word lists
- ☒ Contact

Arithmetic

Let us look at the most important part of mathematics first. Arithmetic is being able to work with numbers, but also understanding numbers themselves. We come across numbers (and digits) everywhere in our daily lives. They are used to express for example time, amounts and prices. It does not matter which language you speak. Everyone works with numbers. Why being able to work with numbers is important, is never asked.

Then mathematics. Not everyone uses mathematics in their daily lives after secondary school. Why is mathematics then a mandatory subject and in the Netherlands even has the status of a 'core subject'?

Mathematics is the language of numbers

Mathematics transcends the level of just arithmetic. With mathematics you do not only work with numbers, but also with letters so we can make formulas (and equations) and work with them. With these formulas we can express relations a lot easier. An example: You are on holiday and want to hire a car. You pay at a certain company a standard amount of 50 euros, and you have to pay 30 eurocents per kilometre where you do not have to pay anything for the first 25 kilometres. A long sentence, you might have to read twice before you understand it. In mathematical language we would express it with $amount\ in\ euros = 50 + 0.3 \times (number\ of\ km - 25)$. A lot more understandable! Mathematics enables us to communicate without useless human language. Just adding, multiplying, is-equal-to, etcetera. A language that is understood all over the world. The mathematical symbols are the same, whether you speak English, French, Spanish or Dutch.

Mathematics creates order in the chaos of the world

There are all kinds of relations in the world around us. Easy relations like between time and speed or time and the amount in your savings account, but also difficult relations like the (gravitational) forces between two planets. All these relations can be expressed in formulas to create order in or understanding of the universe. Formulas are therefore not only important within the subject mathematics itself. They are essential for subjects as physics, chemistry, biology and economics. So you have to be able to work with formulas to progress in these subjects. This is the reason why the Dutch government has declared mathematics a 'core subject'. For all those students who are studying these exact sciences. In school but also after.

Geometry

An important part of mathematics is geometry, the part of maths that looks at measurements and distances. Naming the different shapes is already very useful. Always handy. Furthermore you will learn all kinds of formulas to calculate the area and volume of all kinds of shapes. Again there is overlap with other subjects. In physics and chemistry distances are also important. May be you will become a designer or architect.

Using it yourself

Is it so unimaginable you will ever have to calculate the area of a room or parts of your garden to calculate how much carpeting or soil you have to order? I do not believe so! Think also about calculation for which company is the cheapest supplier. Mentioned a lot by others at this point are calculations for subscriptions, your mortgage or a new energy contract, to name a few.

Computers 1

You might think, those calculations can be done on my computer (or one or other website)! That is true. Unfortunately, that is not always as simple as it seems. Often you have to work with different contract durations or there are contracts with extra paid options. Sometimes the one-time payment differs according to the contract

duration. Without some calculating of your own, you cannot compare these contracts.

Check

The sentence *'We go to school to learn to separate sense and nonsense'* will always stick with me. And there is a lot of nonsense to be found on the internet. You may also swap out 'sense and nonsense' for 'fact and fiction'. People make mistakes. Computers and websites are programmed by people and can therefore have mistakes in them. Only by having some sense of mathematics and numbers yourself is it possible to recognise these mistakes. Do you blindly trust the man, you will probably see only once in your life, who claims he put 25 m² of laminate in your living room? I do not. If he charges 5 m² extra, he has a nice bonus.

Further education / science

A diploma of a secondary school gives you a broad basis. With this diploma you can, sometimes dependent on you chosen subjects, go to any further education. Some choose a study in which they do not need maths at all. Others choose to study maths or a study in which they use maths. You can say this about any subject in secondary school. Saying that "Maths does not have to be taught at secondary school, because you do not use it everyday life" can also be said about other subjects like for example French, history or musical studies. Mathematics is highly necessary in science. Without mathematicians we would not have computers, no mobile phones, no space flight, no weather forecasts, no DVDs, no MRI scanners and I can go on and on. Of course, not everyone will become a scientist. However, when you are in secondary school, you can impossibly foresee where you will end up your working life. Fifty per cent of students switch during their study or want to. Furthermore, a lot of people switch between professions in their later life.

Problem solving capabilities / logical reasoning

You learn how to solve problems when learning mathematics. You will get an uncountable number of mathematical problems during your school career. All these problems you solve by using a certain approach. In most cases this approach consists of a couple of questions you ask yourself. Which information is given? What is asked of me? What do I need as well? How can I get/calculate what is asked of me with the available information?

This approach of solving problems is also applicable to a lot of problems that have nothing to do with mathematics. Mathematics makes you a better problem solver!

Computers 2

Everyday new apps and programs are coming out. Programming is essential here. Why does your computer or smart phone work? Right! Because a mathematician started programming. The processor in your computer or phone is only adding ones and zeros. Really! A smart mathematician has developed this 'calculator' further and further and at a point in time he developed the first programming languages. Programming still is a process in which logic and mathematical knowledge is indispensable. A robot arm in a factory has to be designed, but also programmed. Both will need a lot of maths. All data created or send in by users have to be stored somewhere. Companies like to encrypt this, so it is stored safe from outsiders. You guessed right. Also pure mathematics. Enough jobs for mathematicians.

Film

This sums it all up:

Why Do I Need To Learn Math? 10 VERY GOOD reasons



