Mathematics 2A (STÆ2A06)

Preliminary University Studies Department

Course description

The fundamentals of mathematics will be covered in this course which is a requisite for students to have in order for them to progress to high levels of mathematics later on. Topics of study include: algebra, geometry and functions. Students will be introduced to the Geogebra program. An emphasis will be put on the student's ability to deliver a concise exposition of assignments and to work independently. In addition, a student should be able to apply mathematical information and arguments to solve various problems.

Prerequisites (Required preparation)

10 credits, competence level 1

Competence level

2

Credits

6

By the end of the course:

The student has acquired knowledge and understanding of:

- the basics of arithmetic and algebra in first and second-degree equations
- polynomials, factors and zeros of a function
- concepts of geometry and trigonometry: angle sum of a triangle, angle at circumference and corresponding angles
- concepts of coordinate geometry: the distance formula, the midpoint formula and Pythagoras theorem

- the basic concepts of functions: linear functions, linear systems of equations, inequalities and non-linear functions
- the concept of function, argument domain and counter domain
- the basics of the computer program, Geogebra

The student has acquired the skill to:

- use the basic rules of arithmetic and algebra to simplify and solve problems
- solve geometric problems
- work with different trigonometric functions
- work with linear and non-linear functions, both in writing and with the help of the computer program, Geogebra
- solving problems that require knowledge and logical thinking, both independently and in groups

Student can use the knowledge and skill which he/she has acquired to:

- apply the meaning and relation of concepts in the curriculum
- write their solutions systematically, share ideas with others about them and explain their ideas and tasks, verbally or graphically
- understand the interrelation of different methods when solving a mathematical problem
- use critical and creative thinking and show initiative and intuition in solving problems
- apply methodical techniques in seeking solutions to problems, for example through proofs, conjecture and equations
- apply methodical techniques in seeking solutions to problems through comparing solutions to similar problems or making equations
- approach mathematical problems with an open mind and positive attitude

Course assessment

The course is assessed in a variety of ways, there among group work, individual assignments, quizzes and a final exam that will make up a part of the final grade.