



# SF0003 Introductory Course in Mathematics 1.5 credits

## Introduktion i matematik

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for SF0003 valid from Autumn 2016

## Grading scale

P, F

## Education cycle

Pre-university level

## Specific prerequisites

Advanced mathematics from upper secondary school (courses A-D).

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After the course the student should be able to

- use common mathematical notation,
- perform polynomial division and apply the factor theorem,
- manipulate inequalities and make calculations with the absolute value of real numbers,
- use cartesian coordinates and sketch lines and quadratic curves,
- sketch graphs of simple functions,
- combine functions by composition and the four basic operations of arithmetics,
- simplify expressions by using factorisation and powers and logarithms,
- solve quadratic equations, simple root equations and trigonometric equations,
- compute with complex numbers

in order to be prepared for higher studies in technology in general and for the basic courses in mathematics at KTH in particular.

## Course contents

- Common mathematical notation
- Natural numbers, integers, rational numbers, real numbers and complex numbers.
- Manipulation of inequalities: addition, multiplication, absolute value, monotonous maps.
- Cartesian coordinates, straight lines and quadratic curves.
- Graphs of functions.
- Elementary properties of functions.
- Polynomial division and the factor theorem.
- Trigonometry and trigonometric functions.

## Course literature

One of the following:

- The compendium **Preparatory course in mathematics I**.
- **Calculus** by Robert A. Adams & Christopher Essex, 8th edition, ISBN 978-0-321-78107-9.

## Examination

- ANN1 - Introduction, 1.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

## Other requirements for final grade

Written exam, with the possibility of continuous examination.

## **Ethical approach**

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.