Illustrations to the Lectures of Mathematics for Pharmacy Students

A. General

1. Official remarks

2. Test 1

3. Test 2

B. Topics

4. Introduction

5. Elementary functions (Lectures 1-2)

Inverse functions
Power functions
Definition of trigonometric functions
Properties of trig. functions
An application : the harmonic oscillation
Exponential and Logarithmic functions
Elementary transformations of functions
Transformations of data and functions
Logarithmic transformations
Nonlinear transformations

6. Limit and derivative (Lectures 3-4)

The cases of limit
Zooming
Derivative : the geometrical meaning
The definition of e
Application : Linear approximation

7. Investigation of function (Lectures 5-6)

Tangent lines and the shape of the graph
Tangent lines : animation 1
Tangent lines : animation 2
Comparison of the growth rates

8. Taylor polynomials (Lecture 7)

The definition, animation of the approximation

Exponential function

Sin (x)

Cos (x)

9. Integral (Lectures 8-9)

Antiderivative : geometric meaning

Definite integral

Area function

Application : motion

Application : volume of cylindrical bodies

10. Functions of two variables (Lectures10-11)

Graphs in 3 D

Partial derivatives

Application : Curve fitting, Linear Regression

11. Ordinary differential equations

1 *D* equations : the most important types
Models with 1D ODE-s