

Week: March 8 – March 14, 2021

Topic: **Implicit functions**

The below provided instructions should guide you through studying the topic. For additional explanation, clarification and extra material contact the Lecture/Tutorial teacher by email or the MS-Teams platform for live online consultation (see webpage for the link).

https://mat.nipax.cz/mathematics:mathematics_ii

The plan for this week is finish some topics left from the previous week, namely the derivatives of composite and implicitly defined functions. Then we will start with some preliminaries regarding the investigation of extrema of functions of multiple variables. The detailed investigation of functions of two variables will be left for the next week. Most of the study material from the last week will remain actual also for this week.

1) Read and learn the explanation from the textbook. Scanned pages can be found on the web page.

https://mat.nipax.cz/media/mathematics:pages_01-23.pdf

For the second part of the week we will add the new chapter

https://mat.nipax.cz/media/mathematics:pages_24-33.pdf

Additional material and alternative explanation with many figures and exercises can be found in (free) online available textbooks

<http://www.math.wisc.edu/~keisler/calc.html>

namely chapter 11 http://www.math.wisc.edu/~keisler/chapter_11.pdf

<https://openstax.org/details/books/calculus-volume-3>

namely chapter 4 <https://openstax.org/books/calculus-volume-3/pages/4-introduction>

2) Take a look at the solved exercises from our collection of examples

questions: <https://mat.nipax.cz/media/calculus2.pdf>

https://mat.nipax.cz/media/implicit_function.pdf

complete solutions (in Czech): <https://mat.nipax.cz/media/diferencial.pdf>

https://mat.nipax.cz/media/implicitni_funkce.pdf

3) As a training solve (at least) the following exercises.

108, 109, 110, 122, 123, 124 – higher order derivatives

178, 180, 185, 194 – implicit functions

4) As a long term homework, to be delivered at specified deadline, solve all the corresponding exercises from sample exams from our webpage

https://mat.nipax.cz/media/mathematics:ma2_exam_1n_en.pdf

https://mat.nipax.cz/media/mathematics:ma2_exam_2n_en.pdf

https://mat.nipax.cz/media/mathematics:ma2_exam_3n_en.pdf

The delivery of all sample exams, completely and correctly solved (by yourself) is necessary (but not sufficient) condition for obtaining the assessment from tutorials.