

Mathematical analysis I — Homework 12

Due: 15:40, 9.1.2019

Write your solution of each problem on a separate sheet of paper. One part will be marked for credit.

Problem 1: For every $a \in \mathbb{R}$ determine, whether the derivative of the function $f(x) = |(x+1)^2(x-1)^3|$ exists and if yes, what is its value.

Problem 2: Find $f'(3)$ using the definition of the derivative, where $f(x) = \frac{1}{\sqrt{4-x}}$.

Problem 3: For function $f(x) = x\sqrt{1-x^2}$ determine its domain, range, find derivative whenever it exists and use it to find minimum and maximum of the function and (approximately) draw the graph of the function.