

Mathematics A1a Homework

Academic year 2016 autumn

Due to October 27

You have to solve at least 3 out of 6!

Example 1. Calculate the slope of the function $f(x) = x^2$ at point $x_0 = 1$ by definition.

Example 2. Calculate the slope of the function $f(x) = \sqrt{x}$ at point $x_0 = 1$ by definition.

Example 3. Prove that the function $f(x) = \sqrt{x}$ is not differentiable at $x_0 = 0$.

Example 4. Use the product rule (or Leibniz rule) to calculate the derivative function of $f(x) = x^3$.

Example 5. Calculate the derivative of $f(x) = a \cdot x + b$ where $a, b \in \mathbb{R}$ can be any numbers.

Example 6. Plot the derivative function of the following function.

