Exercise 0

1. Register at https://miserv101.mathematik.uni-leipzig.de/registration/r/ to create an account for our JupyterLab server. The invitation code is LeiXP2427 .
2. Get a free account for an online latex editor, e.g.
   - *Inscrive* at https://inscrive.io/,
   - *murphy* at https://www.murfy.ai/, or
   - *Overleaf* at https://de.overleaf.com.

   You should compare the offers, especially regarding data privacy, compile limits, and features, and make your choice.

Exercise 1

1. Install Julia from https://julialang.org/install/ on your own computer.
2. Install LaTeX from https://www.latex-project.org/get/. Windows users should select the "TeX Live" distribution.
3. Use the TeX Live manager to install the `latexmk` package (via GUI or command `"tlmgr install latexmk"`). It is required for the VS Code editor.
4. Install the Visual Studio Code editor from https://code.visualstudio.com.
   Note: We will not use AI features such as Copilot.
5. Install the VS Code extensions for Julia and LaTeX (LaTeX Workshop).

Exercise 2

1. Examine the JupyterLab server at https://misun103.mathematik.uni-leipzig.de. An introductory guide is available at https://www.geo.fu-berlin.de/en/v/soga-py/Introduction-to-Python/Intro-Jupyterlab/index.html, although it focuses on Python rather than Julia.
2. Study the VS Code tutorial found at https://code.visualstudio.com/docs/editing/getting-started/editor-tutorial. This tutorial also covers extension installation. Ignore the sections about using the Copilot AI agent.
3. The Julia language and the LaTeX Workshop extension each have their own extensive documentation:
   - https://www.julia-vscode.org/
   - https://github.com/James-Yu/LaTeX-Workshop/wiki
4. Overleaf offers a lot of LaTeX documentation. Have a look at https://www.overleaf.com/learn/latex/Free_online_introduction_to_LaTeX_(part_1) (accessible without overleaf account).
5. Create your first LaTeX document using either your local VS Code installation or Overleaf.
6. Write a Julia program (in your local VS Code installation or in Jupyterlab) that finds all perfect numbers less than 10^6. A natural number is perfect if it is equal to the sum of its divisors, including 1 and excluding itself. The smallest perfect number is $6 = 1 + 2 + 3$.