# Area Estimation Using the Monte Carlo Method
## Exercise 8

Cesare De Cal

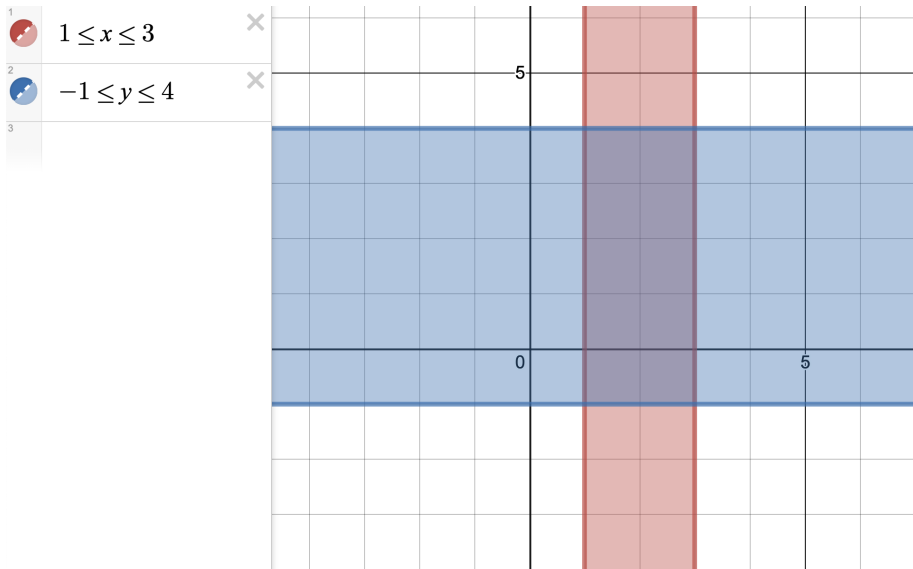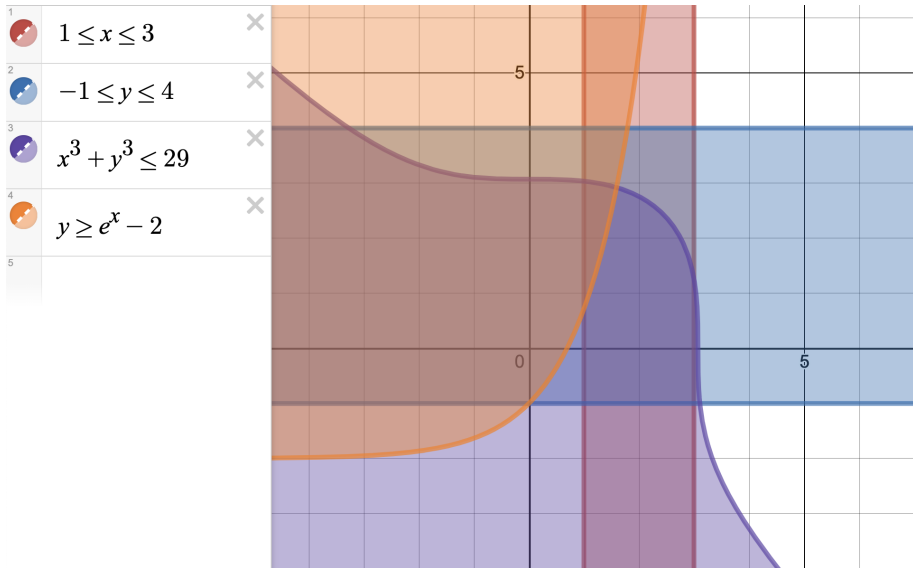University of Antwerp - Erasmus Exchange

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## Problem Statement

Use the Monte Carlo method to approximate the area of the figure defined by

$$\begin{cases} 1 \le x \le 3 \\ -1 \le y \le 4 \\ x^3 + y^3 \le 29 \\ y \ge e^x - 2 \end{cases}$$

# Bounding Box

$1 \leq x \leq 3$

$-1 \leq y \leq 4$

# Full System



1. $1 \leq x \leq 3$
2. $-1 \leq y \leq 4$
3. $x^3 + y^3 \leq 29$
4. $y \geq e^x - 2$

## Tools

To solve this exercise, I've used C and the following libraries:

- C Math Library
- Intel Math Kernel Library (more specifically, the Vector Statistical Library)
- OpenMP