Goldsmiths,
University of London CM1015:
Notes on Numerical Mathematics

By Shen Zhou Hong Goldsmiths, University of London

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Introduction

Shen's personal lecture notes for the Goldsmiths 2019 — 2020 CM1015 Numerical Mathematics course. Please contact Shen Zhou Hong at for any corrections or editorial comments.

Cartesian Mathematics

Defining the Domain and Range of a Function

The domain (set of valid inputs) and range (set of valid outputs) of a function can be defined using an variety of different notation, such as set builder notation, interval notation, and inequalities.

Set-Builder Notation

$$\{x \mid x > 0\}$$

This is read as: “the set of all x’s, such that x is greater than zero”.

Interval Notation

Interval notation uses square and round brackets. Square [] brackets indicate we include those end values, while round brackets () indicate we don’t.

$$[0, 20]$$

This denotes the interval of numbers from zero to twenty, including both zero and twenty.

$$[1, 5)$$

This denotes the interval of numbers from one until but not including 5, i.e. “1, 2, 3, 4”.

Technical Notes

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https://github.com/ShenZhouHong/EssayTemplate

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