

Exam 1

Computer Arithmetic

Mathematical Analysis

- Proof of $0.999\dots = 1$
- Proof of square root of 2
- Discussion on the use of Newton Method to show if numerator/denominator is even or odd.
- Remark 1 (rational number) - slide 17
- Example 2 (supremum) - slide 20
- Definition 13 (extended real number) - slide 26
- Exercises Chapter 1: Ex. 1, and 9
- Definition 20 (countable) - slide 34
- Definition 25 (metric space)

Mathematical Analysis

- Definition 30 (neighbourhood) - slide 41
- Work 1 - Slide 51
- Definition 38 (convergence) - slide 52
- Definition 40 (Cauchy sequence) - slide 57
- Proof of geometric serie
- Definition 47 (limit) - 70
- Theorem 33 to 35 - slide 82

Number Representation

- Aspects and topics of Computer arithmetic - slide 9
- Number and their encodings - slides 13 and 14
- 1.4 and 1.5 - slides 15 to 20
- Complement of 2 - Slide 33
- Advantages of using complement of 2
- Addition of redundant numbers - Slide 47

Floating point - IEEE 754

- Example 2 (fixe point) - slide 17
- Machine epsilon and ulp - slide 23
- Precision - slide 23
- Exercise 9 (ulp) - slide 24
- Example 6 (floating point representation) - slide 22
- IEEE representation - slide 32
- Rounding - slide 41
- Arithmetic operations under IEEE - slide 46
- Exceptions - slide 53
- Exercise 2 - slide 60 (explaining with mathematical analysis and floating point)
- Cancelling -slide 71