
MATH 220, Mathematical Reasoning and Proof
MWF 1 - 1:50
IN PROGRESS

All assignments
Last updated: September 3, 2023
Gradescope code: 7DVWGG

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| 1 (due Sep 15): Introduction to course. Mathematical reasoning. Logic. | 2 |
| 2 (due Sep 22): “Direct” proofs and divisibility problems. | 3 |
| 3 (due Sep 29): Proof by contradiction. Unsolvability. Irrationality. | 4 |
| 4 (due Oct 06): Induction. | 5 |
| 5 (due Oct 13): Set theory. Basic operations. Proofs with sets. | 6 |
| (October 13) Midterm | 7 |
| 6 (due Oct 20): More sets. DeMorgan’s laws. Cartesian Products. Power sets. | 8 |
| 7 (due Oct 27): Introduction to functions; images and surjectivity. | 9 |
| 8 (due Nov 03): Inverse Image (or “Preimage”). | 10 |
| 9 (due Nov 10): Injectivity. | 11 |
| 10 (due Nov 17): Composition of functions. | 12 |
| (November 17) Midterm | 13 |
| 11 (due Dec 01): Inverse functions. | 14 |
| 12 (due Dec 08): Relations | 15 |
| 13 (due Dec 13): Binary Operations and Bijections/Countability | 16 |
| Final Exam | 17 |

Assignment 1

Topics: Introduction to the course. Mathematical reasoning. Logic.

Reading: 1.1, 1.2, 1.5, 2.1, 2.2

TODO Suggested problems (do not hand in)

- With answers:
 - 1.1:
 - 1.2:
 - 1.5:
 - 2.1:
 - 2.2:
- Without answers: [Handout 1](#)

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