Introduction to Proofs
IAP 2015
Bibliographic Notes

1. Lecture Notes 1

The discussion follows a more or less standard outline; see for instance Chapter 1 of [4].

2. Lecture Notes 2

The argument in example 2.3 is due to Fourier; we follow [1, pp. 28-29] for our exposition.

3. In-class practice (day 2, problem 3)/Homework 2

The approach described in this problem is due to N. Casás Ferreño [2] (see also [6, pg. 23]).

4. In-class practice (day 3)

Problem 5: See [8, pg. 159].

Problem 6: The proof suggested by this problem is due to Liouville; we follow the discussion of [1].

5. In-class practice (day 4)

This seems to be a classical/common exercise; see for instance [7].

6. In-class practice (day 10)

The particular formulation of these problems draws upon the references [3] and [10].

7. Homework 4

This is Exercise 3.2.3 in [5].

8. Homework 5

Problem 2 is more or less classical; the particular formulation we give is drawn from [9, Problems 1–18, 3–11].

References

[1] M. Aigner, G. Ziegler. Proofs from the book. Third ed. Springer-Verlag, 2004.

[2] N. Casás Ferreño. Yet another proof of the irrationality of $\sqrt{2}$. Amer. Math. Monthly 116 (2009), no. 1, pp. 68–69.

[3] D. Klain. Some classical inequalities. http://faculty.uml.edu/dklain/ineq.pdf

[4] A.N. Kolmogorov and S.V. Fomin, Introductory Real Analysis (R.A. Silverman, ed.) Dover, 1975, New York.

[5] J. Lebl. Basic Analysis (Introduction to Real Analysis with University of Pittsburgh supplements). Available at http://calculus.math.pitt.edu/books/pittanal.pdf

[6] E. Lehman, F. Thomson Leighton, A. Meyer. Mathematics for Computer Science (rev. Jan. 10, 2013), http://courses.csail.mit.edu/6.042/spring12/mcs.pdf

[7] http://math.stackexchange.com/a/145195.

[8] R. Rossi. Theorems, Corollaries, Lemmas and Methods of Proof. Wiley, 2006, Hoboken, NJ.
[9] M. Spivak. Calculus on Manifolds. W.A. Benjamin, Inc., 1965, New York, NY.
[10] http://staffhome.ecm.uwa.edu.au/ 00021149/Academy/2013/ineq3.pdf