Mathematics is Fun

Expository Writing submitted to
The Mathematics Junior Seminar
of
Bard College

by
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May, 2099

Abstract

The abstract should be brief, and non-technical. Try to minimize the use of symbols in the abstract, so that you can use the abstract elsewhere.

Contents

1 A Terrific Section

In the Junior Seminar style, there are no chapters, only sections.

Theorem 1.1. *Let $f\colon A \to B$ be a function.*

1. *If f has an inverse, then the inverse is unique.*

2. *If f has a right inverse g and a left inverse h, then $g = h$; hence f has an inverse.*

3. *If f has an inverse g, then g has an inverse, which is f.*

Proof. (1). Suppose that $g, h\colon B \to A$ are both inverses of f. We will show that $g = h$. By hypothesis on g and h we know, among other things, that $f \circ g = 1_B$ and $h \circ f = 1_A$. Using a previous lemma we see that

$$g = 1_A \circ g = (h \circ f) \circ g = h \circ (f \circ g) = h \circ 1_B = h.$$

(2). The proof is virtually the same as in Part (1).

(3). Since $g\colon B \to A$ is an inverse of f, then $g \circ f = 1_A$ and $f \circ g = 1_B$. By the definition of inverses, it follows that f is an inverse of g. By Part (1) of this theorem, we know that f is the unique inverse of g. $\square$

2 A So So Section

Whenever possible, break the material up into smaller sections.

Also whenever possible, insert figures to aid the reader. Always refer to the figures in the text. We see the logo of the Mathematics Program at Bard in Figure 2.1.

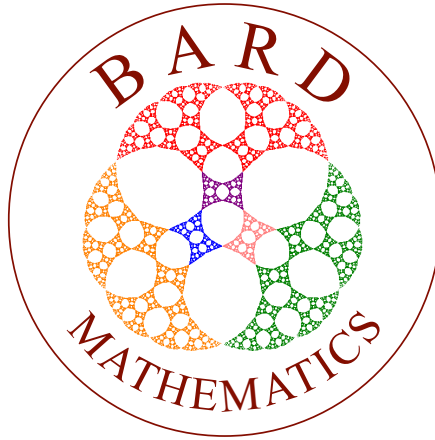## 2.1 Subsections are Nice

Subsections are available when needed.

Figure 2.1. The Bard Mathematics Program Logo

Bibliography

[1] Harold Homology, *Algebraic Topology for Dummies*, Math Lights, Simplicialville, NY, 2099.

[2] Cathy Calculus, *Why everyone should love calculus*, Journal of Fun Mathematics **314** (2099), 100–101.

[3] Felicity Function and Tim Tangent, *How to Write a Great Junior Seminar Project in Mathematics*, `http://www.www.www.edu`.