# Categories

## December 3, 2023

## Contents

Other Chapters	2
. ??	
. ??	
. ??	
. ??	
. ??	
. ??	
. write material on sections and retractions	
. define bicategory $Adj(C)$	

# Appendices

## A Other Chapters

#### **Set Theory**

- 1. Sets
- 2. Constructions With Sets
- 3. Pointed Sets
- 4. Tensor Products of Pointed Sets
- 5. Indexed and Fibred Sets
- 6. Relations
- 7. Spans
- 8. Posets

#### **Category Theory**

- 9. Categories
- 10. Constructions With Categories
- 11. Kan Extensions

#### **Bicategories**

- 12. Bicategories
- 13. Internal Adjunctions

#### **Internal Category Theory**

14. Internal Categories

#### **Cyclic Stuff**

15. The Cycle Category

#### **Cubical Stuff**

16. The Cube Category

#### **Globular Stuff**

17. The Globe Category

#### **Cellular Stuff**

18. The Cell Category

#### **Monoids**

- 19. Monoids
- 20. Constructions With Monoids

#### **Monoids With Zero**

- 21. Monoids With Zero
- 22. Constructions With Monoids With Zero

#### Groups

- 23. Groups
- 24. Constructions With Groups

### Hyper Algebra

- 25. Hypermonoids
- 26. Hypergroups
- 27. Hypersemirings and Hyperrings
- 28. Quantales

## **Near-Rings**

- 29. Near-Semirings
- 30. Near-Rings

#### **Real Analysis**

- 31. Real Analysis in One Variable
- 32. Real Analysis in Several Variables

#### **Measure Theory**

33. Measurable Spaces

34. Measures and Integration

## **Probability Theory**

34. Probability Theory

## **Stochastic Analysis**

35. Stochastic Processes, Martingales, and Brownian Motion

36. Itô Calculus

37. Stochastic Differential Equations

## **Differential Geometry**

38. Topological and Smooth Manifolds

#### Schemes

39. Schemes