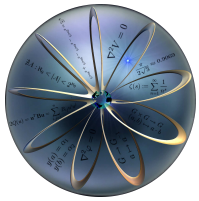

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index of set theory

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1 Basic Notions

1. set theory
2. set
3. subset
4. union
5. power set
6. generalized Cartesian product
7. transitive set
8. criterion for a set to be transitive
9. Cartesian product
10. proof of the associativity of the symmetric difference operator
11. proper subset
12. an example of mathematical induction
13. principle of finite induction
14. principle of finite induction proven from the well-ordering principle for natural numbers
15. de Morgan's laws
16. de Morgan's laws for sets (proof)

2 Functions and Relations

1. antisymmetric
2. example of antisymmetric
3. argument
4. constant function
5. equivalence class
6. direct image
7. domain
8. fibre
9. fix (transformation action)
10. function
11. function graph
12. identity map
13. inclusion mapping
14. invariant
15. inverse image
16. irreflexive
17. left function notation
18. right function notation
19. level set
20. mapping

21. mapping of period n is a bijection
22. operation
23. operations on relations
24. partial function
25. partial mapping
26. period of mapping
27. properties of a function
28. properties of functions
29. quasi-inverse of a function
30. range
31. reflexive relation
32. relation
33. restriction of a function
34. set difference
35. symmetric difference
36. symmetric relation
37. the inverse image commutes with set operations
38. transformation
39. transitive
40. transitive closure
41. transitive relation
42. choice function
43. one-to-one function from onto function

2.1 Order Relations

1. poset
2. maximal element
3. minimal element
4. visualizing maximal elements
5. cofinality
6. another definition of cofinality
7. chain
8. antichain
9. branch
10. tree (set theoretic)
11. example of tree (set theoretic)
12. proof that Ω has the tree property
13. filtration
14. well ordered set

3 Cardinals and Ordinals

1. κ-complete
2. additively indecomposable
3. aleph numbers
4. algebraic numbers are countable
5. all algebraic numbers in a sequence
6. another proof of cardinality of the rationals
7. beth numbers
8. Cantor normal form
9. Cantor's diagonal argument
10. Cantor's theorem
11. cardinal arithmetic
12. cardinal exponentiation under GCH
13. cardinal number
14. cardinal successor
15. cardinality
16. cardinality of a countable union
17. cardinality of disjoint union of finite sets
18. cardinality of the continuum
19. cardinality of the rationals
20. classes of ordinals and enumerating functions
21. club
22. club filter
23. countable
24. countably infinite
25. finite
26. finite character
27. fixed points of normal functions
28. Fodor's lemma
29. Hilbert's hotel
30. if A is infinite and B is a finite subset of A, then $A \setminus B$ is infinite
31. König's theorem
32. limit cardinal
33. natural number
34. normal (ordinal) function
35. open and closed intervals have the same cardinality
36. ordinal arithmetic
37. ordinal number
38. pigeonhole principle
39. proof of pigeonhole principle

40. another proof of pigeonhole principle
41. proof of Cantor's theorem
42. proof of fixed points of normal functions
43. proof of Fodor's lemma
44. proof of the existence of transcendental numbers
45. proof of theorems in additively indecomposable
46. proof that countable unions are countable
47. proof that the rationals are countable
48. proof of Schroeder-Bernstein theorem
49. Schroeder-Bernstein theorem
50. stationary set
51. subsets of countable sets are countable
52. thin set
53. successor
54. successor cardinal
55. the Cartesian product of a finite number of countable sets is countable
56. law of trichotomy
57. partitions less than cofinality
58. Aronszajn tree
59. example of Aronszajn tree
60. Suslin tree
61. Erdős-Rado theorem
62. uncountable owned by yark
63. uniqueness of cardinality
64. Veblen function
65. von Neumann integer
66. von Neumann ordinal
67. weakly compact cardinal
68. weakly compact cardinals and the tree property
69. inductive set
70. inaccessible cardinals

4 Axiomatic Formulation

1. axiom of choice
2. axiom of countable choice
3. axiom of determinacy
4. axiom of extensionality
5. axiom of infinity
6. axiom of pairing

7. axiom of power set
8. axiom of union
9. axiom schema of separation
10. continuum hypothesis
11. generalized continuum hypothesis
12. equivalence of Zorn's lemma and the axiom of choice
13. Hausdorff's maximum principle
14. Kuratowski's lemma
15. maximality principle
16. permutation model
17. Tukey's lemma
18. $\mathcal{U}$-small
19. proof of Tukey's lemma
20. proof of Zermelo's postulate
21. proof of Zermelo's well-ordering theorem
22. proof that a relation is union of functions if and only if AC
23. relation as union of functions
24. Selector
25. well-ordering principle for natural numbers proven from the principle of finite induction
26. well-ordering principle implies axiom of choice
27. Martin's axiom
28. Martin's axiom and the continuum hypothesis
29. Martin's axiom is consistent
30. a shorter proof: Martin's axiom and the continuum hypothesis
31. Zermelo's postulate
32. Zermelo's well-ordering theorem
33. Zorn's lemma
34. example of universe
35. example of universe of finite sets
36. proof of properties of universe
37. Tarski's axiom
38. universe
39. von Neumann-Bernays-Goedel set theory
40. chain condition
41. composition of forcing notions
42. composition preserves chain condition
43. equivalence of forcing notions
44. forcing
45. forcing relation

46. forcings are equivalent if one is dense in the other
47. FS iterated forcing preserves chain condition
48. iterated forcing
49. iterated forcing and composition
50. partial order with chain condition does not collapse cardinals
51. proof of partial order with chain condition does not collapse cardinals
52. proof that forcing notions are equivalent to their composition
53. Boolean valued model
54. complete partial orders do not add small subsets
55. proof of complete partial orders do not add small subsets
56. Levy collapse
57. $\diamondsuit$ is equivalent to $\clubsuit$ and continuum hypothesis
58. proof of $\diamondsuit$ is equivalent to $\clubsuit$ and continuum hypothesis
59. clubsuit
60. diamond
61. combinatorial principle