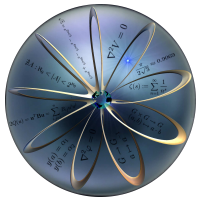

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index of category theory

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1 Foundations

1.1 Basic Definitions

1. category theory
2. precategory
3. category
4. alternative definition of category
5. subcategory
6. automorphism
7. commutative diagram
8. concrete category
9. dual category
10. duality principle
11. endomorphism
12. epi
13. monic
14. extremal monomorphism
15. source
16. sink
17. initial source
18. final sink
19. isomorphism-closed subcategory
20. locally finite category
21. preimage of category
22. product of categories
23. types of morphisms
24. wellpowered category
25. zero object
26. http://planetmath.org/node/5658$\mathcal{U}$-small
27. equalizer
28. subobject
29. quotient object
30. categorical direct product
31. categorical direct sum
32. categorical pullback
33. direct limit
34. limiting cone
35. complete category
36. groupoid (category theoretic)

1.2 Maps of Categories

1. functor
2. autofunctor
3. category isomorphism
4. diagonal functor
5. endofunctor
6. forgetful functor
7. identity functor
8. isomorphism
9. multifunctor
10. natural transformation
11. essentially surjective
12. faithful functor
13. full functor
14. natural equivalence
15. adjoint functor
16. equivalence of categories
17. http://planetmath.org/CategoryIsomorphism isomorphic categories
18. universal property
19. representable functor
20. Equivalent definition of a Representable Functor
21. simplicial object

1.3 Fundamental Theorems

1. properties of monomorphisms and epimorphisms
2. properties of regular and extremal monomorphisms
3. monomorphisms are pullback stable
4. proof that an equalizer is a monomorphism
5. Yoneda lemma
6. categorical direct product is an inverse limit
7. kernel is an inverse limit

1.4 Examples of Categories

1. discrete category
2. category example (arrow category)
3. category associated to a partial order
4. category of matrices
5. Category of pseudomorphisms
6. Category of intermorphisms
7. examples of initial objects and terminal objects and zero objects

8. category of sets
9. monomorphisms of category of sets
10. monoid as a category
11. comma category
12. category of pointed topological spaces
13. simplicial category

1.5 Micellaneous

1. algebra formed from a category
2. monad
3. comonad
4. monoidal category
5. group object
6. nerve

2 Additive Categories and Homology

1. preadditive category
2. additive category
3. Abelian category
4. supplemental axioms for an Abelian category
5. exact sequence
6. exact functor
7. Grothendieck spectral sequence
8. enough projectives
9. enough injectives
10. projective object
11. injective object
12. derived functor
13. derived category
14. Algebraic K-theory
15. examples of algebraic K-theory groups
16. Grothendieck group
17. delta functor
18. horseshoe lemma
19. syzygy
20. Ext
21. Tor
22. projective dimension
23. 5-lemma
24. proof of 5-lemma
25. 9-lemma
26. snake lemma
27. `http://planetmath.org/ProofOfSnakeLemma`proof of snake lemma

28. chain homotopy
29. chain homotopy equivalence
30. chain map
31. homology of a chain complex
32. Leray spectral sequence
33. spectral sequence

3 Sheaves, Topoi, and the like

1. presheaf
2. sheaf
3. sheafification
4. presheaf of a topological basis
5. stalk
6. Étalé space
7. resolution of a sheaf
8. site
9. small site on a scheme
10. topos
11. cosmos
12. subobject classifier
13. well-pointed topos
14. power object
15. natural numbers object
16. Cartesian closed category
17. exponential object