Wikidata:WikiProject Mathematics/Talks/DMV2023 /Mathematics and Wikidata

< Wikidata:WikiProject Mathematics | Talks | DMV2023

Short link to this page: https://w.wiki/7YdV (https://w.wiki/7YdV) or simply `WD:DMV2023` on Wikidata

About

This page assists a presentation given by Daniel Mietchen (Q20895785) at Annual Conference 2023 of the German Mathematical Society (Q122643579) in Ilmenau (Q205929) on September 25, 2023 (Q69306933).

An archival copy of it is available at Zenodo (Q22661177) via the digital object identifier (Q25670) 10.5281/zenodo.8374548 (https://doi.org/10.5281/zenodo.8374548) .

Abstract

Wikidata is an open and collaborative database that anyone can edit, which thousands do on a regular basis. Launched a decade ago, FAIR (Findable, Accessible, Interoperable and Reusable) right from the start and closely integrated with its sister sites in the Wikipedia ecosystem, it has since become the edit button of the semantic web and is increasingly being integrated with scholarly databases and workflows spanning across all fields of research. This presentation will consider Wikidata through the lense of mathematics, covering content, infrastructure and community aspects and how each of these are curated and interlinked both within and beyond Wikidata. In terms of content, coverage of mathematical concepts will be explored, including objects of mathematical research, software and other methods used in mathematical research, along with mathematical aspects of research in other fields as well as mathematical literature and linguistic knowledge about mathematical terminology across natural languages. In terms of infrastructure, support mechanisms for describing, displaying and analyzing mathematical objects in Wikidata contexts will be discussed. In terms of communities, we will cover producers, curators and users of mathematical knowledge and data, along with community structures engaged in any aspect of the life cycle of mathematical entities, both in scholarly and Wikidata contexts.

Introduction

Wikimedia projects

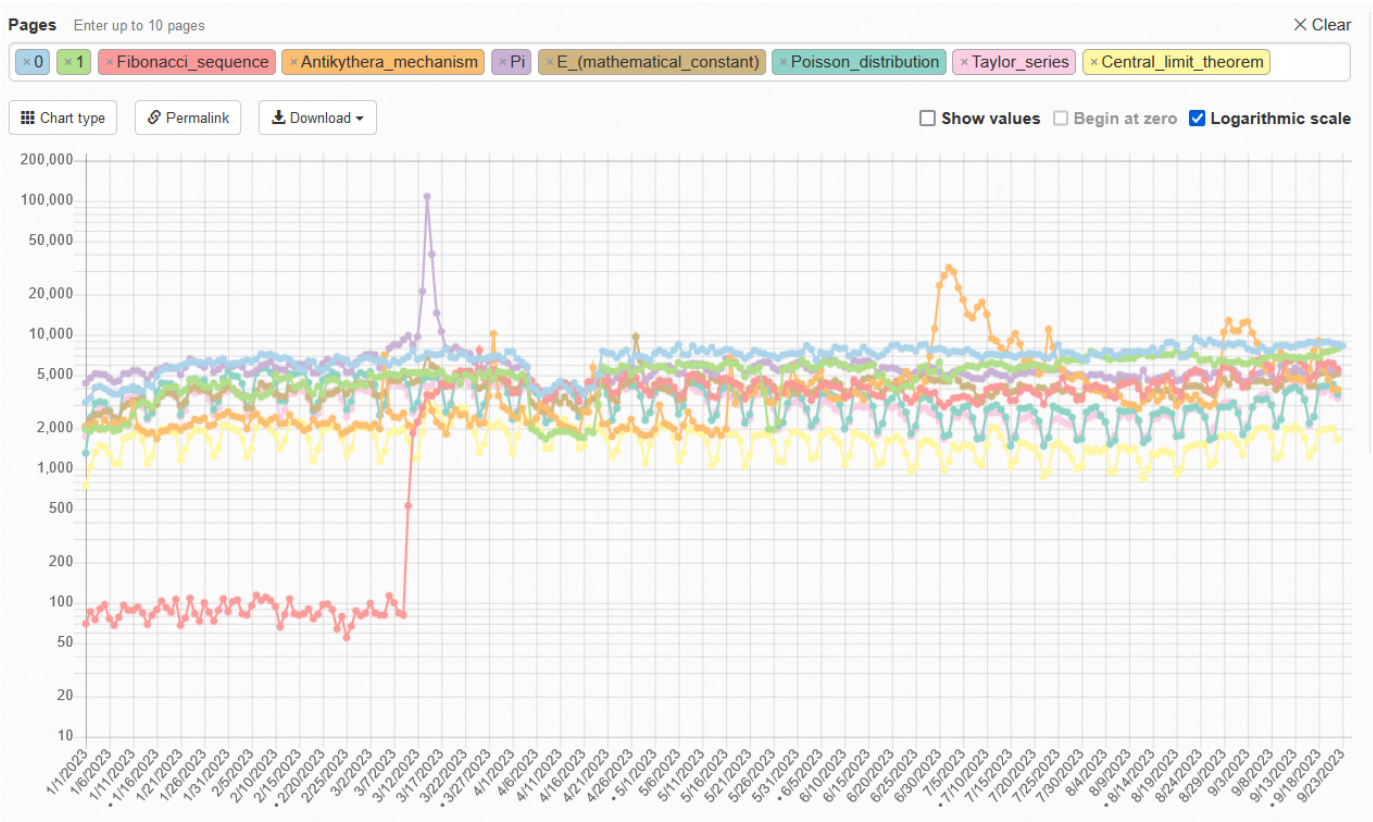
An ecosystem of about 1000 wikis (https://meta.wikimedia.org/wiki/Special:SiteMatrix)

> "By 2030, Wikimedia will become the essential infrastructure of the ecosystem of free knowledge, and anyone who shares our vision will be able to join us. (https://meta.wikimedia.org/wiki/Movement_Strategy) "

Wikipedia

Wikipedia (https://www.wikipedia.org/) is available in over 300 languages, together getting multiple billions of monthly page views.

Math-related Wikipedia traffic



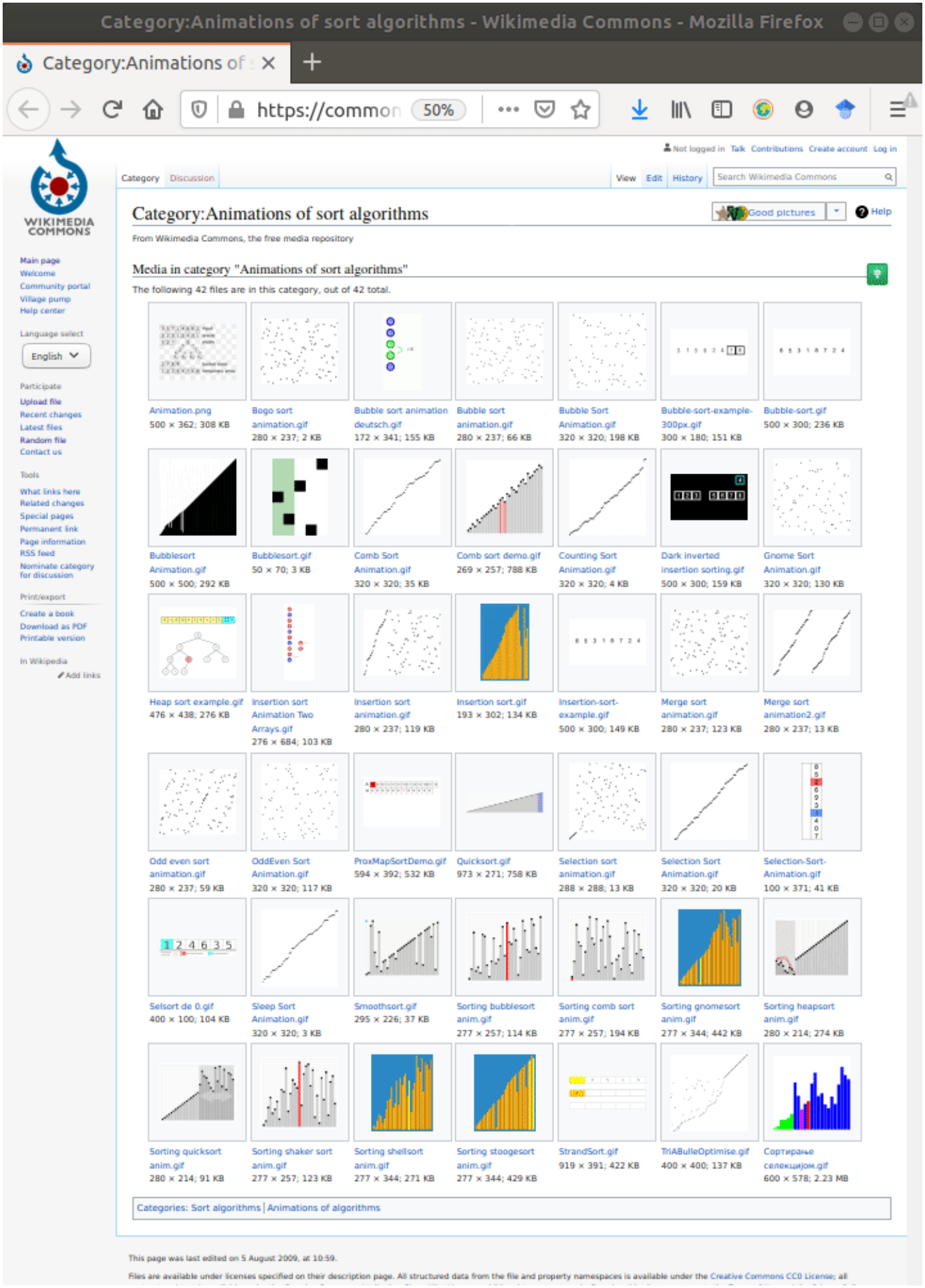
Pageview stats (https://pageviews.wmcloud.org/pageviews/?project=en.wikipedia.org&platfor

m=all-access&agent=user&redirects=0&range=this-year&pages=0%7C1%7CFibonacci_sequence%7CAntikythera_mechanism%7CPi%7CE_(mathematical_constant)%7CPoisson_distribution%7CTaylor_series%7CCentral_limit_theorem) for some mathematical articles on the English Wikipedia this year so far

Wikimedia Commons

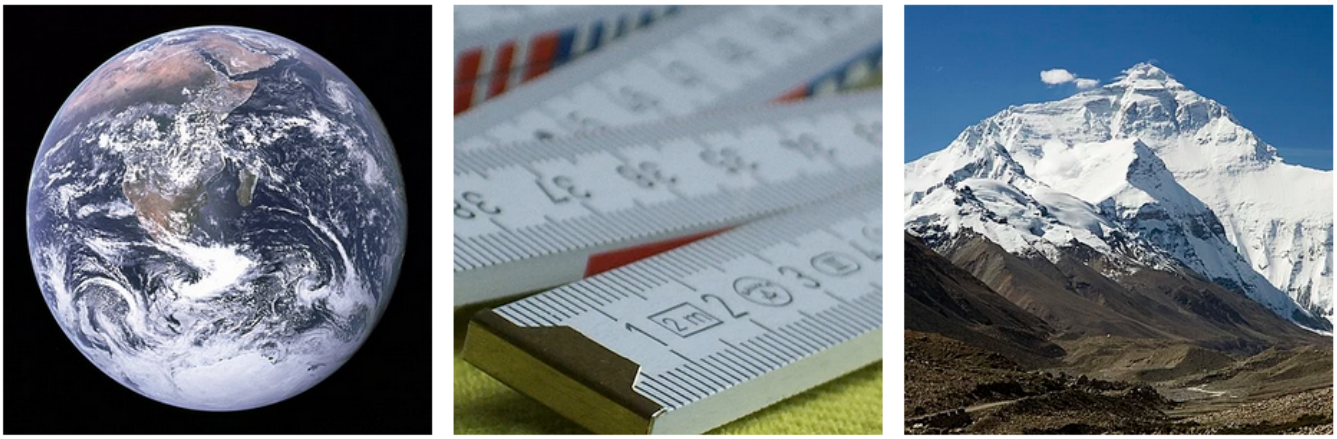
Over 90 million reusably licensed media files (https://commons.wikimedia.org/wiki/Special:Statistics)

Math in Wikimedia Commons


Category:Animations of sort algorithms - Wikimedia Commons - Mozilla Firefox
Category:Animations of sort algorithms
From Wikimedia Commons, the free media repository
Media in category "Animations of sort algorithms"
The following 42 files are in this category, out of 42 total.
Animation.png
500 × 362; 308 KB
Bogo sort animation.gif
280 × 237; 2 KB
Bubble sort animation deutsch.gif
172 × 341; 155 KB
Bubble sort animation.gif
280 × 237; 66 KB
Bubble Sort Animation.gif
320 × 320; 198 KB
Bubble-sort-example-300px.gif
300 × 180; 151 KB
Bubble-sort.gif
500 × 300; 236 KB
Bubblesort Animation.gif
500 × 500; 292 KB
Bubblesort.gif
50 × 70; 3 KB
Comb Sort Animation.gif
320 × 320; 35 KB
Comb sort demo.gif
269 × 257; 788 KB
Counting Sort Animation.gif
320 × 320; 4 KB
Dark inverted insertion sorting.gif
500 × 300; 159 KB
Gnome Sort Animation.gif
320 × 320; 130 KB
Heap sort example.gif
476 × 438; 276 KB
Insertion sort Animation Two Arrays.gif
276 × 684; 103 KB
Insertion sort animation.gif
280 × 237; 119 KB
Insertion sort.gif
193 × 302; 134 KB
Insertion-sort-example.gif
500 × 300; 149 KB
Merge sort animation.gif
280 × 237; 123 KB
Merge sort animation2.gif
280 × 237; 13 KB
Odd even sort animation.gif
280 × 237; 59 KB
OddEven Sort Animation.gif
320 × 320; 117 KB
ProxMapSortDemo.gif
594 × 392; 532 KB
Quicksort.gif
973 × 271; 758 KB
Selection sort animation.gif
288 × 288; 13 KB
Selection Sort Animation.gif
320 × 320; 20 KB
Selection-Sort-Animation.gif
100 × 371; 41 KB
Selsort de 0.gif
400 × 100; 104 KB
Sleep Sort Animation.gif
320 × 320; 3 KB
Smoothsort.gif
295 × 226; 37 KB
Sorting bubblesort anim.gif
277 × 257; 114 KB
Sorting comb sort anim.gif
277 × 257; 194 KB
Sorting gnomesort anim.gif
277 × 344; 442 KB
Sorting heapsort anim.gif
280 × 214; 274 KB
Sorting quicksort anim.gif
280 × 214; 91 KB
Sorting shaker sort anim.gif
277 × 257; 123 KB
Sorting shellsort anim.gif
277 × 344; 271 KB
Sorting stoogesort anim.gif
277 × 344; 429 KB
StrandSort.gif
919 × 391; 422 KB
TriABulleOptimise.gif
400 × 400; 137 KB
Сортирање селекцијом.gif
600 × 578; 2.23 MB
Categories: Sort algorithms | Animations of algorithms
This page was last edited on 5 August 2009, at 10:59.

Animation of media files in the Wikimedia Commons category for animations of sort algorithms (https://commons.wikimedia.org/wiki/Category:Animations_of_sort_algorithms) . Reused on the Armenian Wikipedia (https://hy.wikipedia.org/wiki/%D5%8F%D5%A5%D5%BD%D5%A1%D5%AF%D5%A1%D5%BE%D5%B8%D6%80%D5%B4%D5%A1%D5%B6_%D5%A1%D5%AC%D5%A3%D5%B8%D6%80%D5%AB%D5%A9%D5%B4) via Wikidata (https://www.wikidata.org/wiki/Q181593) .

Wikidata



Item: *Earth (Q2)* Property: *highest point (P610)* custom value: *Mount Everest (Q513)*

Structured data about more than 100 million entities (https://www.wikidata.org/wiki/Special:Statistics) .

Math in Wikidata

See also Mathematics in Wikidata (Q114777088).

Wikidata Query Service | Beispiele | Hilfe | Weitere Werkzeuge | Abfragegenerator | Deutsch

```
#defaultView:ImageGrid
SELECT DISTINCT
  (SAMPLE(COALESCE(?en_label, ?item_label)) as ?name)
  (SAMPLE(?type_label) as ?type)
  (SAMPLE(?image) as ?image)
  (SAMPLE(?item) as ?wikidata)
WHERE {
  ?type wdt:P279* wd:Q65943. # Theorem
  ?item p:P31/ps:P31 ?type.
  OPTIONAL {?item rdfs:label ?en_label. FILTER(LANG(?en_label) = "en")} OPTIONAL {?item rdfs:label ?item_label}
  OPTIONAL {?type rdfs:label ?type_label. FILTER(LANG(?type_label) = "en")}
  {?item wdt:P18 ?image.}
   {?item wdt:P2534 ?formula.}
} GROUP BY ?item
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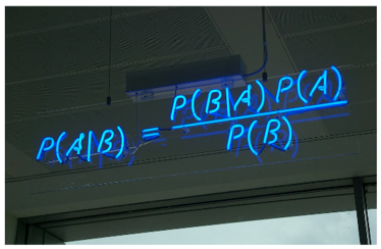
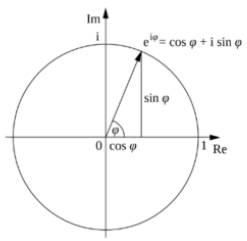
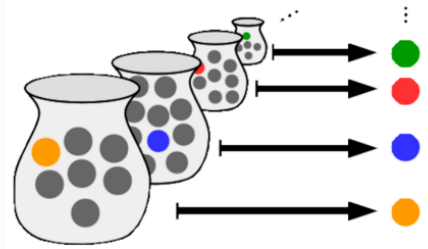
Image grid | 30 Ergebnisse in 40 ms | Code | Herunterladen | Link



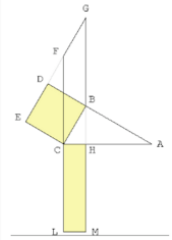
wd:Q182505
commons:Bayes' Theorem MMB 01.jpg
theorem
Bayes' theorem



wd:Q184871
commons:Euler's formula.svg
theorem
Euler's formula



wd:Q179692
commons:Axiome du choix.png
axiom of set theory
axiom of choice



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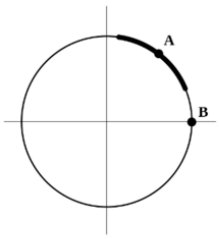
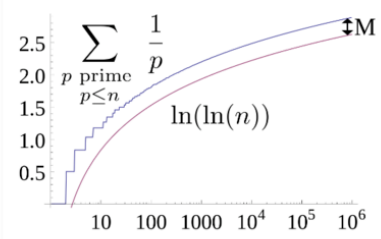
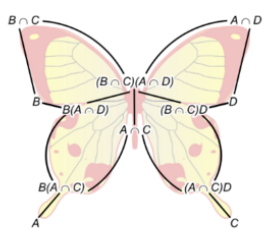
commons:Euclide1.png
theorem
Euclid's first theorem



wd:Q848375
commons:Implicit circle.svg
theorem
implicit function theorem



wd:Q118176598
commons:Meissel–Mertens constant definition.svg
theorem
Mertens' second theorem



wd:Q3229348
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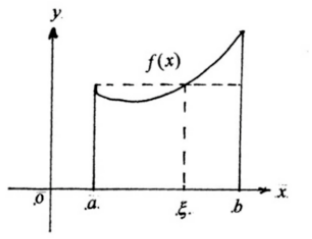
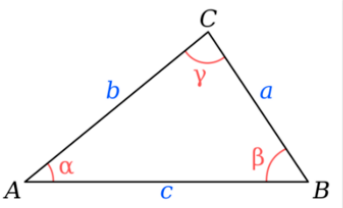
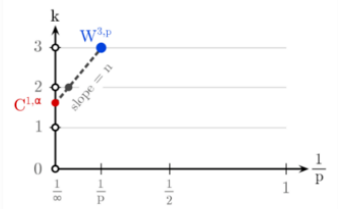
lemma
Zassenhaus lemma



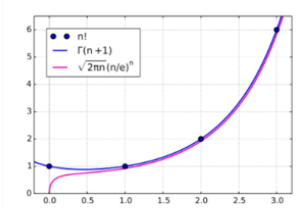
wd:Q4349092
commons:积分中值定理.jpg
theorem
first mean value theorem for integrals



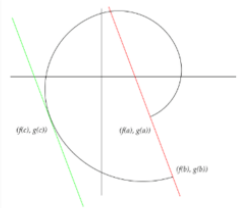
wd:Q182714
commons:Triangle with notations 2.svg
theorem
Heron's formula



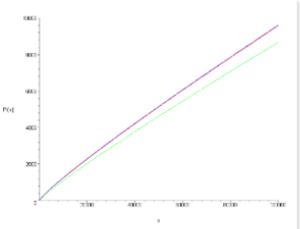
wd:Q3711848
commons:Sobolev embedding theorem (Morrey case).svg
theorem
Sobolev inequality



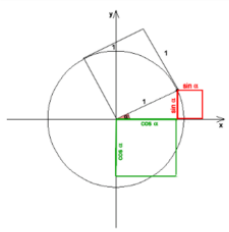
wd:Q470877
commons:Mplwp factorial gamma stirling.svg
theorem
Stirling's approximation



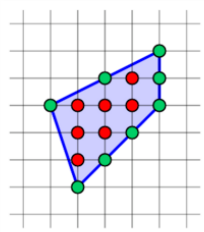
wd:Q3984001
commons:Cauchy.svg
theorem
Cauchy's mean-value theorem



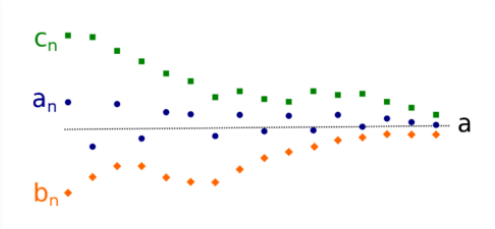
wd:Q386292
commons:PrimeNumberTheorem.png
theorem
prime number theorem



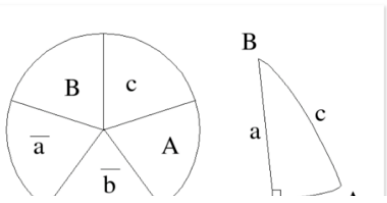
wd:Q2039117
commons:TrigPythagoras.png
trigonometric identity
Pythagorean trigonometric identity

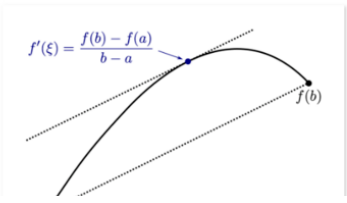


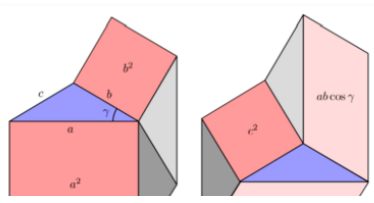
wd:Q646523
commons:Pick theorem simple.svg
theorem
Pick's theorem

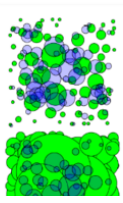


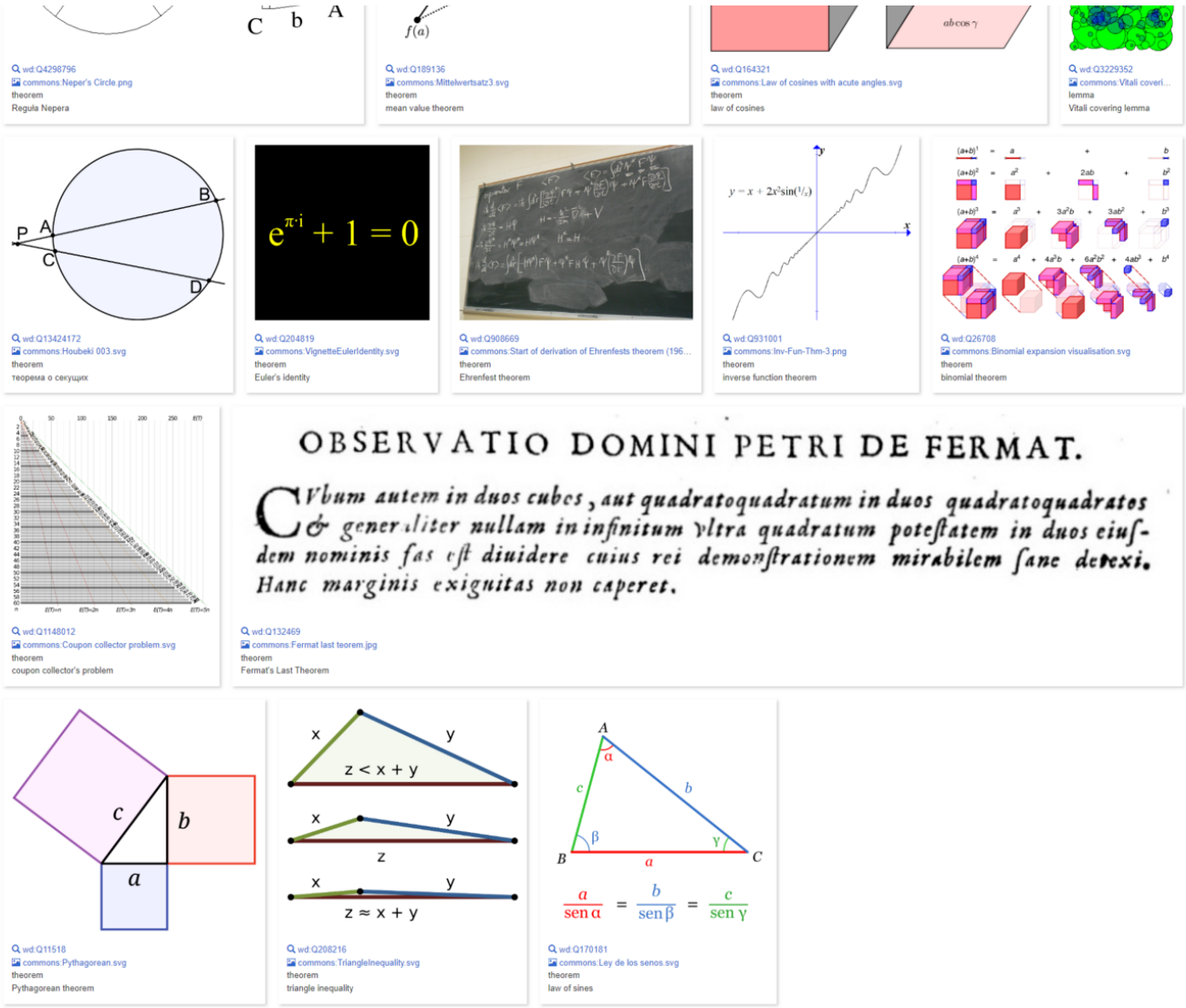
wd:Q1065257
commons:Sandwich lemma.svg
theorem
squeeze theorem





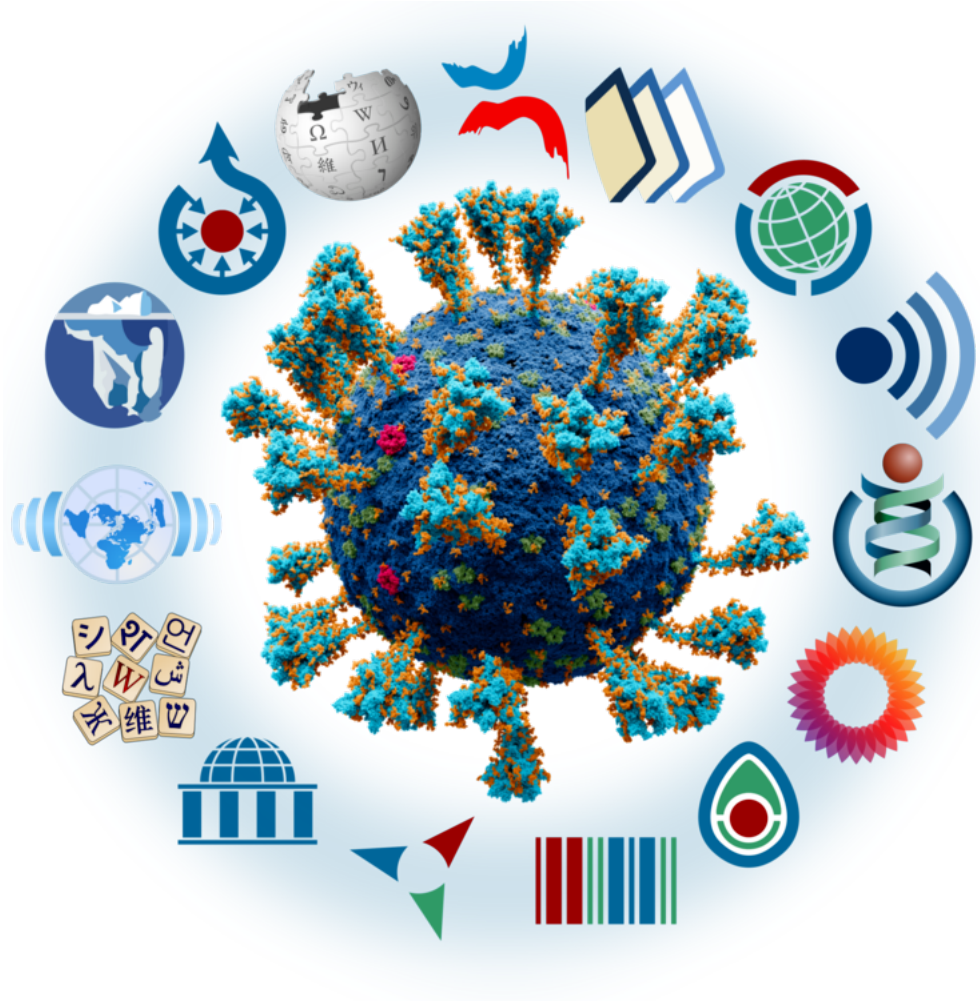






Illustrations of mathematical theorems, as per Wikidata query (https://query.wikidata.org/#%23defaultView%3AImageGrid%0ASELECT%20DISTINCT%0A%20%20%28SAMPLE%28COALESCE%28%3Fen_label%2C%20%3Fitem_label%29%29%20as%20%3Fname%29%0A%20%20%28SAMPLE%28%3Ftype_label%29%20as%20%3Ftype%29%0A%20%20%28SAMPLE%28%3Fimage%29%20as%20%3Fimage%29%0A%20%20%28SAMPLE%28%3Fitem%29%20as%20%3Fwikidata%29%0AWHERE%20%7B%0A%20%20%3Ftype%20wdt%3AP279%2a%20wd%3AQ65943.%20%23%20Theorem%0A%20%20%3Fitem%20p%3AP31%2Fps%3AP31%20%3Ftype.%0A%20%20OPTIONAL%20%7B%3Fitem%20rdfs%3Alabel%20%3Fen_label.%20FILTER%28LANG%28%3Fen_label%29%20%3D%20%22en%22%29%7D%20OPTIONAL%20%7B%3Fitem%20rdfs%3Alabel%20%3Fitem_label%7D%0A%20%20OPTIONAL%20%7B%3Ftype%20rdfs%3Alabel%20%3Ftype_label.%20FILTER%28LANG%28%3Ftype_label%29%20%3D%20%22en%22%29%7D%0A%20%20%7B%3Fitem%20wdt%3AP18%20%3Fimage.%7D%0A%20%20%20%7B%3Fitem%20wdt%3AP2534%20%3Fformula.%7D%0A%7D%20GROUP%20BY%20%3Fitem) .

Other Wikimedia projects



An example (https://doi.org/10.5281/zenodo.5201623) of how each of these projects has its own ways of sharing knowledge around a topic.

Math in other Wikimedia projects

Lots of angles to engage with mathematics.

wikivoyage Search Wikivoyage

tourism around mathematics and skill of maths

Language Watch Edit

Travel topics > Cultural attractions > Historical travel > Mathematics tourism

Mathematics has been developed at many different places of the world. It has themes in common with both philosophy tourism and science tourism.

Destinations

- 1 **The Alhambra** (*Granada, Spain*). Islamic art is famous for its extensive use of geometric patterns and symmetry groups, and this palace especially so: its intricately tiled designs are said to include all 17 of the mathematically distinct wallpaper patterns. This accomplishment, possibly unique in world architecture, attracted M.C. Escher to Granada to see it. W (updated Jul 2023)
- 2 **Great Pyramid of Giza** (*Pyramid of Khufu or Cheops*) (*Giza, Egypt*). The last surviving representative of the Seven Wonders of the Ancient World was built around 2500 BC. It was built to a height of 146 m (479 ft), but is now slightly reduced to a still towering 137 m (449 ft). Over 2 million blocks of stone were used to construct it, all through manual labour. While the pyramids and other monuments of ancient Egypt have marvelled posterity, the exact construction methods have been forgotten. Modern scientists have had many hypotheses about how the Pyramids were built, with much evidence that advanced geometry and mechanical devices were applied already in the 3rd millennium BC. W

Take a look at Math tourism (https://en.m.wikivoyage.org/wiki/Mathematics_tourism) on Wikivoyage or study Topological invertibility criteria (https://de.wikiversity.org/wiki/Kurs:Topologische_Invertierbarkeitskriterien) on Wikiversity.

Mathematics and Wikidata

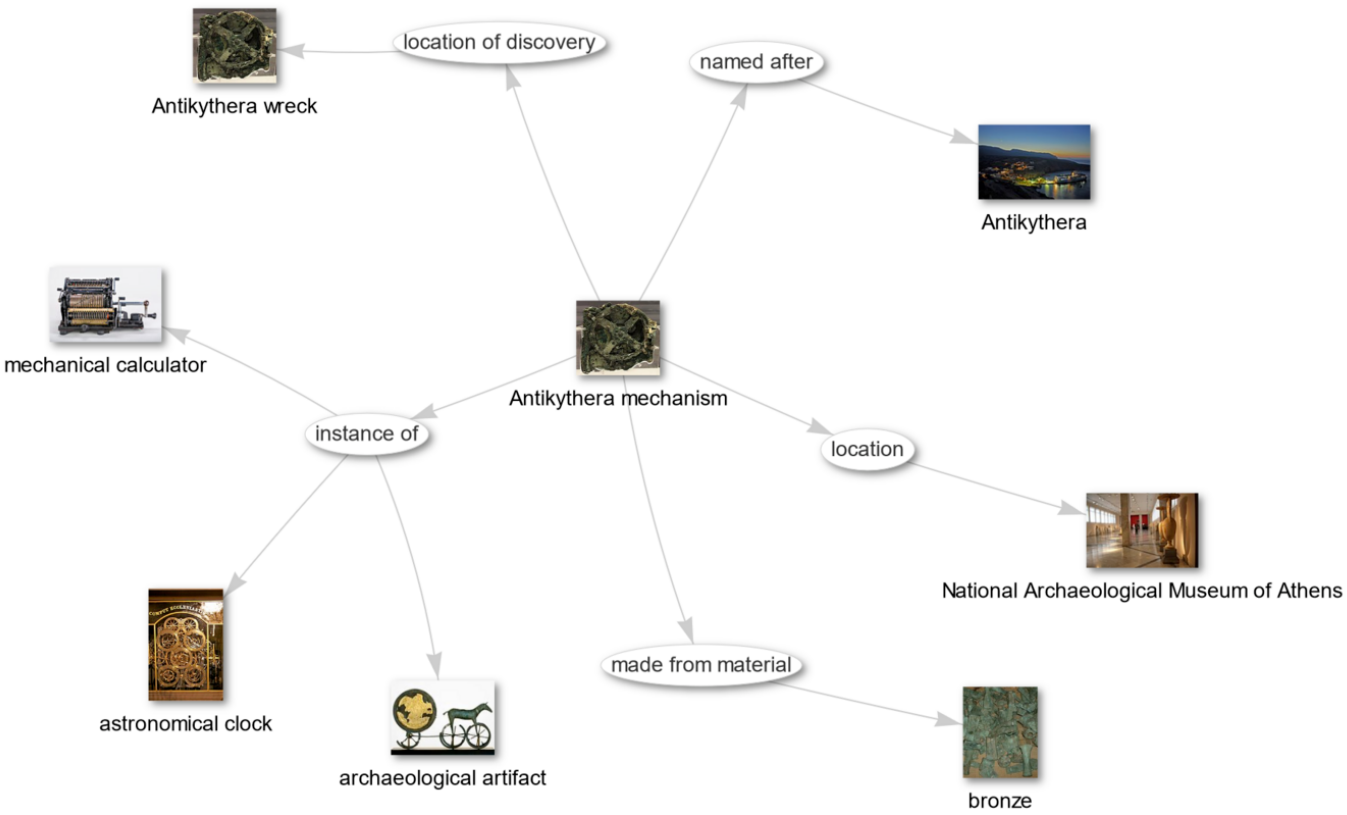
Content aspects

Formulas

Meaning of the symbol 'η' in various formulas					
item	itemLabel	formula	symbol	role	roleLabel
wd:Q824561	Stokes' law	$F_{\mathrm{D}} = 6\pi\eta r v$	η	wd:Q15152757	dynamic viscosity
wd:Q105221904	magnetic number	$N_{mg} = B\sqrt{\frac{l\sigma}{\eta v}}$	η	wd:Q15152757	dynamic viscosity
wd:Q1609031	Mark-Houwink equation	$[\eta] = KM^a$	$[\eta]$	wd:Q2804680	intrinsic viscosity
wd:Q2064924	pseudorapidity	$\eta = -\ln\tan\frac{\theta}{2}$	η	wd:Q2064924	pseudorapidity
wd:Q1452104	thermal efficiency	$\eta = W/Q$	η	wd:Q1452104	thermal efficiency
wd:Q45315914	conformal time	$\eta = \int_0^t \frac{\mathrm{d}t'}{a(t')}$	η	wd:Q45315914	conformal time
wd:Q110535082	Minkowski metric	$\eta = \begin{pmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$	η	wd:Q110535082	Minkowski metric

Meaning of the symbol η in various formulas, as per Wikidata query (https://query.wikidata.org/#%23title%3A%20Meaning%20of%20the%20symbol%20%27%CE%B7%27%20in%20various%20formulas%0A%0ASELECT%20DISTINCT%20%3Fitem%20%3FitemLabel%20%3Fformula%20%3Fsymbol%20%3Frole%20%3FroleLabel%20%20%20WHERE%20%7B%0A%20%20%3Fitem%20wdt%3AP2534%20%3Fformula%20.%0A%20%20%3Fitem%20wdt%3AP7235%20%3Fexpression%20.%0A%20%20%3Fitem%20p%3AP7235%20%3Fexpression_statement%20.%0A%20%20%3Fexpression_statement%20ps%3AP7235%20%3Fsymbol%20.%0A%20%20%3Fexpression_statement%20pq%3AP9758%20%3Frole%20.%0A%20%20FILTER%20REGEX%28LCASE%28STR%28%3Fsymbol%29%29%2C%20%22%CE%B7%22%29%0A%20%20SERVICE%20wikibase%3Alabel%20%7B%20bd%3AserviceParam%20wikibase%3Alanguage%20%22%5BAUTO_LANGUAGE%5D%2Cen%22.%20%7D%0A%7D%0AORDER%20BY%20ASC%28%3Fformula%29%0ALIMIT%2010%0A) .

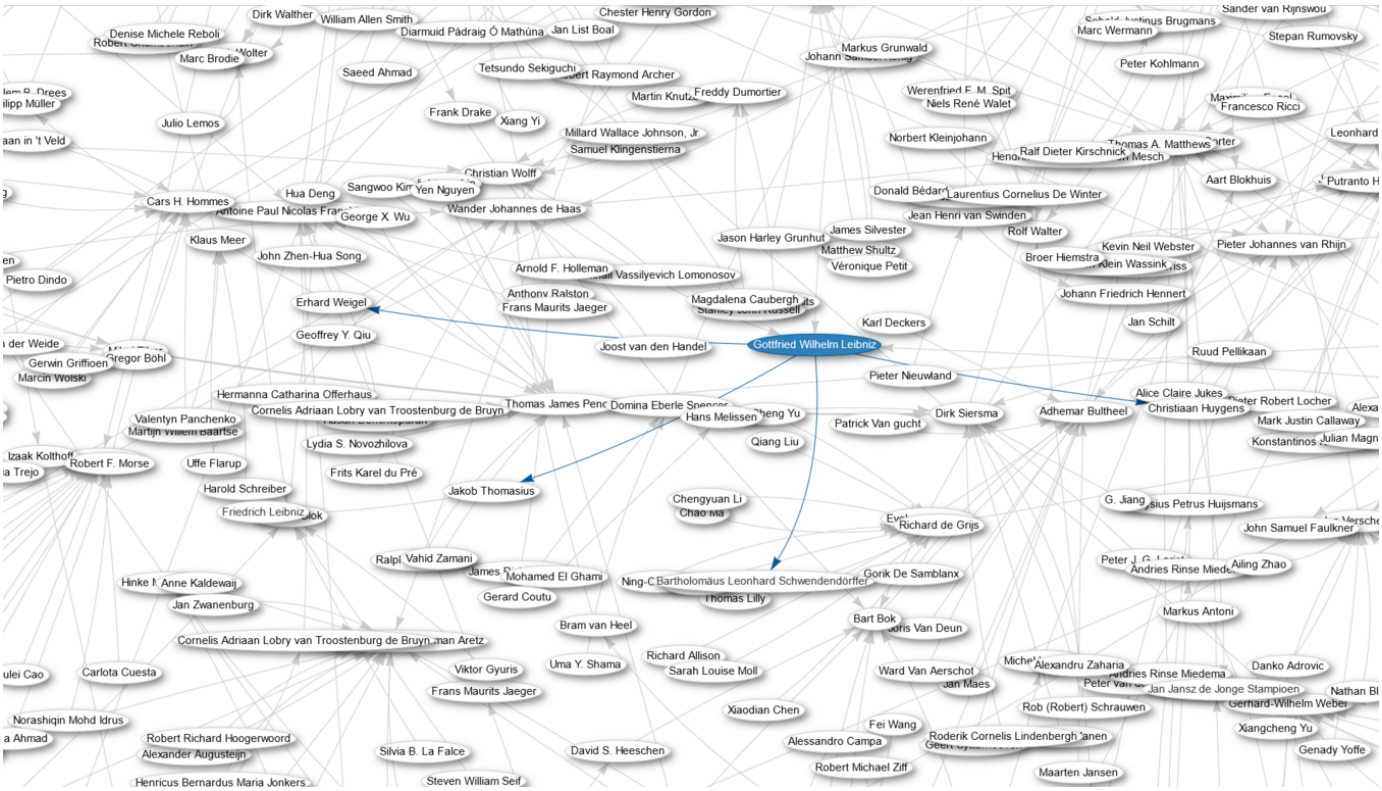
Calculators



Subgraph of Wikidata around the Antikythera mechanism, as per Wikidata query (https://query.wikidata.org/#%23%20tool%3A%20scholia%0APREFIX%20target%3A%20%3Chttp%3A%2F%2Fwww.wikidata.org%2Fentity%2FQ182324%3E%0A%0A%23defaultView%3AGraph%0ASELECT%20%3Fnode%20%3FnodeLabel%20%3FnodeImage%20%3FchildNode%20%3FchildNodeLabel%20%3FchildNodeImage%20%3Frgb%20%0AWITH%20%7B%0A%20%20SELECT%20DISTINCT%20%3Fproperty%20WHERE%20%7B%0A%20%20%20%20%20%20%3Fproperty%20a%20wikibase%3AProperty%3B%0A%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20wdt%3AP31%20wd%3AQ18610173%20%3B%0A%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20wdt%3AP31%20wd%3AQ26940804%20.%20%0A%20%20%20%20%7D%0A%7D%20AS%20%25properties%0AWITH%20%7B%0A%20%20SELECT%20DISTINCT%20%3Fnode%20%3FchildNode%20WHERE%20%7B%0A%20%20%20%20%20%20%20%20BIND%28target%3A%20AS%20%3Fnode%29%0A%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20%20

20target%3A%20%3Fp%20%3FchildNode.%0A%20%20%20%20%20%20%3Fnode%20%3Fx%20%3Fp.%0A%20%20%20%20%20%20%3Fnode%20rdf%3Atype%20wikibase%3AProperty.%0A%20%20%20%20%20%20FILTER%28STRSTARTS%28STR%28%3FchildNode%29%2C%20%22http%3A%2F%2Fwww.wikidata.org%2Fentity%2FQ%22%29%29%0A%20%20%20%20%7D%0A%20%20LIMIT%205000%0A%7D%20AS%20%25childNodes%0AWHERE%20%7B%0A%20%20%7B%0A%20%20%20%20INCLUDE%20%25nodes%0A%20%20%7D%0A%20%20UNION%0A%20%20%7B%0A%20%20%20%20INCLUDE%20%25childNodes%0A%20%20%7D%0A%0A%20%20OPTIONAL%20%7B%20%0A%20%20%20%20INCLUDE%20%25properties%0A%20%20%20%20%3Fproperty%20wikibase%3AdirectClaim%20%3Fnodeclaim.%0A%20%20%20%20%3Fnode%20%3Fnodeclaim%20%3FnodeImage.%20%0A%20%20%7D%0A%0A%20%20OPTIONAL%20%7B%20%0A%20%20%20%20INCLUDE%20%25properties%0A%20%20%20%20%3Fproperty%20wikibase%3AdirectClaim%20%3FchildNodeclaim.%0A%20%20%20%20%3FchildNode%20%3FchildNodeclaim%20%3FchildNodeImage.%20%0A%20%20%7D%0A%20%20%0A%20%20SERVICE%20wikibase%3Alabel%20%7B%20bd%3AserviceParam%20wikibase%3Alanguage%20%22%5BAUTO_LANGUAGE%5D%2Cen%22.%20%7D%20%20%20%20%20%20%20%20%0A%7D) .

Mathematicians

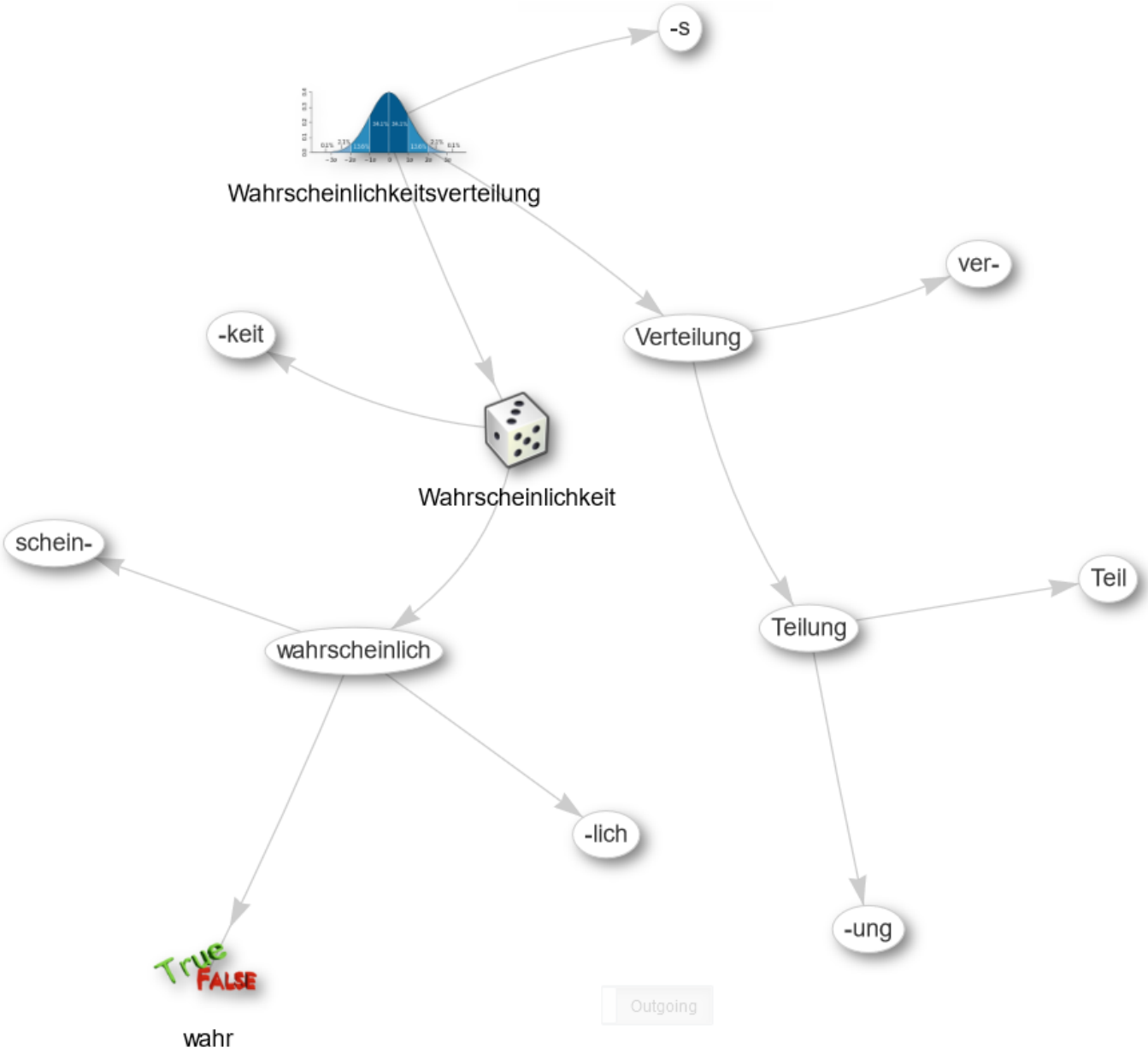


Wikidata representation of the academic tree around Gottfried Wilhelm Leibniz (Q9047) .

See also mathematicians who have had non-mathematical entities named after them (https://query.wikidata.org/#SELECT%20DISTINCT%20%3Fmathematician%20%3FmathematicianLabel%20WHERE%20%7B%0A%20%20%3Fmathematician%20wdt%3AP106%2Fwdt%3AP279%2a%20w

d%3AQ170790%20.%0A%20%20%7B%20%3Fobject%20wdt%3AP2824%20%3Fid1%20.%20%7D%0A%20%20UNION%0A%20%20%7B%20%3Fobject%20wdt%3AP719%20%3Fid2%20.%20%7D%0A%20%20UNION%0A%20%20%7B%20%3Fobject%20wdt%3AP225%20%3Fid3%20.%20%7D%0A%20%20%0A%20%20%3Fobject%20wdt%3AP138%20%3Fmathematician%20.%0A%20%20SERVICE%20wikibase%3Alabel%20%7B%20bd%3AserviceParam%20wikibase%3Alanguage%20%22%5BAUTO_LANGUAGE%5D%2Cen%22.%20%7D%0A%7D) .

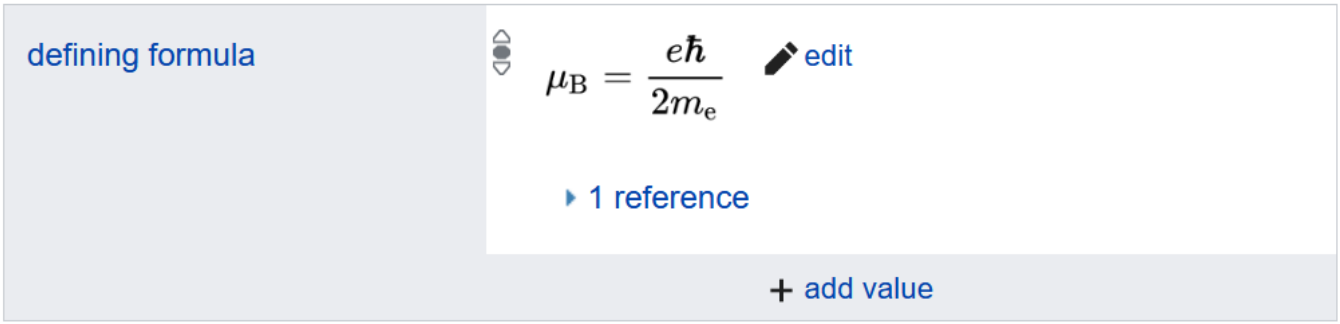
Mathematical terms



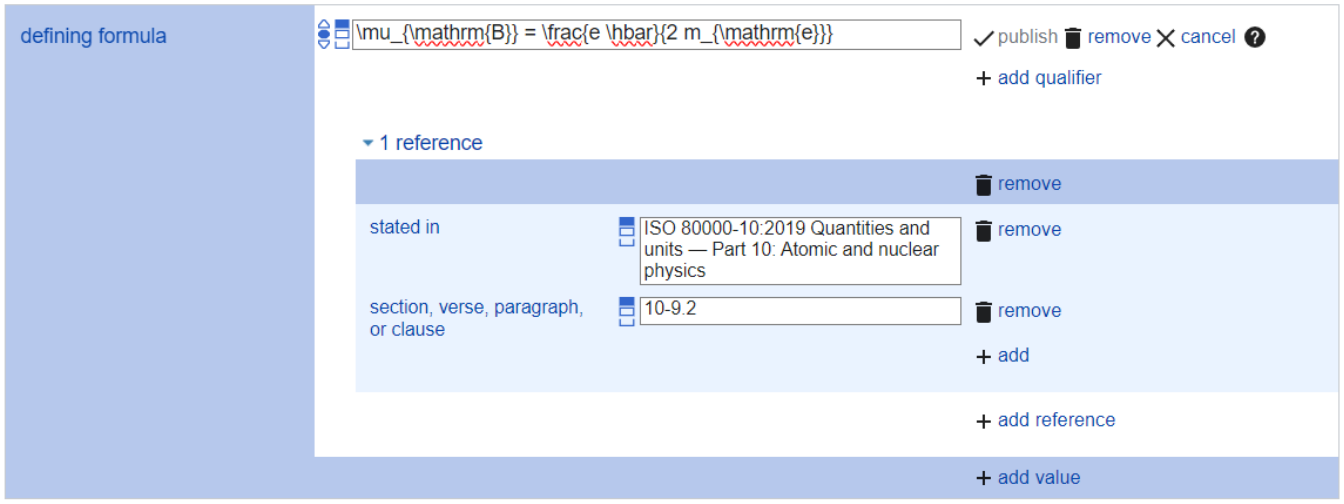
Compund and derivation graph for Wikidata lexeme Wahrscheinlichkeitsverteilung (L770168), as per its Ordia profile (https://ordia.toolforge.org/L770168) .

Infrastructure aspects

Rendering mathematical notation



The value for the defining formula (P2534) statement on the Wikidata item Bohr magneton (Q737120) rendered.



The value for the defining formula (P2534) statement on the Wikidata item Bohr magneton (Q737120) in edit mode.

Data integration

Data modelling

V T E (https://www.wikidata.org/w/index.php?title=Template:Mathematics_properties&action=edit)

Wikidata properties related to mathematics (Q395)

General	discoverer or inventor notation quantity symbol (LaTeX) quantity proved by Erdős number statement describes defining formula in defining formula calculated from admissible rule in relative to generalization of title in LaTeX
Numbers	numeric value prime factor greater than less than number of decimal digits radix
Algebra and Topology	cardinality of this set group cardinality contains has part(s) of the class identity element has operator mathematical inverse Alexander polynomial Conway polynomial Jones polynomial Alexander–Briggs notation Dowker-Thistlethwaite notation Dowker-Thistlethwaite name graph radius
Functions	definition domain codomain image of function input set power series expansion
Geometry	has facet polytope has vertex figure base Euler characteristic dual to Schläfli symbol flattening
Probability distribution	support of a function probability mass function probability generating function Fisher information characteristic function cumulative distribution function quantile function mean of a probability distribution median of a probability distribution mode of a probability distribution variance of a probability distribution skewness excess kurtosis information entropy moment-generating function
Numerical Methods	computes solution to best-case time complexity average time complexity worst-case time complexity best-case space complexity average space complexity worst-case space complexity approximation algorithm Butcher tableau
Identifiers	Mathematics Genealogy Project ID OEIS ID Mathematical Reviews ID zbMATH Open document ID zbMATH author ID MacTutor biography ID MathWorld ID Encyclopedia of Triangle Centers ID Mathematics Subject Classification ID nLab ID All-Russian Mathematical Portal ID Wolfram Language entity code MR Author ID Dictionary of Algorithms and Data Structures ID KIT Linked Open Numbers ID OpenMath ID Brasseur ID International Mathematical Olympiad participant ID Mathematical Reviews journal ID CMI person ID ProsopoMaths ID ProofWiki ID swMATH work ID Prime Pages ID Oberwolfach mathematician ID MSRI institution ID MSRI person ID EuDML work ID OpenML dataset ID Digital Library of Mathematical Functions ID

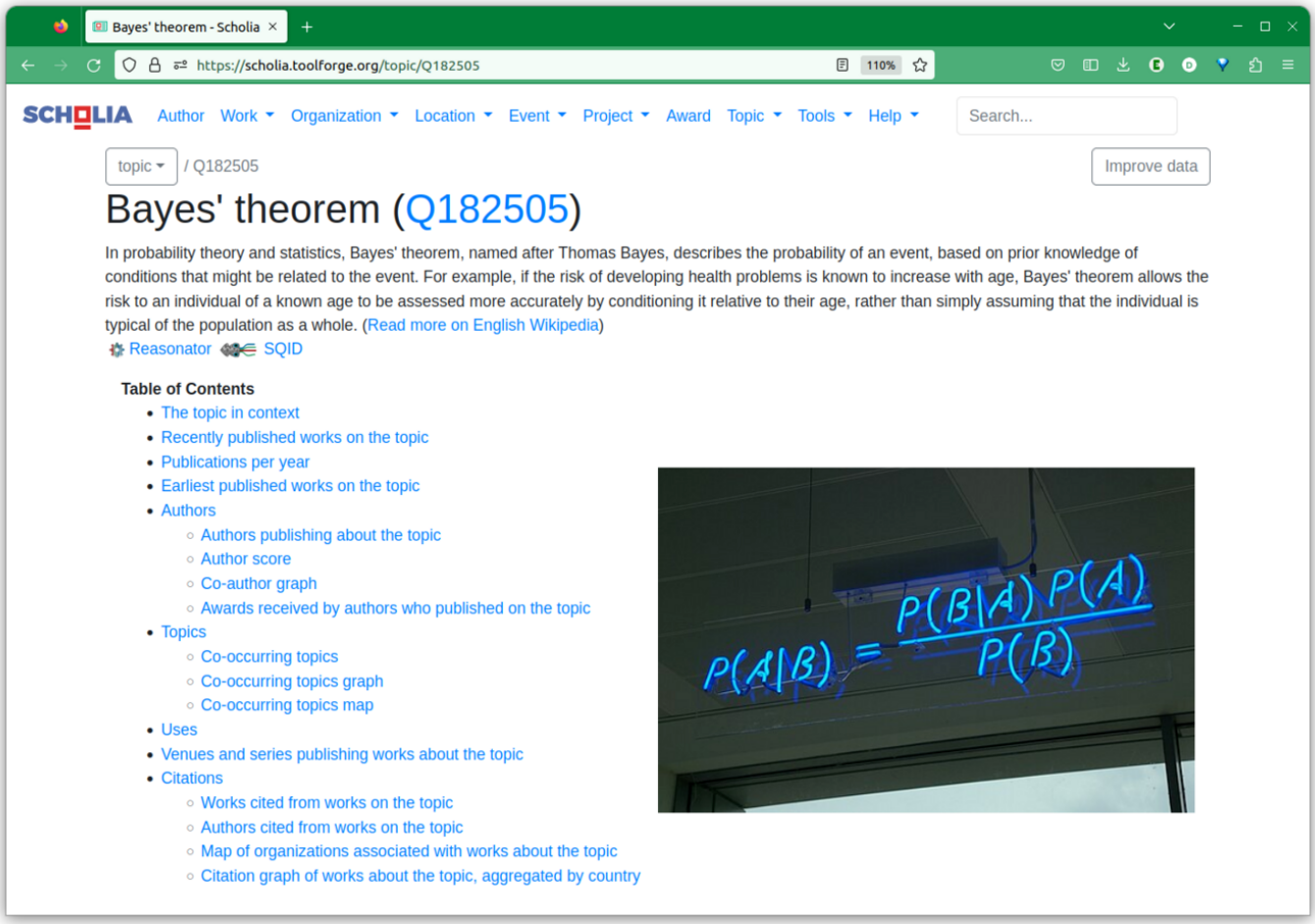
See also: Wikidata:WikiProject Mathematics

Data licensing

Wikidata is in the public domain, available under the terms of Creative Commons CC0 License (Q6938433).

Data exploration

Mathematical concepts



Scholia (https://scholia.toolforge.org/topic/Q182505) provides about 30 types of scholarly profiles, all based on Wikidata (e.g. a person (https://scholia.toolforge.org/author/Q173746) or institution (https://scholia.toolforge.org/organization/Q2555215)).

Software

Co-used

Reload

Show 10 entries

Search:

Count	Coused	Example work
3,265	ImageQuant	Microrna-221 and microrna-222 modulate differentiation and maturation of skeletal muscle cells
2,249	limma	Identification of keratinocyte growth factor as a target of microRNA-155 in lung fibroblasts: implication in epithelial-mesenchymal interactions
2,232	Cytoscape	Disruption of mouse Cenpj, a regulator of centriole biogenesis, phenocopies Seckel syndrome
1,812	ggplot2	Inference by Exclusion in Goffin Cockatoos (Cacatua goffini).
1,268	DESeq2	Exosomes derived from endometriotic stromal cells have enhanced angiogenic effects in vitro
967	RStudio	XRN2 Autoregulation and Control of Polycistronic Gene Expresssion in Caenorhabditis elegans
639	edgeR	Endogenous mammalian histone H3.3 exhibits chromatin-related functions during development
517	CellProfiler	Xenopus egg extracts increase dynamics of histone H1 on sperm chromatin
174	scikit-image	Nanoscale visualization of functional adhesion/excitability nodes at the intercalated disc
142	WGCNA	Immune-Mediated Inflammation May Contribute to the Pathogenesis of Cardiovascular Disease in Mucopolysaccharidosis Type I

Wikidata Query Service software: coused.sparql

Co-usage of software, as per the Scholia software profile for ImageJ (https://scholia.toolforge.org/software/Q1659584#coused)

References

Supports the following statement(s)

Reload

Statements in Wikidata supported by references to this work. Only a maximum of around 2000 statements are shown.

Search:

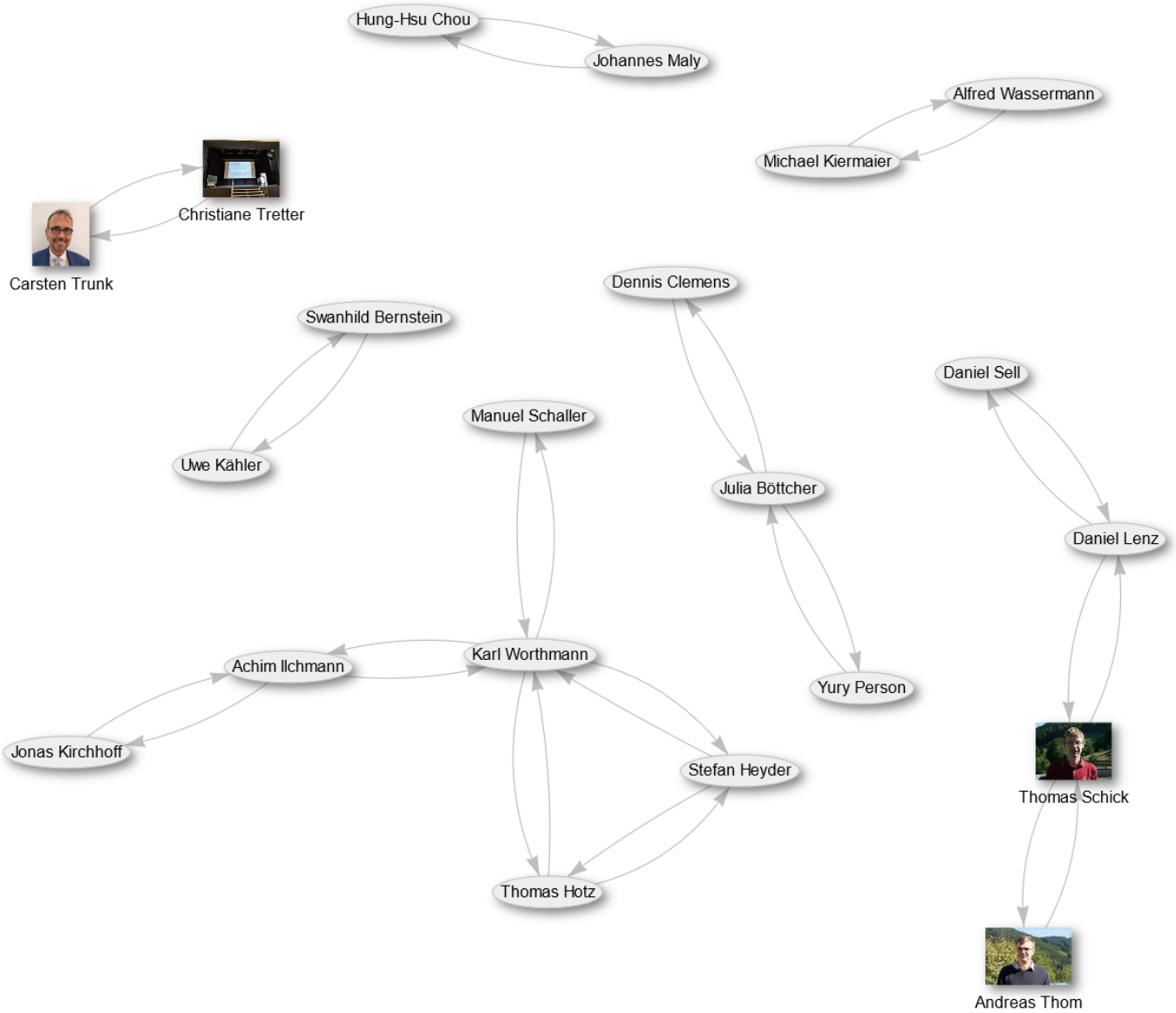
Item	Property	Value
interval	part of	preordered set
closed interval	defining formula	$[a, b] = \{x \in X : a \lesssim x \lesssim b\}$

Wikidata Query Service

Wikidata statements referenced to a particular work are shown (https://scholia.toolforge.org/work/Q121775923#statements) on the work's Scholia profile.

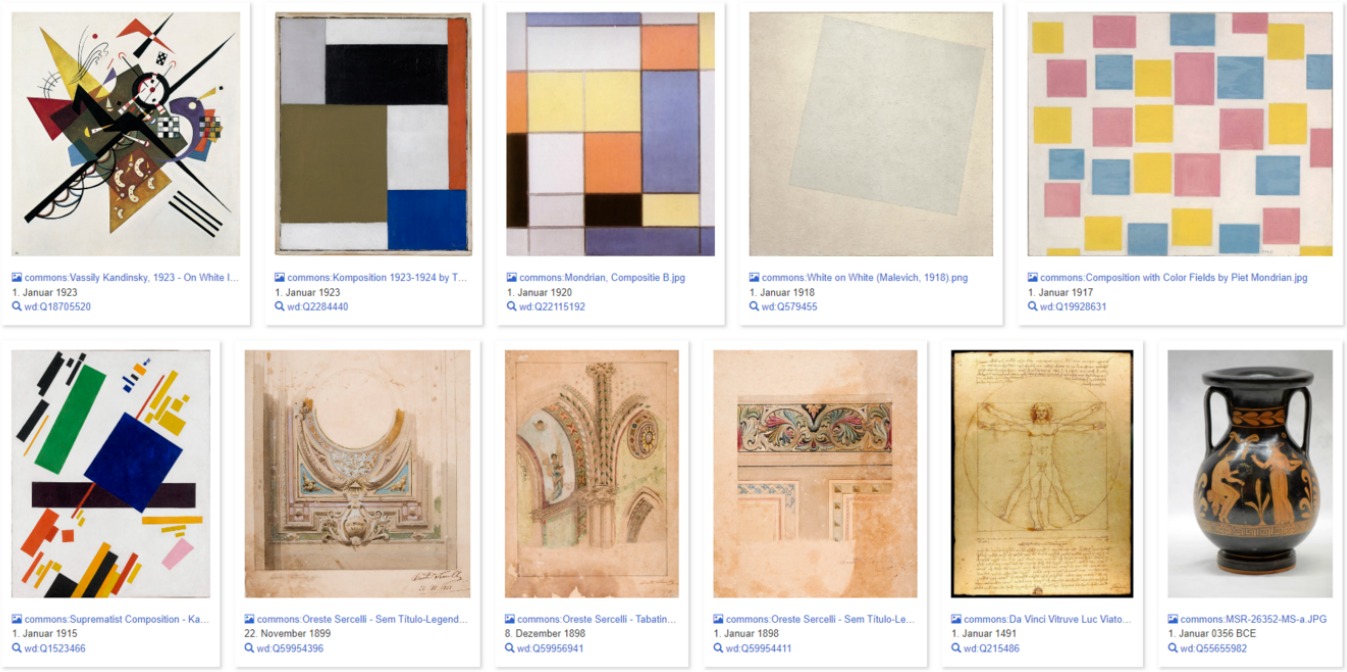
Community aspects

Mathematical communities



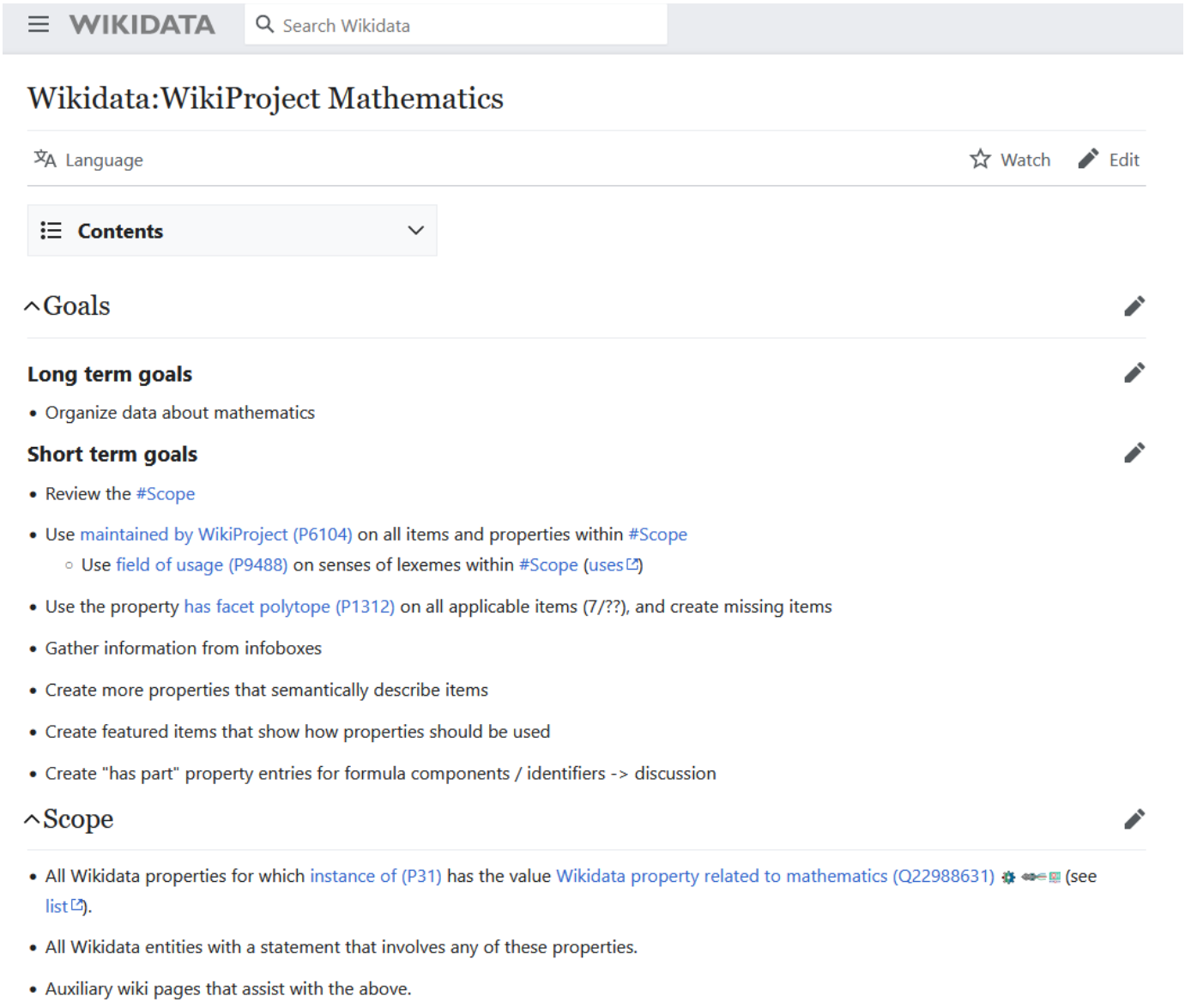
Partial co-authorship network of attendees of Annual Conference 2023 of the German Mathematical Society (Q122643579)

Researchers from other fields



Art historians might be interested in artwork depicting squares, as per this Wikidata query (https://query.wikidata.org/#%23defaultView%3AImageGrid%0ASELECT%20%2a%20WHERE%20%7B%0A%20%3Fpainting%20wdt%3AP31%20wd%3AQ3305213%20%3B%0A%20%20%20%20%20%20%20%20%20%20wdt%3AP180%20wd%3AQ164%20%3B%0A%20%20%20%20%20%20%20%20%20%20wdt%3AP571%20%3Fdate%20%3B%0A%20%20%20%20%20%20%20%20%20%20wdt%3AP18%20%3Fimage%20.%0A%7D%0AORDER%20BY%20DESC%28%3Fdate%29) .

Wiki community



WIKIDATA Search Wikidata

Wikidata:WikiProject Mathematics

Language Watch Edit

Contents

Goals

Long term goals

- Organize data about mathematics

Short term goals

- Review the #Scope
- Use maintained by WikiProject (P6104) on all items and properties within #Scope
  - Use field of usage (P9488) on senses of lexemes within #Scope (uses)
- Use the property has facet polytope (P1312) on all applicable items (7/??), and create missing items
- Gather information from infoboxes
- Create more properties that semantically describe items
- Create featured items that show how properties should be used
- Create "has part" property entries for formula components / identifiers -> discussion

Scope

- All Wikidata properties for which instance of (P31) has the value Wikidata property related to mathematics (Q22988631) (see list).
- All Wikidata entities with a statement that involves any of these properties.
- Auxiliary wiki pages that assist with the above.

WikiProjects like WikiProject Mathematics (https://m.wikidata.org/wiki/Wikidata:WikiProject_Mathematics) are one of the ways in which the Wikidata community organizes itself.

Property proposals

WIKIDATA Search Wikidata

Wikidata:Property proposal/Alexander polynomial

Watch Edit

< Wikidata:Property proposal

Alexander polynomial

Originally proposed at Wikidata:Property proposal/Natural science

Done: Alexander polynomial (P5350) (Talk and documentation)

Description	invariant of a knot. Use t as variable and list monomials in decreasing order.
Represents	Alexander polynomial (Q1634206)
Data type	Mathematical expression
Domain	knot (Q1188853)
Example	• unknot (Q1188344) → 1 • trefoil knot (Q168620) → $t - 1 + t^{-1}$ • three-twist knot (Q7797291) → $2t - 3 + 2t^{-1}$
Source	http://katlas.math.toronto.edu/wiki/Main_Page

Motivation

This would improve our coverage of knots. – Pintoch (talk) 09:45, 7 June 2018 (UTC) [reply]

- **Support** David (talk) 13:00, 7 June 2018 (UTC) [reply]
- **Weak support** - we only have a few dozen knots in Wikidata right now, do we really anticipate having many more? Is it really justified to have a specific property just for this? Though I agree it's a good use of the mathematical expression datatype! ArthurPSmith (talk) 18:13, 7 June 2018 (UTC) [reply]
- @Pintoch, 2 ديفيد عادل وهبة خليل: ✓ **Done** ArthurPSmith (talk) 19:48, 21 June 2018 (UTC) [reply]

Wikidata property proposal (https://m.wikidata.org/wiki/Wikidata:Property_proposal/Alexander_polynomial) for Alexander polynomial (P5350)

Recent changes

Edits meeting specific criteria

Sparql_rc Tools Git Talk

Get diffs for all items matching a SPARQL query, for a date range.
Examples: French painters, first week of October 2017, no bots edits, same for last week, or since yesterday. Also with Lexemes

SPARQL query

```
SELECT ?item WHERE {?item wdt:P2534 ?defined .} LIMIT 200
```

Design your query here.

Start date: last week

Alternatively, use a text like "last week" or such, as described here.

End date: YYYYMMDDHHMMSS; shorter OK

Alternatively, use a text like "last week" or such, as described here. Leave empty for current date.

Preferred languages for item labels: language codes, separated by comma, preferred first; e.g. de,en,fr

Sort order: (•) By last edit (latest first) ( ) By label

Options: [ ] No bot edits [x] Skip unchanged items

Get Recent Changes for items

Total number of items : 199

10 items have changed between
2023-09-18 01:28:56 and 2023-09-25 01:28:56

Bayes' theorem [Q182505] [diff on wiki] 2023-09-24 10:30:58

Property / image
– Bayes' Theorem MMB 01.jpg
Property / image: Bayes' Theorem MMB 01.jpg / rank
– Normal rank

Editors: U. M. Owen

Hausdorff dimension [Q565186] [diff on wiki] 2023-09-24 05:57:25

Property / J-GLOBAL ID
+ 200906037316345090
Property / J-GLOBAL ID: 200906037316345090 / rank
+ Normal rank

Editors: Yapparina

Extended Kalman filter [Q5421817] [diff on wiki] 2023-09-21 03:35:17

Property / subclass of
+ Kalman filter
Property / subclass of: Kalman filter / rank
+ Normal rank

Editors: Mariobanana

electron affinity [Q271580] [diff on wiki] 2023-09-20 22:26:11

Property / Great Russian Encyclopedia Online ID (old version)
+ 4161790
Property / Great Russian Encyclopedia Online ID (old version): 4161790 / rank
+ Normal rank

Editors: INS Pirat

commutative property [Q165474] [diff on wiki] 2023-09-20 18:30:27

Property / Great Russian Encyclopedia Online ID (old version)
+ 2086080
Property / Great Russian Encyclopedia Online ID (old version): 2086080 / rank
+ Normal rank

Editors: INS Pirat

Newton's method [Q374195] [diff on wiki] 2023-09-19 14:23:06

label / sq	label / sq
	+ Metoda e Njutonit

Editors: MatSuBot

log-normal distribution [Q826116] [diff on wiki] 2023-09-19 14:11:53

label / sq	label / sq
	+ Shpërndarja log-normale

Editors: MatSuBot

Stone–Čech compactification of the countably infinite discrete space [Q121758039] [diff on wiki] 2023-09-19 04:53:52 – 2023-09-19 05:00:41

Property / defining formula

\+ $\beta\mathbb{N}$ `\beta\mathbb N`

Property / defining formula: $\beta\mathbb{N}$ / rank

\+ Normal rank

Property / defining formula

\+ $\beta\omega$ `\beta\omega`

Property / defining formula: $\beta\omega$ / rank

\+ Normal rank

Property / in defining formula

\+ $\mathbb{N}$ `\mathbb N`

Property / in defining formula: $\mathbb{N}$ / rank

\+ Normal rank

Property / in defining formula: $\mathbb{N}$ / qualifier

\+ symbol represents: set of non-negative integers

Property / in defining formula

\+ β `\beta`

Property / in defining formula: β / rank

\+ Normal rank

Property / in defining formula: β / qualifier

\+ symbol represents: Stone–Čech compactification

Property / in defining formula

\+ ω `\omega`

Property / in defining formula: ω / rank

\+ Normal rank

Property / in defining formula: ω / qualifier

\+ symbol represents: ordinal number

Editors: 慈居 (5×)

sine [Q152415] [diff on wiki] 2023-09-18 20:22:22

Property / Great Russian Encyclopedia portal ID

\+ sinus-60ec30

Property / Great Russian Encyclopedia portal ID: sinus-60ec30 / rank

\+ Normal rank

Editors: INS Pirat

sphere [Q12507] [diff on wiki] 2023-09-18 16:25:18

links / omwiki / name	links / omwiki / name
	+ Duqunqula

Editors: Afaan oromoo guddisii

Recent changes (https://wikidata-todo.toolforge.org/sparql_rc.php?sparql=SELECT+%3Fitem+

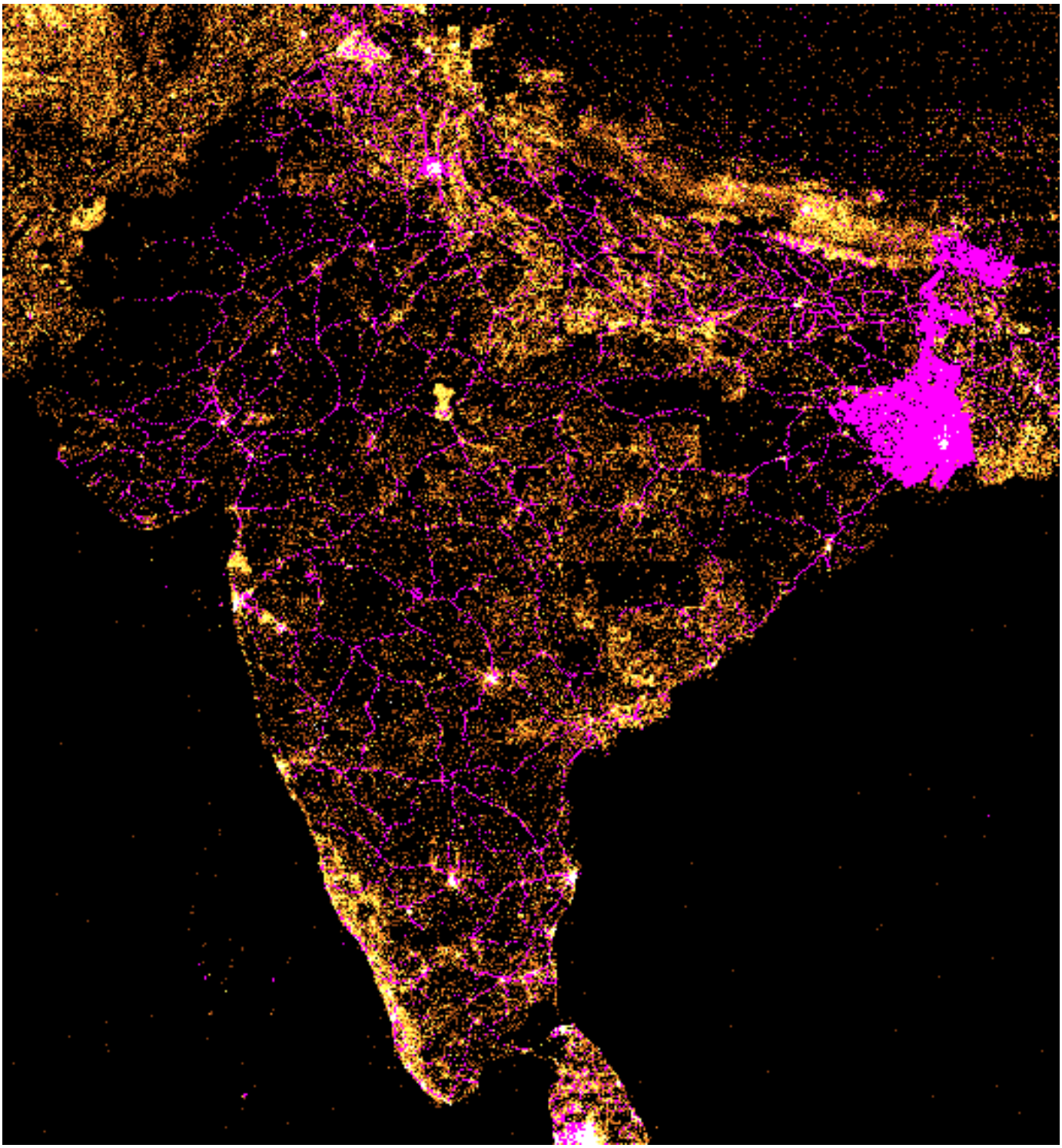
WHERE+%7B%3Fitem+wdt%3AP2534+%3Fdefined+.%7D+LIMIT+200&start=last+week&end=&user_lang=&sort_mode=last_edit&skip_unchanged=1) for Wikidata items with a defining formula (P2534) statement.

Edits by wiki

Listen to the edit stream:

multiple Wikipedias (http://listen.hatnote.com/#en,uk,fr,de,ja,nl,eo,pt,et,el,hu,be,gu,ru,es,it,fa,zh,bn,ta,kn,sv,he,as,pa,ml,or,pl,sr,fi,ar,id,hi,te,mr,sa,mk,bg,no) , Wikidata (http://listen.hatnote.com/#wikidata) , both (http://listen.hatnote.com/#en,uk,fr,de,ja,nl,eo,pt,et,el,hu,be,gu,ru,es,it,fa,zh,bn,ta,kn,sv,he,as,pa,ml,or,pl,sr,fi,ar,id,hi,te,mr,sa,mk,bg,no,wikidata) , recording (https://en.wikipedia.org/w/index.php?title=File:2016-08-08_Listen_to_Wikipedia.ogv)

Visualizing progress

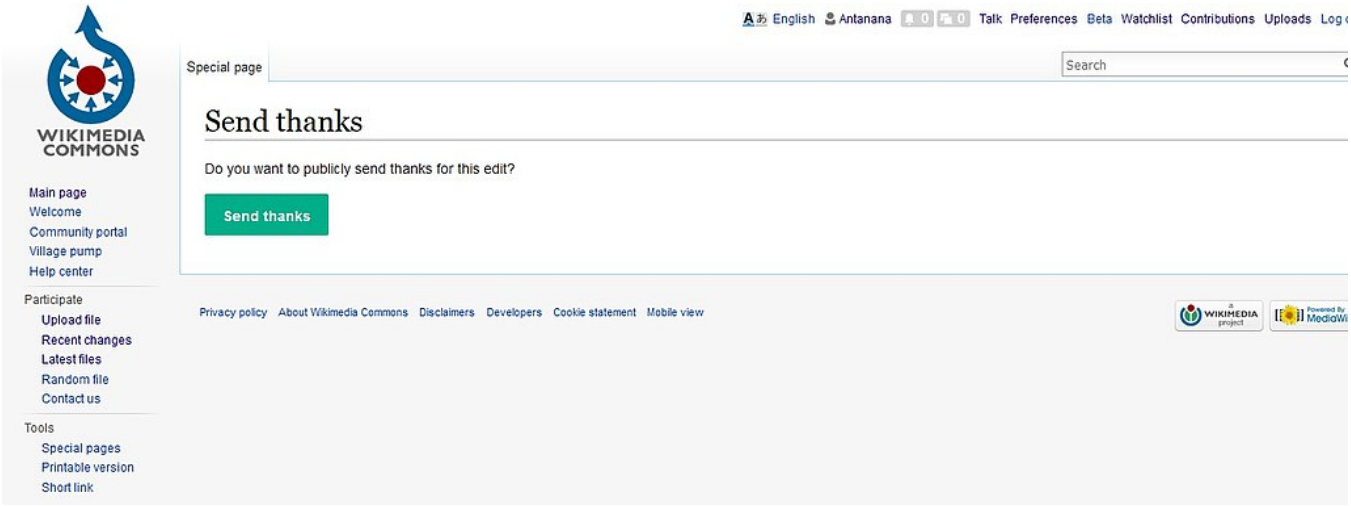


Geolocated Wikidata items, with highlighting of changes between October 2018 and May 2019 (https://commons.wikimedia.org/wiki/File:Wikidata_items_map_with_difference,_India,_October_2018_to_May_2019.png)

Wikifunctions

Wikifunctions (https://www.wikifunctions.org/) - a new sister project in the Wikimedia ecosystem, dedicated to the collaborative curation of functions, including software and mathematical ones.

Thanks



What if we could more easily thank those who create and maintain the resources we use?

See also

- MaRDI portal (https://portal.mardi4nfdi.de/wiki/Portal)
- zbMATH (https://zbmath.org/)