List of mathematical shapes

Following is a list of shapes studied in mathematics.

Algebraic curves

- Cubic plane curve
- Quartic plane curve
- Fractal

Rational curves

Degree 2

- Conic sections
- Unit circle
- Unit hyperbola

Degree 3

- Folium of Descartes
- Cissoid of Diocles
- Conchoid of de Sluze
- Right strophoid
- Semicubical parabola
- Serpentine curve
- Trident curve
- Trisectrix of Maclaurin
- Tschirnhausen cubic
- Witch of Agnesi

Degree 4

- Ampersand curve
- Bean curve
- Bicorn
- Bow curve
- Bullet-nose curve
- Cruciform curve
- Deltoid curve
- Devil's curve
- Hippopede
- Kampyle of Eudoxus
- Kappa curve

- Lemniscate of Booth
- Lemniscate of Gerono
- Lemniscate of Bernoulli
- Limaçon
  - Cardioid
  - Limaçon trisectrix
- Trifolium curve

Degree 5

- Quintic of l'Hospital[1]

Degree 6

- Astroid
- Atriphtaloid
- Nephroid
- Quadrifolium

Families of variable degree

- Epicycloid
- Epispiral
- Epitrochoid
- Hypocycloid
- Lissajous curve
- Poinsot's spirals
- Rational normal curve
- Rose curve

Curves of genus one

- Bicuspid curve
- Cassini oval
- Cassinoide
- Cubic curve
- Elliptic curve
- Watt's curve

Curves with genus greater than one

- Butterfly curve
- Elkies trinomial curves
- Hyperelliptic curve
- Klein quartic
- Classical modular curve
- Bolza surface

- Macbeath surface

Curve families with variable genus

- Polynomial lemniscate
- Fermat curve
- Sinusoidal spiral
- Superellipse
- Hurwitz surface

Transcendental curves

- Bowditch curve
- Brachistochrone
- Butterfly curve
- Catenary
- Clélies
- Cochleoid
- Cycloid
- Horopter
- Isochrone
  - Isochrone of Huygens (Tautochrone)
  - Isochrone of Leibniz[2]
  - Isochrone of Varignon[3]
- Lamé curve
- Pursuit curve
- Rhumb line
- Spirals
  - Archimedean spiral
  - Cornu spiral
  - Cotes' spiral
  - Fermat's spiral
  - Galileo's spiral[4]
  - Hyperbolic spiral
  - Lituus
  - Logarithmic spiral
  - Nielsen's spiral
  - Golden spiral
- Syntractrix
- Tractrix
- Trochoid

Piecewise constructions

- Bézier curve
- Splines

    - B-spline
    - Nonuniform rational B-spline
- Ogee
- Loess curve
- Lowess
- Polygonal curve
    - Maurer rose
- Reuleaux triangle
- Bézier triangle

Curves generated by other curves

- Caustic including Catacaustic and Diacaustic
- Cissoid
- Conchoid
- Evolute
- Glissette
- Inverse curve
- Involute
- Isoptic including Orthoptic
- Orthotomic
- Negative pedal curve
- Pedal curve
- Parallel curve
- Radial curve
- Roulette
- Strophoid

Space curves

- Conchospiral
- Helix
    - Tendril perversion (a transition between back-to-back helices)
    - Hemihelix, a quasi-helical shape characterized by multiple tendril perversions
- Seiffert's spiral[5]
- Slinky spiral[6]
- Twisted cubic
- Viviani's curve

Surfaces in 3-space

- Plane
- Quadric surfaces
    - Cone
    - Cylinder

    - Ellipsoid
        - Spheroid
            - Sphere
    - Hyperboloid
    - Paraboloid
- Bicylinder
- Tricylinder
- Möbius strip
- Torus

Minimal surfaces

- Catalan's minimal surface
- Costa's minimal surface
- Catenoid
- Enneper surface
- Gyroid
- Helicoid
- Lidinoid
- Riemann's minimal surface
- Saddle tower
- Scherk surface
- Schwarz minimal surface
- Triply periodic minimal surface

Non-orientable surfaces

- Klein bottle
- Real projective plane
    - Cross-cap
    - Roman surface
    - Boy's surface

Quadrics

- Sphere
- Spheroid
    - Oblate spheroid
- Cone
- Ellipsoid
- Hyperboloid of one sheet
- Hyperboloid of two sheets
- Hyperbolic paraboloid (a ruled surface)
- Paraboloid
- Sphericon

- Oloid

Pseudospherical surfaces

- Dini's surface
- Pseudosphere

Algebraic surfaces

See the list of algebraic surfaces.

- Cayley cubic
- Barth sextic
- Clebsch cubic
- Monkey saddle (saddle-like surface for 3 legs.)
- Torus
- Dupin cyclide (inversion of a torus)
- Whitney umbrella

Miscellaneous surfaces

- Right conoid (a ruled surface)

Fractals

- Apollonian gasket
- Apollonian sphere packing
- Blancmange curve
- Cantor dust
- Cantor set
- Cantor tesseract
- Circle inversion fractal
- De Rham curve
- Douady rabbit
- Dragon curve
- Fibonacci word fractal
- Flame fractal
- Fractal curve
- Gosper curve
- Gosper island
- H-fractal
- Hénon map
- Hexaflake
- Hilbert curve
- Ikeda map attractor
- Iterated function system
- Jerusalem cube

- Julia set
- Koch curve
- Koch snowflake
- L-system
- Lévy C curve
- Feigenbaum attractor
- Lorenz attractor
- Lyapunov fractal
- Mandelbrot set
- Mandelbrot tree
- Mandelbulb
- Menger sponge
- Monkeys tree[7]
- Moore curve
- N-flake
- Pascal triangle
- Peano curve
- Penrose tiling
- Pinwheel tiling
- Pythagoras tree
- Rauzy fractal
- Rössler attractor
- Sierpiński arrowhead curve
- Sierpinski carpet
- Sierpiński curve
- Sierpinski triangle
- Smith–Volterra–Cantor set
- T-square
- Takagi or Blancmange curve
- Triflake
- Vicsek fractal
- von Koch curve
- Weierstrass function
- Z-order curve

Random fractals

- von Koch curve with random interval
- von Koch curve with random orientation
- polymer shapes
- diffusion-limited aggregation
- Self-avoiding random walk[8]
- Brownian motion
- Lichtenberg figure
- Percolation theory

- Multiplicative cascade

Regular polytopes

This table shows a summary of regular polytope counts by dimension.

Dimension	Convex	Nonconvex	Convex Euclidean tessellations	Convex hyperbolic tessellations	Nonconvex hyperbolic tessellations	Hyperbolic Tessellations with infinite cells and/or vertex figures	Abstract Polytopes
1	1 line segment	0	1	0	0	0	1
2	∞ polygons	∞ star polygons	1	1	0	0	∞
3	5 Platonic solids	4 Kepler–Poinsot solids	3 tilings	∞	∞	∞	∞
4	6 convex polychora	10 Schläfli–Hess polychora	1 honeycomb	4	0	11	∞
5	3 convex 5-polytopes	0	3 tetracombs	5	4	2	∞
6	3 convex 6-polytopes	0	1 pentacombs	0	0	5	∞
7+	3	0	1	0	0	0	∞

There are no nonconvex Euclidean regular tessellations in any number of dimensions.

Polytope elements

The elements of a polytope can be considered according to either their own dimensionality or how many dimensions "down" they are from the body.

- Vertex, a 0-dimensional element
- Edge, a 1-dimensional element
- Face, a 2-dimensional element
- Cell, a 3-dimensional element
- Hypercell or Teron, a 4-dimensional element
- Facet, an (n-1)-dimensional element
- Ridge, an (n-2)-dimensional element
- Peak, an (n-3)-dimensional element

For example, in a polyhedron (3-dimensional polytope), a face is a facet, an edge is a ridge, and a vertex is a peak.

- Vertex figure: not itself an element of a polytope, but a diagram showing how the elements meet.

Tessellations

The classical convex polytopes may be considered tessellations, or tilings, of spherical space. Tessellations of euclidean and hyperbolic space may also be considered regular polytopes. Note that an 'n'-dimensional polytope actually tessellates a space of one dimension less. For example, the (three-dimensional) platonic solids tessellate the 'two'-dimensional 'surface' of the sphere.

Zero dimension

- Point

One-dimensional regular polytope

There is only one polytope in 1 dimension, whose boundaries are the two endpoints of a line segment, represented by the empty Schläfli symbol {}.

Two-dimensional regular polytopes

- Polygon
- Equilateral
- Cyclic polygon
- Convex polygon
- Star polygon
- Pentagram

Convex

- Regular polygon
- Equilateral triangle
- Simplex
- Square
- Cross-polytope
- Hypercube
- Pentagon
- Hexagon
- Heptagon
- Octagon
- Enneagon
- Decagon
- Hendecagon
- Dodecagon
- Tridecagon
- Tetradecagon
- Pentadecagon
- Hexadecagon
- Heptadecagon

- Octadecagon
- Enneadecagon
- Icosagon
- Hectogon
- Chiliagon
- Regular polygon

Degenerate (spherical)

- Monogon
- Digon

Non-convex

- star polygon
- Pentagram
- Heptagram
- Octagram
- Enneagram
- Decagram

Tessellation

- Apeirogon

Three-dimensional regular polytopes

- polyhedron

Convex

- Platonic solid
  - Tetrahedron, the 3-space Simplex
  - Cube, the 3-space hypercube
  - Octahedron, the 3-space Cross-polytope
  - Dodecahedron
  - Icosahedron

Degenerate (spherical)

- hosohedron
- dihedron
- Henagon#In spherical geometry

Non-convex

- Kepler–Poinsot polyhedra
  - Small stellated dodecahedron

- Great dodecahedron
- Great stellated dodecahedron
- Great icosahedron

Tessellations

Euclidean tilings

- Square tiling
- Triangular tiling
- Hexagonal tiling
- Apeirogon
- Dihedron

Hyperbolic tilings

- Lobachevski plane
- Hyperbolic tiling

Hyperbolic star-tilings

- Order-7 heptagrammic tiling
- Heptagrammic-order heptagonal tiling
- Order-9 enneagrammic tiling
- Enneagrammic-order enneagonal tiling

Four-dimensional regular polytopes

- convex regular 4-polytope
  - 5-cell, the 4-space Simplex
  - 8-cell, the 4-space Hypercube
  - 16-cell, the 4-space Cross-polytope
  - 24-cell
  - 120-cell
  - 600-cell

Degenerate (spherical)

- Ditope
- Hosotope
- 3-sphere

Non-convex

- Star or (Schläfli–Hess) regular 4-polytope
  - Icosahedral 120-cell
  - Small stellated 120-cell

- Great 120-cell
- Grand 120-cell
- Great stellated 120-cell
- Grand stellated 120-cell
- Great grand 120-cell
- Great icosahedral 120-cell
- Grand 600-cell
- Great grand stellated 120-cell

Tessellations of Euclidean 3-space

- Honeycomb
- Cubic honeycomb

Degenerate tessellations of Euclidean 3-space

- Hosohedron
- Dihedron
- Order-2 apeirogonal tiling
- Apeirogonal hosohedron
- Order-4 square hosohedral honeycomb
- Order-6 triangular hosohedral honeycomb
- Hexagonal hosohedral honeycomb
- Order-2 square tiling honeycomb
- Order-2 triangular tiling honeycomb
- Order-2 hexagonal tiling honeycomb

Tessellations of hyperbolic 3-space

- Order-4 dodecahedral honeycomb
- Order-5 dodecahedral honeycomb
- Order-5 cubic honeycomb
- Icosahedral honeycomb
- Order-3 icosahedral honeycomb
- Order-4 octahedral honeycomb
- Triangular tiling honeycomb
- Square tiling honeycomb
- Order-4 square tiling honeycomb
- Order-6 tetrahedral honeycomb
- Order-6 cubic honeycomb
- Order-6 dodecahedral honeycomb
- Hexagonal tiling honeycomb
- Order-4 hexagonal tiling honeycomb
- Order-5 hexagonal tiling honeycomb

- Order-6 hexagonal tiling honeycomb

Five-dimensional regular polytopes and higher

- 5-polytope
- Honeycomb
- Tetracomb

Simplex	Hypercube	Cross-polytope
5-simplex	5-cube	5-orthoplex
6-simplex	6-cube	6-orthoplex
7-simplex	7-cube	7-orthoplex
8-simplex	8-cube	8-orthoplex
9-simplex	9-cube	9-orthoplex
10-simplex	10-cube	10-orthoplex
11-simplex	11-cube	11-orthoplex

Tessellations of Euclidean 4-space

- honeycombs
- Tesseractic honeycomb
- 16-cell honeycomb
- 24-cell honeycomb

Tessellations of Euclidean 5-space and higher

- Hypercubic honeycomb
- Hypercube
- Square tiling
- Cubic honeycomb
- Tesseractic honeycomb
- 5-cube honeycomb
- 6-cube honeycomb
- 7-cube honeycomb
- 8-cube honeycomb
- Hypercubic honeycomb

Tessellations of hyperbolic 4-space

- honeycombs
- Order-5 5-cell honeycomb
- 120-cell honeycomb
- Order-5 tesseractic honeycomb
- Order-4 120-cell honeycomb
- Order-5 120-cell honeycomb
- Order-4 24-cell honeycomb
- Cubic honeycomb honeycomb
- Small stellated 120-cell honeycomb
- Pentagrammic-order 600-cell honeycomb

- Order-5 icosahedral 120-cell honeycomb
- Great 120-cell honeycomb

Tessellations of hyperbolic 5-space

- 5-orthoplex honeycomb
- 24-cell honeycomb honeycomb
- 16-cell honeycomb honeycomb
- Order-4 24-cell honeycomb honeycomb
- Tesseractic honeycomb honeycomb

Apeirotopes

- Apeirotope
  - Apeirogon
  - Apeirohedron
  - Regular skew polyhedron

Abstract polytopes

- Abstract polytope
  - 11-cell
  - 57-cell

2D with 1D surface

- Convex polygon
- Concave polygon
- Constructible polygon
- Cyclic polygon
- Equiangular polygon
- Equilateral polygon
- Regular polygon
- Penrose tile
- Polyform
- Balbis
- Gnomon
- Golygon
- Star without crossing lines
- Star polygon
  - Hexagram
    - Star of David
  - Heptagram
  - Octagram
    - Star of Lakshmi

- Decagram
- Pentagram

Polygons named for their number of sides

- Monogon — 1 sided
- Digon — 2 sided
- Triangle
  - Acute triangle
  - Equilateral triangle
  - Isosceles triangle
  - Obtuse triangle
  - Rational triangle
  - Right triangle
    - 30-60-90 triangle
    - Isosceles right triangle
    - Kepler triangle
  - Scalene triangle
- Quadrilateral
  - Cyclic quadrilateral
    - square
  - kite
  - Parallelogram
    - Rhombus (equilateral parallelogram)
      - Lozenge
    - Rhomboid
    - Rectangle
      - square (regular quadrilateral)
  - Tangential quadrilateral
  - Trapezoid or trapezium
    - Isosceles trapezoid
- Pentagon
  - Regular pentagon
- Hexagon
  - Lemoine hexagon
- Heptagon
- Octagon
  - Regular octagon
- Nonagon
- Decagon
  - Regular decagon
- Hendecagon
- Dodecagon
- Triskaidecagon
- Tetradecagon
- Pentadecagon
- Hexadecagon
- Heptadecagon
- Octadecagon
- Enneadecagon
- Icosagon
- Triacontagon
- Tetracontagon
- Pentacontagon
- Hexacontagon
- Heptacontagon
- Octacontagon
- Enneacontagon
- Hectogon
- 257-gon
- Chiliagon
- Myriagon
- 65537-gon
- Megagon
- Apeirogon

Tilings

- List of uniform tilings
- Uniform tilings in hyperbolic plane
- Archimedean tiling
  - Square tiling
  - Triangular tiling
  - Hexagonal tiling
  - Truncated square tiling
  - Snub square tiling
  - Trihexagonal tiling
  - Truncated hexagonal tiling

- Rhombitrihexagonal tiling
- Truncated trihexagonal tiling
- Snub hexagonal tiling
- Elongated triangular tiling

Uniform polyhedra

- Regular polyhedron
  - Platonic solid
    - Tetrahedron
    - Cube
    - Octahedron
    - Dodecahedron
    - Icosahedron
  - Kepler–Poinsot polyhedron (regular star polyhedra)
    - Great icosahedron
    - Small stellated dodecahedron
    - Great dodecahedron
    - Great stellated dodecahedron
  - Abstract regular polyhedra (Projective polyhedron)
    - Hemicube
    - Hemi-octahedron
    - Hemi-dodecahedron
    - Hemi-icosahedron
- Archimedean solid
  - Truncated tetrahedron
  - Cuboctahedron
  - Truncated cube
  - Truncated octahedron
  - Rhombicuboctahedron
  - Truncated cuboctahedron
  - Snub cube
  - Icosidodecahedron
  - Truncated dodecahedron
  - Truncated icosahedron
  - Rhombicosidodecahedron
  - Truncated icosidodecahedron
  - Snub dodecahedron
- Prismatic uniform polyhedron
  - Prism
  - Antiprism
- Uniform star polyhedron
-
  - Cubitruncated cuboctahedron
  - Cubohemioctahedron

- Ditrigonal dodecadodecahedron
- Dodecadodecahedron
- Great cubicuboctahedron
- Great dirhombicosidodecahedron
- Great disnub dirhombidodecahedron
- Great ditrigonal dodecicosidodecahedron
- Great ditrigonal icosidodecahedron
- Great dodecahemicosahedron
- Great dodecahemidodecahedron
- Great dodecicosahedron
- Great dodecicosidodecahedron
- Great icosicosidodecahedron
- Great icosidodecahedron
- Great icosihemidodecahedron
- Great inverted snub icosidodecahedron
- Great retrosnub icosidodecahedron
- Great rhombidodecahedron
- Great rhombihexahedron
- Great snub dodecicosidodecahedron
- Great snub icosidodecahedron
- Great stellated truncated dodecahedron
- Great truncated cuboctahedron
- Great truncated icosidodecahedron
- Icosidodecadodecahedron
- Icositruncated dodecadodecahedron
- Inverted snub dodecadodecahedron
- Nonconvex great rhombicosidodecahedron
- Nonconvex great rhombicuboctahedron
- Octahemioctahedron
- Rhombicosahedron
- Rhombidodecadodecahedron
- Small cubicuboctahedron
- Small ditrigonal dodecicosidodecahedron
- Small ditrigonal icosidodecahedron
- Small dodecahemicosahedron
- Small dodecahemidodecahedron
- Small dodecicosahedron
- Small dodecicosidodecahedron
- Small icosicosidodecahedron
- Small icosihemidodecahedron
- Small retrosnub icosicosidodecahedron
- Small rhombidodecahedron
- Small rhombihexahedron
- Small snub icosicosidodecahedron
- Small stellated truncated dodecahedron
- Snub dodecadodecahedron
- Snub icosidodecadodecahedron

- Stellated truncated hexahedron
- Tetrahemihexahedron
- Truncated dodecadodecahedron
- Truncated great dodecahedron
- Truncated great icosahedron

Duals of uniform polyhedra

- Catalan solid
  - Triakis tetrahedron
  - Rhombic dodecahedron
  - Triakis octahedron
  - Tetrakis hexahedron
  - Deltoidal icositetrahedron
  - Disdyakis dodecahedron
  - Pentagonal icositetrahedron
  - Rhombic triacontahedron
  - Triakis icosahedron
  - Pentakis dodecahedron
  - Deltoidal hexecontahedron
  - Disdyakis triacontahedron
  - Pentagonal hexecontahedron
- non-convex
  - Great complex icosidodecahedron
  - Great deltoidal hexecontahedron
  - Great deltoidal icositetrahedron
  - Great dirhombicosidodecacron
  - Great dirhombicosidodecahedron
  - Great disdyakis dodecahedron
  - Great disdyakis triacontahedron
  - Great disnub dirhombidodecacron
  - Great ditrigonal dodecacronic hexecontahedron
  - Great dodecacronic hexecontahedron
  - Great dodecahemicosacron
  - Great dodecicosacron
  - Great hexacronic icositetrahedron
  - Great hexagonal hexecontahedron
  - Great icosacronic hexecontahedron
  - Great icosihemidodecacron
  - Great inverted pentagonal hexecontahedron
  - Great pentagonal hexecontahedron
  - Great pentagrammic hexecontahedron
  - Great pentakis dodecahedron
  - Great rhombic triacontahedron
  - Great rhombidodecacron
  - Great rhombihexacron
  - Great stellapentakis dodecahedron

- Great triakis icosahedron
- Great triakis octahedron
- Great triambic icosahedron
- Medial deltoidal hexecontahedron
- Medial disdyakis triacontahedron
- Medial hexagonal hexecontahedron
- Medial icosacronic hexecontahedron
- Medial inverted pentagonal hexecontahedron
- Medial pentagonal hexecontahedron
- Medial rhombic triacontahedron
- Hexahemioctacron
- Hemipolyhedron
- Octahemioctacron
- Rhombicosacron
- Small complex icosidodecahedron
- Small ditrigonal dodecacronic hexecontahedron
- Small dodecacronic hexecontahedron
- Small dodecahemicosacron
- Small dodecahemidodecacron
- Small dodecicosacron
- Small hexacronic icositetrahedron
- Small hexagonal hexecontahedron
- Small hexagrammic hexecontahedron
- Small icosacronic hexecontahedron
- Small icosihemidodecacron
- Small rhombidodecacron
- Small rhombihexacron
- Small stellapentakis dodecahedron
- Small triambic icosahedron
- Tetrahemihexacron

Johnson solids

- Augmented dodecahedron
- Augmented hexagonal prism
- Augmented pentagonal prism
- Augmented sphenocorona
- Augmented triangular prism
- Augmented tridiminished icosahedron
- Augmented truncated cube
- Augmented truncated dodecahedron
- Augmented truncated tetrahedron
- Biaugmented pentagonal prism
- Biaugmented triangular prism
- Biaugmented truncated cube
- Bigyrate diminished rhombicosidodecahedron
- Bilunabirotunda
- Diminished rhombicosidodecahedron

- Disphenocingulum
- Elongated pentagonal bipyramid
- Elongated pentagonal cupola
- Elongated pentagonal gyrobicupola
- Elongated pentagonal gyrobirotunda
- Elongated pentagonal gyrocupolarotunda
- Elongated pentagonal orthobicupola
- Elongated pentagonal orthobirotunda
- Elongated pentagonal orthocupolarotunda
- Elongated pentagonal pyramid
- Elongated pentagonal rotunda
- Elongated square bipyramid
- Elongated square cupola
- Elongated square gyrobicupola
- Elongated square pyramid
- Elongated triangular bipyramid
- Elongated triangular cupola
- Elongated triangular gyrobicupola
- Elongated triangular orthobicupola
- Elongated triangular pyramid
- Gyrate bidiminished rhombicosidodecahedron
- Gyrate rhombicosidodecahedron
- Gyrobifastigium
- Gyroelongated pentagonal bicupola
- Gyroelongated pentagonal birotunda
- Gyroelongated pentagonal cupola
- Gyroelongated pentagonal cupolarotunda
- Gyroelongated pentagonal pyramid
- Gyroelongated pentagonal rotunda
- Gyroelongated square bicupola
- Gyroelongated square bipyramid
- Gyroelongated square cupola
- Gyroelongated square pyramid
- Gyroelongated triangular bicupola
- Gyroelongated triangular cupola
- Hebesphenomegacorona
- Metabiaugmented dodecahedron
- Metabiaugmented hexagonal prism
- Metabiaugmented truncated dodecahedron
- Metabidiminished icosahedron
- Metabidiminished rhombicosidodecahedron
- Metabigyrate rhombicosidodecahedron
- Metagyrate diminished rhombicosidodecahedron
- Parabiaugmented dodecahedron
- Parabiaugmented hexagonal prism
- Parabiaugmented truncated dodecahedron
- Parabidiminished rhombicosidodecahedron

- Parabigyrate rhombicosidodecahedron
- Paragyrate diminished rhombicosidodecahedron
- Pentagonal bipyramid
- Pentagonal cupola
- Pentagonal gyrobicupola
- Pentagonal gyrocupolarotunda
- Pentagonal orthobicupola
- Pentagonal orthobirotunda
- Pentagonal orthocupolarotunda
- Pentagonal pyramid
- Pentagonal rotunda
- Snub disphenoid
- Snub square antiprism
- Sphenocorona
- Sphenomegacorona
- Square cupola
- Square gyrobicupola
- Square orthobicupola
- Square pyramid
- Triangular bipyramid
- Triangular cupola
- Triangular hebesphenorotunda
- Triangular orthobicupola
- Triaugmented dodecahedron
- Triaugmented hexagonal prism
- Triaugmented triangular prism
- Triaugmented truncated dodecahedron
- Tridiminished icosahedron
- Tridiminished rhombicosidodecahedron
- Trigyrate rhombicosidodecahedron

Other nonuniform polyhedra

- Pyramid
- Bipyramid
- Disphenoid
- Parallelepiped
- Cuboid
- Rhombohedron
- Trapezohedron
- Frustum
- Trapezo-rhombic dodecahedron
- Rhombo-hexagonal dodecahedron
- Truncated trapezohedron
- Deltahedron
- Zonohedron
- Prismatoid

- Cupola
- Bicupola

Spherical polyhedra

- Dihedron
- Hosohedron

Honeycombs

Convex uniform honeycomb

- Cubic honeycomb
- Truncated cubic honeycomb
- Bitruncated cubic honeycomb
- Cantellated cubic honeycomb
- Cantitruncated cubic honeycomb
- Rectified cubic honeycomb
- Runcitruncated cubic honeycomb
- Omnitruncated cubic honeycomb
- Tetrahedral-octahedral honeycomb
- Truncated alternated cubic honeycomb
- Cantitruncated alternated cubic honeycomb
- Runcinated alternated cubic honeycomb
- Quarter cubic honeycomb
- Gyrated tetrahedral-octahedral honeycomb
- Gyrated triangular prismatic honeycomb
- Gyroelongated alternated cubic honeycomb
- Gyroelongated triangular prismatic honeycomb
- Elongated triangular prismatic honeycomb
- Elongated alternated cubic honeycomb
- Hexagonal prismatic honeycomb
- Triangular prismatic honeycomb
- Triangular-hexagonal prismatic honeycomb
- Truncated hexagonal prismatic honeycomb
- Truncated square prismatic honeycomb
- Rhombitriangular-hexagonal prismatic honeycomb
- Omnitruncated triangular-hexagonal prismatic honeycomb
- Snub triangular-hexagonal prismatic honeycomb
- Snub square prismatic honeycomb

Dual uniform honeycomb

- Disphenoid tetrahedral honeycomb
- Rhombic dodecahedral honeycomb

Others

- Trapezo-rhombic dodecahedral honeycomb

- Weaire–Phelan structure

Convex uniform honeycombs in hyperbolic space

- Order-4 dodecahedral honeycomb
- Order-5 cubic honeycomb
- Order-5 dodecahedral honeycomb
- Icosahedral honeycomb

Other

- Apeirogonal prism
- Apeirohedron
- Bicupola
- Cupola
- Bifrustum
- Boerdijk–Coxeter helix
- Császár polyhedron
- Flexible polyhedron
- Gyroelongated square dipyramid
- Heronian tetrahedron
- Hexagonal bifrustum
- Hexagonal truncated trapezohedron
- Hill tetrahedron
- Holyhedron
- Infinite skew polyhedron
- Jessen's icosahedron
- Near-miss Johnson solid
- Parallelepiped
- Pentagonal bifrustum
- Polytetrahedron
- Pyritohedron
- Rhombic enneacontahedron
- Rhombic icosahedron
- Rhombo-hexagonal dodecahedron
- Rhombohedron
- Scalenohedron
- Schönhardt polyhedron
- Square bifrustum
- Square truncated trapezohedron
- Szilassi polyhedron
- Tetradecahedron
- Tetradyakis hexahedron
- Tetrated dodecahedron
- Triangular bifrustum
- Triaugmented triangular prism
- Truncated rhombic dodecahedron
- Truncated trapezohedron

- Truncated triakis tetrahedron
- Tridyakis icosahedron
- Trigonal trapezohedron
- Regular skew polyhedron
- Waterman polyhedron
- Wedge

Regular and uniform compound polyhedra

Polyhedral compound and Uniform polyhedron compound

- Compound of cube and octahedron
- Compound of dodecahedron and icosahedron
- Compound of eight octahedra with rotational freedom
- Compound of eight triangular prisms
- Compound of five cubes
- Compound of five cuboctahedra
- Compound of five cubohemioctahedra
- Compound of five great cubicuboctahedra
- Compound of five great dodecahedra
- Compound of five great icosahedra
- Compound of five great rhombihexahedra
- Compound of five icosahedra
- Compound of five octahedra
- Compound of five octahemioctahedra
- Compound of five small cubicuboctahedra
- Compound of five small rhombicuboctahedra
- Compound of five small rhombihexahedra
- Compound of five small stellated dodecahedra
- Compound of five stellated truncated cubes
- Compound of five tetrahedra
- Compound of five tetrahemihexahedra
- Compound of five truncated cubes
- Compound of five truncated tetrahedra
- Compound of five uniform great rhombicuboctahedra
- Compound of four hexagonal prisms
- Compound of four octahedra
- Compound of four octahedra with rotational freedom
- Compound of four tetrahedra
- Compound of four triangular prisms
- Compound of great icosahedron and great stellated dodecahedron
- Compound of six cubes with rotational freedom
- Compound of six decagonal prisms
- Compound of six decagrammic prisms
- Compound of six pentagonal prisms
- Compound of six pentagrammic crossed antiprisms
- Compound of six pentagrammic prisms
- Compound of six tetrahedra

- Compound of six tetrahedra with rotational freedom
- Compound of small stellated dodecahedron and great dodecahedron
- Compound of ten hexagonal prisms
- Compound of ten octahedra
- Compound of ten tetrahedra
- Compound of ten triangular prisms
- Compound of ten truncated tetrahedra
- Compound of three cubes
- Compound of three tetrahedra
- Compound of twelve pentagonal antiprisms with rotational freedom
- Compound of twelve pentagonal prisms
- Compound of twelve pentagrammic prisms
- Compound of twelve tetrahedra with rotational freedom
- Compound of twenty octahedra
- Compound of twenty octahedra with rotational freedom
- Compound of twenty tetrahemihexahedra
- Compound of twenty triangular prisms
- Compound of two great dodecahedra
- Compound of two great icosahedra
- Compound of two great inverted snub icosidodecahedra
- Compound of two great retrosnub icosidodecahedra
- Compound of two great snub icosidodecahedra
- Compound of two icosahedra
- Compound of two inverted snub dodecadodecahedra
- Compound of two small stellated dodecahedra
- Compound of two snub cubes
- Compound of two snub dodecadodecahedra
- Compound of two snub dodecahedra
- Compound of two snub icosidodecadodecahedra
- Compound of two truncated tetrahedra
- Prismatic compound of antiprisms
- Prismatic compound of antiprisms with rotational freedom
- Prismatic compound of prisms
- Prismatic compound of prisms with rotational freedom

- 4-polytope
  - Hecatonicosachoron
  - Hexacosichoron
  - Hexadecachoron
  - Icositetrachoron
  - Pentachoron
  - Tesseract
- Hypercone

Convex regular 4-polytope

- 5-cell, Tesseract, 16-cell, 24-cell, 120-cell, 600-cell

Abstract regular polytope

- 11-cell, 57-cell

Schläfli–Hess 4-polytope (Regular star 4-polytope)

- Icosahedral 120-cell, Small stellated 120-cell, Great 120-cell, Grand 120-cell, Great stellated 120-cell, Grand stellated 120-cell, Great grand 120-cell, Great icosahedral 120-cell, Grand 600-cell, Great grand stellated 120-cell

Uniform 4-polytope

- Rectified 5-cell, Truncated 5-cell, Cantellated 5-cell, Runcinated 5-cell
- Rectified tesseract, Truncated tesseract, Cantellated tesseract, Runcinated tesseract
- Rectified 16-cell, Truncated 16-cell
- Rectified 24-cell, Truncated 24-cell, Cantellated 24-cell, Runcinated 24-cell, Snub 24-cell
- Rectified 120-cell, Truncated 120-cell, Cantellated 120-cell, Runcinated 120-cell
- Rectified 600-cell, Truncated 600-cell, Cantellated 600-cell

Prismatic uniform polychoron

- Grand antiprism
- Duoprism
- Tetrahedral prism, Truncated tetrahedral prism
- Truncated cubic prism, Truncated octahedral prism, Cuboctahedral prism, Rhombicuboctahedral prism, Truncated cuboctahedral prism, Snub cubic prism
- Truncated dodecahedral prism, Truncated icosahedral prism, Icosidodecahedral prism, Rhombicosidodecahedral prism, Truncated icosidodecahedral prism, Snub dodecahedral prism
- Uniform antiprismatic prism

Honeycombs

- Tesseractic honeycomb
- 24-cell honeycomb
- Snub 24-cell honeycomb
- Rectified 24-cell honeycomb
- Truncated 24-cell honeycomb
- 16-cell honeycomb
- 5-cell honeycomb
- Omnitruncated 5-cell honeycomb
- Truncated 5-cell honeycomb
- Omnitruncated 5-simplex honeycomb

5D with 4D surfaces

- regular 5-polytope
  - 5-dimensional cross-polytope
  - 5-dimensional hypercube
  - 5-dimensional simplex

Five-dimensional space, 5-polytope and uniform 5-polytope

- 5-simplex, Rectified 5-simplex, Truncated 5-simplex, Cantellated 5-simplex, Runcinated 5-simplex, Stericated 5-simplex
- 5-demicube, Truncated 5-demicube, Cantellated 5-demicube, Runcinated 5-demicube
- 5-cube, Rectified 5-cube, 5-cube, Truncated 5-cube, Cantellated 5-cube, Runcinated 5-cube, Stericated 5-cube
- 5-orthoplex, Rectified 5-orthoplex, Truncated 5-orthoplex, Cantellated 5-orthoplex, Runcinated 5-orthoplex

Prismatic uniform 5-polytope

For each polytope of dimension *n*, there is a prism of dimension *n*+1.

Honeycombs

- 5-cubic honeycomb
- 5-simplex honeycomb
- Truncated 5-simplex honeycomb
- 5-demicubic honeycomb

Six dimensions

Six-dimensional space, 6-polytope and uniform 6-polytope

- 6-simplex, Rectified 6-simplex, Truncated 6-simplex, Cantellated 6-simplex, Runcinated 6-simplex, Stericated 6-simplex, Pentellated 6-simplex
- 6-demicube, Truncated 6-demicube, Cantellated 6-demicube, Runcinated 6-demicube, Stericated 6-demicube
- 6-cube, Rectified 6-cube, 6-cube, Truncated 6-cube, Cantellated 6-cube, Runcinated 6-cube, Stericated 6-cube, Pentellated 6-cube
- 6-orthoplex, Rectified 6-orthoplex, Truncated 6-orthoplex, Cantellated 6-orthoplex, Runcinated 6-orthoplex, Stericated 6-orthoplex
- 1_{22} polytope, 2_{21} polytope

Honeycombs

- 6-cubic honeycomb
- 6-simplex honeycomb
- 6-demicubic honeycomb
- 2_{22} honeycomb

Seven dimensions

Seven-dimensional space, uniform 7-polytope

- 7-simplex, Rectified 7-simplex, Truncated 7-simplex, Cantellated 7-simplex, Runcinated 7-simplex, Stericated 7-simplex, Pentellated 7-simplex, Hexicated 7-simplex
- 7-demicube, Truncated 7-demicube, Cantellated 7-demicube, Runcinated 7-demicube, Stericated 7-demicube, Pentellated 7-demicube
- 7-cube, Rectified 7-cube, 7-cube, Truncated 7-cube, Cantellated 7-cube, Runcinated 7-cube, Stericated 7-cube, Pentellated 7-cube, Hexicated 7-cube

- 7-orthoplex, Rectified 7-orthoplex, Truncated 7-orthoplex, Cantellated 7-orthoplex, Runcinated 7-orthoplex, Stericated 7-orthoplex, Pentellated 7-orthoplex
- 1_{32} polytope, 2_{31} polytope, 3_{21} polytope

Honeycombs

- 7-cubic honeycomb
- 7-demicubic honeycomb
- 3_{31} honeycomb, 1_{33} honeycomb

Eight dimension

Eight-dimensional space, uniform 8-polytope

- 8-simplex, Rectified 8-simplex, Truncated 8-simplex, Cantellated 8-simplex, Runcinated 8-simplex, Stericated 8-simplex, Pentellated 8-simplex, Hexicated 8-simplex, Heptellated 8-simplex
- 8-orthoplex, Rectified 8-orthoplex, Truncated 8-orthoplex, Cantellated 8-orthoplex, Runcinated 8-orthoplex, Stericated 8-orthoplex, Pentellated 8-orthoplex, Hexicated 8-orthoplex
- 8-cube, Rectified 8-cube, Truncated 8-cube, Cantellated 8-cube, Runcinated 8-cube, Stericated 8-cube, Pentellated 8-cube, Hexicated 8-cube, Heptellated 8-cube
- 8-demicube, Truncated 8-demicube, Cantellated 8-demicube, Runcinated 8-demicube, Stericated 8-demicube, Pentellated 8-demicube, Hexicated 8-demicube
- 1_{42} polytope, 2_{41} polytope, 4_{21} polytope, Truncated 4_{21} polytope, Truncated 2_{41} polytope, Truncated 1_{42} polytope, Cantellated 4_{21} polytope, Cantellated 2_{41} polytope, Runcinated 4_{21} polytope

Honeycombs

- 8-cubic honeycomb
- 8-demicubic honeycomb
- 5_{21} honeycomb, 2_{51} honeycomb, 1_{52} honeycomb

Nine dimensions

9-polytope

- 9-cube
- 9-demicube
- 9-orthoplex

- 9-simplex

Hyperbolic honeycombs

- E_9 honeycomb

Ten dimensions

10-polytope

- 10-cube
- 10-demicube
- 10-orthoplex
- 10-simplex

Dimensional families

Regular polytope and List of regular polytopes

- Simplex
- Hypercube
- Cross-polytope

Uniform polytope

- Demihypercube
- Uniform 1_{k2} polytope
- Uniform 2_{k1} polytope
- Uniform k_{21} polytope

Honeycombs

- Hypercubic honeycomb
- Alternated hypercubic honeycomb

Geometry

- Triangle
- Automedian triangle
- Delaunay triangulation
- Equilateral triangle
- Golden triangle
- Hyperbolic triangle (non-Euclidean geometry)
- Isosceles triangle
- Kepler triangle
- Reuleaux triangle
- Right triangle
- Sierpinski triangle (fractal geometry)

- Special right triangles
- Spiral of Theodorus
- Thomson cubic
- Triangular bipyramid
- Triangular prism
- Triangular pyramid
- Triangular tiling

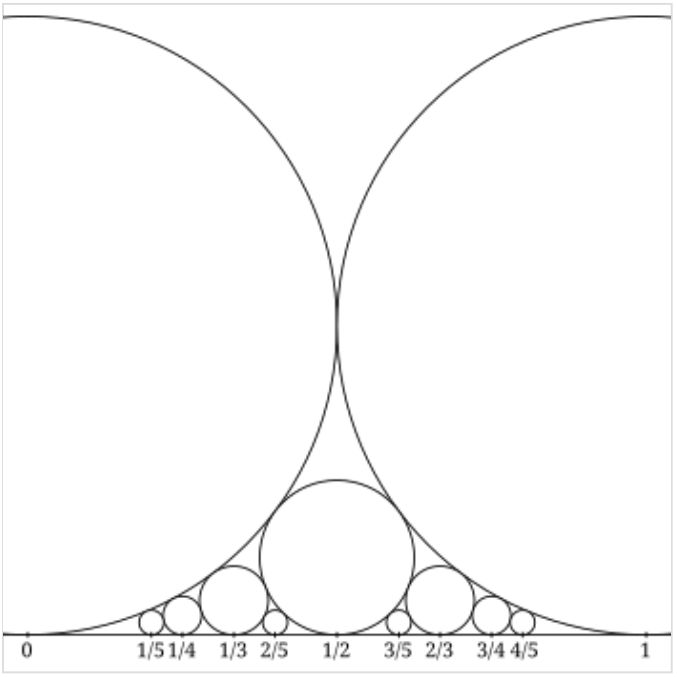
Hyperplexicons

- Glowvoid
- Warith's void
- Warith's hyperplexicon shape
- Gaxxoid
- Gyroid
- Hyperplexicon Gyroid
- Planetium
- Epyoid
- Xenroid
- Xenoshape
- Xenoid
- Emperoids
  - Hypervoid
  - Hyperoid
  - Warith-Nathaniyal mixbox
  - Mixbox
  - Forcoid
- Corporoid
- Primoid
- Oppan's gyroid
- Zahian's Hyperplexicon
- Nathaniyal's object
- Hyperplexicon

Geometry and other areas of mathematics

- Annulus
- Apollonian circles
- Apollonian gasket
- Arbelos
- Borromean rings
- Circle
- Circular sector
- Circular segment
- Cyclic quadrilateral
- Cycloid

- Epitrochoid
  - Epicycloid
    - Cardioid
    - Nephroid
    - Deferent and epicycle
- Ex-tangential quadrilateral
- Horocycle
- Hypotrochoid
  - Hypocycloid
    - Astroid
    - Deltoid curve
- Lune
- Pappus chain
- Peaucellier–Lipkin linkage
- Robbins pentagon
- Salinon
- Semicircle
- Squircle
- Steiner chain
- Tangential quadrilateral
  - Bicentric quadrilateral



Ford circles

Glyphs and symbols

- Borromean rings
- Crescent
- Vesica piscis
- Arc
- Caustic
- Cissoid
- Conchoid
- Cubic Hermite curve
- Curve of constant width
- hedgehog[9]
- Parametric curve
  - Bézier curve
  - Spline
    - Hermite spline
      - Beta spline
        - B-spline
    - Higher-order spline
    - NURBS
- Ray
- Reuleaux triangle
- Ribaucour curve[10]

Table of all the Shapes

This is a table of all the shapes above.

Table of Shapes

Section	Sub-Section	Sup-Section	Name
Algebraic Curves	¿ Curves	¿ Curves	Cubic Plane Curve
			Quartic Plane Curve
	Rational Curves	Degree 2	Conic Section(s)
			Unit Circle
			Unit Hyperbola
		Degree 3	Folium of Descartes
			Cissoid of Diocles
			Conchoid of de Sluze
			Right Strophoid
			Semicubical Parabola
			Serpentine Curve
			Trident Curve
			Trisectrix of Maclaurin
			Tschirnhausen Cubic
			Witch of Agnesi
		Degree 4	Ampersand Curve
			Bean Curve
			Bicorn
			Bow Curve
			Bullet-Nose Curve
			Cruciform Curve

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