Platonic Solids

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
Tetrahedron	$\mathcal{H}_2(-1^4)$	$\mathcal{H}_2(0^4)$	1
Cube	$\mathcal{H}_4(-1^8)$	$\mathcal{H}_4(2^8)$	9
Octahedron	$\mathcal{H}_3(-1^6)$	$\mathcal{H}_3(1^6)$	4
Dodecahedron	$\mathcal{H}_{10}(-1^{20})$	$\mathcal{H}_{10}(8^{20})$	81
Icosahedron	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25

Archemedian Solids

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
Truncated Tetrahedron	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25
Cuboctahedron	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25
Truncated Cube	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
Truncated Octahedron	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
Rhombicuboctahedron	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
Truncated Cuboctahedron	$\mathcal{H}_{24}(-1^{48})$	$\mathcal{H}_{24}(22^{48})$	529
Snub Cube	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
Icosidodecahedron	$\mathcal{H}_{15}(-1^{30})$	$\mathcal{H}_{15}(13^{30})$	196
Truncated Dodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
Truncated Icosahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
Rhombicosidodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
Truncated Icosidodecahedron	$\mathcal{H}_{60}(-1^{120})$	$\mathcal{H}_{60}(58^{120})$	3481
Snub Dodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841

Johnson Solids

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
1. Square pyramid	$\mathcal{H}_{12}(-4^1, -5^4)$	$\mathcal{H}_{12}(1^4, 6^4)$	15
2. Pentagonal pyramid	$\mathcal{H}_{30}(-5^1, -11^5)$	$\mathcal{H}_{30}(4^5, 18^5)$	56
3. Triangular cupola	$\mathcal{H}_{12}(-2^3, -3^6)$	$\mathcal{H}_{12}(4^6, 2^{18})$	31
4. Square cupola	$\mathcal{H}_{24}(-2^4, -5^8)$	$\mathcal{H}_{24}(10^8, 18^8)$	113
5. Pentagonal cupola	$\mathcal{H}_{60}(-2^5, -11^{10})$	$\mathcal{H}_{60}(28^{10}, 48^{10})$	381
6. Pentagonal rotunda	$\mathcal{H}_{15}(-1^{10}, -2^{10})$	$\mathcal{H}_{15}(13^{10}, 12^{10})$	126
7. Elongated triangular pyramid	$\mathcal{H}_6(-2^3, -1^3, -3^1)$	$\mathcal{H}_6(1^6, 4^3, 0^3)$	10
8. Elongated square pyramid	$\mathcal{H}_{12}(-4^1, -2^4, -3^4)$	$\mathcal{H}_{12}(1^4, 4^8, 2^{12})$	31
9. Elongated pentagonal pyramid	$\mathcal{H}_{30}(-5^6, -6^5)$	$\mathcal{H}_{30}(4^{30}, 3^{30})$	106
10. Gyroelongated square pyramid	$\mathcal{H}_{12}(-4^1, -2^4, -3^4)$	$\mathcal{H}_{12}(1^4, 4^8, 2^{12})$	31
11. Gyroelongated pentagonal pyramid	$\mathcal{H}_{30}(-5^6, -6^5)$	$\mathcal{H}_{30}(4^{30}, 3^{30})$	106
12. Triangular dipyramid	$\mathcal{H}_6(-3^2, -2^3)$	$\mathcal{H}_6(0^6, 1^6)$	4
13. Pentagonal dipyramid	$\mathcal{H}_6(-1^2, -2^5)$	$\mathcal{H}_6(4^2, 1^{10})$	10
14. Elongated triangular dipyramid	$\mathcal{H}_6(-3^2, -1^6)$	$\mathcal{H}_6(0^6, 4^6)$	13
15. Elongated square dipyramid	$\mathcal{H}_6(-2^2, -1^8)$	$\mathcal{H}_6(1^4, 4^8)$	19
16. Elongated pentagonal dipyramid	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25
17. Gyroelongated square dipyramid	$\mathcal{H}_6(-2^2, -1^8)$	$\mathcal{H}_6(1^4, 4^8)$	19
18. Elongated triangular cupola	$\mathcal{H}_{12}(-2^3, -1^6, -2^6)$	$\mathcal{H}_{12}(4^6, 10^6, 4^{12})$	67
19. Elongated square cupola	$\mathcal{H}_{24}(-2^{12}, -3^8)$	$\mathcal{H}_{24}(10^{24}, 6^{24})$	193
20. Elongated pentagonal cupola	$\mathcal{H}_{60}(-2^5, -5^{10}, -6^{10})$	$\mathcal{H}_{60}(28^{10}, 10^{50}, 8^{60})$	631
21. Elongated pentagonal rotunda	$\mathcal{H}_{30}(-2^{10}, -1^{10}, -3^{10})$	$\mathcal{H}_{30}(13^{20}, 28^{10}, 8^{30})$	391
22. Gyroelongated triangular cupola	$\mathcal{H}_{12}(-2^3, -1^6, -2^6)$	$\mathcal{H}_{12}(4^6, 10^6, 4^{12})$	67
23. Gyroelongated square cupola	$\mathcal{H}_{24}(-2^{12}, -3^8)$	$\mathcal{H}_{24}(10^{24}, 6^{24})$	193
24. Gyroelongated pentagonal cupola	$\mathcal{H}_{60}(-2^5, -5^{10}, -6^{10})$	$\mathcal{H}_{60}(28^{10}, 10^{50}, 8^{60})$	631
25. Gyroelongated pentagonal rotunda	$\mathcal{H}_{30}(-2^{10}, -1^{10}, -3^{10})$	$\mathcal{H}_{30}(13^{20}, 28^{10}, 8^{30})$	391
26. Gyrobifastigium	$\mathcal{H}_6(-2^4, -1^4)$	$\mathcal{H}_6(1^8, 4^4)$	13
27. Triangular orthobicupola	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25
28. Square orthobicupola	$\mathcal{H}_{12}(-1^8, -2^8)$	$\mathcal{H}_{12}(10^8, 4^{16})$	73
29. Square gyrobicupola	$\mathcal{H}_{12}(-1^8, -2^8)$	$\mathcal{H}_{12}(10^8, 4^{16})$	73
30. Pentagonal orthobicupola	$\mathcal{H}_{30}(-1^{10}, -5^{10})$	$\mathcal{H}_{30}(28^{10}, 4^{50})$	241
31. Pentagonal gyrobicupola	$\mathcal{H}_{30}(-1^{10}, -5^{10})$	$\mathcal{H}_{30}(28^{10}, 4^{50})$	241

Johnson Solids

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
32. Pentagonal orthocupolarotunda	$\mathcal{H}_{60}(-2^5, -7^{10}, -4^{10})$	$\mathcal{H}_{60}(28^{10}, 52^{10}, 13^{40})$	661
33. Pentagonal gyrocupolarotunda	$\mathcal{H}_{60}(-2^5, -7^{10}, -4^{10})$	$\mathcal{H}_{60}(28^{10}, 52^{10}, 13^{40})$	661
34. Pentagonal orthobirotunda	$\mathcal{H}_{15}(-1^{30})$	$\mathcal{H}_{15}(13^{30})$	196
35. Elongated triangular orthobicupola	$\mathcal{H}_{12}(-1^{12}, -2^6)$	$\mathcal{H}_{12}(10^{12}, 4^{12})$	85
36. Elongated triangular gyrobicupola	$\mathcal{H}_{12}(-1^{12}, -2^6)$	$\mathcal{H}_{12}(10^{12}, 4^{12})$	85
37. Elongated square gyrobicupola	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
38. Elongated pentagonal orthobicupola	$\mathcal{H}_{60}(-2^{10}, -5^{20})$	$\mathcal{H}_{60}(28^{20}, 10^{100})$	781
39. Elongated pentagonal gyrobicupola	$\mathcal{H}_{60}(-2^{10}, -5^{20})$	$\mathcal{H}_{60}(28^{20}, 10^{100})$	781
40. Elongated pentagonal orthocupolarotunda	$\mathcal{H}_{60}(-2^{15}, -5^{10}, -4^{10})$	$\mathcal{H}_{60}(28^{30}, 10^{50}, 13^{40})$	931
41. Elongated pentagonal gyrocupolarotunda	$\mathcal{H}_{60}(-2^{15}, -5^{10}, -4^{10})$	$\mathcal{H}_{60}(28^{30}, 10^{50}, 13^{40})$	931
42. Elongated pentagonal orthobirotunda	$\mathcal{H}_{30}(-1^{20}, -2^{10})$	$\mathcal{H}_{30}(28^{20}, 13^{20})$	411
43. Elongated pentagonal gyrobirotunda	$\mathcal{H}_{30}(-1^{20}, -2^{10})$	$\mathcal{H}_{30}(28^{20}, 13^{20})$	411
44. Gyroelongated triangular bicupola	$\mathcal{H}_{12}(-1^{18})$	$\mathcal{H}_{12}(10^{18})$	91
45. Gyroelongated square bicupola	$\mathcal{H}_{12}(-1^{24})$	$\mathcal{H}_{12}(10^{24})$	121
46. Gyroelongated pentagonal bicupola	$\mathcal{H}_{60}(-2^{10}, -5^{20})$	$\mathcal{H}_{60}(28^{20}, 10^{100})$	781
47. Gyroelongated pentagonal cupolarotunda	$\mathcal{H}_{60}(-2^{15}, -5^{10}, -4^{10})$	$\mathcal{H}_{60}(28^{30}, 10^{50}, 13^{40})$	931
48. Gyroelongated pentagonal birotunda	$\mathcal{H}_{30}(-1^{20}, -2^{10})$	$\mathcal{H}_{30}(28^{20}, 13^{20})$	411
49. Augmented triangular prism	$\mathcal{H}_3(-1^7)$	$\mathcal{H}_3(1^7)$	4
50. Biaugmented triangular prism	$\mathcal{H}_{12}(-3^4, -2^2, -4^2)$	$\mathcal{H}_{12}(2^{12}, 4^4, 1^8)$	25
51. Triaugmented triangular prism	$\mathcal{H}_6(-1^6, -2^3)$	$\mathcal{H}_6(4^6, 1^6)$	16
52. Augmented pentagonal prisim	$\mathcal{H}_{60}(-12^6, -7^4, -20^1)$	$\mathcal{H}_{60}(3^{72}, 52^4, 1^{20})$	223
53. Biaugmented pentagonal prism	$\mathcal{H}_{60}(-12^2, -7^8, -20^2)$	$\mathcal{H}_{60}(3^{24}, 52^8, 1^{40})$	265
54. Augmented hexagonal prism	$\mathcal{H}_{12}(-4^1, -1^4, -2^8)$	$\mathcal{H}_{12}(1^4, 10^4, 4^{16})$	55
55. Parabiaugmented hexagonal prism	$\mathcal{H}_{12}(-4^2, -1^8, -2^4)$	$\mathcal{H}_{12}(1^8, 10^8, 4^8)$	61
56. Metabiaugmented hexagonal prism	$\mathcal{H}_{12}(-4^2, -1^8, -2^4)$	$\mathcal{H}_{12}(1^8, 10^8, 4^8)$	61
57. Triaugmented hexagonal prism	$\mathcal{H}_{12}(-4^3, -1^{12})$	$\mathcal{H}_{12}(1^{12}, 10^{12})$	67
58. Augmented dodecahedron	$\mathcal{H}_{30}(-5^1, -2^5, -3^{15})$	$\mathcal{H}_{30}(4^5, 13^{10}, 8^{45})$	256
59. Parabiaugmented dodecahedron	$\mathcal{H}_{30}(-5^2, -2^{10}, -3^{10})$	$\mathcal{H}_{30}(4^{10}, 13^{20}, 8^{30})$	271
60. Metabiaugmented dodecahedron	$\mathcal{H}_{30}(-5^2, -2^{10}, -3^{10})$	$\mathcal{H}_{30}(4^{10}, 13^{20}, 8^{30})$	271
61. Triaugmented dodecahedron	$\mathcal{H}_{30}(-5^3, -2^{15}, -3^5)$	$\mathcal{H}_{30}(4^{15}, 13^{30}, 8^{15})$	286
62. Metabidiminished icosahedron	$5\mathcal{H}_{30}(-5^2, -6^6, -7^2)$	$\mathcal{H}_{30}(4^{10}, 3^{36}, 22^2)$	97

Johnson Solids

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
63. Tridiminished icosahedron	$\mathcal{H}_{30}(-6^3, -7^6)$	$\mathcal{H}_{30}(3^{18}, 22^6)$	94
64. Augmented tridiminished icosahedron	$\mathcal{H}_{30}(-15^1, -2^3, -7^3, -6^3)$	$\mathcal{H}_{30}(0^{15}, 13^6, 22^3, 3^{18})$	100
65. Augmented truncated tetrahedron	$\mathcal{H}_{60}(-10^3, -7^6, -14^6)$	$\mathcal{H}_{60}(4^{30}, 52^6, 22^{12})$	349
66. Augmented truncated cube	$\mathcal{H}_{24}(-2^{16}, -1^8, -2^4)$	$\mathcal{H}_{24}(10^{32}, 22^8, 10^8)$	289
67. Biaugmented truncated cube	$\mathcal{H}_{24}(-2^8, -1^{16}, -2^8)$	$\mathcal{H}_{24}(10^{16}, 22^{16}, 10^{16})$	337
68. Augmented truncated dodecahedron	$\mathcal{H}_{60}(-2^{55}, -1^{10})$	$\mathcal{H}_{60}(28^{110}, 58^{10})$	1831
69. Parabiaugmented truncated dodecahedron	$\mathcal{H}_{60}(-2^{50}, -1^{20})$	$\mathcal{H}_{60}(28^{100}, 58^{20})$	1981
70. Metabiaugmented truncated dodecahedron	$\mathcal{H}_{60}(-2^{50}, -1^{20})$	$\mathcal{H}_{60}(28^{100}, 58^{20})$	1981
71. Triaugmented truncated dodecahedron	$\mathcal{H}_{60}(-2^{45}, -1^{30})$	$\mathcal{H}_{60}(28^{90}, 58^{30})$	2131
72. Gyrate rhombicosidodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
73. Parabigyrate rhombicosidodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
74. Metabigyrate rhombicosidodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
75. Trigyrate rhombicosidodecahedron	$\mathcal{H}_{30}(-1^{60})$	$\mathcal{H}_{30}(28^{60})$	841
76. Diminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{10}, -2^{45})$	$\mathcal{H}_{60}(18^{30}, 28^{90})$	1531
77. Paragyrate diminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{10}, -2^{45})$	$\mathcal{H}_{60}(18^{30}, 28^{90})$	1531
78. Metagyrate diminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{10}, -2^{45})$	$\mathcal{H}_{60}(18^{30}, 28^{90})$	1531
79. Bigyrate diminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{10}, -2^{45})$	$\mathcal{H}_{60}(18^{30}, 28^{90})$	1531
80. Parabidiminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{20}, -2^{30})$	$\mathcal{H}_{60}(18^{60}, 28^{60})$	1381
81. Metabidiminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{20}, -2^{30})$	$\mathcal{H}_{60}(18^{60}, 28^{60})$	1381
82. Gyrate bidiminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{20}, -2^{30})$	$\mathcal{H}_{60}(18^{60}, 28^{60})$	1381
83. Tridiminished rhombicosidodecahedron	$\mathcal{H}_{60}(-3^{30}, -2^{15})$	$\mathcal{H}_{60}(18^{90}, 28^{30})$	1231
84. Snub disphenoid	$\mathcal{H}_6(-1^4, -2^4)$	$\mathcal{H}_6(4^4, 1^8)$	13
85. Snub square antiprism	$\mathcal{H}_{12}(-1^8, -2^8)$	$\mathcal{H}_{12}(10^8, 4^{16})$	73
86. Sphenocorona	$\mathcal{H}_{12}(-3^4, -2^4, -4^2)$	$\mathcal{H}_{12}(2^{12}, 4^8, 1^8)$	33
87. Augmented sphenocorona	$\mathcal{H}_{12}(-1^2, -3^2, -2^6, -4^1)$	$\mathcal{H}_{12}(10^2, 2^6, 4^{12}, 1^4)$	43
88. Sphenomegacorona	$\mathcal{H}_{96}(-63^4, -32^2, -16^6)$	$\mathcal{H}_{96}(10^{12}, 1^{64}, 4^{96})$	285
89. Hebesphenomegacorona	$\mathcal{H}_{12}(-2^{10}, -1^4)$	$\mathcal{H}_{12}(4^{20}, 10^4)$	61
90. Disphenocingulum	$\mathcal{H}_{12}(-2^8, -1^8)$	$\mathcal{H}_{12}(4^{16}, 10^8)$	73
91. Bilunabirotunda	$\mathcal{H}_{60}(-14^4, -4^2, -7^8)$	$\mathcal{H}_{60}(22^8, 13^8, 52^8)$	349
92. Triangular hebesphenorotunda	$\mathcal{H}_{60}(-12^3, -4^3, -7^6, -5^6)$	$\mathcal{H}_{60}(3^{36}, 13^{12}, 52^6, 10^{30})$	439

n-(Anti-)Prismis

Polyheron	Stratum of k-differential	Stratum of Covering	Genus
3	$\mathcal{H}_3(-1^6)$	$\mathcal{H}_3(1^6)$	4
4	$\mathcal{H}_4(-1^8)$	$\mathcal{H}_4(2^8)$	9
5	$\mathcal{H}_5(-1^{10})$	$\mathcal{H}_5(3^{10})$	16
6	$\mathcal{H}_6(-1^{12})$	$\mathcal{H}_6(4^{12})$	25
7	$\mathcal{H}_7(-1^{14})$	$\mathcal{H}_7(5^{14})$	36
8	$\mathcal{H}_8(-1^{16})$	$\mathcal{H}_8(6^{16})$	49
9	$\mathcal{H}_9(-1^{18})$	$\mathcal{H}_9(7^{18})$	64
...	...	...	...
n	$\mathcal{H}_n(-1^{2n})$	$\mathcal{H}_n((n-2)^{2n})$	(n^2-2n+1)