

Graphlopedia

Washington Experimental Mathematics Laboratory

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December 1, 2017

Welcome to Graphlopedia, a database for graphs! We are a small team of undergraduate students (with mentors Sara Billey and Riley Casper) at the University of Washington. For the last five months we have been building a database of graphs for the use of mathematicians and other graph lovers. We have a limited number of entries right now, but it will soon grow exponentially as we start implementing graph recognition and user input.

Please use "ctrl + F" to search our database. The graphs are ordered by degree sequence. A more involved website is in the works; for now please enjoy our static PDF version.

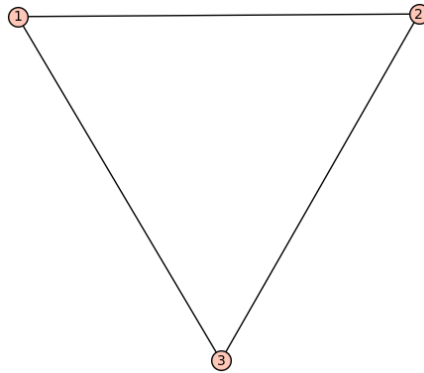
Graphlopedia ID: G000001

Title: Triangle

Degree Sequence: [2, 2, 2]

Vertices: 3

Edges: [[1, 2], [1, 3], [2, 3]]



Comments:

1. Complete graph on 3 vertices, K_3 ,
2. Coxeter graph of type affine A_2 ,
3. Cycle on 3 vertices, C_3 ,

Links:

1. <http://mathworld.wolfram.com/TriangleGraph.html>,
2. https://en.wikipedia.org/wiki/Triangle_graph,

References:

1. J. E. Humphreys, Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 34.,

Author(s): Sara Billey.

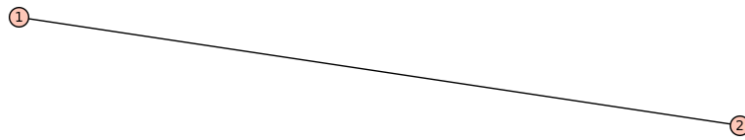
Graphlopedia ID: G000002

Title: 2-Path, P_2

Degree Sequence: [1, 1]

Vertices: 2

Edges: [[1, 2]]



Comments:

1. Coxeter graph of type A_2 ,

Links:

1. https://en.wikipedia.org/wiki/Path_graph,

References:

1. J. E. Humphreys, Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 32.,

Author(s): Sara Billey.

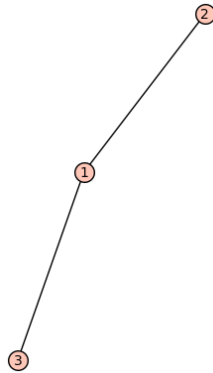
Graphlopedia ID: G000003

Title: 3-Path, P_3

Degree Sequence: [2, 1, 1]

Vertices: 3

Edges: [[1, 2], [1, 3]]



Comments:

1. Coxeter graph of type A_3 ,

Links:

1. https://en.wikipedia.org/wiki/Path_graph,

References:

1. J. E. Humphreys, Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 32.,

Author(s): Sara Billey.

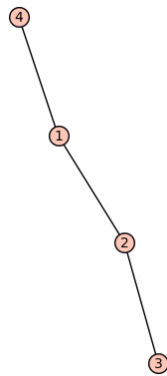
Graphlopedia ID: G000004

Title: 4-Path, P_4

Degree Sequence: [2, 2, 1, 1]

Vertices: 4

Edges: [[1, 2], [1, 4], [2, 3]]



Comments:

1. Coxeter graph of type A_4 ,

Links:

1. https://en.wikipedia.org/wiki/Path_graph,

References:

1. J. E. Humphreys, Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 32.,

Author(s): Sara Billey.

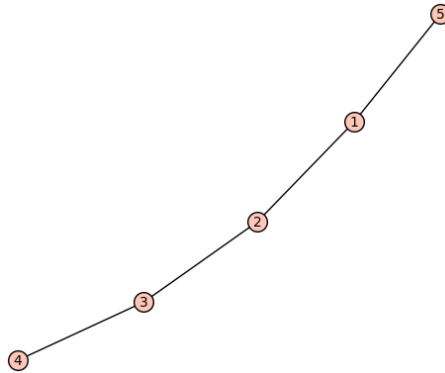
Graphlopedia ID: G000005

Title: 5-Path, P_5

Degree Sequence: [2, 2, 2, 1, 1]

Vertices: 5

Edges: [[1, 2], [1, 5], [2, 3], [3, 4]]



Comments:

1. Coxeter graph of type A_5 ,

Links:

1. https://en.wikipedia.org/wiki/Path_graph,

References:

1. J. E. Humphreys, Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 32.,

Author(s): Sara Billey.

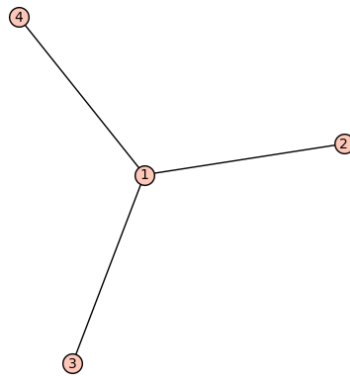
Graphlopedia ID: G000006

Title: Claw

Degree Sequence: [3, 1, 1, 1]

Vertices: 4

Edges: [[1, 2], [1, 3], [1, 4]]



Comments:

1. star graph of type $(1, 3)$,
2. complete bipartite graph $K_{1,3}$,
3. Coxeter graph of type D_4 ,

Links:

1. <http://mathworld.wolfram.com/ClawGraph.html>,

References:

1. Horton, J. D. and Bouwer, I. Z. Symmetric Y-Graphs and H-Graphs. J. Combin. Th. Ser. B 53, (1991). Page 116.,
2. Humphreys J., Reflection Groups and Coxeter Groups, Cambridge Studies in Advanced Math, Volume 29, 1990. Page 32.,
3. Dahlberg, S., Foley, A., and van Willigenburg, S. Resolving Stanley's e-positivity of claw contractible free graphs. Preprint arXiv:1703.05770, (2017), Page 5.,
4. Gasharov V., On Stanley's chromatic symmetric function and clawfree graphs, Discrete Math. 205, 229-234 (1999),.

Author(s): Aaron Bode.

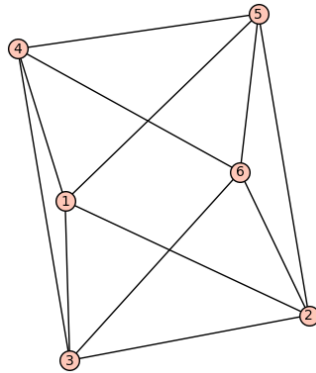
Graphlopedia ID: G000007

Title: 3-Antiprism

Degree Sequence: [4, 4, 4, 4, 4, 4]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 5], [2, 6], [3, 4], [3, 6], [4, 5], [4, 6], [5, 6]]



Comments:

1. planar,

Links:

1. <http://mathworld.wolfram.com/AntiprismGraph.html>,
2. https://en.wikipedia.org/wiki/Antiprism_graph,

References:

1. Alekseyev, M.; Michon, G. Making Walks Count: From Silent Circles to Hamiltonian Cycles. eprint arXiv:1602.01396. (2016),

Author(s): Aaron Bode.

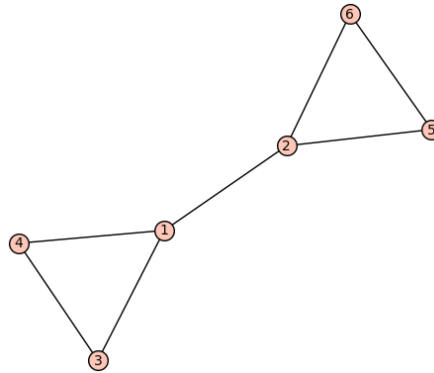
Graphlopedia ID: G000008

Title: 3-Barbell

Degree Sequence: [3, 3, 2, 2, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [2, 5], [2, 6], [3, 4], [5, 6]]



Comments:

1. planar,

Links:

1. <http://mathworld.wolfram.com/BarbellGraph.html>,
2. https://en.wikipedia.org/wiki/Barbell_graph,

References:

1. Wilf, H. The editor's corner: the white screen problem. Amer. Math. Monthly 96 (1989), no. 8, 704–707. ,

Author(s): Aaron Bode.

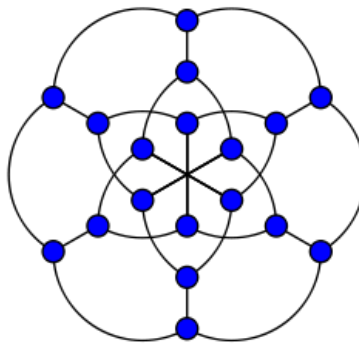
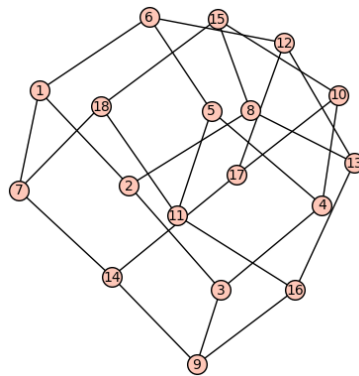
Graphlopedia ID: G000009

Title: Pappus Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 18

Edges: [[1, 2], [1, 6], [1, 7], [2, 3], [2, 8], [3, 4], [3, 9], [4, 5], [4, 10], [5, 6], [5, 11], [6, 12], [7, 14], [7, 18], [8, 13], [8, 15], [9, 14], [9, 16], [10, 15], [10, 17], [11, 16], [11, 18], [12, 13], [12, 17], [13, 16], [14, 17], [15, 18]]



Comments:

1. The Pappus graph is formed as the Levi graph of the Pappus configuration.,

Links:

1. https://en.wikipedia.org/wiki/Pappus_graph,
2. <http://mathworld.wolfram.com/PappusGraph.html>,

References:

1. Coxeter, H. S. M. Self-Dual Configurations and Regular Graphs. Bull. Amer. Math. Soc. 56, 413-455, 1950. Page 434.,

Author(s): Sara Billey.

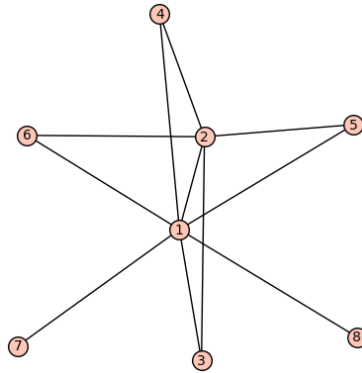
Graphlopedia ID: G000010

Title: 8-Vertex Threshold Graph

Degree Sequence: [7, 5, 2, 2, 2, 2, 1, 1]

Vertices: 8

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [1, 7], [1, 8], [2, 3], [2, 4], [2, 5], [2, 6]]



Comments:

1. threshold, planar, and trivially perfect.,

Links:

1. https://en.wikipedia.org/wiki/Threshold_graph,

References:

1. Heggernes, P.; Kratsch, D. Linear-time certifying recognition algorithms and forbidden induced subgraphs, Nordic Journal of Computing, 14 (1-2): 87-108 (2008),

Author(s): Katrina Warner.

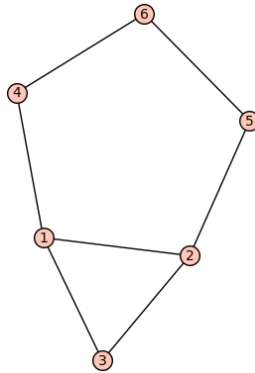
Graphlopedia ID: G000011

Title: 6-Vertex Circular-Arc

Degree Sequence: [3, 3, 2, 2, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [2, 3], [2, 5], [4, 6], [5, 6]]



Comments:

1. circular-arc graph,
2. intersection graph,
3. arc,

Links:

1. https://en.wikipedia.org/wiki/Circular-arc_graph,

Author(s): Katrina Warner.

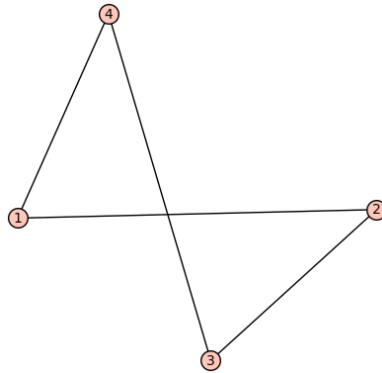
Graphlopedia ID: G000012

Title: 4-Cycle

Degree Sequence: [2, 2, 2, 2]

Vertices: 4

Edges: [[1, 2], [1, 4], [2, 3], [3, 4]]



Comments:

1. minimal non-trivially-perfect graph,

Links:

1. https://en.wikipedia.org/wiki/Trivially_perfect_graph,

References:

1. Martin Charles Golumbic, Trivially perfect graphs, Discrete Mathematics, Volume 24, Issue 1, 1978, Pages 105-107.,

Author(s): Katrina Warner, Sara Billey.

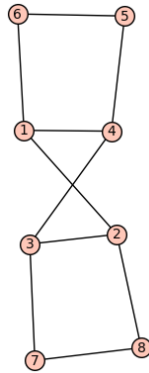
Graphlopedia ID: G000013

Title: ladder graph

Degree Sequence: [3, 3, 3, 3, 2, 2, 2, 2]

Vertices: 8

Edges: [[1, 2], [1, 4], [1, 6], [2, 3], [2, 8], [3, 4], [3, 7], [4, 5], [5, 6], [7, 8]]



Comments:

1. ladder graph,

Links:

1. https://en.wikipedia.org/wiki/Ladder_graph,

Author(s): Katrina Warner.

Author(s): Aaron Bode.

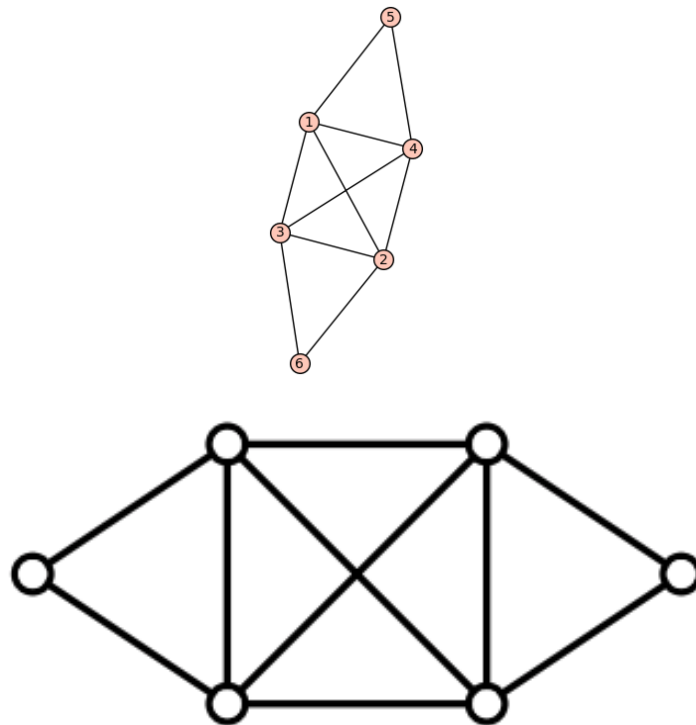
Graphlopedia ID: G000015

Title: F_2

Degree Sequence: [4, 4, 4, 4, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 4], [2, 6], [3, 4], [3, 6], [4, 5]]



Comments:

1. canonical example of a graph with an Eulerian cycle,

References:

1. N. Chiarelli, Martin Milanic, A threshold approach to connected domination, University of Primorska, 2016. Page 4.,

Author(s): Aaron Bode.

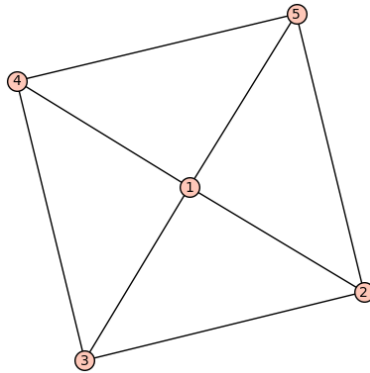
Graphlopedia ID: G000016

Title: 5-Wheel Graph

Degree Sequence: [4, 3, 3, 3, 3]

Vertices: 5

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 5], [3, 4], [4, 5]]



Comments:

1. wheel graph W_5 ,

Links:

1. <http://mathworld.wolfram.com/WheelGraph.html>,
2. https://en.wikipedia.org/wiki/Wheel_graph,

Author(s): Katrina Warner.

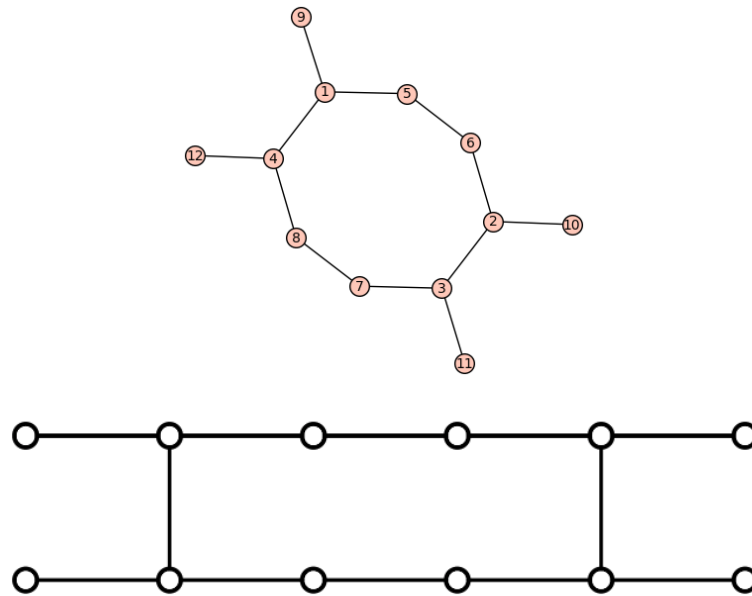
Graphlopedia ID: G000017

Title: Total Domishold Raft

Degree Sequence: [3, 3, 3, 3, 2, 2, 2, 2, 1, 1, 1, 1]

Vertices: 12

Edges: [[1, 4], [1, 5], [1, 9], [2, 3], [2, 6], [2, 10], [3, 7], [3, 11], [4, 8], [4, 12], [5, 6], [7, 8]]



Comments:

1. A total domishold graph that is not connected-domishold,

Links:

1. arxiv.org/pdf/1610.06539v1.pdf,

References:

1. Chiarelli, Nina, and Martin Milanic. "A Threshold Approach to Connected Domination." 21 Oct. 2016, arxiv.org/pdf/1610.06539v1.pdf,

Author(s): Aaron Bode.

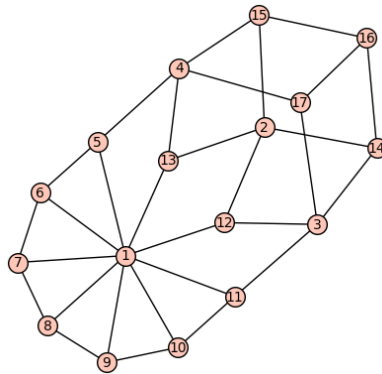
Graphlopedia ID: G000018

Title: G_k $K_{2,6}$ free

Degree Sequence: [9, 4, 4, 4, 4, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 17

Edges: [[1, 5], [1, 6], [1, 7], [1, 8], [1, 9], [1, 10], [1, 11], [1, 12], [1, 13], [2, 12], [2, 13], [2, 14], [2, 15], [3, 11], [3, 12], [3, 14], [3, 17], [4, 5], [4, 13], [4, 15], [4, 17], [5, 6], [6, 7], [7, 8], [8, 9], [9, 10], [10, 11], [14, 16], [15, 16], [16, 17]]



Comments:

1. 3-connected,
2. G_k where $k \geq 1$,

References:

1. Ellingham, M. N. et al. "Hamiltonicity of Planar Graphs with a Forbidden Minor." ArXiv, ArXiv, 20 Oct. 2016, arxiv.org/pdf/1610.06558v1.pdf.

Author(s): Aaron Bode.

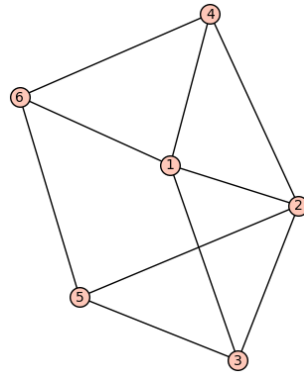
Graphlopedia ID: G000019

Title: hexahedral graph 3

Degree Sequence: [4, 4, 3, 3, 3, 3]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 6], [2, 3], [2, 4], [2, 5], [3, 5], [4, 6], [5, 6]]



Comments:

1. polyhedral graph,

Links:

1. <http://mathworld.wolfram.com/PolyhedralGraph.html>,

References:

1. "Polyhedral Graph." Polyhedral Graph – from Wolfram MathWorld, *mathworld.wolfram.com/PolyhedralGra*

Author(s): Aaron Bode.

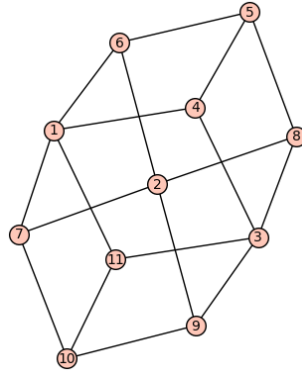
Graphlopedia ID: G000020

Title: Herschel Graph

Degree Sequence: [4, 4, 4, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 11

Edges: [[1, 4], [1, 6], [1, 7], [1, 11], [2, 6], [2, 7], [2, 8], [2, 9], [3, 4], [3, 8], [3, 9], [3, 11], [4, 5], [5, 6], [5, 8], [7, 10], [9, 10], [10, 11]]



Comments:

1. smallest nonhamiltonian polyhedral graph,
2. planar,

Links:

1. <http://mathworld.wolfram.com/HerschelGraph.html>,

References:

1. "Herschel Graph." Herschel Graph – from Wolfram MathWorld, mathworld.wolfram.com/HerschelGraph.html

Author(s): Aaron Bode.

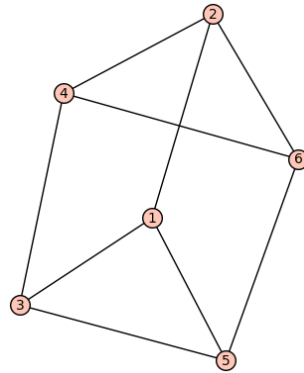
Graphlopedia ID: G000021

Title: 3-regular graph 1

Degree Sequence: [3, 3, 3, 3, 3, 3]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 5], [2, 4], [2, 6], [3, 4], [3, 5], [4, 6], [5, 6]]



References:

1. Kong, Qi, and Ligong Wang. "The Signless Laplacian Spectral Radius of Subgraphs of Regular Graphs." <https://Arxiv.org/Pdf/1610.08855v1.Pdf>, ArXiv, 28 Oct. 2016, arxiv.org/pdf/1610.08855v1.pdf.

Author(s): Aaron Bode.

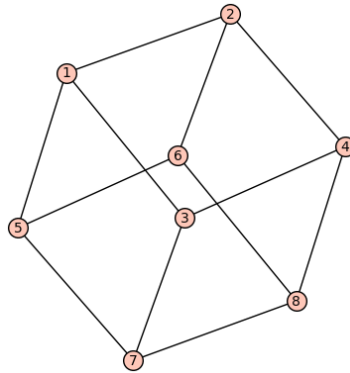
Graphlopedia ID: G000022

Title: 3-regular graph 2

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 8

Edges: [[1, 2], [1, 3], [1, 5], [2, 4], [2, 6], [3, 4], [3, 7], [4, 8], [5, 6], [5, 7], [6, 8], [7, 8]]



References:

1. Q. Kong, L. Wang, The signless Laplacian spectral radius of subgraphs of regular graphs, Department of Applied Mathematics, School of Science, Northwestern Polytechnical University, 2016.,

Author(s): Aaron Bode.

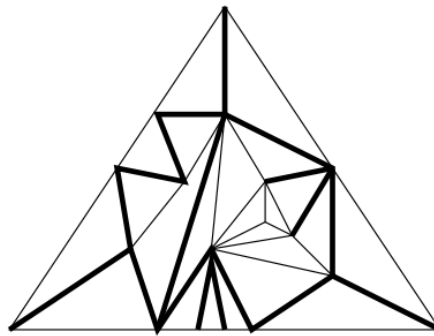
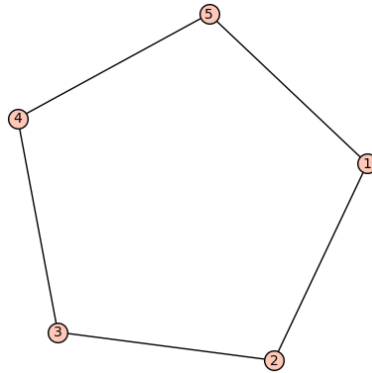
Graphlopedia ID: G000023

Title: 5-Cycle, C_5

Degree Sequence: [2, 2, 2, 2, 2]

Vertices: 5

Edges: [[1, 2], [1, 5], [2, 3], [3, 4], [4, 5]]



Links:

1. https://en.wikipedia.org/wiki/Cycle_graph,

Author(s): Zachary Hamaker.

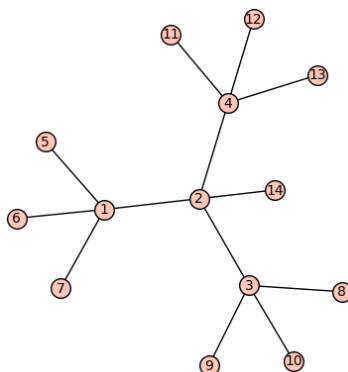
Graphlopedia ID: G000024

Title: Isobutane Molecule

Degree Sequence: [4, 4, 4, 4, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1]

Vertices: 14

Edges: [[1, 2], [1, 5], [1, 6], [1, 7], [2, 3], [2, 4], [2, 14], [3, 8], [3, 9], [3, 10], [4, 11], [4, 12], [4, 13]]



Comments:

1. connected forest,
2. tree graph,
3. Error in pubchem link, I don't see the graph there, but it is about isobutane mol-SB,

Links:

1. <http://mathworld.wolfram.com/Tree.html>,
2. <https://pubchem.ncbi.nlm.nih.gov/compound/isobutane>,

References:

1. Tree – from Wolfram MathWorld, mathworld.wolfram.com/Tree.html.,

Author(s): Aaron Bode.

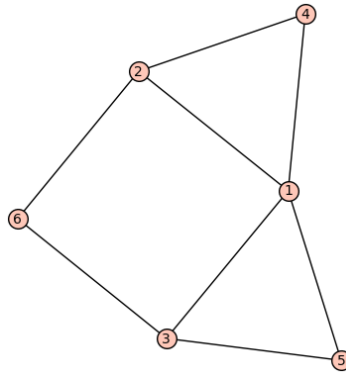
Graphlopedia ID: G000025

Title: Projective embedding of the positive roots of type A_3

Degree Sequence: [4, 3, 3, 2, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 4], [2, 6], [3, 5], [3, 6]]



Comments:

1. Vertices are the intersections of the lines generated by the positive roots with a certain affine hyperplane. Lines represent two dimensional spans.,

References:

1. S. Billey and A. Postnikov. Smoothness of Schubert varieties via patterns in root subsystems. Advances in Applied Mathematics, vol 34 (2005). Page 453.,

Author(s): Aaron Bode.

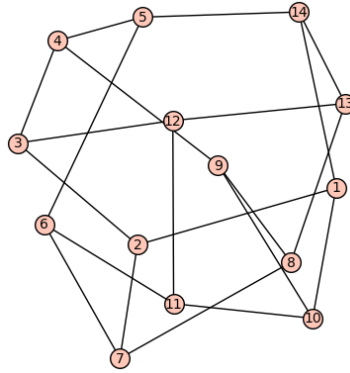
Graphlopedia ID: G000026

Title: Heawood Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 10], [1, 14], [2, 3], [2, 7], [3, 4], [3, 12], [4, 5], [4, 9], [5, 6], [5, 14], [6, 7], [6, 11], [7, 8], [8, 9], [8, 13], [9, 10], [10, 11], [11, 12], [12, 13], [13, 14]]



Comments:

1. cage graph,
2. non-planar,

Links:

1. <http://mathworld.wolfram.com/HeawoodGraph.html>,

References:

1. Y. Zhao, Extremal regular graphs: independent sets and graph homomorphisms, 2016.,

Author(s): Aaron Bode.

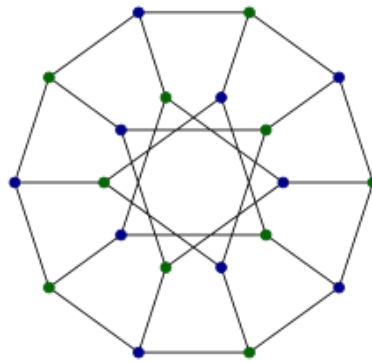
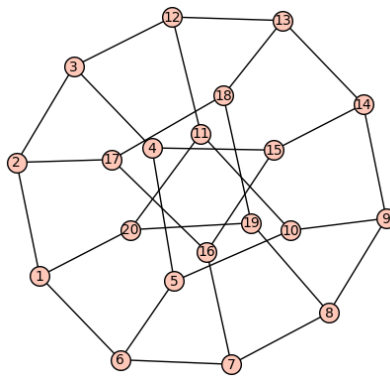
Graphlopedia ID: G000027

Title: Desargues' Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 20

Edges: [[1, 2], [1, 6], [1, 20], [2, 3], [2, 17], [3, 4], [3, 12], [4, 5], [4, 15], [5, 6], [5, 10], [6, 7], [7, 8], [7, 16], [8, 9], [8, 19], [9, 10], [9, 14], [10, 11], [11, 12], [11, 20], [12, 13], [13, 14], [13, 18], [14, 15], [15, 16], [16, 17], [17, 18], [18, 19], [19, 20]]



Comments:

1. cubic-symmetric graph,
2. Desargues graph is the first of four graphs depicted on the cover of Harary (1994).,

Links:

1. <http://mathworld.wolfram.com/DesarguesGraph.html>,
2. https://en.wikipedia.org/wiki/Desargues_graph,

References:

1. Kagno, I. N. Desargues' and Pappus' Graphs and Their Groups. Amer. J. Math. 69, 859-863, 1947.,

Author(s): Aaron Bode.

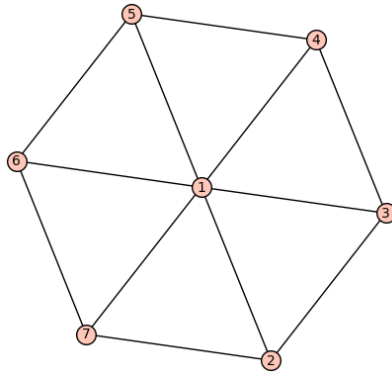
Graphlopedia ID: G000028

Title: Figure 2(a)

Degree Sequence: [6, 3, 3, 3, 3, 3, 3]

Vertices: 7

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [1, 7], [2, 3], [2, 7], [3, 4], [4, 5], [5, 6], [6, 7]]



Links:

1. <https://arxiv.org/pdf/math/0608624.pdf>,

References:

1. W. Wood. Combinatorial Modulus and Types of Graphs, 2006.,

Author(s): Katrina Warner.

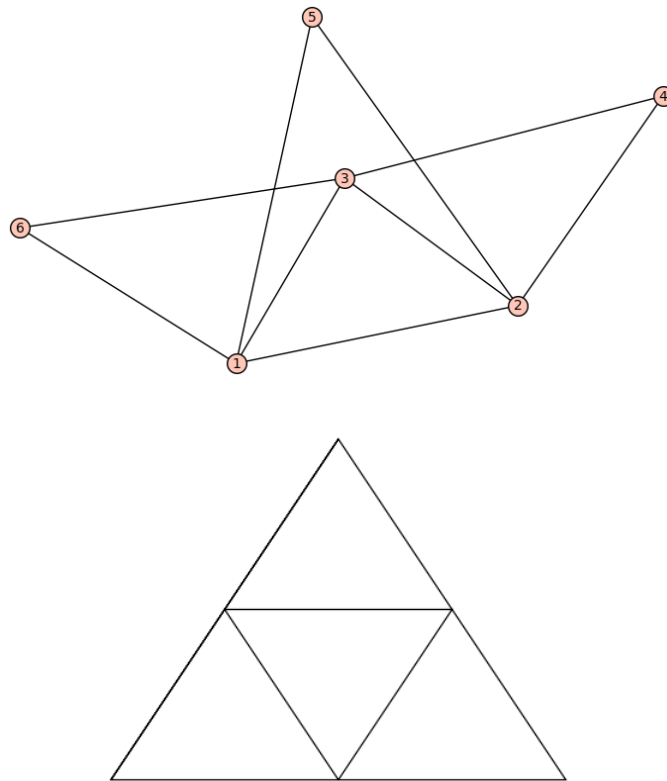
Graphlopedia ID: G000029

Title: Figure 2(b)

Degree Sequence: [4, 4, 4, 2, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 5], [1, 6], [2, 3], [2, 4], [2, 5], [3, 4], [3, 6]]



Links:

1. <https://arxiv.org/pdf/math/0608624.pdf> , ,

References:

1. W. Wood. Combinatorial Modulus and Types of Graphs, 2006.,

Author(s): Katrina Warner.

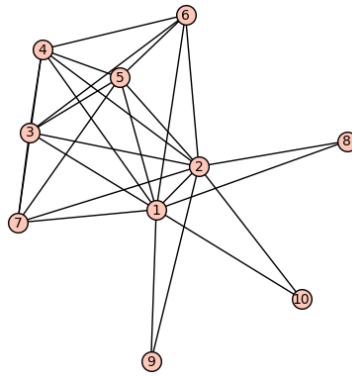
Graphlopedia ID: G000030

Title: threshold graph 2

Degree Sequence: [9, 9, 6, 6, 6, 5, 5, 2, 2, 2]

Vertices: 10

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [1, 7], [1, 8], [1, 9], [1, 10], [2, 3], [2, 4], [2, 5], [2, 6], [2, 7], [2, 8], [2, 9], [2, 10], [3, 4], [3, 5], [3, 6], [3, 7], [4, 5], [4, 6], [4, 7], [5, 6], [5, 7]]



Comments:

1. threshold graph with binary string 0011100011,

References:

1. A. Banerjee1, R. Mehatari. On the normalized spectrum of threshold graphs, Indian Institute of Science Education and Research Kolkata, 2016.,

Author(s): Aaron Bode.

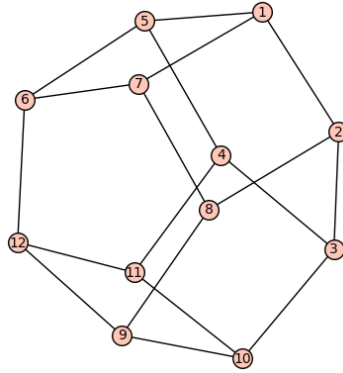
Graphlopedia ID: G000031

Title: Plabic Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 12

Edges: [[1, 2], [1, 5], [1, 7], [2, 3], [2, 8], [3, 4], [3, 10], [4, 5], [4, 11], [5, 6], [6, 7], [6, 12], [7, 8], [8, 9], [9, 10], [9, 12], [10, 11], [11, 12]]



Comments:

1. plabic,
2. nonplanar,
3. undirected,

Links:

1. <https://arxiv.org/pdf/1106.0023.pdf>,

References:

1. Y. Kodoma, L. Williams. KP Solutions and Total Positivity for the Grassmannian, 2014.,

Author(s): Katrina Warner.

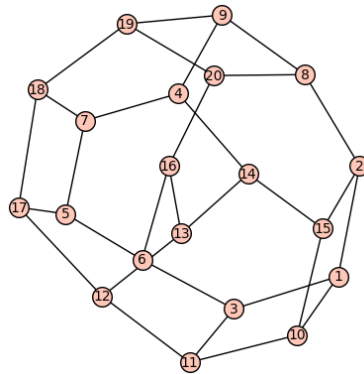
Graphlopedia ID: G000032

Title: Figure 8

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 20

Edges: [[1, 2], [1, 3], [1, 10], [2, 8], [2, 15], [3, 6], [3, 11], [4, 7], [4, 9], [4, 14], [5, 6], [5, 7], [5, 17], [6, 16], [7, 18], [8, 9], [8, 20], [9, 19], [10, 11], [10, 15], [11, 12], [12, 13], [12, 17], [13, 14], [13, 16], [14, 15], [16, 20], [17, 18], [18, 19], [19, 20]]



Comments:

1. soliton,
2. plabic,

Links:

1. <https://arxiv.org/pdf/1106.0023.pdf>,

References:

1. Y. Kodoma, L. Williams. KP Solutions and Total Positivity for the Grassmannian, 2014.,

Author(s): Katrina Warner.

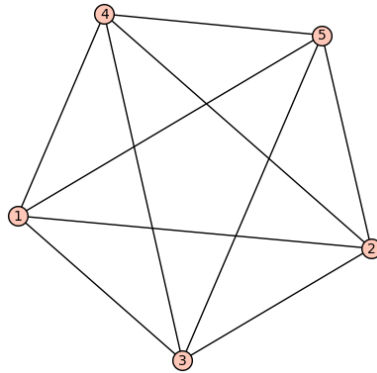
Graphlopedia ID: G000033

Title: Figure 5

Degree Sequence: [4, 4, 4, 4, 4]

Vertices: 5

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 4], [2, 5], [3, 4], [3, 5], [4, 5]]



Links:

1. <https://arxiv.org/pdf/1106.0023.pdf>,

References:

1. M. Han. Cosmological Constant in LQG Vertex Amplitude, 2011.,

Author(s): Katrina Warner.

Graphlopedia ID: G000034

Title: 6-cycle

Degree Sequence: [2, 2, 2, 2, 2, 2]

Vertices: 6

Edges: [[1, 2], [1, 6], [2, 3], [3, 4], [4, 5], [5, 6]]

Links:

1. https://en.wikipedia.org/wiki/Cycle_graph,

Author(s): Sara Billey.

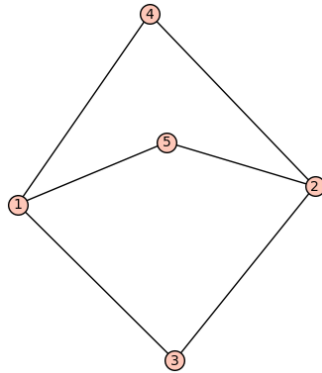
Graphlopedia ID: G000035

Title: Complete Bipartite Graph $K_{2,3}$

Degree Sequence: [3, 3, 2, 2, 2]

Vertices: 5

Edges: [[1, 3], [1, 4], [1, 5], [2, 3], [2, 4], [2, 5]]



Comments:

1. The class of outerplanar graphs is closed under minor taking: its obstruction set consists of the graphs $K_{2,3}$ and K_4 .

References:

1. H.L. Bodlaender. A partial k-arboretum of graphs with bounded treewidth, Theoretical Computer Science 209. (1998). Page. 34,
2. M.M. Syslo, Characterisations of outerplanar graphs, Discrete Math. 26 (1979) 47-53.,

Author(s): Katrina Warner.

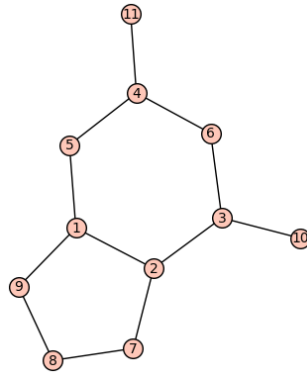
Graphlopedia ID: G000036

Title: Guanine Structure

Degree Sequence: [3, 3, 3, 3, 2, 2, 2, 2, 2, 1, 1]

Vertices: 11

Edges: [[1, 2], [1, 5], [1, 9], [2, 3], [2, 7], [3, 6], [3, 10], [4, 5], [4, 6], [4, 11], [7, 8], [8, 9]]



Links:

1. <https://arxiv.org/pdf/cs/0703132.pdf>,

References:

1. L. Peshkin. Center for Biomedical Informatics, Harvard Medical School. "Structure Induction by Lossless Graph Compression" (2007).,

Author(s): Katrina Warner.

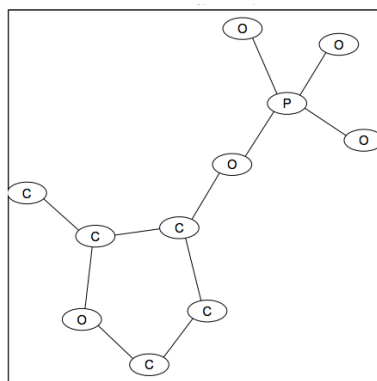
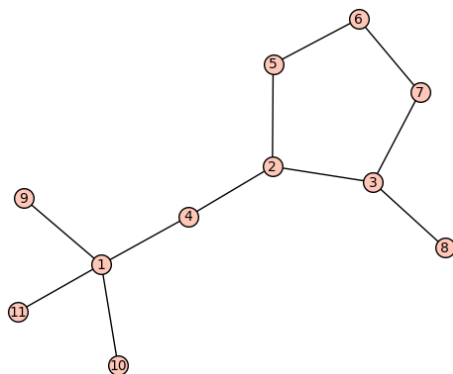
Graphlopedia ID: G000037

Title: Sugar

Degree Sequence: [4, 3, 3, 2, 2, 2, 2, 1, 1, 1, 1]

Vertices: 11

Edges: [[1, 4], [1, 9], [1, 10], [1, 11], [2, 3], [2, 4], [2, 5], [3, 7], [3, 8], [5, 6], [6, 7]]



Comments:

1. The compound object induced by the Graphitour algorithm, which corresponds to the backbone of the molecule: phosphate and sugar.,
2. Error in GRAPH: G000037 degree seq [4, 3, 3, 2, 2, 2, 2, 1, 1, 1, 1] should be [4, 3, 3, 2, 1, 0, 1, 1, 1, 1, 1] [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11] [[1, 4], [1, 9], [1, 10], [1, 11], [2, 3], [2, 4], [2, 5], [3, 7], [3, 8]],

Links:

1. <https://arxiv.org/pdf/cs/0703132.pdf>,

References:

1. L. Peshkin. Structure Induction by Lossless Graph Compression, (2007).,

Author(s): Katrina Warner.

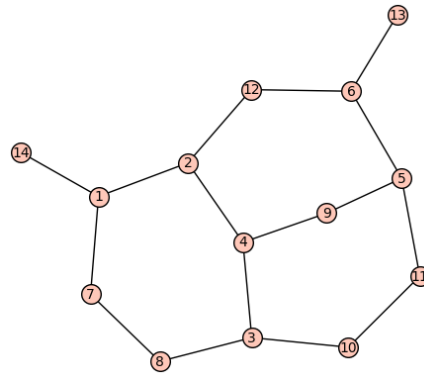
Graphlopedia ID: G000038

Title: Original Factor Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 2, 2, 2, 2, 2, 2, 1, 1]

Vertices: 14

Edges: [[1, 2], [1, 7], [1, 14], [2, 4], [2, 12], [3, 4], [3, 8], [3, 10], [4, 9], [5, 6], [5, 9], [5, 11], [6, 12], [6, 13], [7, 8], [10, 11]]



Links:

1. <https://arxiv.org/pdf/cs/0612030.pdf>,

References:

1. J. Mooji, B. Kappen. "Loop Corrections for Approximate Inference" (2006),

Author(s): Katrina Warner.

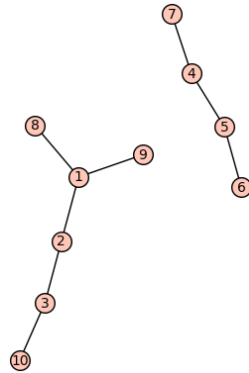
Graphlopedia ID: G000039

Title: Cavity Graph of i

Degree Sequence: [3, 2, 2, 2, 2, 1, 1, 1, 1, 1]

Vertices: 10

Edges: [[1, 2], [1, 8], [1, 9], [2, 3], [3, 10], [4, 5], [4, 7], [5, 6]]



Links:

1. <https://arxiv.org/pdf/cs/0612030.pdf>,

References:

1. J. Mooji, B. Kappen. "Loop Corrections for Approximate Inference" (2006),

Author(s): Katrina Warner.

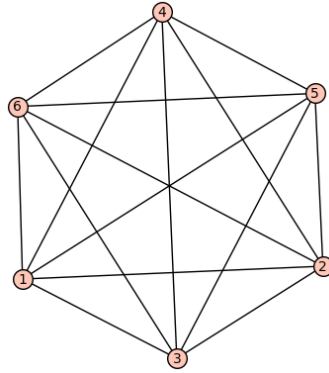
Graphlopedia ID: G000040

Title: Fig.1

Degree Sequence: [5, 5, 5, 5, 5, 5]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [2, 3], [2, 4], [2, 5], [2, 6], [3, 4], [3, 5], [3, 6], [4, 5], [4, 6], [5, 6]]



Links:

1. <https://arxiv.org/pdf/hep-th/0611042.pdf>,

References:

1. A. Baratin, L. Friedel. Perimeter Institute for Theoretical Physics. "Hidden Quantum Gravity in 4d Feynman Diagrams" (2007),

Author(s): Katrina Warner.

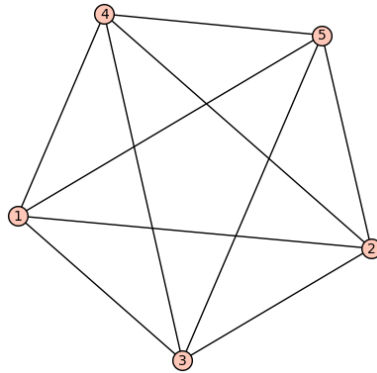
Graphlopedia ID: G000041

Title: K5 Graph

Degree Sequence: [4, 4, 4, 4, 4]

Vertices: 5

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 4], [2, 5], [3, 4], [3, 5], [4, 5]]



Links:

1. <https://arxiv.org/pdf/hep-th/0611042.pdf>,

References:

1. A. Baratin, L. Friedel. Perimeter Institute for Theoretical Physics. "Hidden Quantum Gravity in 4d Feynman Diagrams" (2007),

Author(s): Katrina Warner.

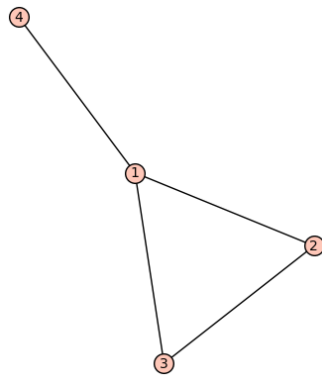
Graphlopedia ID: G000042

Title: Figure 1

Degree Sequence: [3, 2, 2, 1]

Vertices: 4

Edges: [[1, 2], [1, 3], [1, 4], [2, 3]]



Links:

1. <https://arxiv.org/pdf/1304.0478.pdf>,

References:

1. Z. Cinkir. "Explicit Computation of Certain Arakelov-Green Functions" (2013),.

Author(s): Katrina Warner.

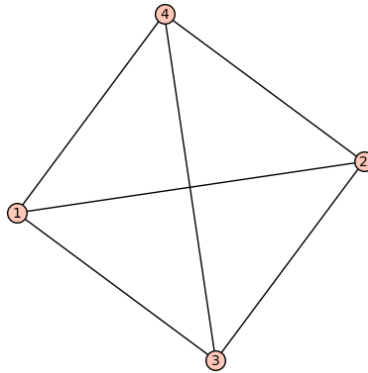
Graphlopedia ID: G000043

Title: Tetrahedral Graph

Degree Sequence: [3, 3, 3, 3]

Vertices: 4

Edges: [[1, 2], [1, 3], [1, 4], [2, 3], [2, 4], [3, 4]]



Links:

1. <https://arxiv.org/pdf/1304.0478.pdf>,

References:

1. Z. Cinkir. "Explicit Computation of Certain Arakelov-Green Functions" (2013),.

Author(s): Katrina Warner.

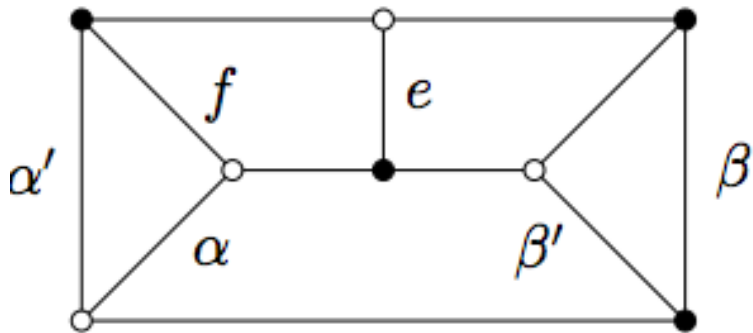
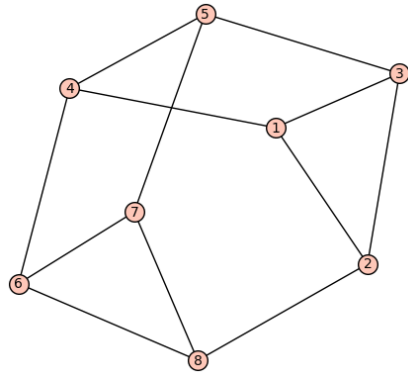
Graphlopedia ID: G000044

Title: The staircase of order eight, St8

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 8

Edges: [[1, 2], [1, 3], [1, 4], [2, 3], [2, 8], [3, 5], [4, 5], [4, 6], [5, 7], [6, 7], [6, 8], [7, 8]]



Links:

1. <https://arxiv.org/pdf/1611.07899.pdf>,

References:

1. N. Kothari. "Generating Near-Bipartite Bricks" arXiv (2016). Page 4.,

Author(s): Katrina Warner.

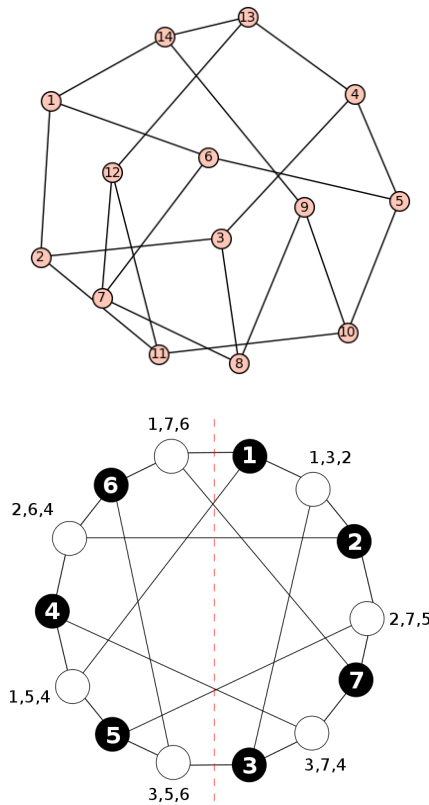
Graphlopedia ID: G000045

Title: Fano Graph

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 6], [1, 14], [2, 3], [2, 11], [3, 4], [3, 8], [4, 5], [4, 13], [5, 6], [5, 10], [6, 7], [7, 8], [7, 12], [8, 9], [9, 10], [9, 14], [10, 11], [11, 12], [12, 13], [13, 14]]



Comments:

1. The Fano graph is formed as the Levi graph of the Fano plane.,

Links:

1. https://commons.wikimedia.org/wiki/File:Fano_plane-Levi_graph.svg,
2. https://en.wikipedia.org/wiki/Levi_graph,
3. https://en.wikipedia.org/wiki/Fano_plane,

References:

1. Coxeter, H. S. M. Self-Dual Configurations and Regular Graphs. Bull. Amer. Math. Soc. 56, 413-455, 1950. Page 424.,

Author(s): Sara Billey.

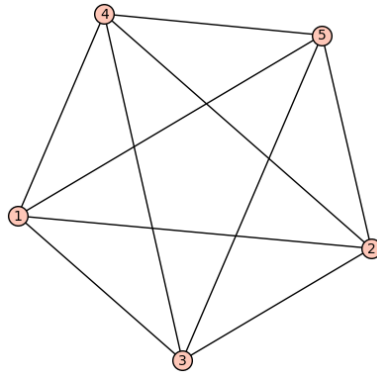
Graphlopedia ID: G000046

Title: Complete Bipartite K_5

Degree Sequence: [4, 4, 4, 4, 4]

Vertices: 5

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [2, 3], [2, 4], [2, 5], [3, 4], [3, 5], [4, 5]]



Comments:

1. Nonplanar,

Links:

1. https://en.wikipedia.org/wiki/Planar_graph,

Author(s): Aaron Bode.

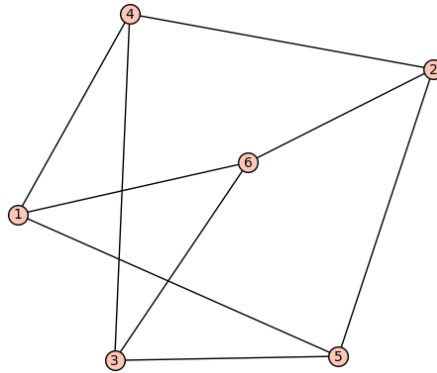
Graphlopedia ID: G000047

Title: Complete Bipartite $K_{3,3}$

Degree Sequence: [3, 3, 3, 3, 3, 3]

Vertices: 6

Edges: [[1, 4], [1, 5], [1, 6], [2, 4], [2, 5], [2, 6], [3, 4], [3, 5], [3, 6]]



Comments:

1. Nonplanar,

Links:

1. https://en.wikipedia.org/wiki/Planar_graph,
2. <http://mathworld.wolfram.com/NonplanarGraph.html>,

Author(s): Aaron Bode.

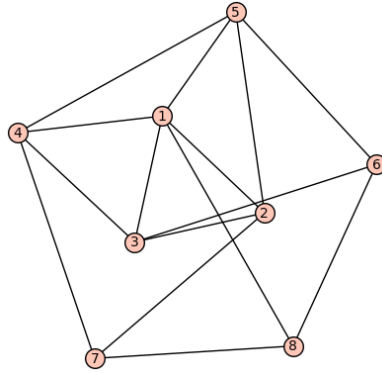
Graphlopedia ID: G000048

Title: Petersen Graph 1

Degree Sequence: [5, 4, 4, 4, 4, 3, 3, 3]

Vertices: 8

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 8], [2, 3], [2, 5], [2, 7], [3, 4], [3, 6], [4, 5], [4, 7], [5, 6], [6, 8], [7, 8]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

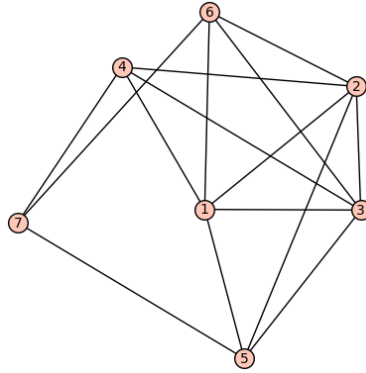
Graphlopedia ID: G000049

Title: Petersen Graph 2

Degree Sequence: [5, 5, 5, 4, 4, 4, 3]

Vertices: 7

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [2, 3], [2, 4], [2, 5], [2, 6], [3, 4], [3, 5], [3, 6], [4, 7], [5, 7], [6, 7]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

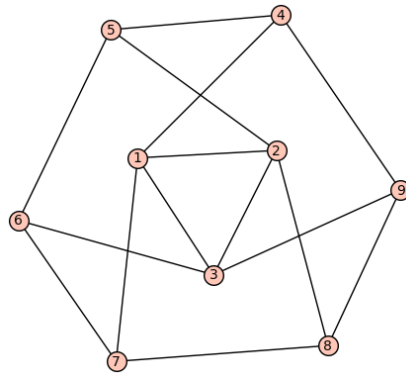
Graphlopedia ID: G000050

Title: Petersen Graph 3

Degree Sequence: [4, 4, 4, 3, 3, 3, 3, 3, 3]

Vertices: 9

Edges: [[1, 2], [1, 3], [1, 4], [1, 7], [2, 3], [2, 5], [2, 8], [3, 6], [3, 9], [4, 5], [4, 9], [5, 6], [6, 7], [7, 8], [8, 9]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

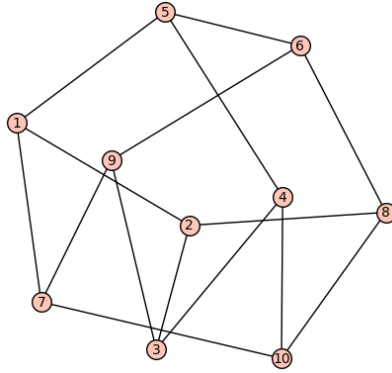
Graphlopedia ID: G000051

Title: Petersen Graph 4

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 10

Edges: [[1, 2], [1, 5], [1, 7], [2, 3], [2, 8], [3, 4], [3, 9], [4, 5], [4, 10], [5, 6], [6, 8], [6, 9], [7, 9], [7, 10], [8, 10]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

References:

1. Y. Zhao, Extremal regular graphs: independent sets and graph homomorphisms, 2016.,

Author(s): Aaron Bode.

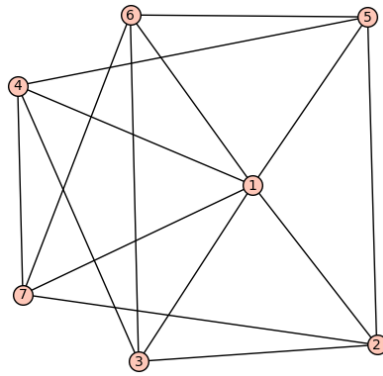
Graphlopedia ID: G000052

Title: Petersen Graph 5

Degree Sequence: [6, 4, 4, 4, 4, 4, 4]

Vertices: 7

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [1, 7], [2, 3], [2, 5], [2, 7], [3, 4], [3, 6], [4, 5], [4, 7], [5, 6], [6, 7]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

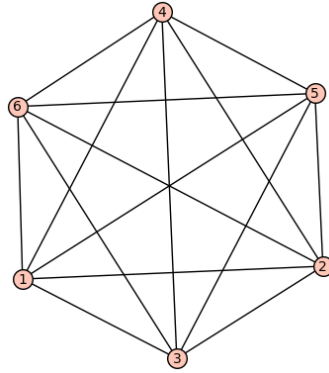
Graphlopedia ID: G000053

Title: Petersen Graph 6

Degree Sequence: [5, 5, 5, 5, 5, 5]

Vertices: 6

Edges: [[1, 2], [1, 3], [1, 4], [1, 5], [1, 6], [2, 3], [2, 4], [2, 5], [2, 6], [3, 4], [3, 5], [3, 6], [4, 5], [4, 6], [5, 6]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

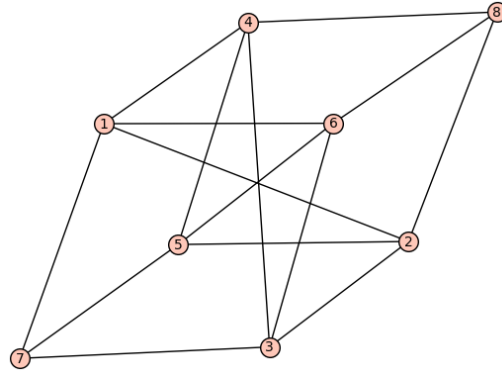
Graphlopedia ID: G000054

Title: Petersen Graph 7

Degree Sequence: [4, 4, 4, 4, 4, 4, 3, 3]

Vertices: 8

Edges: [[1, 2], [1, 4], [1, 6], [1, 7], [2, 3], [2, 5], [2, 8], [3, 4], [3, 6], [3, 7], [4, 5], [4, 8], [5, 6], [5, 7], [6, 8]]



Comments:

1. Petersen graph,

Links:

1. https://en.wikipedia.org/wiki/Petersen_family,

Author(s): Aaron Bode.

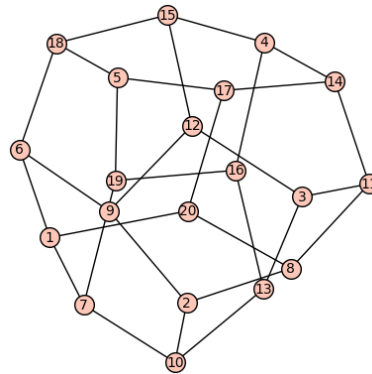
Graphlopedia ID: G000055

Title: Starfish

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 20

Edges: [[1, 6], [1, 7], [1, 20], [2, 8], [2, 9], [2, 10], [3, 11], [3, 12], [3, 13], [4, 14], [4, 15], [4, 16], [5, 17], [5, 18], [5, 19], [6, 9], [6, 18], [7, 10], [7, 19], [8, 11], [8, 20], [9, 12], [10, 13], [11, 14], [12, 15], [13, 16], [14, 17], [15, 18], [16, 19], [17, 20]]



Comments:

1. Let G be theta-connected, and not contain Petersen. If G contains Starfish then G is isomorphic to Starfish.,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995.,

Author(s): Aaron Bode.

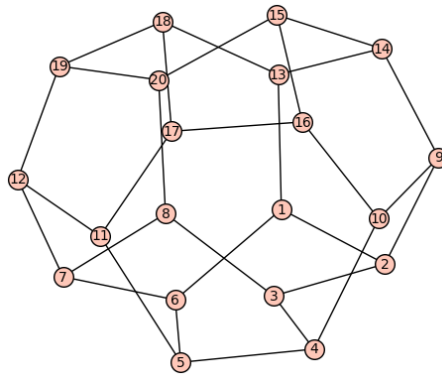
Graphlopedia ID: G000056

Title: Jaws

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 20

Edges: [[1, 2], [1, 6], [1, 13], [2, 3], [2, 9], [3, 4], [3, 8], [4, 5], [4, 10], [5, 6], [5, 11], [6, 7], [7, 8], [7, 12], [8, 20], [9, 10], [9, 14], [10, 16], [11, 12], [11, 17], [12, 19], [13, 14], [13, 18], [14, 15], [15, 16], [15, 20], [16, 17], [17, 18], [18, 19], [19, 20]]



Comments:

1. Let G be theta-connected, and not contain Petersen. If G contains Jaws then G is doublecross.,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995.,

Author(s): Aaron Bode.

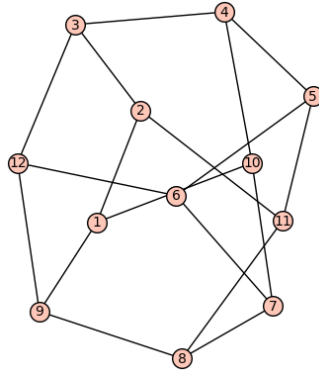
Graphlopedia ID: G000057

Title: Triplex

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 12

Edges: [[1, 2], [1, 9], [1, 10], [2, 3], [2, 11], [3, 4], [3, 12], [4, 5], [4, 10], [5, 6], [5, 11], [6, 7], [6, 12], [7, 8], [7, 10], [8, 9], [8, 11], [9, 12]]



Comments:

1. Petersen, Triplex and Box are the only graphs minimal with the property of being dodecahedrally-connected and having crossing number > 1 .

Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995.,

Author(s): Aaron Bode.

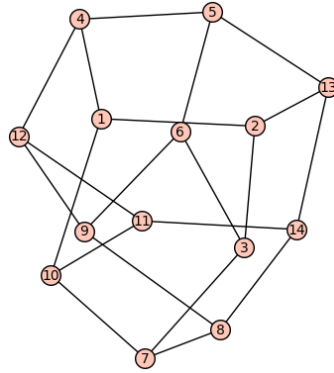
Graphlopedia ID: G000058

Title: Box

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 4], [1, 10], [2, 3], [2, 13], [3, 6], [3, 7], [4, 5], [4, 12], [5, 6], [5, 13], [6, 9], [7, 8], [7, 10], [8, 9], [8, 14], [9, 12], [10, 11], [11, 12], [11, 14], [13, 14]]



Comments:

1. Petersen, Triplex and Box are the only graphs minimal with the property of being dodecahedrally-connected and having crossing number > 1 .,

Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995.,

Author(s): Aaron Bode.

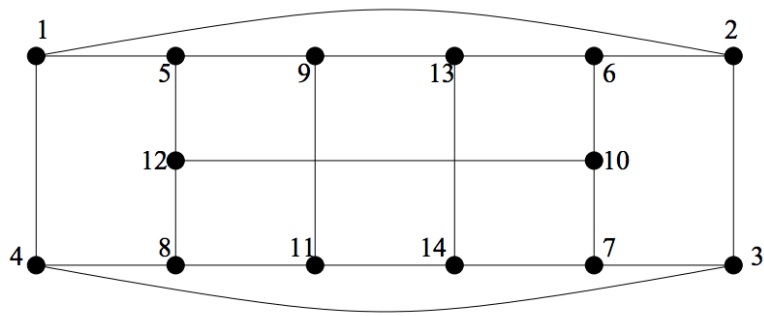
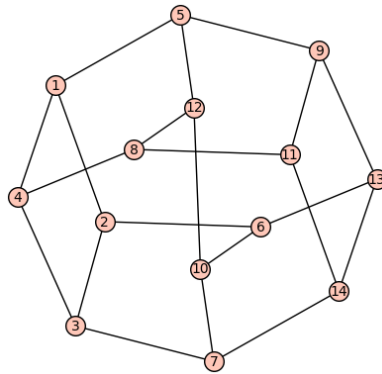
Graphlopedia ID: G000059

Title: Antibox

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 4], [1, 5], [2, 3], [2, 6], [3, 4], [3, 7], [4, 8], [5, 9], [5, 12], [6, 10], [6, 13], [7, 10], [7, 14], [8, 11], [8, 12], [9, 11], [9, 13], [10, 12], [11, 14], [13, 14]]



Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995. Page 36.,

Author(s): Aaron Bode.

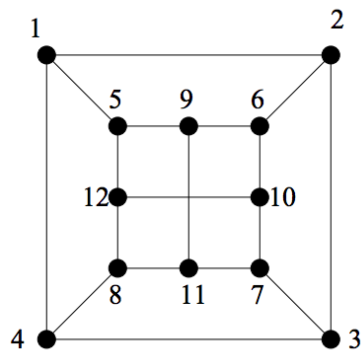
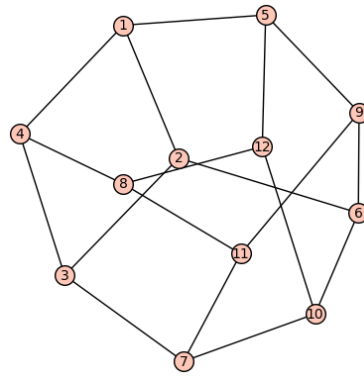
Graphlopedia ID: G000060

Title: Window

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 12

Edges: [[1, 2], [1, 4], [1, 5], [2, 3], [2, 6], [3, 4], [3, 7], [4, 8], [5, 9], [5, 12], [6, 9], [6, 10], [7, 10], [7, 11], [8, 11], [8, 12], [9, 11], [10, 12]]



Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995. Page 36.,

Author(s): Aaron Bode.

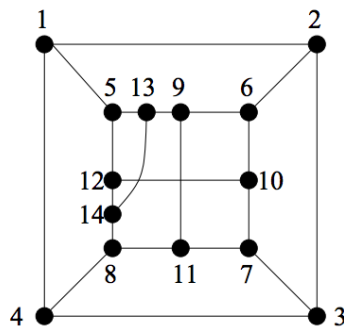
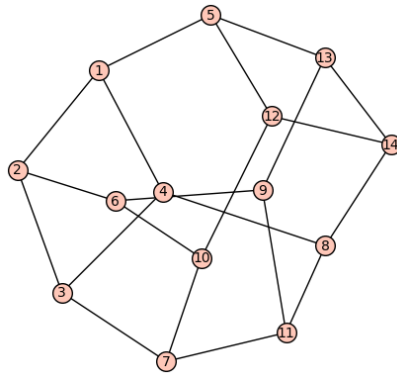
Graphlopedia ID: G000061

Title: Drape

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 4], [1, 5], [2, 3], [2, 6], [3, 4], [3, 7], [4, 8], [5, 12], [5, 13], [6, 9], [6, 10], [7, 10], [7, 11], [8, 11], [8, 14], [9, 11], [9, 13], [10, 12], [12, 14], [13, 14]]



Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995. Page 36.,

Author(s): Aaron Bode.

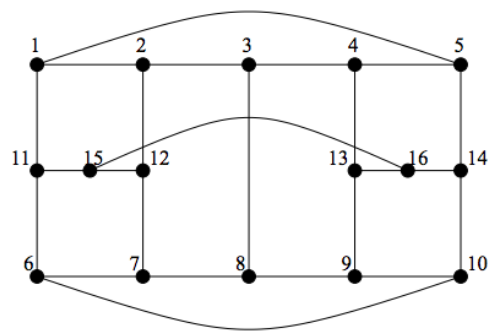
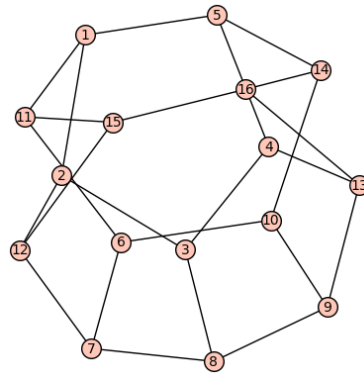
Graphlopedia ID: G000062

Title: Superbox

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 16

Edges: [[1, 2], [1, 5], [1, 11], [2, 3], [2, 12], [3, 4], [3, 8], [4, 5], [4, 13], [5, 14], [6, 7], [6, 10], [6, 11], [7, 8], [7, 12], [8, 9], [9, 10], [9, 13], [10, 14], [11, 15], [12, 15], [13, 16], [14, 16], [15, 16]]



Comments:

1. Related to Box, G000058,

Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995. Page 39.,

Author(s): Aaron Bode.

Graphlopedia ID: G000063

Title: Drum

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 14

Edges: [[1, 2], [1, 3], [1, 4], [2, 5], [2, 6], [3, 7], [3, 11], [4, 8], [4, 12], [5, 9], [5, 11], [6, 10], [6, 12], [7, 8], [7, 14], [8, 13], [9, 10], [9, 14], [10, 13], [11, 13], [12, 14]]

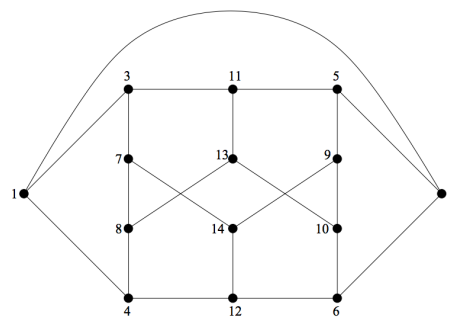
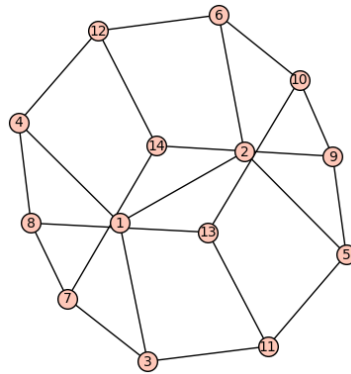


Figure 10: Drum.

Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995. Page 41.,

Author(s): Aaron Bode.

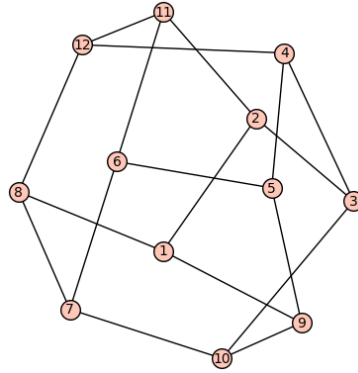
Graphlopedia ID: G000064

Title: Twinplex

Degree Sequence: [3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]

Vertices: 12

Edges: [[1, 2], [1, 8], [1, 9], [2, 3], [2, 11], [3, 4], [3, 10], [4, 5], [4, 12], [5, 6], [5, 9], [6, 7], [6, 11], [7, 8], [7, 10], [8, 12], [9, 10], [11, 12]]



Links:

1. <https://arxiv.org/pdf/1403.2118.pdf>,

References:

1. N. Robertson, P. Seymour, R. Thomas, Excluded Minors in Cubic Graphs, 1995.,

Author(s): Aaron Bode.