

# Hinged dissection of a “rhombic” solid to truncated icosidodecahedron

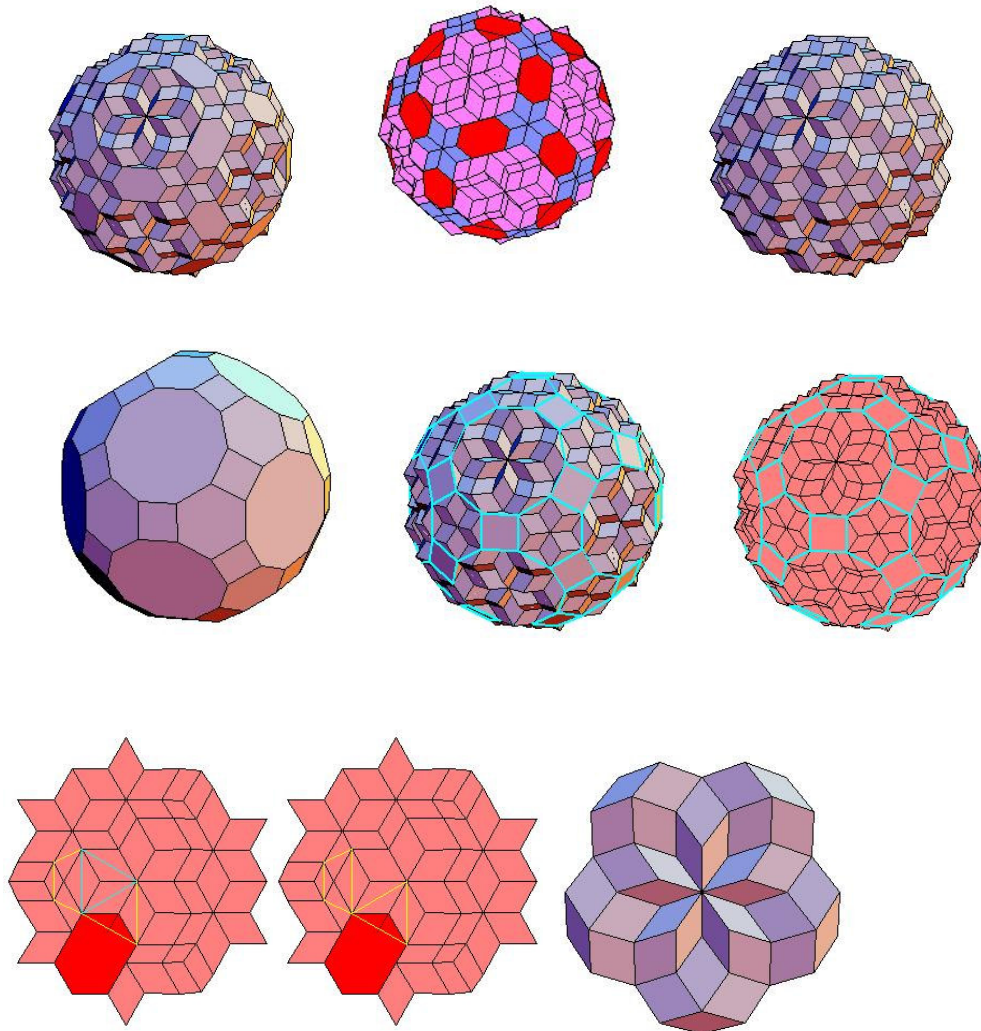
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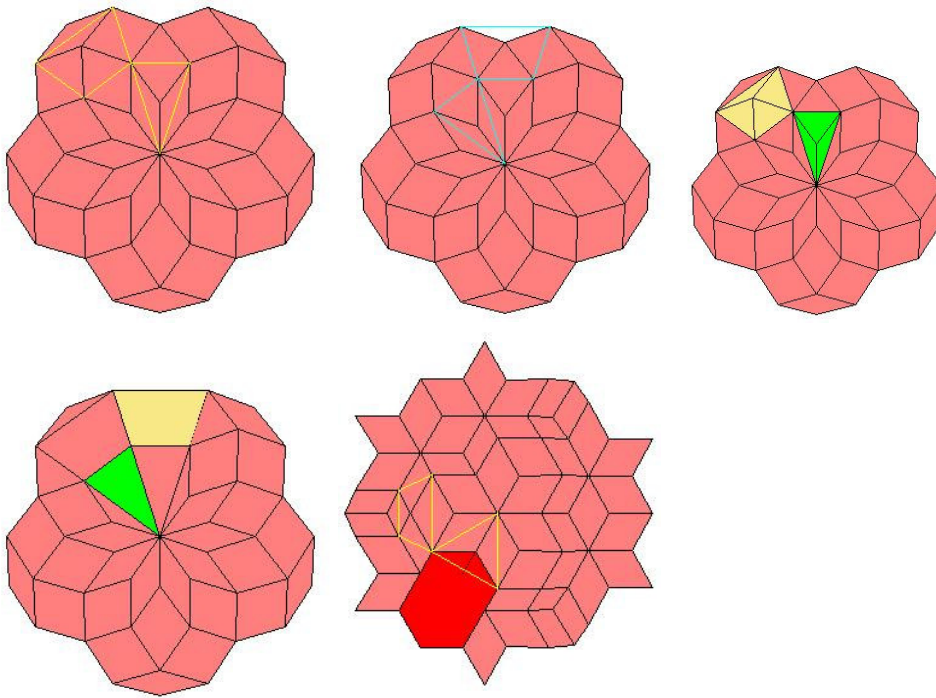
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The results from [1] show that it is possible to dissect a truncated icosidodecahedron to a cube. We show that there is a hinged dissection [2] of a “rhombic” solid to truncated icosidodecahedron. The “rhombic” solid is obtained by addition of 30 halves of rhombic dodecahedron of the second kind to a rhombic 690-hedron. Since rhombic solids consists of prolate and oblate rhombohedra and a half of rhombic dodecahedron consists of two halves of both rhombohedra [3,4], the “rhombic” solid can be dissected to a cube.





Note also that a half of double rhombic icosahedron consists of one rhombic icosahedron, five rhombic dodecahedra of the second kind, five oblate and five prolate rhombohedra. So the above construction around pentad axes provides a hinged dissection of rhombic icosahedron.

#### References

- [1] J. H. Conway, C. Radin, and L. Sadun, On angles whose squared trigonometric functions are rational, *Discrete & Computational Geometry*, 22 (1999), pages 321-332.
- [2] G. N. Frederickson, *Dissections: Plane & Fancy*, Cambridge U. Press, 1997,
- [3] I. Hafner, T. Zitko, A dissection of two rhombic dodecahedra of the 2. kind to a cube
- [4] I. Hafner, T. Zitko, A dissection of quarter of rhombic dodecahedron of the second kind to a cube