Polytope

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1 Introduction

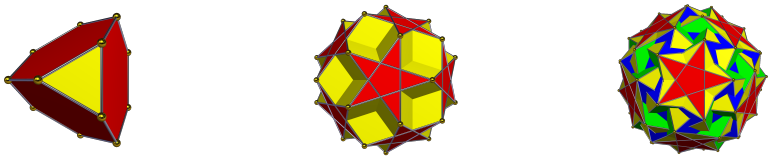
Welcome to the Polytope Discord! Here we discuss Polytopes, which is a general term that encompasses polygons (2D), polyhedra (3D), polychora (4D), and so on for any dimension.

2 Regular polytopes

There are multiple definitions for when a polytope is *regular*, but they all require every element (vertices, edges, faces, etc.) to "look the same."

3 Uniform polytopes

Intuitively, a polytope is *uniform* when all of its facets are regular and all of its vertices "look the same." To see what we mean, let's look at a few examples.

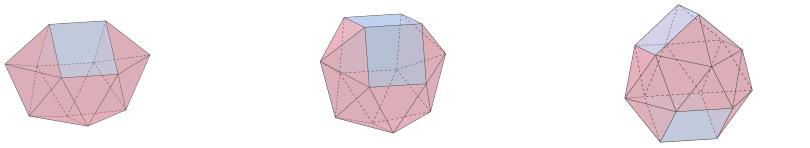


(a) Truncated tetrahedron (b) Dodecadodecahedron (c) Snub icosidodecahedron

Figure 1: Three examples of uniform polytopes.

4 CRF polytopes

A polytope is called *convex regular-faced*, or *CRF* for short, when it is convex (without dents, holes or self-intersections) and all of its faces are regular. Let's look at a few examples.



(a) Sphenomegacorona (b) Hebesphenomegacorona (c) Disphenocingulum

Figure 2: Test images!