

How Five Regular Solids Turned into Seventy-five

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Abstract

A cook's tour of the Uniform Polyhedra, from a synthetic point of view (a la Coxeter). High points include: a quick, elegant synthetic proof of Euler's Theorem on rigid rotations of the sphere; self-congruences of polyhedra; the Kepler-Poinsot solids (introduced via stellation); definition, taxonomy, and examples of Uniform Polyhedra (using faceting); and a quick look at Skilling's completeness proof for the Uniform Polyhedra. Lots of pictures! Much of the material is suitable for a non-advanced audience. After all, you don't have to be a zoologist to enjoy a zoo. I'll also bring along some examples of models I have built of the UP.

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