

Re: Polyhedra with congruent faces

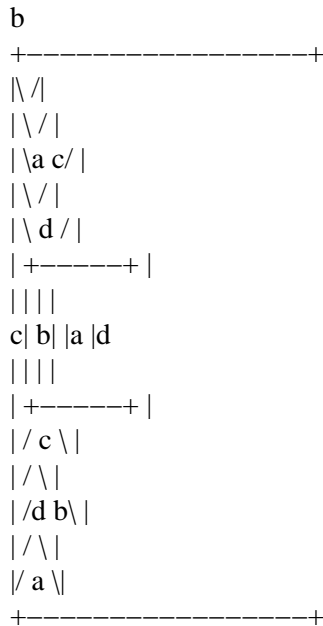
Source: <http://sci.tech--archive.net/Archive/sci.math/2007-05/msg00633.html>

- *From:* matt271829-news@xxxxxxxxxxxx
 - *Date:* 4 May 2007 16:43:04 -0700
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On May 2, 1:29 pm, Thomas Mautsch <maut...@xxxxxxx> wrote:

[snip]

I posted a (somehow) similar problem a year ago under the title "The Impossible Hexahedron" <news:443af7f3@xxxxxxxxxxxx> -- to find a (convex) polyhedron combinatorially equivalent to the cube such that all six faces have side lengths a,b,c,d (in changing orders):



The only examples I received (from Dave Rusin in <[news:e1kia4\\$eln\\$1@xxxxxxxxxxxxxxxxxxxx](mailto:news:e1kia4eln1@xxxxxxxxxxxxxxxxxxxx)>) were weird-looking ones with non-convex faces and intersecting edges.

Try this one:

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<http://img514.imageshack.us/img514/3264/impossiblehexahedrondy8.gif>

This was calculated numerically, so I don't have exact analytic expressions for the lengths and angles. I've only shown numerically that it comes right to about 14 d.p. (unless I goofed of course, which has been known!).