Subject: Mathematical shapes and forms.
Posted by virtox on Sun, 02 Oct 2011 11:43:06 GMT
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There are many beautiful, simple and complex, mathematical shapes which lend themselves for 3d printing, so I thought it nice to have an open topic to post and discuss variations.

Inspired by the Klein (Eight) discussion, that seems like a good start:

As mentioned in the other topic, for now I only have the basic version of the Klein Eight but am hoping to find something more interesting hidden in it.

http://www.shapeways.com/model/337239/klein_eight.html?gid=s g4834

Subject: Re: Mathematical shapes and forms.
Posted by stop4stuff on Sun, 02 Oct 2011 11:55:59 GMT
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Here's a few variations from Kelin 8 to inspired models based on the shape.

Figure 8 Klein Mobius
Figure 8 Klein Mobius 12mm
Double Flat Oval Mobius
Triangluar Figure 8 Klein
Hourglass Figure 8 Klein Mobius
Hourglass - Double Mobius
Hourglass - Double Mobius - Small
Spiralling Figure 8 With 360 Degree Twist

And now for the big surprise... I used no equations or complicated maths to create the models.

Subject: Re: Mathematical shapes and forms.
Posted by henryseg on Sun, 02 Oct 2011 11:58:13 GMT

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Carlo SÃ©quin's paper and art from the 2011 Bridges conference looks very relevant:

http://www.cs.berkeley.edu/~sequin/PAPERS/2011_Bridges_ToriS tori.pdf

http://gallery.bridgesmathart.org/exhibitions/2011-bridges-c onference/sequin

Subject: Re: Mathematical shapes and forms.
Posted by virtox on Sun, 02 Oct 2011 12:00:52 GMT
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The fun thing I find about these shapes is, you hardly need math, imagination is usually enough. (hmm Imathination anyone?)

While I like to challenge myself and do them mathematically, the formula used in the end basically comes down to:
A figure eight going round a circle and doing a 180

@henryseg, thanks, very insightful, there goes my lazy sunday afternoon

Woah! The actual double Klein bottle in that paper DOES rock my boat