KISS surface

1 Abstract

The kiss surface is the quintic surface of revolution given by the equation

$$x^2 + y^2 = 2(1 - z)z^4$$

that is closely related to the ding-dong surface. It is so named because the shape of the lower portion resembles that of a Hershey's Chocolate Kiss. (MathWorld)

2 Definition

It can be represented parametrically as

$$\begin{aligned} x(u, v) &= av^2\sqrt{(1 - v)/2}\cos u \\ y(u, v) &= av^2\sqrt{(1 - v)/2}\sin u \\ z(u, v) &= av, \end{aligned}$$

where a is a constant.

References

[1] MathWorld bt Wolfram, `http://mathworld.wolfram.com/KissSurface.html`

[2] Concise Encyclopedia of Mathematics by Eric W. Weisstein, `https://archive.lib.msu.edu/crcmath/math/math/k/k079.htm`