Hyperbolic paraboloid slice form

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A hyperbolic paraboloid is a certain surface, which is curved, but made up of straight lines, and has a saddle point.

One example of the hyperbolic paraboloid is a surface given an equation

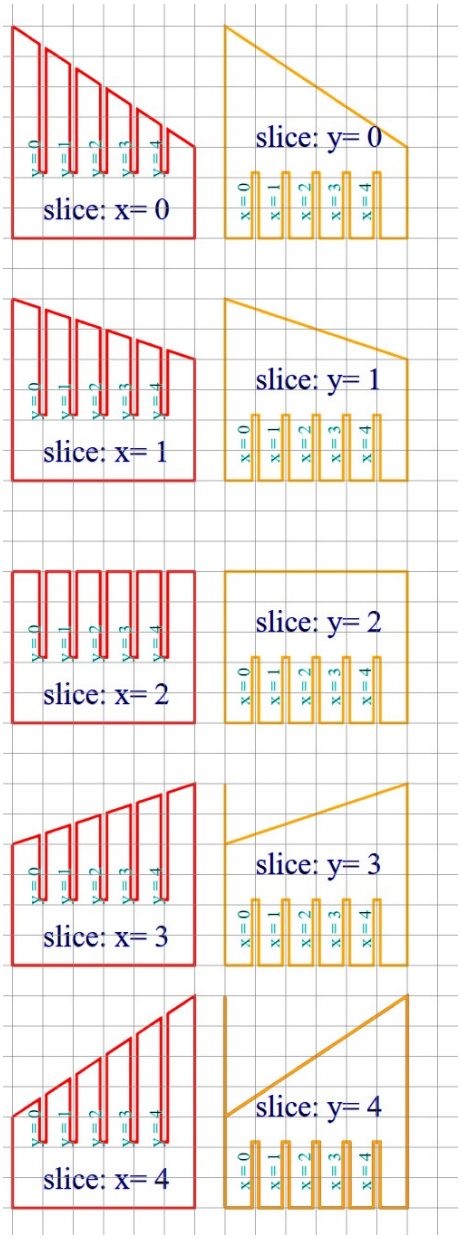
$$z = xy.$$

The point at $(0, 0, 0)$ is a "saddle point" - the surface curves up *and* down at this point, depending on the direction you move through the point. A Pringle crisp has approximnately this shape.

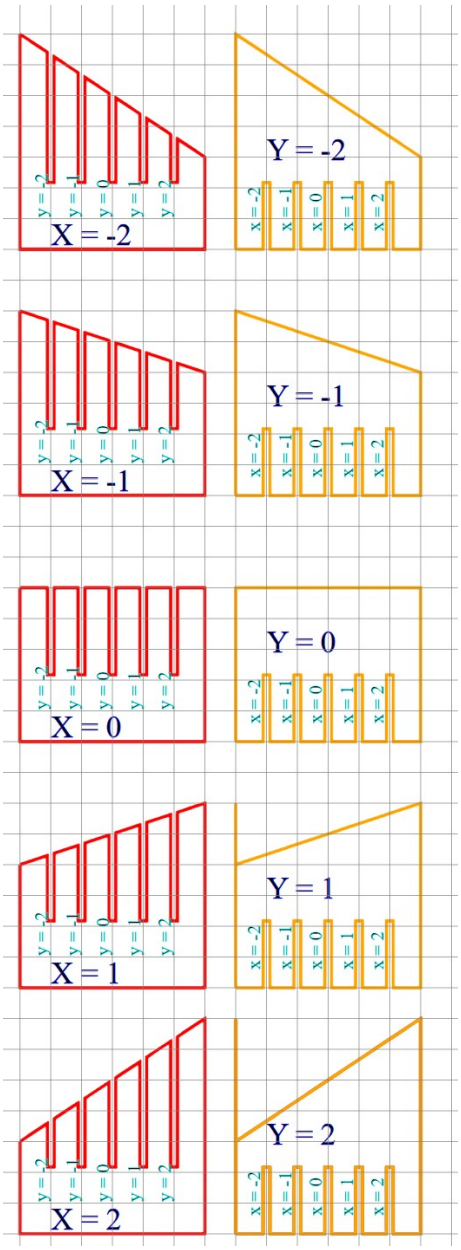
A **slice form** can be used to model surfaces which can be described by equations of the form $z = f(x, y)$, like the hyperbolic parabola.

INSTRUCTIONS

(1) Locate slices for x and y from 0 to 4, and arrange in order, as on right, for convenience.
(2) Take $y = 0$, and slot each of the $x = 0$ to $x = 4$ slices into the slots on this side, one by one. Use a little bit of **tape** near each slot, after each is slotted together, in order to hold in place (since this modle is quite small and fiddly, and otherwise falls apart easily).
(3) Once all the $x = 0, 1, 2, 3, 4$ slices are slotted into the $y = 0$ slice, slot each of the $y = 1, 2, 3, 4$ slices into these slices. For these, you don't need to use the tape (and probably would be very difficult to use it).



(Note: with the coordinates on this page, the equation is $z = (x - 2)(y - 2)$. Thus was used to avoid confusion of negative coordiates. See over for version for $z = xy$.)


y = -2
y = -1
y = 0
y = 1
y = 2
X = -2
x = -2
x = -1
x = 0
x = 1
x = 2
Y = -2
X = -1
Y = -1
X = 0
Y = 0
X = 1
Y = 1
X = 2
Y = 2