Math

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http://web.me.com/whitby

http://web.me.com/whitby/Octahedron/Welcome.html

Reference

Octahedron1stEd.pdf–bookmark MATH–pages 477-478

Introduction

This material is excerpted from *Octahedron*.

MATH

Geometry

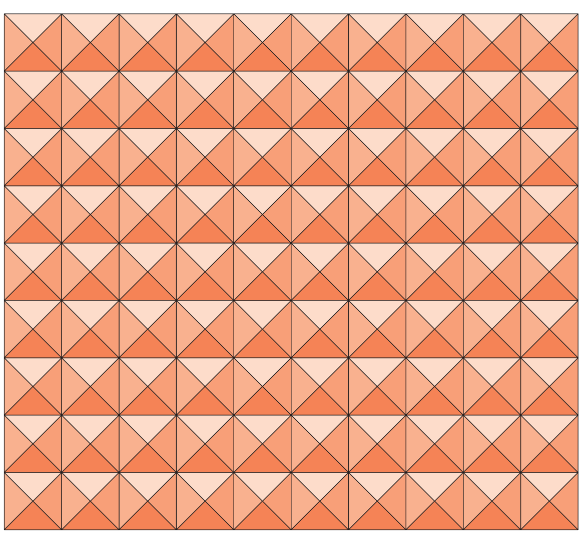
The geometry of a real plane

The mathematics of the plane has been based upon an imaginary continuous expanse. Upon the imaginary plane, imaginary lines can be constructed which are also continuous. And upon the line imaginary points can be placed. And between any two such imaginary points an infinite number of additional imaginary points might be imagined.

But, the discovery that each of the atomic elements is composed of identical particles, each of which is a regular octahedron whose edges are magnetic poles, reveals that any real plane is discontinuous. Real points are topological features of the particles which compose the plane. These real features define the real plane.

A plane of epns

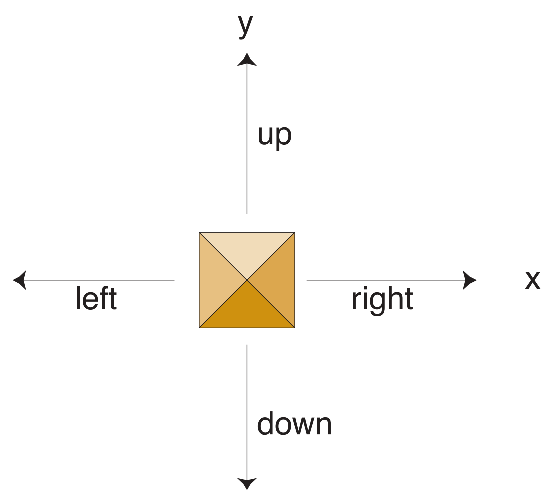
If a plane could be constructed so that the vertexes of epns defined the plane, and these vertexes were locatable, then these vertexes would constitute the points of a plane in which the distance between adjacent points is a minimum. Each of these points could have an address which would be two integers. The points would be numerable and discrete. Each of the coordinates of a point address could be an integral multiple of the edgial diameter of the epn. The coordinate axes would be mutually perpendicular.



Topology of a real plane.
A vertexial plane of identical regular octahedra

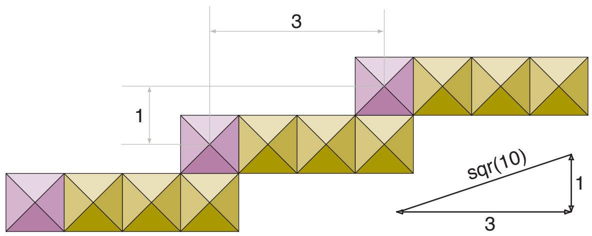
Edgially coordinated plane of points

A line on the octahedral plane is defined by a move or pair of moves by which one point on



the line is accessed from another: 3 *right*, 1 *up*. This could be *change in x* is 3 and *change in y* is one. Stated as a formula, $x = 3y$. The parts of the move are mutually perpendicular and the line portion between the points terminating the move is a hypotenuse. This has the value $h = \sqrt{x^2 + y^2}$ which is $\sqrt{10}$. This discrete distance is precisely and exactly the $\sqrt{10}$. This value cannot be found or located in either the x-direction or the y-direction, but on this line all points are separated by integral multiples of $\sqrt{10}$.

In its most perfectly precise definition as the topologically most defined location, the vertex of the octahedron of which all is composed, is discrete. It is not a continuum. It is the feature which defines the line. The line cannot be continuous. And, because of this, Richard Dedekind's effort to deal with irrational numbers is



The line $x = 3y$

invalid. The irrational numbers do not lie on the same line as the rational numbers.

Decimals require points

To express a number as a decimal requires points. Each digit requires ten points; two digits requires one hundred points and three requires a thousand. In such a system, the number 1.0000 is a length spanning ten thousand points. In an imaginary world, decimal points may be created at whim; but in the real world, for the points to be meaningful, they must be realizable upon the plane.

Pure number

<“A mathematician never defines magnitudes in themselves, as a philosopher would be tempted to do; he defines their equality, their sum and their product, and these definitions determine, or rather constitute all the mathematical properties of magnitudes”>[1]

To paraphrase, the mathematician chooses to deny his origins, to ignore the reality that produced the stuff of his thoughts, to undefine magnitude, and to proceed to define what might be done with magnitudes in a totally artificia1, and unrealizable conceptualization. From this blackhole of fantasy no truth escapes.

What is the square of sheep? Or the square root of sunrise? The notion of number without entity is absurd. It is equally absurd to apply arithmetical processes to numbers without regard for the entity that provides the meaning of the numbers.

Take a length. Suppose it is 2 inches. Now square that length. We would say that we now have 4 square inches. A unit now different. A recognition that our number has a new identity. But two inches and two square inches are the same pure number two. There is nothing to prevent the mathematical thinker from adding 2 inches and 2 square inches and 2 sheep and 2 sunrises and so arrive at the pure number conclusion that the number 8 says all that need be said.

Units of measure

If each edge of the epn is a magnetic pole, and the interaction of epn edges accounts for mass, then those equations make sense wherein each of the magnitudes are expressible either as lengths or as the ratio of lengths, and each of those lengths is expressible in terms of that one invariable length, the edge of the epn.

1. L. Couturat's definition of magnitudes from *De l’infini mathematique*, Paris, 1896, page 49 excerpted from Eric Temple Bell's *Men of Mathematics*, page 565