

Spaces and dimensions

Firstly there is a nothing. I mean only a point with no dimension. Nothing else. O.K. We have got 0-dimension space. After that we have a pure line. There is only one dimension – a length. We have got one-dimensional space. In this way we can go further.

E.g.:

The point has 0 dimension.

The line has only 1 dimension - the length.

The area has 2 dimensions – the length and the width.

The volume has 3 dimensions – the length, the width and the height.

The spacetime has 4 dimensions - the length, the width, the height and the time.

The n-dimensional space has n-dimensions – the d_1 , the d_2 , the d_3 , ... until the d_n .

What is the height of the area? Of course the height is equal to 0. What is the width of the line? Of course the width is equal to 0. What is the length (or size) of the point? Of course the size is equal to 0.

How many points does the line contain? Or rather, what is the size of the point to any line? The point size to any line is zero. Let's go on. How many lines does the area contain? We know, the line has only one dimension – length! Thickness is zero. So the size of the line relative to the area is zero. So is the size of the area relative to volume. And size n dimensional space relative to $n+1$ dimensional space is zero. The n-dimensional space is nothing to the $(n+1)$ -dimensional space.

The basis of mathematics is a size. Without the size there is no maths. From the view of $(n+1)$ - dimensional space is the n - dimensional space nothing. As we see the historical problem between the line and the point – unresolved to date. How many points does the line contain? There are lot of explanations (from an intuitive understanding of the continuum to elementary size to a theory where the closest points to a given line point do not exist). In the end there is the explanation from the microworld – our sense of the line is only the projection of parts formed from a quantum foam.

When does the line of some length begin to exist? How do you distinguish between different lengths? There must be the base length.

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