Abstract

One milestone over the history in Mathematics was the development of differential calculus. The infinitesimal view over spaces leads to rapid development in Goemetry, thus Classical Physics. We will follow the steps of Newton and Liebniz, whose publications provided a great impact to all modern Mathematicians.

1 Continuity of a space

To whom be taught in high school that every function are supposed to be continuous and smooth, it is now the time to review what 'continuity' means - it is not a trivial condition to have continuous functions.

Example. *Given the real number line, the set of natural numbers* $\mathbb{N}$ *and the set of integers* $\mathbb{Z}$ *are discrete spaces.*

To achieve (convince with) continuity, we need some abstract sense on the properties of continuous space. One of them would be the inseparability of a continuous space. We will examine the space by discrete fancy.

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