Mathematical Typesetting

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A *metric space* (X, d) consists of a set X on which is defined a *distance function* which assigns to each pair of points of X a distance between them, and which satisfies the following four axioms:

1. $d(x, y) \geq 0$ for all points x and y of X;
2. $d(x, y) = d(y, x)$ for all points x and y of X;
3. $d(x, z) \leq d(x, y) + d(y, z)$ for all points x, y and z of X;
4. $d(x, y) = 0$ if and only if the points x and y coincide.

Un-numbered list by itemize:

- $d(x, y) \geq 0$ for all points x and y of X;
- $d(x, y) = d(y, x)$ for all points x and y of X;
- $d(x, z) \leq d(x, y) + d(y, z)$ for all points x, y and z of X;
- $d(x, y) = 0$ if and only if the points x and y coincide.

Un-numbered list by description:

$d(x, y) \geq 0$ for all points x and y of X;

$d(x, y) = d(y, x)$ for all points x and y of X;

$d(x, z) \leq d(x, y) + d(y, z)$ for all points x, y and z of X;

$d(x, y) = 0$ if and only if the points x and y coincide.

Isaac Newton discovered the basic techniques of the differential and integral calculus, and applied them in the study of many problems in mathematical physics. His main mathematical works are the *Principia* and the *Optics*. He summed up his own estimate of his work as follows:

> I do not know what I may appear to the world; but to myself I seem to have been only like a boy, playing on the sea-shore, and diverting myself, in now and then finding a smoother pebble, or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.

In later years Newton became embroiled in a bitter priority dispute with Leibniz over the "discovery"of the basic techniques of calculus.