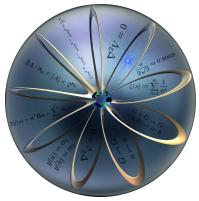

planetmath.org

Math for the people, by the people.

Galileo's paradox

Canonical name	GalileosParadox
Date of creation	2013-03-22 19:15:45
Last modified on	2013-03-22 19:15:45
Owner	pahio (2872)
Last modified by	pahio (2872)
Numerical id	6
Author	pahio (2872)
Entry type	Definition
Classification	msc 03E10
Related topic	Paradox

Galileo Galilei (1564—1642) has realised the ostensible contradiction in the situation, that although the set

$$1, 2, 3, 4, 5, \ldots$$

of the positive integers all the members of the set

$$1, 4, 9, 16, \ldots$$

of the perfect squares and in many others, however both sets are equally great in the sense that any member of the former set has as its square a unique counterpart in the latter set and also any member of the latter set has as its square root a unique counterpart in the former set. Galileo explained this by the infinitude of the sets.

In modern mathematical , we say that an infinite set and its proper subset set may have the same cardinality.