

Division by Zero is not Infinity

Or an Error

Michael David Hardcastle
mikehardcastle.com
16th November 2021

Zero was an invention first properly documented by mathematicians in India in the mid fifth century. It was included as part of the sequence of integers 1-9 meaning decimal numbers actually have the 10 digits 0-9.

It has long been argued that dividing any number by zero is either impossible or gives an error and this is true if we include zero as a linear extension to the number range 1-9. However zero is actually a special case and is the absence of something. i.e. If I have zero apples, I don't have any apples.

I suggest that zero is a special case and should not be treated as other integers. If I give you zero apples, I have done nothing. Therefore if I divide something by zero nothing has happened and so the result is the original value.

To give an example:

$$12 \div 2 = 6$$

$$12 \div 1 = 12$$

$$12 \div 0 = 12$$

i.e. If I divide 12 apples by zero people, I have done nothing, I therefore still have 12 apples, I don't have infinite apples.