

Re: A definition of rational numbers

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- *From:* kunzmilan <kunzmilan@xxxxxxx>
 - *Date:* Tue, 19 Aug 2008 00:45:12 -0700 (PDT)
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On Aug 17, 10:15 pm, translogi <wilem...@xxxxxxxxxxxxxxxx> wrote:

On Aug 16, 11:38 am, translogi <wilem...@xxxxxxxxxxxxxxxx> wrote:

On Aug 15, 12:13 pm, kunzmilan <kunzmi...@xxxxxxx> wrote:

On Aug 15, 11:02 am, Frederick Williams

<frederick.willia...@xxxxxxx> wrote:

elsiemelsi wrote:

you say

digits i.e. numbers" is silly
because numbers and digits
are quite
different things.

i say
you dont know the
definition of digit

<http://www.thefreedictionary.com/digit>

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a. One of the ten Arabic number symbols, 0 through 9.

b. Such a symbol used in a system of numeration.

clearly a digit is a number

You're not posting your replies in the right place.

Digits are symbols and thus concrete, numbers are abstract. Look:

'2' is a digit that denotes a number
'II' is a pair of digits that denote the same number

Just because $2 = \text{II}$ it does not follow that '2' = 'II'.

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He is not here; but far away
The noise of life begins again
And ghastly thro' the drizzling rain
On the bald street breaks the blank day.

Thanks for your interest and replies. I started badly. Thus, once again:
We construct lists of rational numbers.
In the first list of rational numbers, we find 9 numbers 0.1 till 0.9..
In the second list of rational numbers, we find 99 rational

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numbers

0.01 till 0.99.

In the third list of rational numbers, we find 999 rational numbers

0.001 till 0.999.

In the n -th list of rational numbers, we find $(10^n - 1)$ rational numbers with n decimal places.

If we add a number to an existing rational number (by any technique)

from n -th list, we find it in the $(n + 1)$ -th list.

Since some rational numbers are infinite sequences, there must exist

infinite many lists of rational numbers to include all these nonending rational numbers.

Now, a question can be posed, if 0.5 and 0.50 should be considered as

identical or different rational numbers.

If yes, the last list counts all numbers lesser than 1.

If not, rational numbers are counted by the sum of infinite serie $9 +$

$99 + 999 + \dots$

Another question is, if all numbers in the last list are really rational, since it will be difficult to find two finite natural numbers corresponding to them.

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Another question is, if all numbers in the last list are really rational, since it will be difficult to find two finite natural numbers corresponding to them.

there is even one finite natural number corresponding to them

if your number is a/b (and a is smaller than b)
(so in your case $b= 10, 100, 1000$ and so on)

$N= b*b +a$ will uniquely identify one of them

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(there are other formula's possible as well i know that Paut Smiths book mentions another one)
(Am i promoting here again?)– Hide quoted text –

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OOPS

made a mistake (and it was not my first)
for every number a/b with a and b positive there is a number N that uniquely identifies it

$$N = (b+a) \times (b+a) + a + 1$$

i think you can change it for every integer by
 $M = 4 * N + 2 * \text{sign}(a) + \text{sign}(b)$

the question is $1/2$ and $2/4$ the same number ?

I guess not.
but they do both refer to the same value.

Like 2 and the smallest prime also refer to the same value.

If they are different, we can count rational numbers as the sum
 $9 + 99 + 999 + \dots$
Adding to each term 1, and still one 1, this sum can be approximated
as $(10/9) * 10^n$. From it we subtract $(n + 1)$ added ones.
kunzmilan
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