

# Re: .999... = 1

---

*Source:* <http://sci.tech-archive.net/Archive/sci.logic/2005-08/msg00569.html>

---

- *From:* "Ken Quirici" <kquirici@xxxxxxxxxx>
  - *Date:* 31 Aug 2005 07:29:48 -0700
- 

David C. Ullrich wrote:

> On 29 Aug 2005 07:54:02 -0700, "Ken Quirici" <kquirici@xxxxxxxxxx>  
> wrote:  
>  
>>[...]  
>>  
>>I'm confused about this  
>  
> That's correct.  
>  
>>(and vaguely disturbed).  
>>  
>>Given that any irrational can be represented by a sequence of  
>>rational numbers that approach arbitrarily close, and similarly, that any  
>>rational number can be approached by a sequence of rational numbers that approach  
>>arbitrarily close (both by let's say Cauchy sequences – which  
>>I take to be a particular way of 'approaching arbitrarily close'),  
>>it would seem to me that  
>>  
>>.99999....  
>>  
>>represents, not 1, its 'limit', but rather a particular Cauchy  
>>sequence of values approaching 1.  
>  
> Notation means what the definition says it means, not what  
> it seems to you it represents. In fact that meaning of  
> the notation 0.999... is the limit of the sequence  
> 0.9, 0.99, 0.999, etc. Saying it seems to you it represents  
> something else is simply incoherent – you're saying that  
> it seems to you that a definition is wrong.  
>  
>>The notion of setting the sequence equal to its limit  
>  
> I didn't set any sequences equal to their limits here.  
> 0.999... is not a sequence, it is a single number.  
>  
>>makes sense  
>>because for all practical calculations to which the sequence would  
>>be put in mathematics, the results would be identical if you used

Re: .999... = 1

>>the limit rather than created infinite sequences of calculations  
>>tending to the result obtained just by going directly to 1.  
>>  
>>I.e., mathematics would be hopelessly bogged down if you didn't  
>>replace any Cauchy sequence approaching a limit by that limit and  
>>consider yourself done.  
>>  
>>However, to me, .99999... represents a sequence that tends to 1,  
>>rather than 1.  
>>  
>>If you want to calculate using the limit of the sequence, use 1.  
>>If you want to investigate the sequence, use the sequence, not  
>>1. It may be that in some investigations the sequence is as  
>>important as the number it tends to.  
>>  
>>Hope this makes some sense.  
>  
> None whatever. Why in the world wou