Re: Attempts to Refute Cantor's Uncountability Proof?

Source: http://sci.tech−archive.net/Archive/sci.math/2006−07/msg03203.html

- *From*: Virgil <virgil@xxxxxxxxxxx>

- *Date*: Sun, 16 Jul 2006 02:00:26 −0600

In article <iJOdnfATh6UuuCXZnZ2dnUVZ_qGdnZ2d@xxxxxxxxxxxxx>,
Hatto von Aquitanien <abbot@xxxxxxxxxxxxxx> wrote:

> Nathan wrote:
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> > Hatto von Aquitanien wrote:
> >
> > > Nathan wrote:
> > >
> > > > You're supposed to learn to understand the
> > > > meaning of
> > > > the limit of a sequence, particularly the idea
> > > > of the sum of an
> > > > infinite series as the limit of the sequence of
> > > > partial sums.
> > > >
> > > > Not everybody does learn to understand this,
> > > > which explains the
> > > > .999...=1 threads.
> > >
> > > Is that what happens to all the smart people in college? They
> > > have their
> > > common sense psychologically pounded out of them. They
> > > either give lip
> > > service to the orthodox canon, accept it as truth, or transfer to
> > > computer science.
> >
> > No, there's another option you left out; the one I gave.
> > They can also learn to understand the concept of a limit.
> > As I said, this is what is supposed to happen.
> > This doesn't require that they "accept it as truth", as some sort of
> > dogma.

> There may indeed be those who "give lip service to the canon", because they really don't grasp it. There certainly are those who "accept it as truth"; it can be very hard to help certain students to learn to understand concepts and not just to do mechanical calculations. Some in that category do transfer to computer science, where they still tend to have trouble understanding concepts.
>
> And no, this doesn't necessarily happen in college. I said "around the second semester of calculus", which for a lot of "the smart people" means in high school.

> Perhaps you can explain to me how one arrives at 1/3 = .333... without appeal to an iterative process extended ad infinitum.

The process of multiplying the numerator by 10 then finding the integer quotient and remainder on division by 3 is immediately seen to be cyclic. Once something is cyclic like this, there is no need to view it as an iterative process that needs extension ad infinitum.
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