Re: Limit

Source: http://sci.tech−archive.net/Archive/sci.math/2007−10/msg03004.html

- *From*: Phil H <google@xxxxxxxxxxxxxx>
- *Date*: Sun, 14 Oct 2007 03:52:50 −0700

I am inclined to agree with Thomas Nordhaus that the correct answer is
1

The assertion that it is 1 + 0.5u may be from a math book but authors
of math books do make mistakes (unless, as I suspect, it may have been
taken out of context).

The point to notice here is that the function f(u) |−−> (1 − u)^−1/2
is continuous at the point u = 0

Therefore the limit(u −> 0) of f(u) is simply f(0) = 1

Numerically the value of f(u) for small values of u do appear to
converge to 1 + 0.5u but that's only because of the limits of
computation. The higher order terms in the Taylor expansion are
vanishingly small but they are never zero (for non−zero values of u)
and therefore cannot be disregarded not being as part of the
analytical (rather than purely numerical) solution.

HTH

On 14 Oct, 10:45, "Boen S. Liong" <mr_bean_cu...@xxxxxxxxx> wrote:

> On 14 Okt, 16:03, Thomas Nordhaus <thnord2...@xxxxxxxx> wrote:
>
> > Boen S. Liong schrieb:
>
> > Can somebody help with the limit?

How to derive:

limit(u−>0) (1−u)^(−1/2) to be (1+0.5u)?

This surely isn't correct. The limit is equal to 1. (1+0.5*u) is the first order Taylor−approximation however. Just compute it using the definitions.

Boen S. Liong.

−−
Thomas Nordhaus

It is correct. I quote from a math book. My hunch is it is from Taylor series expansion. Use numerical for u, and you will see. Please check before you say it is wrong.

Regards,

Boen S. Liong− Hide quoted text −

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