

Re: sin x / x tends to 1...

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-09/msg01415.html>

- *From:* "N. Silver" <mathelp@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* Wed, 07 Sep 2005 10:11:37 GMT
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Lee Rudolph wrote:

> N. Silver writes:

>>Lee Rudolph wrote:

>>> From this it follows that, *if you believe* that sin
>>> has a (non-zero) derivative *at all*, at any point,
>>> then its derivative is cos. Can that belief be
>>> justified without assuming the limit under consideration?
>>> I suspect it can, by further geometric argument using the
>>> helix parametrized by $x \mapsto (\cos(x), \sin(x), x)$.

>>If you have such an argument, maybe we can go
>>back to the definition of derivative and prove the
>>limit is 1. Please give your geometric argument.

> My use of the verb "suspect" was intended to indicate that
> I was making this up as I went along. I don't have any such
> argument at the moment. If I think of one, despite all my
> efforts to do something else today, I'll post it.

fair enough

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• *References:*

- ◆ *sin x / x tends to 1...*
◇ *From:* Darren J Wilkinson
- ◆ *Re: sin x / x tends to 1...*
◇ *From:* massimo67
- ◆ *Re: sin x / x tends to 1...*
◇ *From:* N. Silver
- ◆ *Re: sin x / x tends to 1...*
◇ *From:* Lee Rudolph
- ◆ *Re: sin x / x tends to 1...*
◇ *From:* N. Silver
- ◆ *Re: sin x / x tends to 1...*

Re: sin x / x tends to 1...

◇ *From:* Lee Rudolph

- Prev by Date: ***Re: New and faster algorithm for multiplication***
- Next by Date: ***Re: New and faster algorithm for multiplication***
- Previous by thread: ***Re: sin x / x tends to 1...***
- Next by thread: ***Re: sin x / x tends to 1...***
- Index(es):
 - ◆ ***Date***
 - ◆ ***Thread***