Re: Golly, that was easy...

Source: http://sci.tech−archive.net/Archive/sci.physics/2007−01/msg01338.html

- *From*: mmeron@xxxxxxxxxxxxxxxxxx
- *Date*: Sun, 14 Jan 2007 23:00:07 GMT

In article <1168801271.263703.275610@xxxxxxxxxxxxxxxxxxxxxxxxxxxxx>, "Edward Green" <spamspamspam3@xxxxxxxxxxx> writes:

> Dirk Van de moortel wrote:
>
>> "Edward Green" <spamspamspam3@xxxxxxxxxxx> wrote ...
>>
>>> What makes the exponential function so unreasonably useful?
>>
>> The fact that it is equal to its derivative?
>
> I don't know... maybe you are much smarter than I am. But I can't immediately see how we get from there to, say, Euler's formula:
>
> exp[it] = cos(t) + i sin(t).
>
> Though... d/d(it) exp[it] = [dt/d(it)] d/dt exp[it] =
>
> −i [−sin(t) + i cos(t)] = cos(t) + i sin(t) = exp[it]
>
> How about that... it works for imaginary arguments also. ;−)
>
> WaveMechanic wrote:
>
>> Not what, but who?
>>
>> e^(i.pi) + 1 = 0
>>
>> Five constants in one equation.
>> http://en.wikipedia.org/wiki/Euler's_identity

> "Gauss is reported to have commented that if this formula was not immediately apparent to a student on being told it, the student would never be a first−class mathematician.[3]"
>
> "After proving the identity in a lecture, Benjamin Peirce, a noted nineteenth century mathematician and Harvard professor, said, 'It is absolutely paradoxical; we cannot understand it, and we don't know what it means, but we have proved it, and therefore we know it must be the truth.' [4] "
>
> Considering the alleged comments, I prefer that attributed to Peirce.
>
> I wonder how far it is possible to "understand" the inevitable analytic structure of the complex function linking the real exponential with the real trigonometric functions. Mostly one just gets used to it, I think.

That's about what the word "understand" stands for.

Mati Meron | "When you argue with a fool,
meron@xxxxxxxxxxxxxxxxx | chances are he is doing just the same"
.