

Re: complex numbers

Source: <http://sci.tech-archive.net/Archive/sci.physics.relativity/2005-06/msg01403.html>

- *From:* "uucp" <bad_shoes@xxxxxxxxxxxxxx>
 - *Date:* 13 Jun 2005 08:24:02 -0700
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Dirk Van de moortel wrote:

> "The TimeLord" <mathnphysics-not@xxxxxxxxxxxxxx> wrote in message
> news:UqWdnes_svgUJzHfRVn-gQ@xxxxxxxxxxxxxx
>> Don Giovanni <laterel0328@xxxxxxxxxx> wrote in
>> <1118580874.108666.125200@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx> on Sunday 12 June
>> 2005 07:54 posted to sci.physics.relativity:
>>
>>> i never understod whay complex
>>> number only have two dimenssion,
>>> the real and imaginary part
>>>
>>>
>>> whay not more?
>>
>> Actually they don't have two dimensions either. A dimension is defined as
>> the number of linearly independent basis vectors that span a space. I know
>> that sounds trite, but my point is that in understanding things like
>> complex numbers, you need to understand how mathematicians define things.
>>
>> So, a complex number is a number that when multiplied by itself equals a
>> real number.
>
> That is wrong.
> A complex number multiplied by itself does not give a real number.
> It gives a compex number:
> Having x and y real numbers,
> $(x + yi)^2 = x^2 - y^2 + 2xyi$
> Only if $x = 0$ will the result be a real number, i.o.w. a strictly
> imaginary number multiplied by itself gives a real number.

wrong, only if the imaginary part or the real part are zero

>
>> As long as the real number is positive, another real will do
>> as in $\sqrt{4} = \pm 2$; both real. If the real is negative then you get the
>> imaginary part as in $\sqrt{-4} = \pm 2i$.
>

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- > That is wrong as well.
- > $\sqrt{4} = 2$
- > $-\sqrt{4} = -2$
- > $\sqrt{-4}$ is nonsense

wrong, $\sqrt{-4} = \sqrt{-1 \cdot 4} = \sqrt{-1} \cdot \sqrt{4} = i4$,
which is complex pure imaginary

- >
- > Sqrt is a function defined for positive real numbers only.
- > The result is a positive real number (and positive includes zero).

wrong fool

- >
- > What you *can* write however, is this:
- > $\sqrt{x^2} = \pm x$
- > which is an abbreviation for the statement:
- > $|\sqrt{x^2}| = x$ (namely for all real $x \geq 0$)
- > | or
- > $|\sqrt{x^2}| = -x$ (namely for all real $x \leq 0$)
- > You can write this because in both cases the argument and the
- > result of the function are positive values
- > Which one of both equations is valid, depends on the sign
- > of x . That is why you *cannot* write
- > $\sqrt{4} = \pm 2$
- > since the case with -2 can never occur.

bullshitismo

- >
- >>
- >>> So then, the answer to your question is that real numbers can be positive or
- >>> negative, so you need both real and imaginary parts of complex numbers to
- >>> describe them. The real part describes the square root of the positive and
- >>> the imaginary part describes the square root of the negative.
- >
- > The last sentence sounds like nonsense.
- >
- >>
- >>> To really get a feel for this, consider...
- >>> $i = \sqrt{-1}$
- >>> So $i^2 = -1$
- >>> So $i^4 = 1$
- >>> But
- >>> $\sqrt{1} = \pm 1$
- >>> So $\sqrt{i^4} = \pm 1$
- >>> So $i^2 = \pm 1$ since $\sqrt{i^4} = (i^4)^{1/2}$
- >>
- >>> You can see that unless you keep straight just what the square root is
- >>> defined to be, you can go very far afield by continuing the square roots to

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>> result in $i=1$, which is nonsense.
>
> Indeed, that is why one should never
> – put anything but positive numbers under the square root sign.
> – write something like $\sqrt{4} = \pm 2$

bull again fool, this is not about you, but
about the process under observation

>
> Only in very limited contexts (when writing about complex
> numbers and complex functions), one can work with so called
> "multi-valued" functions and "principal values", i.o.w. with
> functions from \mathbb{C} to the power set of \mathbb{C} . In that special case
> one can write something like
> $(-1)^{1/2} = \{ i, -i \}$

wrong moron, $(-1)^{1/2}$ only gives i ,
what a moron ...ahaha AHAHAahaha...

>
> Dirk Vdm
>
>
>
>> Same way with the nature of a complex
>> number.
>>
>> This probably doesn't help, but I thought I'd give it a shot anyway.
>>
>> --
>> // The TimeLord says:
>> // Pogo 2.0 = We have met the aliens and they are us!

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- *Follow-Ups:*
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 - ◆ *Re: complex numbers*
 ◇ *From:* Dirk Van de moortel

 - *References:*
 - ◆ *complex numbers*
 ◇ *From:* Don Giovanni
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