

Re: JSH: Operator ambiguity, Escultura

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In article <qfcjq0lu2gdkir58dnvsfoo24hs4pv5dvi@4ax.com> ullrich@math.okstate.edu writes:

> On 27 Nov 2004 13:59:51 -0800, jstevh@msn.com (James Harris) wrote:

...

> >Naively then, you may believe that you can just say, take the positive

> >of the square root but as Escultura showed, that doesn't work:

> >

> > $i = \sqrt{-1} = \sqrt{1/-1} = 1/i$, giving $-1 = 1$. Contradiction.

> >

> >You see, the ambiguity in the square root operator still remains,

> >despite the convention.

...

> Finally, you seem to have missed the most important point

> in the "contradiction" above, which is that it's impossible

> to define \sqrt{z} for complex z in such a way that

> $\sqrt{zw} = \sqrt{z} \sqrt{w}$.

He is missing one more point. That you can not algebraically distinguish

i and $-i$ is also a result from Galois theory (you can not algebraically

distinguish the various roots of a primitive polynomial).

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