

Re: naive question from a non-mathematician

Source: <http://sci.tech-archive.net/Archive/sci.math/2006-05/msg04862.html>

- *From:* "Proginoskes" <CHeckman@xxxxxxxx>
 - *Date:* 28 May 2006 16:16:18 -0700
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Hero wrote:

Stephen Montgomery-Smith schrieb:

David C. Ullrich wrote:

On Sun, 28 May 2006 18:12:02 GMT, Stephen
Montgomery-Smith
<stephen@xxxxxxxxxxxxxxxxxxxx> wrote:

G.E. Ivey wrote:

It's hard for me to believe
this has gone on so long.
While every "quibble" is
correct (and mathematicians
love quibbles!) John Smith
did say "mathematically
equivalent", not "identical"
or "the same" or "equal" so I
would have no trouble at all
accepting "Yes, they are
mathematically equivalent".

That's a great answer.

So it's up to generalisation:

Is there in the whole area of maths any structure with a
multiplication, where

$0 * \text{something}$ is different from 0? And is there any structure with an
addition, where

$\text{something} + 0$ is different from something? [etc]

Re: naive question from a non-mathematician

According to standard terminology, no. If you want to change the definition of 0 and/or consider things other than rings, fields, etc., yes.

0 is defined, way back in Group Theory, to be the additive identity; that is, 0 is the element x such that for all y ,
 $x + y = y + x = y$,
if such an x exists.

Since groups are considered part of rings, fields, ordered fields, topological fields, etc., this additive property of 0 still remains true, and you can prove things such as: In a ring,
 $0 * x = 0$
for all elements x in that ring.

— Christopher Heckman

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