

Re: Coprimeness – I think I'm confused, but I'm not sure

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- *From:* Bill Dubuque <wgd@xxxxxxxxxxxxxxxxxxxxxx>
 - *Date:* 01 Apr 2005 17:00:52 -0500
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Matt Gutting <matthewdba@xxxxxxxxxxx> writes:

- >
- > In light of some of the comments in the JSH threads
- > involving coprimeness and $\mathbb{Z}[1/2]$:
- >
- > If the definition of coprimeness is something like:
- >
- > To say that 'p and q are coprime in a ring' is to say
- > 'there exist a,b in the ring with $ap + bq = 1$ '

Yes, that is probably the most common definition of 'coprime' but be aware there are also many others in use, see my post [1],

- > then wouldn't 2 and 4 (or any powers of 2) be coprime in $\mathbb{Z}[1/2]$?
- > Or, more strongly, are any 2 (non-zero) rationals coprime in \mathbb{Q} ?

Yes a unit (invertible) elt is always coprime to any other elt for every notion of coprime I'm aware of. E.g. it is true for the above notion since $a c = 1 \Rightarrow a c + b 0 = 1$

--Bill Dubuque

[1] <http://groups-beta.google.com/group/sci.math/msg/26729f0cd82b5866>
<http://google.com/groups?selm=y8z4qyo4oay.fsf@xxxxxxxxxxxxxxxxxxxxxx>

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