Re: abstract algebra~~)

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mina_world <mina_world@hanmail.net> wrote:
> *hello......doctor~*
>
> *A semigroup (G,*) (i.e. * is associative), which satisfies the axiom:*
>
> *1. There is the element e in G such that ae = a for all a in G.*
>
> *2. There is the element a' in G such that aa' = e for all a in G.*
>
> *show that G is group.*
> −−−
> *is this possible problem ??*

Yes. These are in fact the 'one sided' versions of the
usual axioms in the definition of a group. It is a popular
exercise to show, that the these are sufficient.

>
> *if "the element" => "an element"(uniqueness),*
>
> *then, i can deduce to left axiom from this right axiom.*
>
> *can we deduce the uniqueness ?*

I am not sure what you mean. Once you established the both−sided
versions, the uniqueness is done as in the usual group theoretic case.
But you do not need to show the left−sided versions, in order to arrive
at the both−sided versions.

Given an element a in G, applying (2) twice gives a' and a'' such
that aa' = e and a'a'' = e.
Now calculate a'aa'a'' in order to show a'a=e.

Now calculate aa'a in order to show ea=a

Marc