Re: simple groups and permutation groups

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- *From*: quasi <quasi@xxxxxxxx>
- *Date*: Mon, 31 Mar 2008 16:32:07 −0500

On 31 Mar 2008 19:31:09 GMT, Marc Olschok <nobody@xxxxxxxxxxxxxxx>
wrote:

> quasi <quasi@xxxxxxxx> wrote:
>
> > On Mon, 31 Mar 2008 00:39:44 EDT, Jack Schmidt
> > <Jack.Schmidt.SciMath@xxxxxxxxx> wrote:
> >
> > > Let G be a simple group and let f : S_n −−> G be a
> > > surjective homomorphism for some positive
> > > integer n.
> > >
> > > Why is G isomorphic to S_k, for some k =< n ?
> >
> > Because G is cyclic of order two and n>=2.
> >
> > Which would make it a trick question.
> >
> > If that was really the wording of the assigned question then, while
> > technically not incorrect, I suspect the problem was posed in error.
>
> Looks o.k. to me. The question is
>
> Any simple epimorphic image of a permutation group S_n is
> already isomorphic to some S_k.

Except that the only such simple epimorphic images are either the
trivial group or Z_2. Hence, unless it was an intentional trick
question, it seems liklely that the proposer of the problem was
confused about the set of possible isomorphism types.

quasi
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