

Re: simple groups and permutation groups

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- *From:* Marc Olschok <nobody@xxxxxxxxxxxxxxxxxxxx>
 - *Date:* 31 Mar 2008 19:31:09 GMT
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quasi <quasi@xxxxxxx> wrote:

On Mon, 31 Mar 2008 00:39:44 EDT, Jack Schmidt
<Jack.Schmidt.SciMath@xxxxxxx> wrote:

Let G be a simple group and let $f : S_n \rightarrow G$ be a surjective homomorphism for some positive integer n .

Why is G isomorphic to S_k , for some $k \leq n$?

Because G is cyclic of order two and $n \geq 2$.

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 .

Marc

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