

## surjection or epimorphism?

---

*Source:* <http://sci.tech-archive.net/Archive/sci.math/2007-01/msg00627.html>

---

- *From:* "bluelabel" <bluelabel.invalid@xxxxxxxx>
  - *Date:* Thu, 4 Jan 2007 19:36:22 +0100
- 

Suppose  $G$  is a group and  $G_{(i+1)}$ ,  $G_i$  are two subgroups such that  $G_{(i+1)}$  is normal in  $G_i$ . Let  $f: G \rightarrow H$  be a surjection between the groups  $G$  and  $H$ .

If  $f(x_{(i+1)})$  in  $G_{(i+1)}$  and  $f(x_i)$  in  $G_i$  then

$f(x_i) \cdot f(x_{(i+1)}) \cdot f(x_i)^{-1} = f(x_i \cdot x_{(i+1)} \cdot x_i^{-1})$  is in  $f(G_i)$ ,

because  $G_{(i+1)}$  is normal in  $G_i$ .

Is this statement true as it is written (that is, even if  $f$  is not a homomorphism)?

TIA

.