

1064-08-203

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A half-homomorphism in a loop Q is a map $f : Q \rightarrow Q$ such that for all $g, h \in Q$, $f(gh)$ is either $f(g)f(h)$ or $f(h)f(g)$. If Q is a group then f is necessarily either a homomorphism or an anti-homomorphism. I will discuss half-isomorphisms in loops. Call a half-isomorphism trivial if it is either an isomorphism or an anti-isomorphism. Examining loops of order 6, it shows that there is only one with a non-trivial half-isomorphism. Using the Loops Package (GAP) it has been possible to show for example that (a) all the Bol loops of order 8 have trivial half-isomorphisms, (b) that the Chein loops $M(S_3.2)$ (of order 12) $M(D_8.2)$, $M(Q_8.2)$ (of order 16) have only trivial half-isomorphisms. By contrast, the Octonion loop has a group of half-isomorphisms of order 2^7 .

We conjecture that all Chein loops have only trivial half-isomorphisms. We can prove that if a Chein loop $M(G, 2)$ has a non-trivial half-isomorphism f then there is a non-trivial half-isomorphism f' such that $f'(g) = g$ for all $g \in G$. There are many open questions, for example the center of a loop is preserved by a half-isomorphism if the loop is diassociative, but the corresponding question is open for arbitrary loops. (Received September 09, 2010)