

Algebra - Hw # 2

09-12-08

A few general comments

- If the action of a group on a set $G \curvearrowright X$ is say 3-transitive, that means (as you know) that you can send any triplet to any other triplet you want. It does NOT imply anything at all over the other of the elements of your set X . You know nothing of what might or might not happen there.

- If there is a transitive action $G \curvearrowright X$ and if $N \leq G$, all you know is that

$$(\forall x, y, \in X) (\exists g \in G) : g.x = y$$

there is no reason whatsoever to assume that

$$(\forall x, y, \in X) (\exists n \in N) : n.x = y$$

unless you prove that N also acts transitively. (Can you think of a counterexample?) This applies in general to all subgroups of G , point stabilizers inclusive; and to n -transitively actions as well.