

Definition of group

4th June 2022

Todo list

Problem 3

Prove that $(gh)^{-1} = h^{-1}g^{-1}$ for all elements g, h of a group G .

Solution. We know that gh has an inverse, so it suffices to show that $h^{-1}g^{-1}$ is a left inverse by uniqueness of inverse. We have

$$h^{-1}g^{-1}gh = h^{-1}(g^{-1}g)h = h^{-1}eh = h^{-1}h = e.$$

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