INTERVIEW QUESTIONS ON ALGEBRA

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CONTENTS

1. GROUPS

Question 1.1. What is a normal subgroup? Can you get some natural map from a normal subgroup? What topological objects can the original group, normal subgroup, and quotient group relate to?

Answer. A subgroup $H \subseteq G$ is *normal* if all conjugation of H is itself, i.e. $\forall g \in G$, $H = g^{-1}Hg$. The normal subgroup defines the quotient group. The natural map is $H \hookrightarrow G \to G/H$. "Sub" means embedding, and "quotient" means gluing. $\square$

REFERENCES

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