

Invariant generation of alternating groups by prime-power elements

Two elements x, y *invariantly generate* a group G if any conjugate x together with any conjugate of y generates G . Invariant generation of a group G by prime or prime-power elements has consequences for fixed-point-free actions on certain geometries with G actions.

In previous work, John Shareshian and I have shown that, assuming the Riemann hypothesis, the alternating groups A_n are invariantly generated by elements of prime order for all n except for n on a set of asymptotic density 0. On the other hand, we have constructed infinitely many examples that are not invariantly generated by such elements. I'll discuss ongoing work with Bob Guralnick and Shareshian, where we show that many alternating groups are invariantly generated by two elements of prime-power order.

Summary

Two elements x, y *invariantly generate* a group G if any conjugate x together with any conjugate of y generates G . I'll discuss invariant generation of alternating groups by two elements of prime-power order.

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