

Fixed points of projectivities of prime order

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Abstract

The talk presents the material featured in [1]. It is shown that, in a finite projective plane of order q , there exists a projectivity \tilde{g} of prime order $p > 3$ if and only if p divides exactly one of the integers $q - 1$, q , $q + 1$, $q^2 + q + 1$. A correspondence is established between the possible structures of points fixed by \tilde{g} and the integer that is divisible by p . For the special case of $p = 2$, it is shown that every involution is a harmonic homology for q odd and an elation for q even. The special case of $p = 3$ is also considered.

An application is determining the sizes of (n, r) -arcs that are stabilized by projectivities of prime order p in the finite projective plane of order q .

References

- [1] G. Cook, Fixed points of projectivities of prime order, J. Geom. **103-2** (2012), 191-205.