

ON THE NUMBER OF CONJUGACY CLASSES
OF FINITE p -GROUPS

CASIAN ALEXANDRU PANTEA

Abstract. Denote by $k(G)$ the number of conjugacy classes of a group G . Some inequalities are deduced by arithmetic means for $k(G)$, where G is a p -group. As an application, $k(G)$ is calculated for special cases of p -groups. A method of estimating $k(G)$ for some finite groups, others then p -groups is also presented.

MSC 2000. 20C15.

Key words. Conjugacy classes, characters, p -groups.

REFERENCES

- [1] ASCHBACHER, M., *Finite Groups Theory*, Cambridge University Press, 1994.
- [2] DIXON, J.D., *Problems in Group Theory*, Dover Publications, 1973.
- [3] HÉTHELY, L. and KÜLSHAMMER, B., *On the number of conjugacy classes of a finite solvable group*, Bull. London Math. Soc., **32** (2000), 668–672.
- [4] HUPPERT, B., *Character Theory of Finite Groups*, De Gruyter, 1998.
- [5] JAMES, G. and LIEBECK, M., *Representations and Characters of Groups*, Cambridge University Press, 1993.
- [6] KOVÁCS, L.G. and LEEDHAM-GREEN, C.R., *Some normally monomial p -groups of maximal class and large derived length*, J. Math. Oxford, **37** (1986), 49–54.
- [7] MANN, A., *Conjugacy classes in finite groups*, Israel Journal of Mathematics, **31** (1978), 78–84.
- [8] PYBER, L., *Finite groups have many conjugacy classes*, J. London Math. Soc., **46** (1992), 239–249.
- [9] SUZUKI, M., *Group Theory II*, Springer-Verlag, 1986.

Received April 10, 2003

“Babeş-Bolyai” University
Faculty of Mathematics and Computer Science
Str. M. Kogălniceanu nr. 1
RO-400084 Cluj-Napoca, Romania
E-mail: casianpantea@hotmail.com