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Sharon A. Kineke
University of Chicago

Advisors:
Gary Sherman

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**DATA ON FOUR-REWRITEABILITY
IN FINITE GROUPS**

Sharon A. Kineke

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**Department of Mathematics
Rose-Hulman Institute of Technology
Terre Haute, IN 47803**

FAX(812) 877-3198

Phone: (812) 877-8391

Data on Four-Rewriteability in Finite Groups

compiled by

Sharon A. Kineke*
University of Chicago

A four-tuple of elements, (x_1, x_2, x_3, x_4) , from a finite group, G , is said to be rewriteable (see [1], [2], [3]) by π , where π is an element of the symmetric group on four symbols, if

$$x_1 x_2 x_3 x_4 = x_{\pi(1)} x_{\pi(2)} x_{\pi(3)} x_{\pi(4)}.$$

The entry at the intersection of the G -th row and j -th column of each table on the succeeding three pages is the number of four-tuples from G which are rewriteable by exactly j permutations in the symmetric group on four symbols. This data was generated using the computer algebra system CAYLEY by participants in Rose-Hulman's National Science Foundation Research Experiences for Undergraduates program during the summer of 1991.

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References

1. J. E. Ellenberg, An upper bound for 3-rewriteability in finite groups, *Rose-Hulman Math. Sci. Tech. Report #91-02*, 1991.
2. J. L. Leavitt, G. J. Sherman and M. E. Walker, Rewriteability in finite groups, *Amer. Math. Monthly*, **99**, (1992), 446-452.
3. P. Longobardi, M. Maj and S. Stonehewer, The classification of groups in which every product of four elements can be reordered (preprint).

library common name	1	2	3	4	5	6	7	8	9	10	12	16	24					
j6n1 D3=S3	0	0	0	120	0	30	0	360	0	150	0	0	0	0	0	0	0	126
j8n1 D4	0	0	0	0	0	0	0	480	0	0	0	0	0	0	0	0	0	736
j8n2 Q											1920	960	960	0	0	0	0	0
j10n1 D5	0	400	0	2200	0	500	0	3800	0	500	0	600	600	0	0	0	0	700
j12n1 D6	0	0	0	1920	0	480	0	5760	0	2400	0	2880	2880	0	0	0	0	2016
j12n3											5280	5280	0	0	0	0	0	0
j12n2 A4	0	120	0	4440	0	3840	0	7200	0	1800	0	1800	960	0	0	0	0	576
j14n1 D7	0	3360	0	10080	0	3570	0	13440	0	1050	0	1260	1260	0	0	0	0	2506
j16n3 D8	0	640	0	12160	0	1280	0	25280	0	3200	0	5760	5760	0	0	0	0	5056
j16n4											12160	12160	0	0	0	0	0	0
j16n9											30720	30720	0	0	0	0	0	0
j16n1 D4 x Z2																		
j16n2 Q x Z2																		
j16n5	0	0	0	0	0	0	0	7680	0	0	0	15360	15360	0	0	0	0	11776
j16n6																		
j16n7																		
j16n8																		
j18n1 D3 x Z3	0	0	0	9720	0	2430	0	29160	0	12150	0	14580	14580	0	0	0	0	10206
j18n2 D9	0	12960	0	29520	0	13320	0	32400	0	1800	0	2160	2160	0	0	0	0	6696
j18n3											6120	6120	0	0	0	0	0	0