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Brief 71-10373

# NASA TECH BRIEF

*Lewis Research Center*



## Computation of Group Table Alphanumeric Display

### The problem:

To simplify the task of inputting the group tables used for proving theorems and algorithms of finite groups.

### The solution:

An existing computer program modified to provide machine computation of the table, using only the group elements as the input data. The program is written for second generation computers.

### How it's done:

The program uses, but does not depend on, the fact that every finite group G of order n is isomorphic to some subgroup (element) Tj of the symmetric group $S_n$. The program can print a table for any possible combination of element subsets of G. After the program finds the elements Tj, those elements in the subsets of G whose table is desired are entered in cycle notation input data. The symbol for each element, as it is to appear in the table, is also entered. The table is then computed and printed using these symbols.

### Notes:

1. This program is written in FORTRAN IV for use on the IBM-7094 computer, and can easily be adapted to other second generation computers.
2. Requests for further information may be directed to:

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   112 Barrow Hall
   University of Georgia
   Athens, Georgia 30601
   Reference: B71-10373

### Patent status:

No patent action is contemplated by NASA.

Source: G. Allen and D. D. Evans
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(LEW-11346)

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