

GROUPS OF ORDERS 73-79

SUMMARY

| | 73 | 74 | 75 | 76 | 77 | 78 | 79 |
|------------------------|----------|----------|----------|----------|----------|----------|----------|
| order | | | | | | | |
| # abelian | 1 | 1 | 2 | 2 | 1 | 1 | 1 |
| # other decomposable | 0 | 0 | 0 | 1 | 0 | 3 | 0 |
| # other indecomposable | 0 | 1 | 1 | 1 | 0 | 2 | 0 |
| TOTAL | 1 | 2 | 3 | 4 | 1 | 6 | 1 |

$$73 = \langle A^{73} \rangle$$

$$74 = \langle A^{74} \rangle = 37 \times 2 = \langle A^{37}, B^2 \rangle$$

$$74.2 = D_{74} = \langle A^{37}, B^2, BA = A^{-1}B \rangle$$

$$75 = \langle A^{75} \rangle = 25 \times 3$$

$$75.2 = 15 \times 5 = \langle A^{15}, B^5 \rangle$$

$$75.3 = \langle A^5, B^5, C^3, [A,C] = BA^4, [B,C] = B^3A^4 \rangle$$

$$\text{CLASS EQUATION: } 75 = 1 + 3 \cdot 8 + 25 \cdot 2 \quad \#CC = 11$$

$$\text{ORDER EQUATION: } = 135 \cdot 2 = 3 \cdot 50 + 5 \cdot 24$$

NORMAL SUBGROUPS:

| | | | |
|------------|----------|----------------------|----------|
| H | 1 | 5² | G |
| G/H | G | 3 | 1 |

$$Z = \mathcal{Z} = \Phi \quad G'$$

Sylow and maximal subgroups: $[3] \times 5, [5^2]$

$$76 = \langle A^{76} \rangle = 19 \times 4$$

$$76.2 = 38 \times 2 = \langle A^{38}, B^2 \rangle$$

$$76.3 = D_{38} \times 2 = \langle A^{19}, B^2, C^2, BA = A^{-1}B \rangle$$

$$76.4 = D_{19,4} = \langle A^{19}, B^4, BA = A^{-1}B \rangle$$

$$77 = \langle A^{77} \rangle = 11 \times 7$$

$$78 = \langle A^{78} \rangle = 13 \times 6$$

$$78.2 = D_6 \times 13 = \langle A^3, B^2, C^{13}, BA = A^{-1}B \rangle$$

$$78.3 = D_{26} \times 3 = \langle A^{13}, B^2, C^3, BA = A^{-1}B \rangle$$

$$78.4 = 39.2 \times 2$$

$$78.5 = M_{13,6}^{(4)} = \langle A^{13}, B^6, BA = A^4B \rangle$$

CLASS EQUATION: $78 = \#CC =$

ORDER EQUATION: $208 \cdot 2 = 2 \cdot 13 + 3 \cdot 26 + 6 \cdot 26 + 13 \cdot 12$

NORMAL SUBGROUPS:

| | | | | | |
|------------|----------|-----------|-----------------------|-----------------------|----------|
| H | 1 | 13 | D₂₆ | D₃₉ | G |
| G/H | G | 6 | 3 | 2 | 1 |

$$Z = N = \Phi \quad G'$$

Sylow subgroups: $[2] \times 13, [3] \times 13, [13]$

Maximal subgroups: $[D_{26}], [D_{39}], [6] \times 13$

$$78.6 = D_{78} = \langle A^{39}, B^2, BA = A^{-1}B \rangle$$

CLASS EQUATION: $78 = 1 + 2 \cdot 19 + 39 \quad \#CC = 21$

ORDER EQUATION: $588 \cdot 2 = 2 \cdot 39 + 3 \cdot 2 + 13 \cdot 12 + 39 \cdot 24$

NORMAL SUBGROUPS:

| | | | | | |
|------------|----------|-----------------------|----------------------|-----------|----------|
| H | 1 | 3 | 13 | 39 | G |
| G/H | G | D₂₆ | D₆ | 2 | 1 |

$$Z = N = \Phi \quad G'$$

Sylow subgroups: $[2] \times 39, [3], [13]$

Maximal subgroups: $[39], [D_{26}] \times 3, [D_6] \times 13$

$$79 = \langle A^{79} \rangle$$