

$A_{18} \pmod{7}$

|       | blocks | defect | matrix                                  |
|-------|--------|--------|-----------------------------------------|
| $G :$ | 1      | 2      | $35 \times 27$                          |
|       | 2      | 2      | $35 \times 27$                          |
|       | 3      | 2      | $22 \times 18$                          |
|       | 4      | 1      | $7 \times 6$                            |
|       | 5      | 1      | $7 \times 6$                            |
|       | 6      | 1      | $7 \times 6$                            |
|       | 7      | 1      | $5 \times 3$                            |
|       | 8      | 0      | $9996_1 = \chi_{16}, \varphi_{20}$      |
|       | 9      | 1      | $7 \times 6$                            |
|       | 10     | 1      | $7 \times 6$                            |
|       | 11     | 1      | $7 \times 6$                            |
|       | 12     | 1      | $7 \times 6$                            |
|       | 13     | 1      | $7 \times 6$                            |
|       | 14     | 1      | $7 \times 6$                            |
|       | 15     | 0      | $219912_1 = \chi_{46}, \varphi_{33}$    |
|       | 16     | 1      | $7 \times 6$                            |
|       | 17     | 0      | $259896_1 = \chi_{51}, \varphi_{52}$    |
|       | 18     | 0      | $595595_1 = \chi_{71}, \varphi_{90}$    |
|       | 19     | 0      | $649740_1 = \chi_{75}, \varphi_{73}$    |
|       | 20     | 0      | $659736_1 = \chi_{77}, \varphi_{125}$   |
|       | 21     | 0      | $714714_1 = \chi_{79}, \varphi_{56}$    |
|       | 22     | 0      | $779688_1 = \chi_{80}, \varphi_{84}$    |
|       | 23     | 0      | $952952_1 = \chi_{89}, \varphi_{128}$   |
|       | 24     | 0      | $1099560_1 = \chi_{94}, \varphi_{54}$   |
|       | 25     | 0      | $1349460_1 = \chi_{105}, \varphi_{53}$  |
|       | 26     | 0      | $1429428_1 = \chi_{107}, \varphi_{78}$  |
|       | 27     | 0      | $1429428_2 = \chi_{108}, \varphi_{168}$ |
|       | 28     | 0      | $1649340_1 = \chi_{115}, \varphi_{87}$  |
|       | 29     | 0      | $2144142_1 = \chi_{120}, \varphi_{89}$  |
|       | 30     | 0      | $2382380_1 = \chi_{125}, \varphi_{162}$ |
|       | 31     | 0      | $2598960_1 = \chi_{126}, \varphi_{114}$ |
|       | 32     | 0      | $2858856_1 = \chi_{131}, \varphi_{147}$ |
|       | 33     | 0      | $2858856_2 = \chi_{132}, \varphi_{121}$ |
|       | 34     | 0      | $2923830_1 = \chi_{133}, \varphi_{100}$ |
|       | 35     | 0      | $3198720_1 = \chi_{138}, \varphi_{85}$  |
|       | 36     | 0      | $3508596_1 = \chi_{143}, \varphi_{122}$ |
|       | 37     | 0      | $3508596_2 = \chi_{144}, \varphi_{155}$ |
|       | 38     | 0      | $4288284_1 = \chi_{156}, \varphi_{136}$ |
|       | 39     | 0      | $4691456_1 = \chi_{160}, \varphi_{154}$ |
|       | 40     | 0      | $4691456_2 = \chi_{161}, \varphi_{153}$ |

|  | blocks | defect | matrix                                   |
|--|--------|--------|------------------------------------------|
|  | 41     | 0      | $5937624_1 = \chi_{173}, \varphi_{146}$  |
|  | 42     | 0      | $6432426_1 = \chi_{177}, \varphi_{107}$  |
|  | 43     | 0      | $6872250_1 = \chi_{181}, \varphi_{116}$  |
|  | 44     | 0      | $8576568_1 = \chi_{190}, \varphi_{152}$  |
|  | 45     | 0      | $9529520_1 = \chi_{194}, \varphi_{145}$  |
|  | 46     | 0      | $10720710_1 = \chi_{196}, \varphi_{166}$ |
|  | 47     | 0      | $16243500_1 = \chi_{199}, \varphi_{167}$ |

[illegible]

| (Block 1:)               | $\varphi_{51}$ | $\varphi_{62}$ | $\varphi_{77}$ | $\varphi_{91}$ | $\varphi_{95}$ | $\varphi_{97}$ | $\varphi_{101}$ | $\varphi_{110}$ | $\varphi_{117}$ | $\varphi_{127}$ | $\varphi_{133}$ |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| $1_1 = \chi_1$           | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $680_1 = \chi_6$         | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $5508_1 = \chi_{12}$     | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $7020_1 = \chi_{15}$     | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $13260_1 = \chi_{19}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $19448_1 = \chi_{20}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $29835_1 = \chi_{25}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $53040_1 = \chi_{27}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $58344_1 = \chi_{29}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $87516_1 = \chi_{32}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $88128_1 = \chi_{33}$    | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $112320_1 = \chi_{40}$   | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $143208_1 = \chi_{43}$   | .              | .              | .              | .              | 1              | .              | .               | .               | .               | .               | .               |
| $238680_1 = \chi_{48}$   | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $268515_1 = \chi_{52}$   | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $302940_1 = \chi_{53}$   | .              | 1              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $339456_1 = \chi_{56}$   | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $656370_1 = \chi_{76}$   | 1              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $875160_2 = \chi_{86}$   | .              | 1              | .              | 1              | .              | .              | .               | .               | .               | .               | .               |
| $1131520_1 = \chi_{95}$  | .              | .              | .              | .              | 1              | 1              | .               | .               | .               | .               | .               |
| $1215500_1 = \chi_{98}$  | 1              | .              | 1              | .              | .              | .              | .               | .               | .               | .               | .               |
| $1312740_1 = \chi_{104}$ | .              | .              | .              | .              | .              | 1              | .               | .               | .               | 1               | .               |
| $1432080_1 = \chi_{109}$ | .              | .              | .              | 1              | .              | .              | .               | 1               | .               | .               | .               |
| $1575288_2 = \chi_{114}$ | .              | .              | 1              | .              | .              | .              | .               | 1               | .               | .               | .               |
| $1823250_1 = \chi_{117}$ | .              | .              | .              | .              | 1              | .              | .               | .               | .               | .               | 1               |
| $2148120_1 = \chi_{121}$ | .              | .              | .              | .              | .              | 1              | 1               | .               | .               | .               | .               |
| $2333760_1 = \chi_{122}$ | .              | .              | .              | .              | .              | .              | .               | .               | .               | 1               | .               |
| $2362932_1 = \chi_{124}$ | 1              | .              | .              | .              | .              | .              | .               | .               | .               | .               | .               |
| $3978000_1 = \chi_{153}$ | .              | 1              | .              | .              | .              | .              | 1               | .               | 1               | .               | .               |
| $4200768_1 = \chi_{154}$ | .              | .              | .              | .              | 1              | 1              | 1               | .               | .               | 1               | 1               |
| $4230144_1 = \chi_{155}$ | .              | 1              | .              | 1              | .              | .              | .               | 1               | 1               | .               | .               |
| $6789120_1 = \chi_{180}$ | 1              | .              | 1              | .              | .              | .              | .               | .               | .               | .               | .               |
| $7876440_1 = \chi_{184}$ | .              | .              | .              | .              | .              | .              | .               | .               | .               | 1               | 1               |
| $7876440_2 = \chi_{185}$ | .              | .              | 1              | .              | .              | .              | .               | 1               | 1               | .               | .               |
| $9165312_1 = \chi_{191}$ | .              | .              | .              | .              | .              | .              | 1               | .               | 1               | .               | 1               |

| (Block 1:)               | $\varphi_{150}$ | $\varphi_{156}$ | $\varphi_{165}$ |                   |             |
|--------------------------|-----------------|-----------------|-----------------|-------------------|-------------|
| $1_1 = \chi_1$           | .               | .               | .               | $\varphi_1 =$     | $1_1$       |
| $680_1 = \chi_6$         | .               | .               | .               | $\varphi_7 =$     | $680_1$     |
| $5508_1 = \chi_{12}$     | .               | .               | .               | $\varphi_{11} =$  | $6340_1$    |
| $7020_1 = \chi_{15}$     | .               | .               | .               | $\varphi_{13} =$  | $5507_1$    |
| $13260_1 = \chi_{19}$    | .               | .               | .               | $\varphi_{17} =$  | $23495_1$   |
| $19448_1 = \chi_{20}$    | .               | .               | .               | $\varphi_{21} =$  | $47533_1$   |
| $29835_1 = \chi_{25}$    | .               | .               | .               | $\varphi_{27} =$  | $34849_1$   |
| $53040_1 = \chi_{27}$    | .               | .               | .               | $\varphi_{31} =$  | $7753_1$    |
| $58344_1 = \chi_{29}$    | .               | .               | .               | $\varphi_{32} =$  | $27334_1$   |
| $87516_1 = \chi_{32}$    | .               | 1               | .               | $\varphi_{34} =$  | $163813_1$  |
| $88128_1 = \chi_{33}$    | .               | .               | .               | $\varphi_{37} =$  | $175643_1$  |
| $112320_1 = \chi_{40}$   | .               | .               | .               | $\varphi_{41} =$  | $92872_1$   |
| $143208_1 = \chi_{43}$   | .               | .               | .               | $\varphi_{44} =$  | $19448_1$   |
| $238680_1 = \chi_{48}$   | .               | .               | .               | $\varphi_{51} =$  | $289580_1$  |
| $268515_1 = \chi_{52}$   | .               | .               | .               | $\varphi_{62} =$  | $268091_1$  |
| $302940_1 = \chi_{53}$   | .               | .               | .               | $\varphi_{77} =$  | $657405_1$  |
| $339456_1 = \chi_{56}$   | .               | .               | .               | $\varphi_{91} =$  | $607069_1$  |
| $656370_1 = \chi_{76}$   | .               | .               | .               | $\varphi_{95} =$  | $136868_1$  |
| $875160_2 = \chi_{86}$   | .               | .               | .               | $\varphi_{97} =$  | $964137_1$  |
| $1131520_1 = \chi_{95}$  | .               | .               | .               | $\varphi_{101} =$ | $1125639_1$ |
| $1215500_1 = \chi_{98}$  | .               | .               | .               | $\varphi_{110} =$ | $805563_1$  |
| $1312740_1 = \chi_{104}$ | .               | .               | .               | $\varphi_{117} =$ | $2549421_1$ |
| $1432080_1 = \chi_{109}$ | .               | .               | .               | $\varphi_{127} =$ | $347923_1$  |
| $1575288_2 = \chi_{114}$ | .               | .               | .               | $\varphi_{133} =$ | $1626201_1$ |
| $1823250_1 = \chi_{117}$ | .               | 1               | .               | $\varphi_{150} =$ | $3864051_1$ |
| $2148120_1 = \chi_{121}$ | .               | .               | .               | $\varphi_{156} =$ | $60181_1$   |
| $2333760_1 = \chi_{122}$ | .               | .               | 1               | $\varphi_{165} =$ | $1978084_1$ |
| $2362932_1 = \chi_{124}$ | .               | 1               | 1               |                   |             |
| $3978000_1 = \chi_{153}$ | .               | .               | .               |                   |             |
| $4200768_1 = \chi_{154}$ | .               | .               | .               |                   |             |
| $4230144_1 = \chi_{155}$ | .               | .               | .               |                   |             |
| $6789120_1 = \chi_{180}$ | 1               | .               | 1               |                   |             |
| $7876440_1 = \chi_{184}$ | 1               | 1               | 1               |                   |             |
| $7876440_2 = \chi_{185}$ | 1               | .               | .               |                   |             |
| $9165312_1 = \chi_{191}$ | 1               | .               | .               |                   |             |

[illegible]

| (Block 2:)               | $\varphi_{60}$ | $\varphi_{64}$ | $\varphi_{67}$ | $\varphi_{68}$ | $\varphi_{75}$ | $\varphi_{81}$ | $\varphi_{82}$ | $\varphi_{88}$ | $\varphi_{119}$ | $\varphi_{126}$ | $\varphi_{131}$ | $\varphi_{138}$ |
|--------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|
| $17_1 = \chi_2$          | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $136_1 = \chi_4$         | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $2244_1 = \chi_8$        | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $6885_1 = \chi_{14}$     | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $11934_1 = \chi_{17}$    | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $24310_1 = \chi_{23}$    | .              | 1              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $29172_1 = \chi_{24}$    | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $70720_1 = \chi_{31}$    | .              | .              | 1              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $99144_1 = \chi_{36}$    | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $322218_1 = \chi_{54}$   | .              | .              | 1              | 1              | .              | .              | .              | .              | .               | .               | .               | .               |
| $331500_1 = \chi_{55}$   | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $363528_1 = \chi_{60}$   | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $364650_1 = \chi_{61}$   | .              | .              | .              | 1              | .              | .              | .              | .              | .               | 1               | .               | .               |
| $447525_1 = \chi_{63}$   | 1              | 1              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $466752_1 = \chi_{65}$   | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | 1               | .               |
| $583440_1 = \chi_{69}$   | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $875160_1 = \chi_{85}$   | .              | .              | .              | .              | .              | .              | .              | .              | .               | 1               | .               | 1               |
| $1018368_1 = \chi_{90}$  | .              | 1              | .              | .              | .              | .              | .              | 1              | .               | .               | .               | .               |
| $1175040_1 = \chi_{97}$  | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $1357824_1 = \chi_{106}$ | 1              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $1458600_1 = \chi_{110}$ | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $1575288_1 = \chi_{113}$ | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | 1               | 1               |
| $1790100_1 = \chi_{116}$ | .              | .              | .              | .              | .              | .              | .              | .              | .               | .               | .               | .               |
| $1989000_1 = \chi_{118}$ | .              | .              | .              | 1              | 1              | .              | .              | .              | .               | .               | .               | .               |
| $3222180_1 = \chi_{139}$ | .              | .              | .              | .              | .              | 1              | .              | 1              | .               | .               | .               | .               |
| $3544398_1 = \chi_{145}$ | 1              | .              | .              | .              | .              | .              | 1              | .              | .               | .               | .               | .               |
| $3734016_1 = \chi_{148}$ | .              | .              | 1              | .              | .              | .              | .              | .              | .               | .               | 1               | .               |
| $3965760_1 = \chi_{152}$ | .              | .              | .              | .              | 1              | 1              | .              | .              | .               | .               | .               | .               |
| $4725864_1 = \chi_{162}$ | .              | 1              | .              | .              | .              | 1              | .              | 1              | 1               | .               | .               | .               |
| $4862000_1 = \chi_{163}$ | 1              | 1              | .              | .              | .              | .              | 1              | .              | 1               | .               | .               | .               |
| $5250960_1 = \chi_{169}$ | .              | .              | 1              | 1              | 1              | .              | .              | .              | .               | 1               | .               | .               |
| $5469750_1 = \chi_{172}$ | .              | .              | .              | .              | .              | .              | 1              | .              | .               | .               | .               | 1               |
| $7088796_1 = \chi_{182}$ | .              | .              | .              | .              | .              | .              | .              | .              | .               | 1               | 1               | 1               |
| $8078400_1 = \chi_{187}$ | .              | .              | .              | .              | .              | 1              | 1              | .              | 1               | .               | .               | .               |
| $8486400_1 = \chi_{189}$ | .              | .              | .              | .              | 1              | 1              | .              | .              | .               | .               | .               | .               |

| (Block 2:)               | $\varphi_{139}$ | $\varphi_{148}$ |                   |             |
|--------------------------|-----------------|-----------------|-------------------|-------------|
| $17_1 = \chi_2$          | .               | .               | $\varphi_2 =$     | $17_1$      |
| $136_1 = \chi_4$         | .               | .               | $\varphi_4 =$     | $136_1$     |
| $2244_1 = \chi_8$        | .               | .               | $\varphi_8 =$     | $2227_1$    |
| $6885_1 = \chi_{14}$     | .               | .               | $\varphi_9 =$     | $6749_1$    |
| $11934_1 = \chi_{17}$    | .               | .               | $\varphi_{15} =$  | $22423_1$   |
| $24310_1 = \chi_{23}$    | .               | .               | $\varphi_{22} =$  | $96917_1$   |
| $29172_1 = \chi_{24}$    | .               | .               | $\varphi_{36} =$  | $486523_1$  |
| $70720_1 = \chi_{31}$    | .               | .               | $\varphi_{39} =$  | $341105_1$  |
| $99144_1 = \chi_{36}$    | .               | .               | $\varphi_{45} =$  | $9707_1$    |
| $322218_1 = \chi_{54}$   | .               | .               | $\varphi_{47} =$  | $222632_1$  |
| $331500_1 = \chi_{55}$   | .               | .               | $\varphi_{50} =$  | $368968_1$  |
| $363528_1 = \chi_{60}$   | .               | .               | $\varphi_{55} =$  | $934609_1$  |
| $364650_1 = \chi_{61}$   | .               | .               | $\varphi_{59} =$  | $1117495_1$ |
| $447525_1 = \chi_{63}$   | .               | .               | $\varphi_{60} =$  | $423215_1$  |
| $466752_1 = \chi_{65}$   | .               | .               | $\varphi_{64} =$  | $24310_1$   |
| $583440_1 = \chi_{69}$   | .               | .               | $\varphi_{67} =$  | $63971_1$   |
| $875160_1 = \chi_{85}$   | .               | .               | $\varphi_{68} =$  | $228939_1$  |
| $1018368_1 = \chi_{90}$  | .               | .               | $\varphi_{75} =$  | $1396533_1$ |
| $1175040_1 = \chi_{97}$  | .               | .               | $\varphi_{81} =$  | $1110627_1$ |
| $1357824_1 = \chi_{106}$ | .               | .               | $\varphi_{82} =$  | $1817606_1$ |
| $1458600_1 = \chi_{110}$ | .               | .               | $\varphi_{88} =$  | $994058_1$  |
| $1575288_1 = \chi_{113}$ | .               | .               | $\varphi_{119} =$ | $2596869_1$ |
| $1790100_1 = \chi_{116}$ | .               | .               | $\varphi_{126} =$ | $135575_1$  |
| $1989000_1 = \chi_{118}$ | .               | .               | $\varphi_{131} =$ | $244103_1$  |
| $3222180_1 = \chi_{139}$ | .               | .               | $\varphi_{138} =$ | $729878_1$  |
| $3544398_1 = \chi_{145}$ | .               | .               | $\varphi_{139} =$ | $3425942_1$ |
| $3734016_1 = \chi_{148}$ | 1               | .               | $\varphi_{148} =$ | $2553298_1$ |
| $3965760_1 = \chi_{152}$ | .               | .               |                   |             |
| $4725864_1 = \chi_{162}$ | .               | .               |                   |             |
| $4862000_1 = \chi_{163}$ | .               | .               |                   |             |
| $5250960_1 = \chi_{169}$ | 1               | .               |                   |             |
| $5469750_1 = \chi_{172}$ | .               | 1               |                   |             |
| $7088796_1 = \chi_{182}$ | 1               | 1               |                   |             |
| $8078400_1 = \chi_{187}$ | .               | 1               |                   |             |
| $8486400_1 = \chi_{189}$ | 1               | 1               |                   |             |

| <b>Block 3:</b>          | $\varphi_3$ | $\varphi_5$ | $\varphi_{24}$ | $\varphi_{38}$ | $\varphi_{58}$ | $\varphi_{66}$ | $\varphi_{70}$ | $\varphi_{74}$ | $\varphi_{80}$ | $\varphi_{86}$ | $\varphi_{92}$ | $\varphi_{93}$ | $\varphi_{99}$ |
|--------------------------|-------------|-------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| $135_1 = \chi_3$         | 1           | .           | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              |
| $663_1 = \chi_5$         | 1           | 1           | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              |
| $4862_1 = \chi_{11}$     | .           | 1           | .              | .              | .              | 1              | .              | .              | .              | .              | .              | .              | .              |
| $56100_1 = \chi_{28}$    | .           | 1           | 1              | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              |
| $91520_1 = \chi_{34}$    | .           | .           | .              | .              | .              | .              | .              | .              | .              | .              | .              | 1              | .              |
| $91520_2 = \chi_{35}$    | .           | .           | .              | .              | .              | .              | .              | .              | .              | .              | 1              | .              | .              |
| $358020_1 = \chi_{59}$   | .           | .           | 1              | 1              | .              | .              | .              | .              | .              | .              | .              | .              | .              |
| $590733_1 = \chi_{70}$   | .           | .           | .              | .              | .              | .              | .              | .              | .              | 1              | 1              | 1              | .              |
| $678912_1 = \chi_{78}$   | 1           | 1           | 1              | .              | .              | 1              | 1              | .              | .              | .              | .              | .              | .              |
| $787644_1 = \chi_{81}$   | 1           | .           | .              | .              | .              | .              | 1              | .              | .              | .              | .              | .              | 1              |
| $787644_2 = \chi_{82}$   | .           | .           | .              | .              | .              | 1              | .              | .              | .              | .              | .              | .              | 1              |
| $933504_1 = \chi_{87}$   | .           | .           | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              | 1              |
| $933504_2 = \chi_{88}$   | .           | .           | .              | .              | .              | .              | .              | .              | .              | .              | .              | .              | 1              |
| $1145664_1 = \chi_{96}$  | .           | .           | .              | 1              | 1              | .              | .              | .              | .              | .              | .              | .              | .              |
| $1244672_1 = \chi_{101}$ | .           | .           | .              | .              | .              | .              | .              | .              | .              | 1              | 1              | .              | .              |
| $1244672_2 = \chi_{102}$ | .           | .           | .              | .              | .              | .              | .              | .              | .              | 1              | .              | 1              | .              |
| $2333760_2 = \chi_{123}$ | .           | .           | .              | .              | 1              | .              | .              | .              | 1              | 1              | .              | .              | .              |
| $2625480_1 = \chi_{127}$ | .           | .           | 1              | 1              | .              | .              | 1              | 1              | .              | .              | .              | .              | .              |
| $3055104_1 = \chi_{136}$ | .           | .           | .              | .              | .              | 1              | 1              | 1              | .              | .              | .              | .              | 1              |
| $3281850_1 = \chi_{141}$ | .           | .           | .              | .              | .              | .              | .              | .              | 1              | 1              | .              | .              | .              |
| $3646500_1 = \chi_{146}$ | .           | .           | .              | .              | .              | .              | .              | 1              | 1              | .              | .              | .              | .              |
| $3877632_1 = \chi_{149}$ | .           | .           | .              | 1              | 1              | .              | .              | 1              | 1              | .              | .              | .              | .              |

| (Block 3:)               | $\varphi_{105}$ | $\varphi_{112}$ | $\varphi_{113}$ | $\varphi_{123}$ | $\varphi_{124}$ |                            |
|--------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------------|
| $135_1 = \chi_3$         | .               | .               | .               | .               | .               | $\varphi_3 = 135_1$        |
| $663_1 = \chi_5$         | .               | .               | .               | .               | .               | $\varphi_5 = 528_1$        |
| $4862_1 = \chi_{11}$     | .               | .               | .               | .               | .               | $\varphi_{24} = 55572_1$   |
| $56100_1 = \chi_{28}$    | .               | .               | .               | .               | .               | $\varphi_{38} = 302448_1$  |
| $91520_1 = \chi_{34}$    | .               | .               | .               | .               | .               | $\varphi_{58} = 843216_1$  |
| $91520_2 = \chi_{35}$    | .               | .               | .               | .               | .               | $\varphi_{66} = 4334_1$    |
| $358020_1 = \chi_{59}$   | .               | .               | .               | .               | .               | $\varphi_{70} = 618343_1$  |
| $590733_1 = \chi_{70}$   | .               | .               | .               | .               | .               | $\varphi_{74} = 1649117_1$ |
| $678912_1 = \chi_{78}$   | .               | .               | .               | .               | .               | $\varphi_{80} = 1082851_1$ |
| $787644_1 = \chi_{81}$   | .               | .               | .               | .               | .               | $\varphi_{86} = 407693_1$  |
| $787644_2 = \chi_{82}$   | 1               | .               | .               | .               | .               | $\varphi_{92} = 91520_1$   |
| $933504_1 = \chi_{87}$   | 1               | 1               | .               | .               | .               | $\varphi_{93} = 91520_2$   |
| $933504_2 = \chi_{88}$   | 1               | .               | 1               | .               | .               | $\varphi_{99} = 169166_1$  |
| $1145664_1 = \chi_{96}$  | .               | .               | .               | .               | .               | $\varphi_{105} = 614144_1$ |
| $1244672_1 = \chi_{101}$ | .               | .               | .               | .               | 1               | $\varphi_{112} = 150194_1$ |
| $1244672_2 = \chi_{102}$ | .               | .               | .               | 1               | .               | $\varphi_{113} = 150194_2$ |
| $2333760_2 = \chi_{123}$ | .               | .               | .               | .               | .               | $\varphi_{123} = 745459_1$ |
| $2625480_1 = \chi_{127}$ | .               | .               | .               | .               | .               | $\varphi_{124} = 745459_2$ |
| $3055104_1 = \chi_{136}$ | 1               | .               | .               | .               | .               |                            |
| $3281850_1 = \chi_{141}$ | .               | 1               | 1               | 1               | 1               |                            |
| $3646500_1 = \chi_{146}$ | 1               | 1               | 1               | .               | .               |                            |
| $3877632_1 = \chi_{149}$ | .               | .               | .               | .               | .               |                            |

| Block 4:                 | $\varphi_6$ | $\varphi_{65}$ | $\varphi_{96}$ | $\varphi_{106}$ | $\varphi_{115}$ | $\varphi_{120}$ |                             |
|--------------------------|-------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------------------|
| $1344_1 = \chi_7$        | 1           | .              | .              | .               | .               | .               | $\varphi_6 = 1344_1$        |
| $162162_1 = \chi_{44}$   | .           | 1              | .              | .               | .               | .               | $\varphi_{65} = 162162_1$   |
| $510510_1 = \chi_{67}$   | 1           | .              | 1              | .               | .               | .               | $\varphi_{96} = 509166_1$   |
| $1225224_1 = \chi_{99}$  | .           | 1              | .              | .               | .               | 1               | $\varphi_{106} = 4503114_1$ |
| $5012280_1 = \chi_{165}$ | .           | .              | 1              | 1               | .               | .               | $\varphi_{115} = 5298678_1$ |
| $6361740_1 = \chi_{176}$ | .           | .              | .              | .               | 1               | 1               | $\varphi_{120} = 1063062_1$ |
| $9801792_1 = \chi_{195}$ | .           | .              | .              | 1               | 1               | .               |                             |

| <b>Block 5:</b>          | $\varphi_{12}$ | $\varphi_{30}$ | $\varphi_{129}$ | $\varphi_{135}$ | $\varphi_{137}$ | $\varphi_{144}$ |                             |
|--------------------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------------------|
| $2380_1 = \chi_9$        | 1              | .              | .               | .               | .               | .               | $\varphi_{12} = 2380_1$     |
| $12376_1 = \chi_{18}$    | .              | 1              | .               | .               | .               | .               | $\varphi_{30} = 12376_1$    |
| $1233792_1 = \chi_{100}$ | .              | 1              | .               | .               | 1               | .               | $\varphi_{129} = 1501304_1$ |
| $1503684_1 = \chi_{111}$ | 1              | .              | 1               | .               | .               | .               | $\varphi_{135} = 3449096_1$ |
| $2784600_1 = \chi_{130}$ | .              | .              | .               | .               | 1               | 1               | $\varphi_{137} = 1221416_1$ |
| $4950400_1 = \chi_{164}$ | .              | .              | 1               | 1               | .               | .               | $\varphi_{144} = 1563184_1$ |
| $5012280_2 = \chi_{166}$ | .              | .              | .               | 1               | .               | 1               |                             |

| <b>Block 6:</b>          | $\varphi_{10}$ | $\varphi_{61}$ | $\varphi_{83}$ | $\varphi_{94}$ | $\varphi_{141}$ | $\varphi_{149}$ |                             |
|--------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|-----------------------------|
| $4641_1 = \chi_{10}$     | 1              | .              | .              | .              | .               | .               | $\varphi_{10} = 4641_1$     |
| $136136_1 = \chi_{42}$   | 1              | .              | .              | 1              | .               | .               | $\varphi_{61} = 459459_1$   |
| $459459_1 = \chi_{64}$   | .              | 1              | .              | .              | .               | .               | $\varphi_{83} = 629629_1$   |
| $1089088_1 = \chi_{93}$  | .              | 1              | 1              | .              | .               | .               | $\varphi_{94} = 131495_1$   |
| $3675672_1 = \chi_{147}$ | .              | .              | .              | 1              | 1               | .               | $\varphi_{141} = 3544177_1$ |
| $5105100_2 = \chi_{168}$ | .              | .              | 1              | .              | .               | 1               | $\varphi_{149} = 4475471_1$ |
| $8019648_1 = \chi_{186}$ | .              | .              | .              | .              | 1               | 1               |                             |

| <b>Block 7:</b>          | $\varphi_{19}$ | $\varphi_{130}$ | $\varphi_{163}$ |                             |
|--------------------------|----------------|-----------------|-----------------|-----------------------------|
| $6188_1 = \chi_{13}$     | 1              | .               | .               | $\varphi_{19} = 6188_1$     |
| $556920_1 = \chi_{68}$   | 1              | 1               | .               | $\varphi_{130} = 550732_1$  |
| $3960320_1 = \chi_{150}$ | .              | .               | 1               | $\varphi_{163} = 3960320_1$ |
| $3960320_2 = \chi_{151}$ | .              | .               | 1               |                             |
| $4511052_1 = \chi_{158}$ | .              | 1               | 1               |                             |

| <b>Block 9:</b>           | $\varphi_{14}$ | $\varphi_{46}$ | $\varphi_{63}$ | $\varphi_{118}$ | $\varphi_{151}$ | $\varphi_{164}$ |                             |
|---------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|-----------------------------|
| $22848_1 = \chi_{21}$     | 1              | .              | .              | .               | .               | .               | $\varphi_{14} = 22848_1$    |
| $102102_1 = \chi_{37}$    | 1              | 1              | .              | .               | .               | .               | $\varphi_{46} = 79254_1$    |
| $612612_3 = \chi_{74}$    | .              | .              | 1              | .               | .               | .               | $\varphi_{63} = 612612_2$   |
| $2042040_1 = \chi_{119}$  | .              | 1              | .              | .               | .               | 1               | $\varphi_{118} = 7021476_1$ |
| $7634088_1 = \chi_{183}$  | .              | .              | 1              | 1               | .               | .               | $\varphi_{151} = 9314844_1$ |
| $11277630_1 = \chi_{197}$ | .              | .              | .              | .               | 1               | 1               | $\varphi_{164} = 1962786_1$ |
| $16336320_1 = \chi_{200}$ | .              | .              | .              | 1               | 1               | .               |                             |

| <b>Block 10:</b>         | $\varphi_{18}$ | $\varphi_{29}$ | $\varphi_{98}$ | $\varphi_{103}$ | $\varphi_{160}$ | $\varphi_{161}$ |
|--------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| $24192_1 = \chi_{22}$    | 1              | .              | .              | .               | .               | .               |
| $60060_1 = \chi_{30}$    | .              | 1              | .              | .               | .               | .               |
| $612612_1 = \chi_{72}$   | 1              | .              | 1              | .               | .               | .               |
| $1272348_1 = \chi_{103}$ | .              | 1              | .              | 1               | .               | .               |
| $4455360_1 = \chi_{157}$ | .              | .              | .              | 1               | .               | 1               |
| $6534528_1 = \chi_{178}$ | .              | .              | 1              | .               | 1               | .               |
| $9189180_1 = \chi_{192}$ | .              | .              | .              | .               | 1               | 1               |

|                 |   |             |
|-----------------|---|-------------|
| $\varphi_{18}$  | = | $24192_1$   |
| $\varphi_{29}$  | = | $60060_1$   |
| $\varphi_{98}$  | = | $588420_1$  |
| $\varphi_{103}$ | = | $1212288_1$ |
| $\varphi_{160}$ | = | $5946108_1$ |
| $\varphi_{161}$ | = | $3243072_1$ |

| <b>Block 11:</b>         | $\varphi_{16}$ | $\varphi_{43}$ | $\varphi_{69}$ | $\varphi_{109}$ | $\varphi_{143}$ | $\varphi_{158}$ |
|--------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| $35343_1 = \chi_{26}$    | 1              | .              | .              | .               | .               | .               |
| $255255_1 = \chi_{50}$   | .              | 1              | .              | .               | .               | .               |
| $340340_1 = \chi_{57}$   | 1              | .              | 1              | .               | .               | .               |
| $2756754_2 = \chi_{129}$ | .              | .              | 1              | .               | .               | 1               |
| $5361664_1 = \chi_{171}$ | .              | 1              | .              | 1               | .               | .               |
| $6534528_2 = \chi_{179}$ | .              | .              | .              | .               | 1               | 1               |
| $9189180_2 = \chi_{193}$ | .              | .              | .              | 1               | 1               | .               |

|                 |   |             |
|-----------------|---|-------------|
| $\varphi_{16}$  | = | $35343_1$   |
| $\varphi_{43}$  | = | $255255_1$  |
| $\varphi_{69}$  | = | $304997_1$  |
| $\varphi_{109}$ | = | $5106409_1$ |
| $\varphi_{143}$ | = | $4082771_1$ |
| $\varphi_{158}$ | = | $2451757_1$ |

| <b>Block 12:</b>         | $\varphi_{26}$ | $\varphi_{28}$ | $\varphi_{72}$ | $\varphi_{102}$ | $\varphi_{134}$ | $\varphi_{159}$ |
|--------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| $106029_1 = \chi_{38}$   | .              | 1              | .              | .               | .               | .               |
| $116025_1 = \chi_{41}$   | 1              | .              | .              | .               | .               | .               |
| $837760_1 = \chi_{83}$   | 1              | .              | 1              | .               | .               | .               |
| $3267264_1 = \chi_{140}$ | .              | .              | 1              | .               | .               | 1               |
| $3403400_1 = \chi_{142}$ | .              | 1              | .              | 1               | .               | .               |
| $4594590_1 = \chi_{159}$ | .              | .              | .              | .               | 1               | 1               |
| $5346432_1 = \chi_{170}$ | .              | .              | .              | 1               | 1               | .               |

|                 |   |             |
|-----------------|---|-------------|
| $\varphi_{26}$  | = | $116025_1$  |
| $\varphi_{28}$  | = | $106029_1$  |
| $\varphi_{72}$  | = | $721735_1$  |
| $\varphi_{102}$ | = | $3297371_1$ |
| $\varphi_{134}$ | = | $2049061_1$ |
| $\varphi_{159}$ | = | $2545529_1$ |

| <b>Block 13:</b>          | $\varphi_{23}$ | $\varphi_{42}$ | $\varphi_{48}$ | $\varphi_{108}$ | $\varphi_{142}$ | $\varphi_{157}$ |
|---------------------------|----------------|----------------|----------------|-----------------|-----------------|-----------------|
| $111384_1 = \chi_{39}$    | 1              | .              | .              | .               | .               | .               |
| $251328_1 = \chi_{49}$    | .              | 1              | .              | .               | .               | .               |
| $353430_1 = \chi_{58}$    | 1              | .              | 1              | .               | .               | .               |
| $1021020_1 = \chi_{91}$   | .              | .              | 1              | .               | .               | 1               |
| $6126120_1 = \chi_{174}$  | .              | 1              | .              | 1               | .               | .               |
| $8270262_1 = \chi_{188}$  | .              | .              | .              | .               | 1               | 1               |
| $13366080_1 = \chi_{198}$ | .              | .              | .              | 1               | 1               | .               |

|                 |   |             |
|-----------------|---|-------------|
| $\varphi_{23}$  | = | $111384_1$  |
| $\varphi_{42}$  | = | $251328_1$  |
| $\varphi_{48}$  | = | $242046_1$  |
| $\varphi_{108}$ | = | $5874792_1$ |
| $\varphi_{142}$ | = | $7491288_1$ |
| $\varphi_{157}$ | = | $778974_1$  |

| <b>Block 14:</b>         | $\varphi_{25}$ | $\varphi_{40}$ | $\varphi_{71}$ | $\varphi_{76}$ | $\varphi_{132}$ | $\varphi_{140}$ |
|--------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| $182784_1 = \chi_{45}$   | 1              | .              | .              | .              | .               | .               |
| $612612_2 = \chi_{73}$   | .              | 1              | .              | .              | .               | .               |
| $1531530_1 = \chi_{112}$ | 1              | .              | 1              | .              | .               | .               |
| $2756754_1 = \chi_{128}$ | .              | .              | 1              | .              | 1               | .               |
| $3180870_1 = \chi_{137}$ | .              | 1              | .              | 1              | .               | .               |
| $5105100_1 = \chi_{167}$ | .              | .              | .              | .              | 1               | 1               |
| $6265350_1 = \chi_{175}$ | .              | .              | .              | 1              | .               | 1               |

$$\begin{aligned}
\varphi_{25} &= 182784_1 \\
\varphi_{40} &= 612612_1 \\
\varphi_{71} &= 1348746_1 \\
\varphi_{76} &= 2568258_1 \\
\varphi_{132} &= 1408008_1 \\
\varphi_{140} &= 3697092_1
\end{aligned}$$

| <b>Block 16:</b>         | $\varphi_{35}$ | $\varphi_{49}$ | $\varphi_{57}$ | $\varphi_{79}$ | $\varphi_{104}$ | $\varphi_{111}$ |
|--------------------------|----------------|----------------|----------------|----------------|-----------------|-----------------|
| $228480_1 = \chi_{47}$   | 1              | .              | .              | .              | .               | .               |
| $408408_1 = \chi_{62}$   | .              | 1              | .              | .              | 1               | .               |
| $501228_1 = \chi_{66}$   | 1              | 1              | .              | .              | .               | .               |
| $848232_1 = \chi_{84}$   | .              | .              | 1              | .              | .               | .               |
| $1021020_2 = \chi_{92}$  | .              | .              | .              | .              | 1               | 1               |
| $2970240_1 = \chi_{134}$ | .              | .              | 1              | 1              | .               | .               |
| $3007368_1 = \chi_{135}$ | .              | .              | .              | 1              | .               | 1               |

$$\begin{aligned}
\varphi_{35} &= 228480_1 \\
\varphi_{49} &= 272748_1 \\
\varphi_{57} &= 848232_1 \\
\varphi_{79} &= 2122008_1 \\
\varphi_{104} &= 135660_1 \\
\varphi_{111} &= 885360_1
\end{aligned}$$