

1 BLT set 6 over GF(43)

Points on the quadric $x_0^2 + x_1x_2 + x_3x_4$:

$$P_1 = (0, 1, 0, 0, 0)$$

$$P_2 = (0, 0, 1, 0, 0)$$

$$P_3 = (0, 1, 21, 42, 21)$$

$$P_4 = (0, 1, 16, 21, 32)$$

$$P_5 = (0, 1, 11, 15, 5)$$

$$P_6 = (0, 1, 9, 12, 10)$$

$$P_7 = (1, 10, 13, 24, 25)$$

$$P_8 = (1, 5, 8, 30, 23)$$

$$P_9 = (1, 11, 9, 1, 29)$$

$$P_{10} = (1, 14, 6, 14, 40)$$

$$P_{11} = (1, 37, 29, 33, 30)$$

$$P_{12} = (1, 13, 1, 12, 6)$$

$$P_{13} = (1, 32, 20, 38, 25)$$

$$P_{14} = (1, 40, 15, 4, 11)$$

$$P_{15} = (1, 42, 34, 5, 41)$$

$$P_{16} = (1, 16, 9, 9, 3)$$

$$P_{17} = (1, 4, 16, 31, 9)$$

$$P_{18} = (1, 37, 2, 23, 36)$$

$$P_{19} = (1, 38, 17, 18, 19)$$

$$P_{20} = (1, 2, 30, 6, 40)$$

$$P_{21} = (1, 13, 36, 19, 7)$$

$$P_{22} = (1, 16, 25, 3, 24)$$

$$P_{23} = (1, 38, 23, 22, 13)$$

$$P_{24} = (1, 15, 31, 18, 41)$$

$$P_{25} = (1, 18, 37, 33, 28)$$

$$P_{26} = (1, 12, 42, 38, 15)$$

$$P_{27} = (1, 16, 1, 42, 17)$$

$$P_{28} = (1, 33, 12, 23, 22)$$

$$P_{29} = (1, 7, 20, 16, 10)$$

$$P_{30} = (1, 39, 18, 32, 17)$$

$$P_{31} = (1, 37, 7, 4, 21)$$

$$P_{32} = (1, 23, 13, 15, 23)$$

$$P_{33} = (1, 29, 26, 36, 28)$$

$$P_{34} = (1, 4, 41, 15, 32)$$

$$P_{35} = (1, 32, 30, 15, 42)$$

$$P_{36} = (1, 26, 27, 10, 20)$$

$$P_{37} = (1, 29, 34, 8, 11)$$

$$P_{38} = (1, 26, 34, 16, 28)$$

$$P_{39} = (1, 13, 9, 41, 16)$$

$$P_{40} = (1, 28, 28, 30, 24)$$

$$P_{41} = (1, 38, 23, 1, 28)$$

$$P_{42} = (1, 36, 35, 41, 7)$$

$$P_{43} = (1, 33, 42, 8, 4)$$

$$P_{44} = (1, 9, 14, 3, 15)$$

Stabilizer of order 84 is generated by:

$$g_1 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 4 & 41 & 39 & 41 \\ 0 & 10 & 4 & 34 & 14 \\ 0 & 14 & 41 & 39 & 36 \\ 0 & 34 & 39 & 9 & 39 \end{pmatrix}$$

$$g_2 = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 35 & 1 & 4 & 2 \\ 0 & 2 & 0 & 42 & 0 \\ 0 & 4 & 0 & 0 & 42 \end{pmatrix}$$

$$g_3 = \begin{pmatrix} 3 & 31 & 0 & 9 & 23 \\ 0 & 11 & 0 & 0 & 0 \\ 0 & 16 & 4 & 25 & 37 \\ 42 & 4 & 0 & 30 & 10 \\ 2 & 33 & 0 & 9 & 33 \end{pmatrix}$$

$$g_4 = \begin{pmatrix} 9 & 16 & 0 & 32 & 19 \\ 0 & 21 & 0 & 0 & 0 \\ 20 & 40 & 41 & 34 & 26 \\ 6 & 12 & 0 & 2 & 25 \\ 11 & 25 & 0 & 1 & 8 \end{pmatrix}$$

The induced group has order 84 and is generated by:

$$g_1 = (1, 3)(2, 6)(4, 5)(7, 32)(8, 26)(9, 22)(10, 23)(11, 40)(12, 17)(13, 28)(14, 44)(15, 31)(16, 19)(20, 35)(21, 39)(24, 41)(25, 29)(27, 42)(30, 37)(33, 38)(36, 43)$$

$$g_2 = (2, 4)(5, 6)(7, 35)(8, 42)(9, 37)(10, 25)(11, 44)(12, 43)(13, 41)(14, 40)(15, 39)(16, 38)(17, 36)(18, 34)(19, 33)(20, 32)(21, 31)(22, 30)(23, 29)(24, 28)(26, 27)$$

$$g_3 = (2, 5, 19, 24, 34, 41, 16, 4, 6, 33, 28, 18, 13, 38)(7, 36, 14, 39, 25, 9, 42, 35, 17, 40, 15, 10, 37, 8)(11, 12, 20, 27, 22, 29, 21, 44, 43, 32, 26, 30, 23, 31)$$

$$g_4 = (2, 20, 25, 41, 44, 40, 28, 23, 7, 5, 27, 9, 16, 43, 15, 18, 31, 36, 19, 22, 42, 4, 32, 10, 13, 11, 14, 24, 29, 35, 6, 26, 37, 38, 12, 39, 34, 21, 17, 33, 30, 8)$$

group order is small, so we list all elements $a_1 = \text{id}$

$$a_2 = (2, 4)(5, 6)(7, 35)(8, 42)(9, 37)(10, 25)(11, 44)(12, 43)(13, 41)(14, 40)(15, 39)(16, 38)(17, 36)(18, 34)(19, 33)(20, 32)(21, 31)(22, 30)(23, 29)(24, 28)(26, 27)$$

$$a_3 = (2, 5, 19, 24, 34, 41, 16, 4, 6, 33, 28, 18, 13, 38)(7, 36, 14, 39, 25, 9, 42, 35, 17, 40, 15, 10,$$

$37, 8)(11, 12, 20, 27, 22, 29, 21, 44, 43, 32, 26, 30, 23, 31)$
 $a_4 = (2, 6, 19, 28, 34, 13, 16)(4, 5, 33, 24, 18, 41, 38)(7, 17, 14, 15, 25, 37, 42)(8, 35, 36, 40, 39,$
 $10, 9)(11, 43, 20, 26, 22, 23, 21)(12, 32, 27, 30, 29, 31, 44)$
 $a_5 = (2, 19, 34, 16, 6, 28, 13)(4, 33, 18, 38, 5, 24, 41)(7, 14, 25, 42, 17, 15, 37)(8, 36, 39, 9, 35,$
 $40, 10)(11, 20, 22, 21, 43, 26, 23)(12, 27, 29, 44, 32, 30, 31)$
 $a_6 = (2, 33, 34, 38, 6, 24, 13, 4, 19, 18, 16, 5, 28, 41)(7, 40, 25, 8, 17, 39, 37, 35, 14, 10, 42, 36,$
 $15, 9)(11, 32, 22, 31, 43, 27, 23, 44, 20, 30, 21, 12, 26, 29)$
 $a_7 = (2, 24, 16, 33, 13, 5, 34, 4, 28, 38, 19, 41, 6, 18)(7, 39, 42, 40, 37, 36, 25, 35, 15, 8, 14, 9,$
 $17, 10)(11, 27, 21, 32, 23, 12, 22, 44, 26, 31, 20, 29, 43, 30)$
 $a_8 = (2, 28, 16, 19, 13, 6, 34)(4, 24, 38, 33, 41, 5, 18)(7, 15, 42, 14, 37, 17, 25)(8, 40, 9, 36, 10,$
 $35, 39)(11, 26, 21, 20, 23, 43, 22)(12, 30, 44, 27, 31, 32, 29)$
 $a_9 = (2, 34, 6, 13, 19, 16, 28)(4, 18, 5, 41, 33, 38, 24)(7, 25, 17, 37, 14, 42, 15)(8, 39, 35, 10, 36,$
 $9, 40)(11, 22, 43, 23, 20, 21, 26)(12, 29, 32, 31, 27, 44, 30)$
 $a_{10} = (2, 18, 6, 41, 19, 38, 28, 4, 34, 5, 13, 33, 16, 24)(7, 10, 17, 9, 14, 8, 15, 35, 25, 36, 37, 40,$
 $42, 39)(11, 30, 43, 29, 20, 31, 26, 44, 22, 12, 23, 32, 21, 27)$
 $a_{11} = (2, 41, 28, 5, 16, 18, 19, 4, 13, 24, 6, 38, 34, 33)(7, 9, 15, 36, 42, 10, 14, 35, 37, 39, 17, 8,$
 $25, 40)(11, 29, 26, 12, 21, 30, 20, 44, 23, 27, 43, 31, 22, 32)$
 $a_{12} = (2, 13, 28, 6, 16, 34, 19)(4, 41, 24, 5, 38, 18, 33)(7, 37, 15, 17, 42, 25, 14)(8, 10, 40, 35, 9,$
 $39, 36)(11, 23, 26, 43, 21, 22, 20)(12, 31, 30, 32, 44, 29, 27)$
 $a_{13} = (2, 16, 13, 34, 28, 19, 6)(4, 38, 41, 18, 24, 33, 5)(7, 42, 37, 25, 15, 14, 17)(8, 9, 10, 39, 40,$
 $36, 35)(11, 21, 23, 22, 26, 20, 43)(12, 44, 31, 29, 30, 27, 32)$
 $a_{14} = (2, 38, 13, 18, 28, 33, 6, 4, 16, 41, 34, 24, 19, 5)(7, 8, 37, 10, 15, 40, 17, 35, 42, 9, 25, 39,$
 $14, 36)(11, 31, 23, 30, 26, 32, 43, 44, 21, 29, 22, 27, 20, 12)$
 $a_{15} = (2, 20, 25, 41, 44, 40, 28, 23, 7, 5, 27, 9, 16, 43, 15, 18, 31, 36, 19, 22, 42, 4, 32, 10, 13,$
 $11, 14, 24, 29, 35, 6, 26, 37, 38, 12, 39, 34, 21, 17, 33, 30, 8)$
 $a_{16} = (2, 32, 25, 13, 44, 14, 28, 29, 7, 6, 27, 37, 16, 12, 15, 34, 31, 17, 19, 30, 42)(4, 20, 10, 41,$
 $11, 40, 24, 23, 35, 5, 26, 9, 38, 43, 39, 18, 21, 36, 33, 22, 8)$
 $a_{17} = (2, 27, 42, 6, 30, 7, 19, 29, 17, 28, 31, 14, 34, 44, 15, 13, 12, 25, 16, 32, 37)(4, 26, 8, 5, 22,$
 $35, 33, 23, 36, 24, 21, 40, 18, 11, 39, 41, 43, 10, 38, 20, 9)$

$a_{18} = (2, 26, 42, 5, 30, 35, 19, 23, 17, 24, 31, 40, 34, 11, 15, 41, 12, 10, 16, 20, 37, 4, 27, 8, 6, 22, 7, 33, 29, 36, 28, 21, 14, 18, 44, 39, 13, 43, 25, 38, 32, 9)$

$a_{19} = (2, 22, 17, 18, 12, 9, 6, 23, 14, 41, 32, 8, 19, 21, 15, 38, 27, 35, 28, 11, 25, 4, 30, 36, 34, 43, 37, 5, 29, 40, 13, 20, 42, 33, 31, 39, 16, 26, 7, 24, 44, 10)$

$a_{20} = (2, 30, 17, 34, 12, 37, 6, 29, 14, 13, 32, 42, 19, 31, 15, 16, 27, 7, 28, 44, 25)(4, 22, 36, 18, 43, 9, 5, 23, 40, 41, 20, 8, 33, 21, 39, 38, 26, 35, 24, 11, 10)$

$a_{21} = (2, 29, 15)(4, 23, 39)(5, 21, 10)(6, 31, 25)(7, 34, 32)(8, 24, 43)(9, 33, 11)(12, 42, 28)(13, 27, 17)(14, 16, 30)(18, 20, 35)(19, 44, 37)(22, 40, 38)(26, 36, 41)$

$a_{22} = (2, 23, 15, 4, 29, 39)(5, 31, 10, 6, 21, 25)(7, 18, 32, 35, 34, 20)(8, 28, 43, 42, 24, 12)(9, 19, 11, 37, 33, 44)(13, 26, 17, 41, 27, 36)(14, 38, 30, 40, 16, 22)$

$a_{23} = (2, 21, 37, 24, 32, 36, 16, 23, 25, 33, 12, 35, 13, 22, 15, 5, 44, 8, 34, 26, 14, 4, 31, 9, 28, 20, 17, 38, 29, 10, 19, 43, 7, 41, 30, 39, 6, 11, 42, 18, 27, 40)$

$a_{24} = (2, 31, 37, 28, 32, 17, 16, 29, 25, 19, 12, 7, 13, 30, 15, 6, 44, 42, 34, 27, 14)(4, 21, 9, 24, 20, 36, 38, 23, 10, 33, 43, 35, 41, 22, 39, 5, 11, 8, 18, 26, 40)$

$a_{25} = (2, 44, 7, 16, 31, 42, 13, 29, 37, 34, 30, 25, 28, 27, 15, 19, 32, 14, 6, 12, 17)(4, 11, 35, 38, 21, 8, 41, 23, 9, 18, 22, 10, 24, 26, 39, 33, 20, 40, 5, 43, 36)$

$a_{26} = (2, 11, 7, 38, 31, 8, 13, 23, 37, 18, 30, 10, 28, 26, 15, 33, 32, 40, 6, 43, 17, 4, 44, 35, 16, 21, 42, 41, 29, 9, 34, 22, 25, 24, 27, 39, 19, 20, 14, 5, 12, 36)$

$a_{27} = (2, 43, 14, 33, 27, 10, 34, 23, 42, 38, 44, 36, 6, 20, 15, 24, 30, 9, 13, 21, 7, 4, 12, 40, 19, 26, 25, 18, 29, 8, 16, 11, 17, 5, 32, 39, 28, 22, 37, 41, 31, 35)$

$a_{28} = (2, 12, 14, 19, 27, 25, 34, 29, 42, 16, 44, 17, 6, 32, 15, 28, 30, 37, 13, 31, 7)(4, 43, 40, 33, 26, 10, 18, 23, 8, 38, 11, 36, 5, 20, 39, 24, 22, 9, 41, 21, 35)$

$a_{29} = (2, 25, 44, 28, 7, 27, 16, 15, 31, 19, 42, 32, 13, 14, 29, 6, 37, 12, 34, 17, 30)(4, 10, 11, 24, 35, 26, 38, 39, 21, 33, 8, 20, 41, 40, 23, 5, 9, 43, 18, 36, 22)$

$a_{30} = (2, 10, 44, 24, 7, 26, 16, 39, 31, 33, 42, 20, 13, 40, 29, 5, 37, 43, 34, 36, 30, 4, 25, 11, 28, 35, 27, 38, 15, 21, 19, 8, 32, 41, 14, 23, 6, 9, 12, 18, 17, 22)$

$a_{31} = (2, 9, 32, 38, 25, 43, 13, 39, 44, 18, 14, 21, 28, 36, 29, 33, 7, 22, 6, 8, 27, 4, 37, 20, 16, 10, 12, 41, 15, 11, 34, 40, 31, 24, 17, 23, 19, 35, 30, 5, 42, 26)$

$a_{32} = (2, 37, 32, 16, 25, 12, 13, 15, 44, 34, 14, 31, 28, 17, 29, 19, 7, 30, 6, 42, 27)(4, 9, 20, 38,$

10, 43, 41, 39, 11, 18, 40, 21, 24, 36, 23, 33, 35, 22, 5, 8, 26)
 $a_{33} = (2, 42, 30, 19, 17, 31, 34, 15, 12, 16, 37, 27, 6, 7, 29, 28, 14, 44, 13, 25, 32)(4, 8, 22, 33,$
 $36, 21, 18, 39, 43, 38, 9, 26, 5, 35, 23, 24, 40, 11, 41, 10, 20)$
 $a_{34} = (2, 8, 30, 33, 17, 21, 34, 39, 12, 38, 37, 26, 6, 35, 29, 24, 14, 11, 13, 10, 32, 4, 42, 22, 19,$
 $36, 31, 18, 15, 43, 16, 9, 27, 5, 7, 23, 28, 40, 44, 41, 25, 20)$
 $a_{35} = (2, 35, 31, 41, 37, 22, 28, 39, 32, 5, 17, 11, 16, 8, 29, 18, 25, 26, 19, 40, 12, 4, 7, 21, 13, 9,$
 $30, 24, 15, 20, 6, 36, 44, 38, 42, 23, 34, 10, 27, 33, 14, 43)$
 $a_{36} = (2, 7, 31, 13, 37, 30, 28, 15, 32, 6, 17, 44, 16, 42, 29, 34, 25, 27, 19, 14, 12)(4, 35, 21, 41,$
 $9, 22, 24, 39, 20, 5, 36, 11, 38, 8, 23, 18, 10, 26, 33, 40, 43)$
 $a_{37} = (2, 17, 12, 6, 14, 32, 19, 15, 27, 28, 25, 30, 34, 37, 29, 13, 42, 31, 16, 7, 44)(4, 36, 43, 5,$
 $40, 20, 33, 39, 26, 24, 10, 22, 18, 9, 23, 41, 8, 21, 38, 35, 11)$
 $a_{38} = (2, 36, 12, 5, 14, 20, 19, 39, 27, 24, 25, 22, 34, 9, 29, 41, 42, 21, 16, 35, 44, 4, 17, 43, 6,$
 $40, 32, 33, 15, 26, 28, 10, 30, 18, 37, 23, 13, 8, 31, 38, 7, 11)$
 $a_{39} = (2, 40, 27, 18, 42, 11, 6, 39, 30, 41, 7, 43, 19, 10, 29, 38, 17, 20, 28, 9, 31, 4, 14, 26, 34, 8,$
 $44, 5, 15, 22, 13, 35, 12, 33, 25, 23, 16, 36, 32, 24, 37, 21)$
 $a_{40} = (2, 14, 27, 34, 42, 44, 6, 15, 30, 13, 7, 12, 19, 25, 29, 16, 17, 32, 28, 37, 31)(4, 40, 26, 18,$
 $8, 11, 5, 39, 22, 41, 35, 43, 33, 10, 23, 38, 36, 20, 24, 9, 21)$
 $a_{41} = (2, 15, 29)(4, 39, 23)(5, 10, 21)(6, 25, 31)(7, 32, 34)(8, 43, 24)(9, 11, 33)(12, 28, 42)(13,$
 $17, 27)(14, 30, 16)(18, 35, 20)(19, 37, 44)(22, 38, 40)(26, 41, 36)$
 $a_{42} = (2, 39, 29, 4, 15, 23)(5, 25, 21, 6, 10, 31)(7, 20, 34, 35, 32, 18)(8, 12, 24, 42, 43, 28)(9, 44,$
 $33, 37, 11, 19)(13, 36, 27, 41, 17, 26)(14, 22, 16, 40, 30, 38)$
 $a_{43} = (1, 3)(2, 6)(4, 5)(7, 32)(8, 26)(9, 22)(10, 23)(11, 40)(12, 17)(13, 28)(14, 44)(15, 31)(16,$
 $19)(20, 35)(21, 39)(24, 41)(25, 29)(27, 42)(30, 37)(33, 38)(36, 43)$
 $a_{44} = (1, 3)(2, 5)(4, 6)(7, 20)(8, 27)(9, 30)(10, 29)(11, 14)(12, 36)(13, 24)(15, 21)(16, 33)(17,$
 $43)(18, 34)(19, 38)(22, 37)(23, 25)(26, 42)(28, 41)(31, 39)(32, 35)(40, 44)$
 $a_{45} = (1, 3)(2, 4)(5, 16)(6, 38)(7, 43)(8, 32)(9, 27)(10, 30)(11, 17)(12, 35)(13, 33)(14, 21)(15,$
 $23)(18, 28)(19, 41)(20, 42)(22, 25)(24, 34)(26, 37)(29, 39)(31, 40)(36, 44)$
 $a_{46} = (1, 3)(5, 38)(6, 16)(7, 12)(8, 20)(9, 26)(10, 22)(11, 36)(13, 19)(14, 31)(15, 29)(17, 44)(18,$
 $24)(21, 40)(23, 39)(25, 30)(27, 37)(28, 34)(32, 42)(33, 41)(35, 43)$

$$a_{47} = (1, 3)(2, 16)(4, 38)(5, 41)(6, 13)(7, 44)(8, 43)(9, 20)(10, 26)(11, 35)(12, 42)(14, 29)(15, 30)(17, 31)(18, 33)(19, 34)(21, 36)(22, 39)(23, 40)(25, 27)(32, 37)$$

$$a_{48} = (1, 3)(2, 38)(4, 16)(5, 13)(6, 41)(7, 11)(8, 12)(9, 32)(10, 27)(14, 23)(15, 22)(17, 21)(18, 19)(20, 37)(24, 28)(25, 26)(29, 40)(30, 39)(31, 36)(33, 34)(35, 44)(42, 43)$$

$$a_{49} = (1, 3)(2, 41)(4, 13)(5, 34)(6, 18)(7, 21)(8, 44)(9, 12)(10, 32)(11, 42)(14, 22)(15, 26)(16, 38)(17, 23)(19, 24)(20, 25)(27, 39)(28, 33)(29, 36)(30, 40)(31, 35)(37, 43)$$

$$a_{50} = (1, 3)(2, 13)(4, 41)(5, 18)(6, 34)(7, 31)(8, 11)(9, 43)(10, 20)(12, 37)(14, 30)(15, 27)(17, 29)(19, 28)(21, 35)(22, 40)(23, 36)(24, 33)(25, 32)(26, 39)(42, 44)$$

$$a_{51} = (1, 3)(2, 34)(4, 18)(5, 24)(6, 28)(7, 29)(8, 21)(9, 11)(10, 43)(12, 25)(13, 16)(14, 27)(15, 32)(17, 30)(20, 39)(22, 36)(23, 35)(26, 40)(31, 42)(37, 44)(38, 41)$$

$$a_{52} = (1, 3)(2, 18)(4, 34)(5, 28)(6, 24)(7, 23)(8, 31)(9, 44)(10, 12)(11, 37)(13, 38)(14, 26)(15, 20)(16, 41)(17, 22)(19, 33)(21, 42)(25, 43)(27, 40)(29, 35)(30, 36)(32, 39)$$

$$a_{53} = (1, 3)(2, 24)(4, 28)(5, 19)(6, 33)(7, 22)(8, 29)(9, 31)(10, 44)(11, 25)(12, 39)(13, 41)(14, 20)(15, 43)(16, 18)(17, 26)(21, 37)(23, 42)(27, 36)(30, 35)(32, 40)(34, 38)$$

$$a_{54} = (1, 3)(2, 28)(4, 24)(5, 33)(6, 19)(7, 30)(8, 23)(9, 21)(10, 11)(12, 15)(14, 32)(16, 34)(17, 27)(18, 38)(20, 40)(22, 35)(25, 44)(26, 36)(29, 42)(31, 37)(39, 43)$$

$$a_{55} = (1, 3)(2, 19)(4, 33)(7, 27)(8, 22)(9, 23)(10, 21)(11, 39)(12, 14)(13, 34)(15, 44)(16, 28)(17, 32)(18, 41)(20, 36)(24, 38)(25, 31)(26, 35)(29, 37)(30, 42)(40, 43)$$

$$a_{56} = (1, 3)(2, 33)(4, 19)(5, 6)(7, 26)(8, 30)(9, 29)(10, 31)(11, 15)(12, 40)(13, 18)(14, 43)(16, 24)(17, 20)(21, 25)(22, 42)(23, 37)(27, 35)(28, 38)(32, 36)(34, 41)(39, 44)$$

$$a_{57} = (1, 3)(2, 35)(4, 7)(5, 42)(6, 8)(9, 19)(10, 28)(11, 44)(12, 21)(13, 40)(14, 41)(15, 18)(16, 36)(17, 38)(20, 29)(22, 27)(23, 32)(24, 25)(26, 30)(31, 43)(33, 37)(34, 39)$$

$$a_{58} = (1, 3)(2, 7)(4, 35)(5, 8)(6, 42)(9, 33)(10, 24)(12, 31)(13, 14)(15, 34)(16, 17)(18, 39)(19, 37)(20, 23)(21, 43)(22, 26)(25, 28)(27, 30)(29, 32)(36, 38)(40, 41)$$

$$a_{59} = (1, 3)(2, 42)(4, 8)(5, 9)(6, 37)(7, 16)(10, 33)(11, 21)(12, 29)(13, 17)(14, 34)(15, 28)(18, 40)(19, 25)(20, 22)(23, 43)(24, 39)(30, 32)(31, 44)(35, 38)(36, 41)$$

$$a_{60} = (1, 3)(2, 8)(4, 42)(5, 37)(6, 9)(7, 38)(10, 19)(11, 31)(12, 23)(13, 36)(14, 18)(15, 24)(16, 35)(17, 41)(20, 30)(21, 44)(22, 32)(25, 33)(26, 27)(28, 39)(29, 43)(34, 40)$$

$$a_{61} = (1, 3)(2, 9)(4, 37)(5, 25)(6, 10)(7, 41)(8, 16)(11, 29)(12, 22)(13, 35)(14, 24)(15, 33)(17,$$

$18)(19, 39)(20, 27)(21, 31)(23, 44)(26, 32)(28, 40)(30, 43)(34, 36)(38, 42)$
 $a_{62} = (1, 3)(2, 37)(4, 9)(5, 10)(6, 25)(7, 13)(8, 38)(11, 23)(12, 30)(14, 28)(15, 19)(16, 42)(17,$
 $34)(18, 36)(20, 26)(22, 43)(24, 40)(27, 32)(29, 44)(33, 39)(35, 41)$
 $a_{63} = (1, 3)(2, 25)(4, 10)(5, 39)(6, 15)(7, 34)(8, 41)(9, 38)(11, 22)(12, 27)(13, 42)(14, 19)(16,$
 $37)(17, 28)(18, 35)(21, 23)(24, 36)(26, 43)(29, 31)(30, 44)(33, 40)$
 $a_{64} = (1, 3)(2, 10)(4, 25)(5, 15)(6, 39)(7, 18)(8, 13)(9, 16)(11, 30)(12, 26)(14, 33)(17, 24)(19,$
 $40)(20, 32)(21, 29)(22, 44)(23, 31)(27, 43)(28, 36)(34, 35)(37, 38)(41, 42)$
 $a_{65} = (1, 3)(2, 39)(4, 15)(5, 14)(6, 40)(7, 24)(8, 34)(9, 13)(10, 16)(11, 27)(12, 20)(17, 33)(18,$
 $42)(19, 36)(21, 30)(22, 31)(23, 29)(25, 38)(26, 44)(28, 35)(32, 43)(37, 41)$
 $a_{66} = (1, 3)(2, 15)(4, 39)(5, 40)(6, 14)(7, 28)(8, 18)(9, 41)(10, 38)(11, 26)(12, 32)(13, 37)(16,$
 $25)(17, 19)(20, 43)(21, 22)(24, 35)(27, 44)(30, 31)(33, 36)(34, 42)$
 $a_{67} = (1, 3)(2, 14)(4, 40)(5, 36)(6, 17)(7, 19)(8, 24)(9, 18)(10, 41)(11, 20)(13, 25)(15, 16)(21,$
 $26)(22, 23)(27, 31)(28, 42)(29, 30)(32, 44)(33, 35)(34, 37)(38, 39)$
 $a_{68} = (1, 3)(2, 40)(4, 14)(5, 17)(6, 36)(7, 33)(8, 28)(9, 34)(10, 13)(11, 32)(12, 43)(15, 38)(16,$
 $39)(18, 37)(19, 35)(20, 44)(21, 27)(22, 29)(23, 30)(24, 42)(25, 41)(26, 31)$
 $a_{69} = (1, 3)(2, 36)(4, 17)(5, 7)(6, 35)(8, 19)(9, 28)(10, 34)(11, 12)(13, 39)(14, 38)(15, 41)(16,$
 $40)(18, 25)(20, 31)(21, 32)(22, 30)(23, 27)(24, 37)(26, 29)(33, 42)(43, 44)$
 $a_{70} = (1, 3)(2, 17)(4, 36)(5, 35)(6, 7)(8, 33)(9, 24)(10, 18)(11, 43)(12, 44)(13, 15)(14, 16)(19,$
 $42)(20, 21)(23, 26)(25, 34)(27, 29)(28, 37)(31, 32)(38, 40)(39, 41)$
 $a_{71} = (1, 3)(2, 29)(4, 23)(5, 22)(6, 30)(7, 42)(8, 35)(9, 36)(10, 40)(11, 41)(12, 34)(13, 44)(14,$
 $25)(16, 31)(17, 37)(18, 43)(19, 27)(20, 24)(21, 38)(26, 33)(28, 32)$
 $a_{72} = (1, 3)(2, 23)(4, 29)(5, 30)(6, 22)(7, 8)(9, 17)(10, 14)(11, 13)(12, 18)(15, 39)(16, 21)(19,$
 $26)(20, 28)(24, 32)(25, 40)(27, 33)(31, 38)(34, 43)(35, 42)(36, 37)(41, 44)$
 $a_{73} = (1, 3)(2, 22)(4, 30)(5, 27)(6, 26)(7, 9)(8, 42)(10, 17)(11, 34)(12, 24)(13, 21)(14, 39)(15,$
 $40)(16, 23)(18, 44)(19, 20)(25, 36)(28, 43)(29, 38)(31, 41)(32, 33)(35, 37)$
 $a_{74} = (1, 3)(2, 30)(4, 22)(5, 26)(6, 27)(7, 37)(9, 35)(10, 36)(11, 18)(12, 28)(13, 31)(14, 15)(16,$
 $29)(17, 25)(19, 32)(20, 33)(21, 41)(23, 38)(24, 43)(34, 44)(39, 40)$
 $a_{75} = (1, 3)(2, 27)(4, 26)(5, 20)(6, 32)(7, 25)(8, 9)(10, 35)(11, 24)(12, 19)(13, 29)(15, 17)(16,$
 $30)(18, 21)(22, 38)(23, 41)(28, 44)(31, 34)(33, 43)(36, 39)(37, 42)$

$$a_{76} = (1, 3)(2, 26)(4, 27)(5, 32)(6, 20)(7, 10)(8, 37)(9, 42)(11, 28)(12, 33)(13, 23)(14, 40)(15, 36)(16, 22)(17, 39)(18, 31)(19, 43)(21, 34)(24, 44)(25, 35)(29, 41)(30, 38)$$

$$a_{77} = (1, 3)(2, 20)(4, 32)(5, 12)(6, 43)(7, 39)(8, 25)(9, 37)(10, 42)(11, 19)(13, 22)(14, 36)(15, 35)(16, 26)(17, 40)(18, 29)(21, 28)(23, 34)(24, 31)(27, 38)(30, 41)(33, 44)$$

$$a_{78} = (1, 3)(2, 32)(4, 20)(5, 43)(6, 12)(7, 15)(8, 10)(11, 33)(13, 30)(14, 17)(16, 27)(18, 23)(19, 44)(21, 24)(22, 41)(25, 42)(26, 38)(28, 31)(29, 34)(35, 39)(36, 40)$$

$$a_{79} = (1, 3)(2, 12)(4, 43)(5, 11)(6, 44)(7, 14)(8, 39)(9, 10)(13, 27)(15, 42)(16, 32)(18, 22)(19, 31)(20, 38)(21, 33)(23, 24)(25, 37)(26, 41)(28, 29)(30, 34)(35, 40)$$

$$a_{80} = (1, 3)(2, 43)(4, 12)(5, 44)(6, 11)(7, 40)(8, 15)(9, 25)(10, 37)(13, 26)(14, 35)(16, 20)(17, 36)(18, 30)(19, 21)(22, 34)(23, 28)(24, 29)(27, 41)(31, 33)(32, 38)(39, 42)$$

$$a_{81} = (1, 3)(2, 11)(4, 44)(5, 31)(6, 21)(7, 36)(8, 14)(9, 15)(10, 25)(12, 38)(13, 20)(16, 43)(17, 35)(18, 27)(19, 23)(22, 28)(24, 30)(26, 34)(29, 33)(32, 41)(37, 39)(40, 42)$$

$$a_{82} = (1, 3)(2, 44)(4, 11)(5, 21)(6, 31)(7, 17)(8, 40)(9, 39)(12, 16)(13, 32)(14, 42)(15, 37)(18, 26)(19, 29)(20, 41)(22, 24)(23, 33)(27, 34)(28, 30)(35, 36)(38, 43)$$

$$a_{83} = (1, 3)(2, 31)(4, 21)(5, 23)(6, 29)(8, 36)(9, 40)(10, 39)(11, 38)(12, 13)(14, 37)(15, 25)(16, 44)(17, 42)(18, 20)(19, 30)(22, 33)(24, 26)(27, 28)(32, 34)(41, 43)$$

$$a_{84} = (1, 3)(2, 21)(4, 31)(5, 29)(6, 23)(7, 35)(8, 17)(9, 14)(10, 15)(11, 16)(12, 41)(13, 43)(18, 32)(19, 22)(20, 34)(24, 27)(25, 39)(26, 28)(30, 33)(36, 42)(37, 40)(38, 44)$$

and now the elements themselves: $a_1 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$

$$a_2 = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 35 & 1 & 4 & 2 \\ 0 & 2 & 0 & 42 & 0 \\ 0 & 4 & 0 & 0 & 42 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 3 & 31 & 0 & 9 & 23 \\ 0 & 11 & 0 & 0 & 0 \\ 0 & 16 & 4 & 25 & 37 \\ 42 & 4 & 0 & 30 & 10 \\ 2 & 33 & 0 & 9 & 33 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 40 & 12 & 0 & 34 & 20 \\ 0 & 11 & 0 & 0 & 0 \\ 0 & 10 & 4 & 34 & 14 \\ 1 & 18 & 0 & 13 & 33 \\ 41 & 11 & 0 & 34 & 10 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 3 & 25 & 0 & 31 & 15 \\ 0 & 35 & 0 & 0 & 0 \\ 6 & 13 & 16 & 22 & 28 \\ 30 & 33 & 0 & 35 & 5 \\ 20 & 2 & 0 & 26 & 21 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 40 & 18 & 0 & 12 & 28 \\ 0 & 35 & 0 & 0 & 0 \\ 37 & 41 & 16 & 42 & 4 \\ 13 & 37 & 0 & 8 & 38 \\ 23 & 9 & 0 & 17 & 22 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 8 & 41 & 0 & 17 & 14 \\ 0 & 41 & 0 & 0 & 0 \\ 9 & 6 & 21 & 33 & 25 \\ 22 & 7 & 0 & 32 & 1 \\ 33 & 20 & 0 & 31 & 37 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 35 & 2 & 0 & 26 & 29 \\ 0 & 41 & 0 & 0 & 0 \\ 34 & 4 & 21 & 8 & 17 \\ 21 & 32 & 0 & 11 & 42 \\ 10 & 15 & 0 & 12 & 6 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 35 & 25 & 0 & 20 & 42 \\ 0 & 21 & 0 & 0 & 0 \\ 1 & 4 & 41 & 15 & 32 \\ 36 & 17 & 0 & 6 & 42 \\ 13 & 8 & 0 & 12 & 11 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 8 & 18 & 0 & 23 & 1 \\ 0 & 21 & 0 & 0 & 0 \\ 42 & 6 & 41 & 20 & 7 \\ 7 & 25 & 0 & 37 & 1 \\ 30 & 33 & 0 & 31 & 32 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 40 & 31 & 0 & 3 & 26 \\ 0 & 16 & 0 & 0 & 0 \\ 9 & 41 & 35 & 9 & 37 \\ 14 & 4 & 0 & 22 & 38 \\ 6 & 42 & 0 & 17 & 8 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3 & 12 & 0 & 40 & 17 \\ 0 & 16 & 0 & 0 & 0 \\ 34 & 13 & 35 & 2 & 33 \\ 29 & 28 & 0 & 21 & 5 \\ 37 & 22 & 0 & 26 & 35 \end{pmatrix}$$

$$a_{13} = \begin{pmatrix} 40 & 0 & 0 & 39 & 2 \\ 0 & 4 & 0 & 0 & 0 \\ 6 & 10 & 11 & 11 & 18 \\ 10 & 14 & 0 & 10 & 33 \\ 17 & 34 & 0 & 34 & 13 \end{pmatrix}$$

$$a_{14} = \begin{pmatrix} 3 & 0 & 0 & 4 & 41 \\ 0 & 4 & 0 & 0 & 0 \\ 37 & 16 & 11 & 33 & 4 \\ 33 & 37 & 0 & 33 & 10 \\ 26 & 25 & 0 & 9 & 30 \end{pmatrix}$$

$$a_{15} = \begin{pmatrix} 9 & 16 & 0 & 32 & 19 \\ 0 & 21 & 0 & 0 & 0 \\ 20 & 40 & 41 & 34 & 26 \\ 6 & 12 & 0 & 2 & 25 \\ 11 & 25 & 0 & 1 & 8 \end{pmatrix}$$

$$a_{16} = \begin{pmatrix} 34 & 27 & 0 & 11 & 24 \\ 0 & 21 & 0 & 0 & 0 \\ 23 & 13 & 41 & 1 & 13 \\ 37 & 30 & 0 & 41 & 18 \\ 32 & 16 & 0 & 42 & 35 \end{pmatrix}$$

$$a_{17} = \begin{pmatrix} 33 & 6 & 0 & 8 & 36 \\ 0 & 16 & 0 & 0 & 0 \\ 35 & 1 & 35 & 8 & 36 \\ 23 & 33 & 0 & 38 & 37 \\ 5 & 24 & 0 & 29 & 11 \end{pmatrix}$$

$$a_{18} = \begin{pmatrix} 10 & 37 & 0 & 35 & 7 \\ 0 & 16 & 0 & 0 & 0 \\ 8 & 10 & 35 & 3 & 34 \\ 20 & 42 & 0 & 5 & 6 \\ 38 & 40 & 0 & 14 & 32 \end{pmatrix}$$

$$a_{19} = \begin{pmatrix} 34 & 30 & 0 & 1 & 6 \\ 0 & 4 & 0 & 0 & 0 \\ 40 & 38 & 11 & 34 & 14 \\ 19 & 41 & 0 & 3 & 23 \\ 8 & 38 & 0 & 25 & 37 \end{pmatrix}$$

$$a_{20} = \begin{pmatrix} 9 & 13 & 0 & 42 & 37 \\ 0 & 4 & 0 & 0 & 0 \\ 3 & 31 & 11 & 10 & 8 \\ 24 & 10 & 0 & 40 & 20 \\ 35 & 21 & 0 & 18 & 6 \end{pmatrix}$$

$$a_{21} = \begin{pmatrix} 27 & 38 & 0 & 3 & 1 \\ 0 & 1 & 0 & 0 & 0 \\ 28 & 24 & 1 & 18 & 22 \\ 14 & 5 & 0 & 38 & 22 \\ 30 & 9 & 0 & 37 & 21 \end{pmatrix}$$

$$a_{22} = \begin{pmatrix} 16 & 5 & 0 & 40 & 42 \\ 0 & 1 & 0 & 0 & 0 \\ 15 & 11 & 1 & 29 & 23 \\ 29 & 40 & 0 & 5 & 21 \\ 13 & 38 & 0 & 6 & 22 \end{pmatrix}$$

$$a_{23} = \begin{pmatrix} 37 & 10 & 0 & 41 & 39 \\ 0 & 11 & 0 & 0 & 0 \\ 24 & 11 & 4 & 26 & 39 \\ 5 & 34 & 0 & 2 & 9 \\ 9 & 21 & 0 & 21 & 33 \end{pmatrix}$$

$$a_{24} = \begin{pmatrix} 6 & 33 & 0 & 2 & 4 \\ 0 & 11 & 0 & 0 & 0 \\ 19 & 15 & 4 & 33 & 12 \\ 38 & 31 & 0 & 41 & 34 \\ 34 & 23 & 0 & 22 & 10 \end{pmatrix}$$

$$a_{25} = \begin{pmatrix} 19 & 42 & 0 & 22 & 11 \\ 0 & 35 & 0 & 0 & 0 \\ 38 & 41 & 16 & 28 & 11 \\ 31 & 17 & 0 & 14 & 2 \\ 29 & 6 & 0 & 19 & 1 \end{pmatrix}$$

$$a_{26} = \begin{pmatrix} 24 & 1 & 0 & 21 & 32 \\ 0 & 35 & 0 & 0 & 0 \\ 5 & 13 & 16 & 36 & 21 \\ 12 & 10 & 0 & 29 & 41 \\ 14 & 5 & 0 & 24 & 42 \end{pmatrix}$$

$$a_{27} = \begin{pmatrix} 14 & 40 & 0 & 27 & 31 \\ 0 & 41 & 0 & 0 & 0 \\ 22 & 38 & 21 & 4 & 2 \\ 40 & 23 & 0 & 29 & 16 \\ 27 & 42 & 0 & 23 & 30 \end{pmatrix}$$

$$a_{28} = \begin{pmatrix} 29 & 3 & 0 & 16 & 12 \\ 0 & 41 & 0 & 0 & 0 \\ 21 & 15 & 21 & 37 & 40 \\ 3 & 16 & 0 & 14 & 27 \\ 16 & 36 & 0 & 20 & 13 \end{pmatrix}$$

$$a_{29} = \begin{pmatrix} 9 & 6 & 0 & 27 & 5 \\ 0 & 11 & 0 & 0 & 0 \\ 28 & 31 & 4 & 21 & 10 \\ 40 & 8 & 0 & 6 & 20 \\ 21 & 10 & 0 & 18 & 40 \end{pmatrix}$$

$$a_{30} = \begin{pmatrix} 34 & 37 & 0 & 16 & 38 \\ 0 & 11 & 0 & 0 & 0 \\ 15 & 38 & 4 & 38 & 41 \\ 3 & 14 & 0 & 37 & 23 \\ 22 & 34 & 0 & 25 & 3 \end{pmatrix}$$

$$a_{31} = \begin{pmatrix} 10 & 16 & 0 & 33 & 40 \\ 0 & 35 & 0 & 0 & 0 \\ 40 & 10 & 16 & 40 & 42 \\ 25 & 34 & 0 & 32 & 6 \\ 39 & 3 & 0 & 14 & 5 \end{pmatrix}$$

$$a_{32} = \begin{pmatrix} 33 & 27 & 0 & 10 & 3 \\ 0 & 35 & 0 & 0 & 0 \\ 3 & 1 & 16 & 24 & 33 \\ 18 & 36 & 0 & 11 & 37 \\ 4 & 8 & 0 & 29 & 38 \end{pmatrix}$$

$$a_{33} = \begin{pmatrix} 34 & 3 & 0 & 21 & 31 \\ 0 & 41 & 0 & 0 & 0 \\ 35 & 13 & 21 & 16 & 30 \\ 12 & 13 & 0 & 35 & 18 \\ 27 & 1 & 0 & 42 & 41 \end{pmatrix}$$

$$a_{34} = \begin{pmatrix} 9 & 40 & 0 & 22 & 12 \\ 0 & 41 & 0 & 0 & 0 \\ 8 & 40 & 21 & 25 & 12 \\ 31 & 26 & 0 & 8 & 25 \\ 16 & 34 & 0 & 1 & 2 \end{pmatrix}$$

$$a_{35} = \begin{pmatrix} 14 & 1 & 0 & 11 & 37 \\ 0 & 21 & 0 & 0 & 0 \\ 20 & 38 & 41 & 42 & 23 \\ 37 & 2 & 0 & 30 & 16 \\ 35 & 4 & 0 & 23 & 29 \end{pmatrix}$$

$$a_{36} = \begin{pmatrix} 29 & 42 & 0 & 32 & 6 \\ 0 & 21 & 0 & 0 & 0 \\ 23 & 15 & 41 & 36 & 16 \\ 6 & 40 & 0 & 13 & 27 \\ 8 & 37 & 0 & 20 & 14 \end{pmatrix}$$

$$a_{37} = \begin{pmatrix} 19 & 33 & 0 & 15 & 19 \\ 0 & 16 & 0 & 0 & 0 \\ 21 & 41 & 35 & 6 & 17 \\ 27 & 11 & 0 & 1 & 2 \\ 11 & 28 & 0 & 19 & 14 \end{pmatrix}$$

$$a_{38} = \begin{pmatrix} 24 & 10 & 0 & 28 & 24 \\ 0 & 16 & 0 & 0 & 0 \\ 22 & 13 & 35 & 5 & 10 \\ 16 & 21 & 0 & 42 & 41 \\ 32 & 36 & 0 & 24 & 29 \end{pmatrix}$$

$$a_{39} = \begin{pmatrix} 37 & 5 & 0 & 18 & 10 \\ 0 & 4 & 0 & 0 & 0 \\ 5 & 11 & 11 & 21 & 34 \\ 41 & 39 & 0 & 33 & 9 \\ 42 & 26 & 0 & 21 & 2 \end{pmatrix}$$

$$a_{40} = \begin{pmatrix} 6 & 38 & 0 & 25 & 33 \\ 0 & 4 & 0 & 0 & 0 \\ 38 & 15 & 11 & 23 & 31 \\ 2 & 12 & 0 & 10 & 34 \\ 1 & 33 & 0 & 22 & 41 \end{pmatrix}$$

$$a_{41} = \begin{pmatrix} 27 & 13 & 0 & 17 & 28 \\ 0 & 1 & 0 & 0 & 0 \\ 19 & 24 & 1 & 9 & 5 \\ 22 & 22 & 0 & 21 & 22 \\ 23 & 18 & 0 & 37 & 38 \end{pmatrix}$$

$$a_{42} = \begin{pmatrix} 16 & 30 & 0 & 26 & 15 \\ 0 & 1 & 0 & 0 & 0 \\ 24 & 11 & 1 & 38 & 40 \\ 21 & 23 & 0 & 22 & 21 \\ 20 & 29 & 0 & 6 & 5 \end{pmatrix}$$

$$a_{43} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 4 & 41 & 39 & 41 \\ 0 & 10 & 4 & 34 & 14 \\ 0 & 14 & 41 & 39 & 36 \\ 0 & 34 & 39 & 9 & 39 \end{pmatrix}$$

$$a_{44} = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 4 & 41 & 39 & 41 \\ 0 & 16 & 4 & 25 & 37 \\ 0 & 37 & 41 & 39 & 3 \\ 0 & 25 & 39 & 18 & 39 \end{pmatrix}$$

$$a_{45} = \begin{pmatrix} 3 & 0 & 0 & 4 & 41 \\ 0 & 1 & 21 & 42 & 21 \\ 0 & 35 & 1 & 4 & 2 \\ 42 & 2 & 21 & 40 & 0 \\ 2 & 4 & 42 & 0 & 40 \end{pmatrix}$$

$$a_{46} = \begin{pmatrix} 40 & 0 & 0 & 39 & 2 \\ 0 & 1 & 21 & 42 & 21 \\ 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & 21 & 1 & 42 \\ 41 & 0 & 42 & 39 & 1 \end{pmatrix}$$

$$a_{47} = \begin{pmatrix} 3 & 12 & 0 & 40 & 17 \\ 0 & 11 & 16 & 32 & 16 \\ 6 & 10 & 11 & 11 & 18 \\ 30 & 18 & 16 & 31 & 13 \\ 20 & 11 & 32 & 34 & 31 \end{pmatrix}$$

$$a_{48} = \begin{pmatrix} 40 & 31 & 0 & 3 & 26 \\ 0 & 11 & 16 & 32 & 16 \\ 37 & 16 & 11 & 33 & 4 \\ 13 & 4 & 16 & 33 & 19 \\ 23 & 33 & 32 & 8 & 33 \end{pmatrix}$$

$$a_{49} = \begin{pmatrix} 8 & 18 & 0 & 23 & 1 \\ 0 & 35 & 4 & 8 & 4 \\ 9 & 41 & 35 & 9 & 37 \\ 22 & 37 & 4 & 25 & 16 \\ 33 & 9 & 8 & 0 & 25 \end{pmatrix}$$

$$a_{50} = \begin{pmatrix} 35 & 25 & 0 & 20 & 42 \\ 0 & 35 & 4 & 8 & 4 \\ 34 & 13 & 35 & 2 & 33 \\ 21 & 33 & 4 & 34 & 35 \\ 10 & 2 & 8 & 32 & 34 \end{pmatrix}$$

$$a_{51} = \begin{pmatrix} 35 & 2 & 0 & 26 & 29 \\ 0 & 41 & 1 & 2 & 1 \\ 1 & 4 & 41 & 15 & 32 \\ 36 & 32 & 1 & 28 & 14 \\ 13 & 15 & 2 & 19 & 28 \end{pmatrix}$$

$$a_{52} = \begin{pmatrix} 8 & 41 & 0 & 17 & 14 \\ 0 & 41 & 1 & 2 & 1 \\ 42 & 6 & 41 & 20 & 7 \\ 7 & 7 & 1 & 19 & 31 \\ 30 & 20 & 2 & 32 & 19 \end{pmatrix}$$

$$a_{53} = \begin{pmatrix} 40 & 18 & 0 & 12 & 28 \\ 0 & 21 & 11 & 22 & 11 \\ 9 & 6 & 21 & 33 & 25 \\ 14 & 25 & 11 & 23 & 30 \\ 6 & 33 & 22 & 8 & 23 \end{pmatrix}$$

$$a_{54} = \begin{pmatrix} 3 & 25 & 0 & 31 & 15 \\ 0 & 21 & 11 & 22 & 11 \\ 34 & 4 & 21 & 8 & 17 \\ 29 & 17 & 11 & 21 & 35 \\ 37 & 8 & 22 & 37 & 21 \end{pmatrix}$$

$$a_{55} = \begin{pmatrix} 40 & 12 & 0 & 34 & 20 \\ 0 & 16 & 35 & 27 & 35 \\ 6 & 13 & 16 & 22 & 28 \\ 10 & 28 & 35 & 29 & 28 \\ 17 & 22 & 27 & 17 & 29 \end{pmatrix}$$

$$a_{56} = \begin{pmatrix} 3 & 31 & 0 & 9 & 23 \\ 0 & 16 & 35 & 27 & 35 \\ 37 & 41 & 16 & 42 & 4 \\ 33 & 4 & 35 & 25 & 42 \\ 26 & 42 & 27 & 5 & 25 \end{pmatrix}$$

$$a_{57} = \begin{pmatrix} 9 & 40 & 0 & 22 & 12 \\ 0 & 41 & 1 & 2 & 1 \\ 20 & 38 & 41 & 42 & 23 \\ 6 & 23 & 1 & 40 & 34 \\ 11 & 42 & 2 & 11 & 40 \end{pmatrix}$$

$$a_{58} = \begin{pmatrix} 34 & 3 & 0 & 21 & 31 \\ 0 & 41 & 1 & 2 & 1 \\ 23 & 15 & 41 & 36 & 16 \\ 37 & 16 & 1 & 7 & 11 \\ 32 & 36 & 2 & 40 & 7 \end{pmatrix}$$

$$a_{59} = \begin{pmatrix} 33 & 27 & 0 & 10 & 3 \\ 0 & 21 & 11 & 22 & 11 \\ 35 & 13 & 21 & 16 & 30 \\ 23 & 30 & 11 & 6 & 36 \\ 5 & 16 & 22 & 16 & 6 \end{pmatrix}$$

$$a_{60} = \begin{pmatrix} 10 & 16 & 0 & 33 & 40 \\ 0 & 21 & 11 & 22 & 11 \\ 8 & 40 & 21 & 25 & 12 \\ 20 & 12 & 11 & 38 & 29 \\ 38 & 25 & 22 & 29 & 38 \end{pmatrix}$$

$$a_{61} = \begin{pmatrix} 34 & 37 & 0 & 16 & 38 \\ 0 & 16 & 35 & 27 & 35 \\ 40 & 10 & 16 & 40 & 42 \\ 19 & 42 & 35 & 31 & 20 \\ 8 & 40 & 27 & 38 & 31 \end{pmatrix}$$

$$a_{62} = \begin{pmatrix} 9 & 6 & 0 & 27 & 5 \\ 0 & 16 & 35 & 27 & 35 \\ 3 & 1 & 16 & 24 & 33 \\ 24 & 33 & 35 & 23 & 7 \\ 35 & 24 & 27 & 27 & 23 \end{pmatrix}$$

$$a_{63} = \begin{pmatrix} 27 & 13 & 0 & 17 & 28 \\ 0 & 4 & 41 & 39 & 41 \\ 28 & 31 & 4 & 21 & 10 \\ 14 & 10 & 41 & 26 & 23 \\ 30 & 21 & 39 & 5 & 26 \end{pmatrix}$$

$$a_{64} = \begin{pmatrix} 16 & 30 & 0 & 26 & 15 \\ 0 & 4 & 41 & 39 & 41 \\ 15 & 38 & 4 & 38 & 41 \\ 29 & 41 & 41 & 9 & 16 \\ 13 & 38 & 39 & 22 & 9 \end{pmatrix}$$

$$a_{65} = \begin{pmatrix} 37 & 5 & 0 & 18 & 10 \\ 0 & 1 & 21 & 42 & 21 \\ 24 & 11 & 1 & 38 & 40 \\ 5 & 40 & 21 & 23 & 11 \\ 9 & 38 & 42 & 0 & 23 \end{pmatrix}$$

$$a_{66} = \begin{pmatrix} 6 & 38 & 0 & 25 & 33 \\ 0 & 1 & 21 & 42 & 21 \\ 19 & 24 & 1 & 9 & 5 \\ 38 & 5 & 21 & 18 & 31 \\ 34 & 9 & 42 & 39 & 18 \end{pmatrix}$$

$$a_{67} = \begin{pmatrix} 19 & 33 & 0 & 15 & 19 \\ 0 & 11 & 16 & 32 & 16 \\ 38 & 15 & 11 & 23 & 31 \\ 31 & 31 & 16 & 23 & 32 \\ 29 & 23 & 32 & 38 & 23 \end{pmatrix}$$

$$a_{68} = \begin{pmatrix} 24 & 10 & 0 & 28 & 24 \\ 0 & 11 & 16 & 32 & 16 \\ 5 & 11 & 11 & 21 & 34 \\ 12 & 34 & 16 & 41 & 0 \\ 14 & 21 & 32 & 4 & 41 \end{pmatrix}$$

$$a_{69} = \begin{pmatrix} 14 & 1 & 0 & 11 & 37 \\ 0 & 35 & 4 & 8 & 4 \\ 22 & 13 & 35 & 5 & 10 \\ 40 & 10 & 4 & 22 & 31 \\ 27 & 5 & 8 & 10 & 22 \end{pmatrix}$$

$$a_{70} = \begin{pmatrix} 29 & 42 & 0 & 32 & 6 \\ 0 & 35 & 4 & 8 & 4 \\ 21 & 41 & 35 & 6 & 17 \\ 3 & 17 & 4 & 37 & 20 \\ 16 & 6 & 8 & 22 & 37 \end{pmatrix}$$

$$a_{71} = \begin{pmatrix} 9 & 13 & 0 & 42 & 37 \\ 0 & 1 & 21 & 42 & 21 \\ 28 & 24 & 1 & 18 & 22 \\ 40 & 22 & 21 & 38 & 34 \\ 21 & 18 & 42 & 33 & 38 \end{pmatrix}$$

$$a_{72} = \begin{pmatrix} 34 & 30 & 0 & 1 & 6 \\ 0 & 1 & 21 & 42 & 21 \\ 15 & 11 & 1 & 29 & 23 \\ 3 & 23 & 21 & 3 & 8 \\ 22 & 29 & 42 & 6 & 3 \end{pmatrix}$$

$$a_{73} = \begin{pmatrix} 10 & 37 & 0 & 35 & 7 \\ 0 & 11 & 16 & 32 & 16 \\ 40 & 38 & 11 & 34 & 14 \\ 25 & 14 & 16 & 5 & 28 \\ 39 & 34 & 32 & 20 & 5 \end{pmatrix}$$

$$a_{74} = \begin{pmatrix} 33 & 6 & 0 & 8 & 36 \\ 0 & 11 & 16 & 32 & 16 \\ 3 & 31 & 11 & 10 & 8 \\ 18 & 8 & 16 & 16 & 4 \\ 4 & 10 & 32 & 22 & 16 \end{pmatrix}$$

$$a_{75} = \begin{pmatrix} 34 & 27 & 0 & 11 & 24 \\ 0 & 35 & 4 & 8 & 4 \\ 35 & 1 & 35 & 8 & 36 \\ 12 & 36 & 4 & 13 & 1 \\ 27 & 8 & 8 & 25 & 13 \end{pmatrix}$$

$$a_{76} = \begin{pmatrix} 9 & 16 & 0 & 32 & 19 \\ 0 & 35 & 4 & 8 & 4 \\ 8 & 10 & 35 & 3 & 34 \\ 31 & 34 & 4 & 3 & 7 \\ 16 & 3 & 8 & 7 & 3 \end{pmatrix}$$

$$a_{77} = \begin{pmatrix} 14 & 40 & 0 & 27 & 31 \\ 0 & 41 & 1 & 2 & 1 \\ 20 & 40 & 41 & 34 & 26 \\ 37 & 26 & 1 & 16 & 23 \\ 35 & 34 & 2 & 24 & 16 \end{pmatrix}$$

$$a_{78} = \begin{pmatrix} 29 & 3 & 0 & 16 & 12 \\ 0 & 41 & 1 & 2 & 1 \\ 23 & 13 & 41 & 1 & 13 \\ 6 & 13 & 1 & 31 & 22 \\ 8 & 1 & 2 & 27 & 31 \end{pmatrix}$$

$$a_{79} = \begin{pmatrix} 19 & 42 & 0 & 22 & 11 \\ 0 & 21 & 11 & 22 & 11 \\ 21 & 15 & 21 & 37 & 40 \\ 27 & 40 & 11 & 13 & 6 \\ 11 & 37 & 22 & 24 & 13 \end{pmatrix}$$

$$a_{80} = \begin{pmatrix} 24 & 1 & 0 & 21 & 32 \\ 0 & 21 & 11 & 22 & 11 \\ 22 & 38 & 21 & 4 & 2 \\ 16 & 2 & 11 & 31 & 16 \\ 32 & 4 & 22 & 21 & 31 \end{pmatrix}$$

$$a_{81} = \begin{pmatrix} 37 & 10 & 0 & 41 & 39 \\ 0 & 16 & 35 & 27 & 35 \\ 5 & 13 & 16 & 36 & 21 \\ 41 & 21 & 35 & 8 & 42 \\ 42 & 36 & 27 & 2 & 8 \end{pmatrix}$$

$$a_{82} = \begin{pmatrix} 6 & 33 & 0 & 2 & 4 \\ 0 & 16 & 35 & 27 & 35 \\ 38 & 41 & 16 & 28 & 11 \\ 2 & 11 & 35 & 3 & 28 \\ 1 & 28 & 27 & 20 & 3 \end{pmatrix}$$

$$a_{83} = \begin{pmatrix} 27 & 38 & 0 & 3 & 1 \\ 0 & 4 & 41 & 39 & 41 \\ 19 & 15 & 4 & 33 & 12 \\ 22 & 12 & 41 & 26 & 22 \\ 23 & 33 & 39 & 36 & 26 \end{pmatrix}$$

$$a_{84} = \begin{pmatrix} 16 & 5 & 0 & 40 & 42 \\ 0 & 4 & 41 & 39 & 41 \\ 24 & 11 & 4 & 26 & 39 \\ 21 & 39 & 41 & 9 & 17 \\ 20 & 26 & 39 & 34 & 9 \end{pmatrix}$$

Kernel has order 1 and is generated by:

There are 2 orbits on the BLT set.

The orbit length are $[42, 2]$

The orbits are:

$$O_0 = \{1, 3\} \text{ (length 2)}$$

$$O_1 = \{2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42\} \text{ (length 42)}$$

The actions induced on the orbits are:

Induced action on orbit $O_0 = \{1, 3\}$ (length 2)

The induced group has order 2 and is generated by:

$$g_1 = (1, 2)$$

$$g_2 = \text{id}$$

$$g_3 = \text{id}$$

$$g_4 = \text{id}$$

group order is small, so we list all elements $a_1 = \text{id}$

$$a_2 = \text{id}$$

and now the elements themselves: $a_1 =$

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 35 & 1 & 4 & 2 \\ 0 & 2 & 0 & 42 & 0 \\ 0 & 4 & 0 & 0 & 42 \end{pmatrix}$$

Kernel has order 42 and is generated by:

$$b_1 = \begin{pmatrix} 9 & 40 & 0 & 22 & 12 \\ 0 & 41 & 0 & 0 & 0 \\ 8 & 40 & 21 & 25 & 12 \\ 31 & 26 & 0 & 8 & 25 \\ 16 & 34 & 0 & 1 & 2 \end{pmatrix}$$

The kernel has 1945 orbits on the quadric.

The orbit length are $[42^{1936}, 21^2, 14^3, 1^4]$

Induced action on orbit $O_1 = \{2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42\}$
(length 42)

The induced group has order 84 and is generated by:

$$g_1 = (1, 4)(2, 3)(5, 30)(6, 24)(7, 20)(8, 21)(9, 38)(10, 15)(11, 26)(12, 42)(13, 29)(14, 17)(18, 33)(19, 37)(22, 39)(23, 27)(25, 40)(28, 35)(31, 36)(34, 41)$$

$$g_2 = (1, 2)(3, 4)(5, 33)(6, 40)(7, 35)(8, 23)(9, 42)(10, 41)(11, 39)(12, 38)(13, 37)(14, 36)(15, 34)(16, 32)(17, 31)(18, 30)(19, 29)(20, 28)(21, 27)(22, 26)(24, 25)$$

$$g_3 = (1, 3, 17, 22, 32, 39, 14, 2, 4, 31, 26, 16, 11, 36)(5, 34, 12, 37, 23, 7, 40, 33, 15, 38, 13, 8,$$

35, 6)(9, 10, 18, 25, 20, 27, 19, 42, 41, 30, 24, 28, 21, 29)

$g_4 = (1, 18, 23, 39, 42, 38, 26, 21, 5, 3, 25, 7, 14, 41, 13, 16, 29, 34, 17, 20, 40, 2, 30, 8, 11, 9, 12, 22, 27, 33, 4, 24, 35, 36, 10, 37, 32, 19, 15, 31, 28, 6)$

group order is small, so we list all elements $a_1 = \text{id}$

$a_2 = (1, 2)(3, 4)(5, 33)(6, 40)(7, 35)(8, 23)(9, 42)(10, 41)(11, 39)(12, 38)(13, 37)(14, 36)(15, 34)(16, 32)(17, 31)(18, 30)(19, 29)(20, 28)(21, 27)(22, 26)(24, 25)$

$a_3 = (1, 3, 17, 22, 32, 39, 14, 2, 4, 31, 26, 16, 11, 36)(5, 34, 12, 37, 23, 7, 40, 33, 15, 38, 13, 8, 35, 6)(9, 10, 18, 25, 20, 27, 19, 42, 41, 30, 24, 28, 21, 29)$

$a_4 = (1, 4, 17, 26, 32, 11, 14)(2, 3, 31, 22, 16, 39, 36)(5, 15, 12, 13, 23, 35, 40)(6, 33, 34, 38, 37, 8, 7)(9, 41, 18, 24, 20, 21, 19)(10, 30, 25, 28, 27, 29, 42)$

$a_5 = (1, 17, 32, 14, 4, 26, 11)(2, 31, 16, 36, 3, 22, 39)(5, 12, 23, 40, 15, 13, 35)(6, 34, 37, 7, 33, 38, 8)(9, 18, 20, 19, 41, 24, 21)(10, 25, 27, 42, 30, 28, 29)$

$a_6 = (1, 31, 32, 36, 4, 22, 11, 2, 17, 16, 14, 3, 26, 39)(5, 38, 23, 6, 15, 37, 35, 33, 12, 8, 40, 34, 13, 7)(9, 30, 20, 29, 41, 25, 21, 42, 18, 28, 19, 10, 24, 27)$

$a_7 = (1, 22, 14, 31, 11, 3, 32, 2, 26, 36, 17, 39, 4, 16)(5, 37, 40, 38, 35, 34, 23, 33, 13, 6, 12, 7, 15, 8)(9, 25, 19, 30, 21, 10, 20, 42, 24, 29, 18, 27, 41, 28)$

$a_8 = (1, 26, 14, 17, 11, 4, 32)(2, 22, 36, 31, 39, 3, 16)(5, 13, 40, 12, 35, 15, 23)(6, 38, 7, 34, 8, 33, 37)(9, 24, 19, 18, 21, 41, 20)(10, 28, 42, 25, 29, 30, 27)$

$a_9 = (1, 32, 4, 11, 17, 14, 26)(2, 16, 3, 39, 31, 36, 22)(5, 23, 15, 35, 12, 40, 13)(6, 37, 33, 8, 34, 7, 38)(9, 20, 41, 21, 18, 19, 24)(10, 27, 30, 29, 25, 42, 28)$

$a_{10} = (1, 16, 4, 39, 17, 36, 26, 2, 32, 3, 11, 31, 14, 22)(5, 8, 15, 7, 12, 6, 13, 33, 23, 34, 35, 38, 40, 37)(9, 28, 41, 27, 18, 29, 24, 42, 20, 10, 21, 30, 19, 25)$

$a_{11} = (1, 39, 26, 3, 14, 16, 17, 2, 11, 22, 4, 36, 32, 31)(5, 7, 13, 34, 40, 8, 12, 33, 35, 37, 15, 6, 23, 38)(9, 27, 24, 10, 19, 28, 18, 42, 21, 25, 41, 29, 20, 30)$

$a_{12} = (1, 11, 26, 4, 14, 32, 17)(2, 39, 22, 3, 36, 16, 31)(5, 35, 13, 15, 40, 23, 12)(6, 8, 38, 33, 7, 37, 34)(9, 21, 24, 41, 19, 20, 18)(10, 29, 28, 30, 42, 27, 25)$

$a_{13} = (1, 14, 11, 32, 26, 17, 4)(2, 36, 39, 16, 22, 31, 3)(5, 40, 35, 23, 13, 12, 15)(6, 7, 8, 37, 38, 34, 33)(9, 19, 21, 20, 24, 18, 41)(10, 42, 29, 27, 28, 25, 30)$

$a_{14} = (1, 36, 11, 16, 26, 31, 4, 2, 14, 39, 32, 22, 17, 3)(5, 6, 35, 8, 13, 38, 15, 33, 40, 7, 23, 37,$

12, 34)(9, 29, 21, 28, 24, 30, 41, 42, 19, 27, 20, 25, 18, 10)
 $a_{15} = (1, 18, 23, 39, 42, 38, 26, 21, 5, 3, 25, 7, 14, 41, 13, 16, 29, 34, 17, 20, 40, 2, 30, 8, 11, 9,$
 $12, 22, 27, 33, 4, 24, 35, 36, 10, 37, 32, 19, 15, 31, 28, 6)$
 $a_{16} = (1, 30, 23, 11, 42, 12, 26, 27, 5, 4, 25, 35, 14, 10, 13, 32, 29, 15, 17, 28, 40)(2, 18, 8, 39, 9,$
 $38, 22, 21, 33, 3, 24, 7, 36, 41, 37, 16, 19, 34, 31, 20, 6)$
 $a_{17} = (1, 25, 40, 4, 28, 5, 17, 27, 15, 26, 29, 12, 32, 42, 13, 11, 10, 23, 14, 30, 35)(2, 24, 6, 3, 20,$
 $33, 31, 21, 34, 22, 19, 38, 16, 9, 37, 39, 41, 8, 36, 18, 7)$
 $a_{18} = (1, 24, 40, 3, 28, 33, 17, 21, 15, 22, 29, 38, 32, 9, 13, 39, 10, 8, 14, 18, 35, 2, 25, 6, 4, 20,$
 $5, 31, 27, 34, 26, 19, 12, 16, 42, 37, 11, 41, 23, 36, 30, 7)$
 $a_{19} = (1, 20, 15, 16, 10, 7, 4, 21, 12, 39, 30, 6, 17, 19, 13, 36, 25, 33, 26, 9, 23, 2, 28, 34, 32, 41,$
 $35, 3, 27, 38, 11, 18, 40, 31, 29, 37, 14, 24, 5, 22, 42, 8)$
 $a_{20} = (1, 28, 15, 32, 10, 35, 4, 27, 12, 11, 30, 40, 17, 29, 13, 14, 25, 5, 26, 42, 23)(2, 20, 34, 16,$
 $41, 7, 3, 21, 38, 39, 18, 6, 31, 19, 37, 36, 24, 33, 22, 9, 8)$
 $a_{21} = (1, 27, 13)(2, 21, 37)(3, 19, 8)(4, 29, 23)(5, 32, 30)(6, 22, 41)(7, 31, 9)(10, 40, 26)(11, 25,$
 $15)(12, 14, 28)(16, 18, 33)(17, 42, 35)(20, 38, 36)(24, 34, 39)$
 $a_{22} = (1, 21, 13, 2, 27, 37)(3, 29, 8, 4, 19, 23)(5, 16, 30, 33, 32, 18)(6, 26, 41, 40, 22, 10)(7, 17,$
 $9, 35, 31, 42)(11, 24, 15, 39, 25, 34)(12, 36, 28, 38, 14, 20)$
 $a_{23} = (1, 19, 35, 22, 30, 34, 14, 21, 23, 31, 10, 33, 11, 20, 13, 3, 42, 6, 32, 24, 12, 2, 29, 7, 26,$
 $18, 15, 36, 27, 8, 17, 41, 5, 39, 28, 37, 4, 9, 40, 16, 25, 38)$
 $a_{24} = (1, 29, 35, 26, 30, 15, 14, 27, 23, 17, 10, 5, 11, 28, 13, 4, 42, 40, 32, 25, 12)(2, 19, 7, 22,$
 $18, 34, 36, 21, 8, 31, 41, 33, 39, 20, 37, 3, 9, 6, 16, 24, 38)$
 $a_{25} = (1, 42, 5, 14, 29, 40, 11, 27, 35, 32, 28, 23, 26, 25, 13, 17, 30, 12, 4, 10, 15)(2, 9, 33, 36,$
 $19, 6, 39, 21, 7, 16, 20, 8, 22, 24, 37, 31, 18, 38, 3, 41, 34)$
 $a_{26} = (1, 9, 5, 36, 29, 6, 11, 21, 35, 16, 28, 8, 26, 24, 13, 31, 30, 38, 4, 41, 15, 2, 42, 33, 14, 19,$
 $40, 39, 27, 7, 32, 20, 23, 22, 25, 37, 17, 18, 12, 3, 10, 34)$
 $a_{27} = (1, 41, 12, 31, 25, 8, 32, 21, 40, 36, 42, 34, 4, 18, 13, 22, 28, 7, 11, 19, 5, 2, 10, 38, 17, 24,$
 $23, 16, 27, 6, 14, 9, 15, 3, 30, 37, 26, 20, 35, 39, 29, 33)$
 $a_{28} = (1, 10, 12, 17, 25, 23, 32, 27, 40, 14, 42, 15, 4, 30, 13, 26, 28, 35, 11, 29, 5)(2, 41, 38, 31,$
 $24, 8, 16, 21, 6, 36, 9, 34, 3, 18, 37, 22, 20, 7, 39, 19, 33)$

$a_{29} = (1, 23, 42, 26, 5, 25, 14, 13, 29, 17, 40, 30, 11, 12, 27, 4, 35, 10, 32, 15, 28)(2, 8, 9, 22, 33, 24, 36, 37, 19, 31, 6, 18, 39, 38, 21, 3, 7, 41, 16, 34, 20)$

$a_{30} = (1, 8, 42, 22, 5, 24, 14, 37, 29, 31, 40, 18, 11, 38, 27, 3, 35, 41, 32, 34, 28, 2, 23, 9, 26, 33, 25, 36, 13, 19, 17, 6, 30, 39, 12, 21, 4, 7, 10, 16, 15, 20)$

$a_{31} = (1, 7, 30, 36, 23, 41, 11, 37, 42, 16, 12, 19, 26, 34, 27, 31, 5, 20, 4, 6, 25, 2, 35, 18, 14, 8, 10, 39, 13, 9, 32, 38, 29, 22, 15, 21, 17, 33, 28, 3, 40, 24)$

$a_{32} = (1, 35, 30, 14, 23, 10, 11, 13, 42, 32, 12, 29, 26, 15, 27, 17, 5, 28, 4, 40, 25)(2, 7, 18, 36, 8, 41, 39, 37, 9, 16, 38, 19, 22, 34, 21, 31, 33, 20, 3, 6, 24)$

$a_{33} = (1, 40, 28, 17, 15, 29, 32, 13, 10, 14, 35, 25, 4, 5, 27, 26, 12, 42, 11, 23, 30)(2, 6, 20, 31, 34, 19, 16, 37, 41, 36, 7, 24, 3, 33, 21, 22, 38, 9, 39, 8, 18)$

$a_{34} = (1, 6, 28, 31, 15, 19, 32, 37, 10, 36, 35, 24, 4, 33, 27, 22, 12, 9, 11, 8, 30, 2, 40, 20, 17, 34, 29, 16, 13, 41, 14, 7, 25, 3, 5, 21, 26, 38, 42, 39, 23, 18)$

$a_{35} = (1, 33, 29, 39, 35, 20, 26, 37, 30, 3, 15, 9, 14, 6, 27, 16, 23, 24, 17, 38, 10, 2, 5, 19, 11, 7, 28, 22, 13, 18, 4, 34, 42, 36, 40, 21, 32, 8, 25, 31, 12, 41)$

$a_{36} = (1, 5, 29, 11, 35, 28, 26, 13, 30, 4, 15, 42, 14, 40, 27, 32, 23, 25, 17, 12, 10)(2, 33, 19, 39, 7, 20, 22, 37, 18, 3, 34, 9, 36, 6, 21, 16, 8, 24, 31, 38, 41)$

$a_{37} = (1, 15, 10, 4, 12, 30, 17, 13, 25, 26, 23, 28, 32, 35, 27, 11, 40, 29, 14, 5, 42)(2, 34, 41, 3, 38, 18, 31, 37, 24, 22, 8, 20, 16, 7, 21, 39, 6, 19, 36, 33, 9)$

$a_{38} = (1, 34, 10, 3, 12, 18, 17, 37, 25, 22, 23, 20, 32, 7, 27, 39, 40, 19, 14, 33, 42, 2, 15, 41, 4, 38, 30, 31, 13, 24, 26, 8, 28, 16, 35, 21, 11, 6, 29, 36, 5, 9)$

$a_{39} = (1, 38, 25, 16, 40, 9, 4, 37, 28, 39, 5, 41, 17, 8, 27, 36, 15, 18, 26, 7, 29, 2, 12, 24, 32, 6, 42, 3, 13, 20, 11, 33, 10, 31, 23, 21, 14, 34, 30, 22, 35, 19)$

$a_{40} = (1, 12, 25, 32, 40, 42, 4, 13, 28, 11, 5, 10, 17, 23, 27, 14, 15, 30, 26, 35, 29)(2, 38, 24, 16, 6, 9, 3, 37, 20, 39, 33, 41, 31, 8, 21, 36, 34, 18, 22, 7, 19)$

$a_{41} = (1, 13, 27)(2, 37, 21)(3, 8, 19)(4, 23, 29)(5, 30, 32)(6, 41, 22)(7, 9, 31)(10, 26, 40)(11, 15, 25)(12, 28, 14)(16, 33, 18)(17, 35, 42)(20, 36, 38)(24, 39, 34)$

$a_{42} = (1, 37, 27, 2, 13, 21)(3, 23, 19, 4, 8, 29)(5, 18, 32, 33, 30, 16)(6, 10, 22, 40, 41, 26)(7, 42, 31, 35, 9, 17)(11, 34, 25, 39, 15, 24)(12, 20, 14, 38, 28, 36)$

$a_{43} = (1, 4)(2, 3)(5, 30)(6, 24)(7, 20)(8, 21)(9, 38)(10, 15)(11, 26)(12, 42)(13, 29)(14, 17)(18,$

$33)(19, 37)(22, 39)(23, 27)(25, 40)(28, 35)(31, 36)(34, 41)$
 $a_{44} = (1, 3)(2, 4)(5, 18)(6, 25)(7, 28)(8, 27)(9, 12)(10, 34)(11, 22)(13, 19)(14, 31)(15, 41)(16,$
 $32)(17, 36)(20, 35)(21, 23)(24, 40)(26, 39)(29, 37)(30, 33)(38, 42)$
 $a_{45} = (1, 2)(3, 14)(4, 36)(5, 41)(6, 30)(7, 25)(8, 28)(9, 15)(10, 33)(11, 31)(12, 19)(13, 21)(16,$
 $26)(17, 39)(18, 40)(20, 23)(22, 32)(24, 35)(27, 37)(29, 38)(34, 42)$
 $a_{46} = (3, 36)(4, 14)(5, 10)(6, 18)(7, 24)(8, 20)(9, 34)(11, 17)(12, 29)(13, 27)(15, 42)(16, 22)(19,$
 $38)(21, 37)(23, 28)(25, 35)(26, 32)(30, 40)(31, 39)(33, 41)$
 $a_{47} = (1, 14)(2, 36)(3, 39)(4, 11)(5, 42)(6, 41)(7, 18)(8, 24)(9, 33)(10, 40)(12, 27)(13, 28)(15,$
 $29)(16, 31)(17, 32)(19, 34)(20, 37)(21, 38)(23, 25)(30, 35)$
 $a_{48} = (1, 36)(2, 14)(3, 11)(4, 39)(5, 9)(6, 10)(7, 30)(8, 25)(12, 21)(13, 20)(15, 19)(16, 17)(18,$
 $35)(22, 26)(23, 24)(27, 38)(28, 37)(29, 34)(31, 32)(33, 42)(40, 41)$
 $a_{49} = (1, 39)(2, 11)(3, 32)(4, 16)(5, 19)(6, 42)(7, 10)(8, 30)(9, 40)(12, 20)(13, 24)(14, 36)(15,$
 $21)(17, 22)(18, 23)(25, 37)(26, 31)(27, 34)(28, 38)(29, 33)(35, 41)$
 $a_{50} = (1, 11)(2, 39)(3, 16)(4, 32)(5, 29)(6, 9)(7, 41)(8, 18)(10, 35)(12, 28)(13, 25)(15, 27)(17,$
 $26)(19, 33)(20, 38)(21, 34)(22, 31)(23, 30)(24, 37)(40, 42)$
 $a_{51} = (1, 32)(2, 16)(3, 22)(4, 26)(5, 27)(6, 19)(7, 9)(8, 41)(10, 23)(11, 14)(12, 25)(13, 30)(15,$
 $28)(18, 37)(20, 34)(21, 33)(24, 38)(29, 40)(35, 42)(36, 39)$
 $a_{52} = (1, 16)(2, 32)(3, 26)(4, 22)(5, 21)(6, 29)(7, 42)(8, 10)(9, 35)(11, 36)(12, 24)(13, 18)(14,$
 $39)(15, 20)(17, 31)(19, 40)(23, 41)(25, 38)(27, 33)(28, 34)(30, 37)$
 $a_{53} = (1, 22)(2, 26)(3, 17)(4, 31)(5, 20)(6, 27)(7, 29)(8, 42)(9, 23)(10, 37)(11, 39)(12, 18)(13,$
 $41)(14, 16)(15, 24)(19, 35)(21, 40)(25, 34)(28, 33)(30, 38)(32, 36)$
 $a_{54} = (1, 26)(2, 22)(3, 31)(4, 17)(5, 28)(6, 21)(7, 19)(8, 9)(10, 13)(12, 30)(14, 32)(15, 25)(16,$
 $36)(18, 38)(20, 33)(23, 42)(24, 34)(27, 40)(29, 35)(37, 41)$
 $a_{55} = (1, 17)(2, 31)(5, 25)(6, 20)(7, 21)(8, 19)(9, 37)(10, 12)(11, 32)(13, 42)(14, 26)(15, 30)(16,$
 $39)(18, 34)(22, 36)(23, 29)(24, 33)(27, 35)(28, 40)(38, 41)$
 $a_{56} = (1, 31)(2, 17)(3, 4)(5, 24)(6, 28)(7, 27)(8, 29)(9, 13)(10, 38)(11, 16)(12, 41)(14, 22)(15,$
 $18)(19, 23)(20, 40)(21, 35)(25, 33)(26, 36)(30, 34)(32, 39)(37, 42)$
 $a_{57} = (1, 33)(2, 5)(3, 40)(4, 6)(7, 17)(8, 26)(9, 42)(10, 19)(11, 38)(12, 39)(13, 16)(14, 34)(15,$
 $36)(18, 27)(20, 25)(21, 30)(22, 23)(24, 28)(29, 41)(31, 35)(32, 37)$

$$a_{58} = (1, 5)(2, 33)(3, 6)(4, 40)(7, 31)(8, 22)(10, 29)(11, 12)(13, 32)(14, 15)(16, 37)(17, 35)(18, 21)(19, 41)(20, 24)(23, 26)(25, 28)(27, 30)(34, 36)(38, 39)$$

$$a_{59} = (1, 40)(2, 6)(3, 7)(4, 35)(5, 14)(8, 31)(9, 19)(10, 27)(11, 15)(12, 32)(13, 26)(16, 38)(17, 23)(18, 20)(21, 41)(22, 37)(28, 30)(29, 42)(33, 36)(34, 39)$$

$$a_{60} = (1, 6)(2, 40)(3, 35)(4, 7)(5, 36)(8, 17)(9, 29)(10, 21)(11, 34)(12, 16)(13, 22)(14, 33)(15, 39)(18, 28)(19, 42)(20, 30)(23, 31)(24, 25)(26, 37)(27, 41)(32, 38)$$

$$a_{61} = (1, 7)(2, 35)(3, 23)(4, 8)(5, 39)(6, 14)(9, 27)(10, 20)(11, 33)(12, 22)(13, 31)(15, 16)(17, 37)(18, 25)(19, 29)(21, 42)(24, 30)(26, 38)(28, 41)(32, 34)(36, 40)$$

$$a_{62} = (1, 35)(2, 7)(3, 8)(4, 23)(5, 11)(6, 36)(9, 21)(10, 28)(12, 26)(13, 17)(14, 40)(15, 32)(16, 34)(18, 24)(20, 41)(22, 38)(25, 30)(27, 42)(31, 37)(33, 39)$$

$$a_{63} = (1, 23)(2, 8)(3, 37)(4, 13)(5, 32)(6, 39)(7, 36)(9, 20)(10, 25)(11, 40)(12, 17)(14, 35)(15, 26)(16, 33)(19, 21)(22, 34)(24, 41)(27, 29)(28, 42)(31, 38)$$

$$a_{64} = (1, 8)(2, 23)(3, 13)(4, 37)(5, 16)(6, 11)(7, 14)(9, 28)(10, 24)(12, 31)(15, 22)(17, 38)(18, 30)(19, 27)(20, 42)(21, 29)(25, 41)(26, 34)(32, 33)(35, 36)(39, 40)$$

$$a_{65} = (1, 37)(2, 13)(3, 12)(4, 38)(5, 22)(6, 32)(7, 11)(8, 14)(9, 25)(10, 18)(15, 31)(16, 40)(17, 34)(19, 28)(20, 29)(21, 27)(23, 36)(24, 42)(26, 33)(30, 41)(35, 39)$$

$$a_{66} = (1, 13)(2, 37)(3, 38)(4, 12)(5, 26)(6, 16)(7, 39)(8, 36)(9, 24)(10, 30)(11, 35)(14, 23)(15, 17)(18, 41)(19, 20)(22, 33)(25, 42)(28, 29)(31, 34)(32, 40)$$

$$a_{67} = (1, 12)(2, 38)(3, 34)(4, 15)(5, 17)(6, 22)(7, 16)(8, 39)(9, 18)(11, 23)(13, 14)(19, 24)(20, 21)(25, 29)(26, 40)(27, 28)(30, 42)(31, 33)(32, 35)(36, 37)$$

$$a_{68} = (1, 38)(2, 12)(3, 15)(4, 34)(5, 31)(6, 26)(7, 32)(8, 11)(9, 30)(10, 41)(13, 36)(14, 37)(16, 35)(17, 33)(18, 42)(19, 25)(20, 27)(21, 28)(22, 40)(23, 39)(24, 29)$$

$$a_{69} = (1, 34)(2, 15)(3, 5)(4, 33)(6, 17)(7, 26)(8, 32)(9, 10)(11, 37)(12, 36)(13, 39)(14, 38)(16, 23)(18, 29)(19, 30)(20, 28)(21, 25)(22, 35)(24, 27)(31, 40)(41, 42)$$

$$a_{70} = (1, 15)(2, 34)(3, 33)(4, 5)(6, 31)(7, 22)(8, 16)(9, 41)(10, 42)(11, 13)(12, 14)(17, 40)(18, 19)(21, 24)(23, 32)(25, 27)(26, 35)(29, 30)(36, 38)(37, 39)$$

$$a_{71} = (1, 27)(2, 21)(3, 20)(4, 28)(5, 40)(6, 33)(7, 34)(8, 38)(9, 39)(10, 32)(11, 42)(12, 23)(14, 29)(15, 35)(16, 41)(17, 25)(18, 22)(19, 36)(24, 31)(26, 30)$$

$$a_{72} = (1, 21)(2, 27)(3, 28)(4, 20)(5, 6)(7, 15)(8, 12)(9, 11)(10, 16)(13, 37)(14, 19)(17, 24)(18,$$

$26)(22, 30)(23, 38)(25, 31)(29, 36)(32, 41)(33, 40)(34, 35)(39, 42)$
 $a_{73} = (1, 20)(2, 28)(3, 25)(4, 24)(5, 7)(6, 40)(8, 15)(9, 32)(10, 22)(11, 19)(12, 37)(13, 38)(14,$
 $21)(16, 42)(17, 18)(23, 34)(26, 41)(27, 36)(29, 39)(30, 31)(33, 35)$
 $a_{74} = (1, 28)(2, 20)(3, 24)(4, 25)(5, 35)(7, 33)(8, 34)(9, 16)(10, 26)(11, 29)(12, 13)(14, 27)(15,$
 $23)(17, 30)(18, 31)(19, 39)(21, 36)(22, 41)(32, 42)(37, 38)$
 $a_{75} = (1, 25)(2, 24)(3, 18)(4, 30)(5, 23)(6, 7)(8, 33)(9, 22)(10, 17)(11, 27)(13, 15)(14, 28)(16,$
 $19)(20, 36)(21, 39)(26, 42)(29, 32)(31, 41)(34, 37)(35, 40)$
 $a_{76} = (1, 24)(2, 25)(3, 30)(4, 18)(5, 8)(6, 35)(7, 40)(9, 26)(10, 31)(11, 21)(12, 38)(13, 34)(14,$
 $20)(15, 37)(16, 29)(17, 41)(19, 32)(22, 42)(23, 33)(27, 39)(28, 36)$
 $a_{77} = (1, 18)(2, 30)(3, 10)(4, 41)(5, 37)(6, 23)(7, 35)(8, 40)(9, 17)(11, 20)(12, 34)(13, 33)(14,$
 $24)(15, 38)(16, 27)(19, 26)(21, 32)(22, 29)(25, 36)(28, 39)(31, 42)$
 $a_{78} = (1, 30)(2, 18)(3, 41)(4, 10)(5, 13)(6, 8)(9, 31)(11, 28)(12, 15)(14, 25)(16, 21)(17, 42)(19,$
 $22)(20, 39)(23, 40)(24, 36)(26, 29)(27, 32)(33, 37)(34, 38)$
 $a_{79} = (1, 10)(2, 41)(3, 9)(4, 42)(5, 12)(6, 37)(7, 8)(11, 25)(13, 40)(14, 30)(16, 20)(17, 29)(18,$
 $36)(19, 31)(21, 22)(23, 35)(24, 39)(26, 27)(28, 32)(33, 38)$
 $a_{80} = (1, 41)(2, 10)(3, 42)(4, 9)(5, 38)(6, 13)(7, 23)(8, 35)(11, 24)(12, 33)(14, 18)(15, 34)(16,$
 $28)(17, 19)(20, 32)(21, 26)(22, 27)(25, 39)(29, 31)(30, 36)(37, 40)$
 $a_{81} = (1, 9)(2, 42)(3, 29)(4, 19)(5, 34)(6, 12)(7, 13)(8, 23)(10, 36)(11, 18)(14, 41)(15, 33)(16,$
 $25)(17, 21)(20, 26)(22, 28)(24, 32)(27, 31)(30, 39)(35, 37)(38, 40)$
 $a_{82} = (1, 42)(2, 9)(3, 19)(4, 29)(5, 15)(6, 38)(7, 37)(10, 14)(11, 30)(12, 40)(13, 35)(16, 24)(17,$
 $27)(18, 39)(20, 22)(21, 31)(25, 32)(26, 28)(33, 34)(36, 41)$
 $a_{83} = (1, 29)(2, 19)(3, 21)(4, 27)(6, 34)(7, 38)(8, 37)(9, 36)(10, 11)(12, 35)(13, 23)(14, 42)(15,$
 $40)(16, 18)(17, 28)(20, 31)(22, 24)(25, 26)(30, 32)(39, 41)$
 $a_{84} = (1, 19)(2, 29)(3, 27)(4, 21)(5, 33)(6, 15)(7, 12)(8, 13)(9, 14)(10, 39)(11, 41)(16, 30)(17,$
 $20)(18, 32)(22, 25)(23, 37)(24, 26)(28, 31)(34, 40)(35, 38)(36, 42)$

and now the elements themselves: $a_1 = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}$

$$a_2 = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 & 0 \\ 0 & 35 & 1 & 4 & 2 \\ 0 & 2 & 0 & 42 & 0 \\ 0 & 4 & 0 & 0 & 42 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 3 & 31 & 0 & 9 & 23 \\ 0 & 11 & 0 & 0 & 0 \\ 0 & 16 & 4 & 25 & 37 \\ 42 & 4 & 0 & 30 & 10 \\ 2 & 33 & 0 & 9 & 33 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 40 & 12 & 0 & 34 & 20 \\ 0 & 11 & 0 & 0 & 0 \\ 0 & 10 & 4 & 34 & 14 \\ 1 & 18 & 0 & 13 & 33 \\ 41 & 11 & 0 & 34 & 10 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 3 & 25 & 0 & 31 & 15 \\ 0 & 35 & 0 & 0 & 0 \\ 6 & 13 & 16 & 22 & 28 \\ 30 & 33 & 0 & 35 & 5 \\ 20 & 2 & 0 & 26 & 21 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 40 & 18 & 0 & 12 & 28 \\ 0 & 35 & 0 & 0 & 0 \\ 37 & 41 & 16 & 42 & 4 \\ 13 & 37 & 0 & 8 & 38 \\ 23 & 9 & 0 & 17 & 22 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 8 & 41 & 0 & 17 & 14 \\ 0 & 41 & 0 & 0 & 0 \\ 9 & 6 & 21 & 33 & 25 \\ 22 & 7 & 0 & 32 & 1 \\ 33 & 20 & 0 & 31 & 37 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 35 & 2 & 0 & 26 & 29 \\ 0 & 41 & 0 & 0 & 0 \\ 34 & 4 & 21 & 8 & 17 \\ 21 & 32 & 0 & 11 & 42 \\ 10 & 15 & 0 & 12 & 6 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 35 & 25 & 0 & 20 & 42 \\ 0 & 21 & 0 & 0 & 0 \\ 1 & 4 & 41 & 15 & 32 \\ 36 & 17 & 0 & 6 & 42 \\ 13 & 8 & 0 & 12 & 11 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 8 & 18 & 0 & 23 & 1 \\ 0 & 21 & 0 & 0 & 0 \\ 42 & 6 & 41 & 20 & 7 \\ 7 & 25 & 0 & 37 & 1 \\ 30 & 33 & 0 & 31 & 32 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 40 & 31 & 0 & 3 & 26 \\ 0 & 16 & 0 & 0 & 0 \\ 9 & 41 & 35 & 9 & 37 \\ 14 & 4 & 0 & 22 & 38 \\ 6 & 42 & 0 & 17 & 8 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3 & 12 & 0 & 40 & 17 \\ 0 & 16 & 0 & 0 & 0 \\ 34 & 13 & 35 & 2 & 33 \\ 29 & 28 & 0 & 21 & 5 \\ 37 & 22 & 0 & 26 & 35 \end{pmatrix}$$

$$a_{13} = \begin{pmatrix} 40 & 0 & 0 & 39 & 2 \\ 0 & 4 & 0 & 0 & 0 \\ 6 & 10 & 11 & 11 & 18 \\ 10 & 14 & 0 & 10 & 33 \\ 17 & 34 & 0 & 34 & 13 \end{pmatrix}$$

$$a_{14} = \begin{pmatrix} 3 & 0 & 0 & 4 & 41 \\ 0 & 4 & 0 & 0 & 0 \\ 37 & 16 & 11 & 33 & 4 \\ 33 & 37 & 0 & 33 & 10 \\ 26 & 25 & 0 & 9 & 30 \end{pmatrix}$$

$$a_{15} = \begin{pmatrix} 9 & 16 & 0 & 32 & 19 \\ 0 & 21 & 0 & 0 & 0 \\ 20 & 40 & 41 & 34 & 26 \\ 6 & 12 & 0 & 2 & 25 \\ 11 & 25 & 0 & 1 & 8 \end{pmatrix}$$

$$a_{16} = \begin{pmatrix} 34 & 27 & 0 & 11 & 24 \\ 0 & 21 & 0 & 0 & 0 \\ 23 & 13 & 41 & 1 & 13 \\ 37 & 30 & 0 & 41 & 18 \\ 32 & 16 & 0 & 42 & 35 \end{pmatrix}$$

$$a_{17} = \begin{pmatrix} 33 & 6 & 0 & 8 & 36 \\ 0 & 16 & 0 & 0 & 0 \\ 35 & 1 & 35 & 8 & 36 \\ 23 & 33 & 0 & 38 & 37 \\ 5 & 24 & 0 & 29 & 11 \end{pmatrix}$$

$$a_{18} = \begin{pmatrix} 10 & 37 & 0 & 35 & 7 \\ 0 & 16 & 0 & 0 & 0 \\ 8 & 10 & 35 & 3 & 34 \\ 20 & 42 & 0 & 5 & 6 \\ 38 & 40 & 0 & 14 & 32 \end{pmatrix}$$

$$a_{19} = \begin{pmatrix} 34 & 30 & 0 & 1 & 6 \\ 0 & 4 & 0 & 0 & 0 \\ 40 & 38 & 11 & 34 & 14 \\ 19 & 41 & 0 & 3 & 23 \\ 8 & 38 & 0 & 25 & 37 \end{pmatrix}$$

$$a_{20} = \begin{pmatrix} 9 & 13 & 0 & 42 & 37 \\ 0 & 4 & 0 & 0 & 0 \\ 3 & 31 & 11 & 10 & 8 \\ 24 & 10 & 0 & 40 & 20 \\ 35 & 21 & 0 & 18 & 6 \end{pmatrix}$$

$$a_{21} = \begin{pmatrix} 27 & 38 & 0 & 3 & 1 \\ 0 & 1 & 0 & 0 & 0 \\ 28 & 24 & 1 & 18 & 22 \\ 14 & 5 & 0 & 38 & 22 \\ 30 & 9 & 0 & 37 & 21 \end{pmatrix}$$

$$a_{22} = \begin{pmatrix} 16 & 5 & 0 & 40 & 42 \\ 0 & 1 & 0 & 0 & 0 \\ 15 & 11 & 1 & 29 & 23 \\ 29 & 40 & 0 & 5 & 21 \\ 13 & 38 & 0 & 6 & 22 \end{pmatrix}$$

$$a_{23} = \begin{pmatrix} 37 & 10 & 0 & 41 & 39 \\ 0 & 11 & 0 & 0 & 0 \\ 24 & 11 & 4 & 26 & 39 \\ 5 & 34 & 0 & 2 & 9 \\ 9 & 21 & 0 & 21 & 33 \end{pmatrix}$$

$$a_{24} = \begin{pmatrix} 6 & 33 & 0 & 2 & 4 \\ 0 & 11 & 0 & 0 & 0 \\ 19 & 15 & 4 & 33 & 12 \\ 38 & 31 & 0 & 41 & 34 \\ 34 & 23 & 0 & 22 & 10 \end{pmatrix}$$

$$a_{25} = \begin{pmatrix} 19 & 42 & 0 & 22 & 11 \\ 0 & 35 & 0 & 0 & 0 \\ 38 & 41 & 16 & 28 & 11 \\ 31 & 17 & 0 & 14 & 2 \\ 29 & 6 & 0 & 19 & 1 \end{pmatrix}$$

$$a_{26} = \begin{pmatrix} 24 & 1 & 0 & 21 & 32 \\ 0 & 35 & 0 & 0 & 0 \\ 5 & 13 & 16 & 36 & 21 \\ 12 & 10 & 0 & 29 & 41 \\ 14 & 5 & 0 & 24 & 42 \end{pmatrix}$$

$$a_{27} = \begin{pmatrix} 14 & 40 & 0 & 27 & 31 \\ 0 & 41 & 0 & 0 & 0 \\ 22 & 38 & 21 & 4 & 2 \\ 40 & 23 & 0 & 29 & 16 \\ 27 & 42 & 0 & 23 & 30 \end{pmatrix}$$

$$a_{28} = \begin{pmatrix} 29 & 3 & 0 & 16 & 12 \\ 0 & 41 & 0 & 0 & 0 \\ 21 & 15 & 21 & 37 & 40 \\ 3 & 16 & 0 & 14 & 27 \\ 16 & 36 & 0 & 20 & 13 \end{pmatrix}$$

$$a_{29} = \begin{pmatrix} 9 & 6 & 0 & 27 & 5 \\ 0 & 11 & 0 & 0 & 0 \\ 28 & 31 & 4 & 21 & 10 \\ 40 & 8 & 0 & 6 & 20 \\ 21 & 10 & 0 & 18 & 40 \end{pmatrix}$$

$$a_{30} = \begin{pmatrix} 34 & 37 & 0 & 16 & 38 \\ 0 & 11 & 0 & 0 & 0 \\ 15 & 38 & 4 & 38 & 41 \\ 3 & 14 & 0 & 37 & 23 \\ 22 & 34 & 0 & 25 & 3 \end{pmatrix}$$

$$a_{31} = \begin{pmatrix} 10 & 16 & 0 & 33 & 40 \\ 0 & 35 & 0 & 0 & 0 \\ 40 & 10 & 16 & 40 & 42 \\ 25 & 34 & 0 & 32 & 6 \\ 39 & 3 & 0 & 14 & 5 \end{pmatrix}$$

$$a_{32} = \begin{pmatrix} 33 & 27 & 0 & 10 & 3 \\ 0 & 35 & 0 & 0 & 0 \\ 3 & 1 & 16 & 24 & 33 \\ 18 & 36 & 0 & 11 & 37 \\ 4 & 8 & 0 & 29 & 38 \end{pmatrix}$$

$$a_{33} = \begin{pmatrix} 34 & 3 & 0 & 21 & 31 \\ 0 & 41 & 0 & 0 & 0 \\ 35 & 13 & 21 & 16 & 30 \\ 12 & 13 & 0 & 35 & 18 \\ 27 & 1 & 0 & 42 & 41 \end{pmatrix}$$

$$a_{34} = \begin{pmatrix} 9 & 40 & 0 & 22 & 12 \\ 0 & 41 & 0 & 0 & 0 \\ 8 & 40 & 21 & 25 & 12 \\ 31 & 26 & 0 & 8 & 25 \\ 16 & 34 & 0 & 1 & 2 \end{pmatrix}$$

$$a_{35} = \begin{pmatrix} 14 & 1 & 0 & 11 & 37 \\ 0 & 21 & 0 & 0 & 0 \\ 20 & 38 & 41 & 42 & 23 \\ 37 & 2 & 0 & 30 & 16 \\ 35 & 4 & 0 & 23 & 29 \end{pmatrix}$$

$$\begin{aligned}
a_{36} &= \begin{pmatrix} 29 & 42 & 0 & 32 & 6 \\ 0 & 21 & 0 & 0 & 0 \\ 23 & 15 & 41 & 36 & 16 \\ 6 & 40 & 0 & 13 & 27 \\ 8 & 37 & 0 & 20 & 14 \end{pmatrix} \\
a_{37} &= \begin{pmatrix} 19 & 33 & 0 & 15 & 19 \\ 0 & 16 & 0 & 0 & 0 \\ 21 & 41 & 35 & 6 & 17 \\ 27 & 11 & 0 & 1 & 2 \\ 11 & 28 & 0 & 19 & 14 \end{pmatrix} \\
a_{38} &= \begin{pmatrix} 24 & 10 & 0 & 28 & 24 \\ 0 & 16 & 0 & 0 & 0 \\ 22 & 13 & 35 & 5 & 10 \\ 16 & 21 & 0 & 42 & 41 \\ 32 & 36 & 0 & 24 & 29 \end{pmatrix} \\
a_{39} &= \begin{pmatrix} 37 & 5 & 0 & 18 & 10 \\ 0 & 4 & 0 & 0 & 0 \\ 5 & 11 & 11 & 21 & 34 \\ 41 & 39 & 0 & 33 & 9 \\ 42 & 26 & 0 & 21 & 2 \end{pmatrix} \\
a_{40} &= \begin{pmatrix} 6 & 38 & 0 & 25 & 33 \\ 0 & 4 & 0 & 0 & 0 \\ 38 & 15 & 11 & 23 & 31 \\ 2 & 12 & 0 & 10 & 34 \\ 1 & 33 & 0 & 22 & 41 \end{pmatrix}
\end{aligned}$$

$$a_{41} = \begin{pmatrix} 27 & 13 & 0 & 17 & 28 \\ 0 & 1 & 0 & 0 & 0 \\ 19 & 24 & 1 & 9 & 5 \\ 22 & 22 & 0 & 21 & 22 \\ 23 & 18 & 0 & 37 & 38 \end{pmatrix}$$

$$a_{42} = \begin{pmatrix} 16 & 30 & 0 & 26 & 15 \\ 0 & 1 & 0 & 0 & 0 \\ 24 & 11 & 1 & 38 & 40 \\ 21 & 23 & 0 & 22 & 21 \\ 20 & 29 & 0 & 6 & 5 \end{pmatrix}$$

$$a_{43} = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 4 & 41 & 39 & 41 \\ 0 & 10 & 4 & 34 & 14 \\ 0 & 14 & 41 & 39 & 36 \\ 0 & 34 & 39 & 9 & 39 \end{pmatrix}$$

$$a_{44} = \begin{pmatrix} 42 & 0 & 0 & 0 & 0 \\ 0 & 4 & 41 & 39 & 41 \\ 0 & 16 & 4 & 25 & 37 \\ 0 & 37 & 41 & 39 & 3 \\ 0 & 25 & 39 & 18 & 39 \end{pmatrix}$$

$$a_{45} = \begin{pmatrix} 3 & 0 & 0 & 4 & 41 \\ 0 & 1 & 21 & 42 & 21 \\ 0 & 35 & 1 & 4 & 2 \\ 42 & 2 & 21 & 40 & 0 \\ 2 & 4 & 42 & 0 & 40 \end{pmatrix}$$

$$a_{46} = \begin{pmatrix} 40 & 0 & 0 & 39 & 2 \\ 0 & 1 & 21 & 42 & 21 \\ 0 & 0 & 1 & 0 & 0 \\ 1 & 0 & 21 & 1 & 42 \\ 41 & 0 & 42 & 39 & 1 \end{pmatrix}$$

$$a_{47} = \begin{pmatrix} 3 & 12 & 0 & 40 & 17 \\ 0 & 11 & 16 & 32 & 16 \\ 6 & 10 & 11 & 11 & 18 \\ 30 & 18 & 16 & 31 & 13 \\ 20 & 11 & 32 & 34 & 31 \end{pmatrix}$$

$$a_{48} = \begin{pmatrix} 40 & 31 & 0 & 3 & 26 \\ 0 & 11 & 16 & 32 & 16 \\ 37 & 16 & 11 & 33 & 4 \\ 13 & 4 & 16 & 33 & 19 \\ 23 & 33 & 32 & 8 & 33 \end{pmatrix}$$

$$a_{49} = \begin{pmatrix} 8 & 18 & 0 & 23 & 1 \\ 0 & 35 & 4 & 8 & 4 \\ 9 & 41 & 35 & 9 & 37 \\ 22 & 37 & 4 & 25 & 16 \\ 33 & 9 & 8 & 0 & 25 \end{pmatrix}$$

$$a_{50} = \begin{pmatrix} 35 & 25 & 0 & 20 & 42 \\ 0 & 35 & 4 & 8 & 4 \\ 34 & 13 & 35 & 2 & 33 \\ 21 & 33 & 4 & 34 & 35 \\ 10 & 2 & 8 & 32 & 34 \end{pmatrix}$$

$$a_{51} = \begin{pmatrix} 35 & 2 & 0 & 26 & 29 \\ 0 & 41 & 1 & 2 & 1 \\ 1 & 4 & 41 & 15 & 32 \\ 36 & 32 & 1 & 28 & 14 \\ 13 & 15 & 2 & 19 & 28 \end{pmatrix}$$

$$a_{52} = \begin{pmatrix} 8 & 41 & 0 & 17 & 14 \\ 0 & 41 & 1 & 2 & 1 \\ 42 & 6 & 41 & 20 & 7 \\ 7 & 7 & 1 & 19 & 31 \\ 30 & 20 & 2 & 32 & 19 \end{pmatrix}$$

$$a_{53} = \begin{pmatrix} 40 & 18 & 0 & 12 & 28 \\ 0 & 21 & 11 & 22 & 11 \\ 9 & 6 & 21 & 33 & 25 \\ 14 & 25 & 11 & 23 & 30 \\ 6 & 33 & 22 & 8 & 23 \end{pmatrix}$$

$$a_{54} = \begin{pmatrix} 3 & 25 & 0 & 31 & 15 \\ 0 & 21 & 11 & 22 & 11 \\ 34 & 4 & 21 & 8 & 17 \\ 29 & 17 & 11 & 21 & 35 \\ 37 & 8 & 22 & 37 & 21 \end{pmatrix}$$

$$a_{55} = \begin{pmatrix} 40 & 12 & 0 & 34 & 20 \\ 0 & 16 & 35 & 27 & 35 \\ 6 & 13 & 16 & 22 & 28 \\ 10 & 28 & 35 & 29 & 28 \\ 17 & 22 & 27 & 17 & 29 \end{pmatrix}$$

$$a_{56} = \begin{pmatrix} 3 & 31 & 0 & 9 & 23 \\ 0 & 16 & 35 & 27 & 35 \\ 37 & 41 & 16 & 42 & 4 \\ 33 & 4 & 35 & 25 & 42 \\ 26 & 42 & 27 & 5 & 25 \end{pmatrix}$$

$$a_{57} = \begin{pmatrix} 9 & 40 & 0 & 22 & 12 \\ 0 & 41 & 1 & 2 & 1 \\ 20 & 38 & 41 & 42 & 23 \\ 6 & 23 & 1 & 40 & 34 \\ 11 & 42 & 2 & 11 & 40 \end{pmatrix}$$

$$a_{58} = \begin{pmatrix} 34 & 3 & 0 & 21 & 31 \\ 0 & 41 & 1 & 2 & 1 \\ 23 & 15 & 41 & 36 & 16 \\ 37 & 16 & 1 & 7 & 11 \\ 32 & 36 & 2 & 40 & 7 \end{pmatrix}$$

$$a_{59} = \begin{pmatrix} 33 & 27 & 0 & 10 & 3 \\ 0 & 21 & 11 & 22 & 11 \\ 35 & 13 & 21 & 16 & 30 \\ 23 & 30 & 11 & 6 & 36 \\ 5 & 16 & 22 & 16 & 6 \end{pmatrix}$$

$$a_{60} = \begin{pmatrix} 10 & 16 & 0 & 33 & 40 \\ 0 & 21 & 11 & 22 & 11 \\ 8 & 40 & 21 & 25 & 12 \\ 20 & 12 & 11 & 38 & 29 \\ 38 & 25 & 22 & 29 & 38 \end{pmatrix}$$

$$\begin{aligned}
a_{61} &= \begin{pmatrix} 34 & 37 & 0 & 16 & 38 \\ 0 & 16 & 35 & 27 & 35 \\ 40 & 10 & 16 & 40 & 42 \\ 19 & 42 & 35 & 31 & 20 \\ 8 & 40 & 27 & 38 & 31 \end{pmatrix} \\
a_{62} &= \begin{pmatrix} 9 & 6 & 0 & 27 & 5 \\ 0 & 16 & 35 & 27 & 35 \\ 3 & 1 & 16 & 24 & 33 \\ 24 & 33 & 35 & 23 & 7 \\ 35 & 24 & 27 & 27 & 23 \end{pmatrix} \\
a_{63} &= \begin{pmatrix} 27 & 13 & 0 & 17 & 28 \\ 0 & 4 & 41 & 39 & 41 \\ 28 & 31 & 4 & 21 & 10 \\ 14 & 10 & 41 & 26 & 23 \\ 30 & 21 & 39 & 5 & 26 \end{pmatrix} \\
a_{64} &= \begin{pmatrix} 16 & 30 & 0 & 26 & 15 \\ 0 & 4 & 41 & 39 & 41 \\ 15 & 38 & 4 & 38 & 41 \\ 29 & 41 & 41 & 9 & 16 \\ 13 & 38 & 39 & 22 & 9 \end{pmatrix} \\
a_{65} &= \begin{pmatrix} 37 & 5 & 0 & 18 & 10 \\ 0 & 1 & 21 & 42 & 21 \\ 24 & 11 & 1 & 38 & 40 \\ 5 & 40 & 21 & 23 & 11 \\ 9 & 38 & 42 & 0 & 23 \end{pmatrix}
\end{aligned}$$

$$a_{66} = \begin{pmatrix} 6 & 38 & 0 & 25 & 33 \\ 0 & 1 & 21 & 42 & 21 \\ 19 & 24 & 1 & 9 & 5 \\ 38 & 5 & 21 & 18 & 31 \\ 34 & 9 & 42 & 39 & 18 \end{pmatrix}$$

$$a_{67} = \begin{pmatrix} 19 & 33 & 0 & 15 & 19 \\ 0 & 11 & 16 & 32 & 16 \\ 38 & 15 & 11 & 23 & 31 \\ 31 & 31 & 16 & 23 & 32 \\ 29 & 23 & 32 & 38 & 23 \end{pmatrix}$$

$$a_{68} = \begin{pmatrix} 24 & 10 & 0 & 28 & 24 \\ 0 & 11 & 16 & 32 & 16 \\ 5 & 11 & 11 & 21 & 34 \\ 12 & 34 & 16 & 41 & 0 \\ 14 & 21 & 32 & 4 & 41 \end{pmatrix}$$

$$a_{69} = \begin{pmatrix} 14 & 1 & 0 & 11 & 37 \\ 0 & 35 & 4 & 8 & 4 \\ 22 & 13 & 35 & 5 & 10 \\ 40 & 10 & 4 & 22 & 31 \\ 27 & 5 & 8 & 10 & 22 \end{pmatrix}$$

$$a_{70} = \begin{pmatrix} 29 & 42 & 0 & 32 & 6 \\ 0 & 35 & 4 & 8 & 4 \\ 21 & 41 & 35 & 6 & 17 \\ 3 & 17 & 4 & 37 & 20 \\ 16 & 6 & 8 & 22 & 37 \end{pmatrix}$$

$$a_{71} = \begin{pmatrix} 9 & 13 & 0 & 42 & 37 \\ 0 & 1 & 21 & 42 & 21 \\ 28 & 24 & 1 & 18 & 22 \\ 40 & 22 & 21 & 38 & 34 \\ 21 & 18 & 42 & 33 & 38 \end{pmatrix}$$

$$a_{72} = \begin{pmatrix} 34 & 30 & 0 & 1 & 6 \\ 0 & 1 & 21 & 42 & 21 \\ 15 & 11 & 1 & 29 & 23 \\ 3 & 23 & 21 & 3 & 8 \\ 22 & 29 & 42 & 6 & 3 \end{pmatrix}$$

$$a_{73} = \begin{pmatrix} 10 & 37 & 0 & 35 & 7 \\ 0 & 11 & 16 & 32 & 16 \\ 40 & 38 & 11 & 34 & 14 \\ 25 & 14 & 16 & 5 & 28 \\ 39 & 34 & 32 & 20 & 5 \end{pmatrix}$$

$$a_{74} = \begin{pmatrix} 33 & 6 & 0 & 8 & 36 \\ 0 & 11 & 16 & 32 & 16 \\ 3 & 31 & 11 & 10 & 8 \\ 18 & 8 & 16 & 16 & 4 \\ 4 & 10 & 32 & 22 & 16 \end{pmatrix}$$

$$a_{75} = \begin{pmatrix} 34 & 27 & 0 & 11 & 24 \\ 0 & 35 & 4 & 8 & 4 \\ 35 & 1 & 35 & 8 & 36 \\ 12 & 36 & 4 & 13 & 1 \\ 27 & 8 & 8 & 25 & 13 \end{pmatrix}$$

$$a_{76} = \begin{pmatrix} 9 & 16 & 0 & 32 & 19 \\ 0 & 35 & 4 & 8 & 4 \\ 8 & 10 & 35 & 3 & 34 \\ 31 & 34 & 4 & 3 & 7 \\ 16 & 3 & 8 & 7 & 3 \end{pmatrix}$$

$$a_{77} = \begin{pmatrix} 14 & 40 & 0 & 27 & 31 \\ 0 & 41 & 1 & 2 & 1 \\ 20 & 40 & 41 & 34 & 26 \\ 37 & 26 & 1 & 16 & 23 \\ 35 & 34 & 2 & 24 & 16 \end{pmatrix}$$

$$a_{78} = \begin{pmatrix} 29 & 3 & 0 & 16 & 12 \\ 0 & 41 & 1 & 2 & 1 \\ 23 & 13 & 41 & 1 & 13 \\ 6 & 13 & 1 & 31 & 22 \\ 8 & 1 & 2 & 27 & 31 \end{pmatrix}$$

$$a_{79} = \begin{pmatrix} 19 & 42 & 0 & 22 & 11 \\ 0 & 21 & 11 & 22 & 11 \\ 21 & 15 & 21 & 37 & 40 \\ 27 & 40 & 11 & 13 & 6 \\ 11 & 37 & 22 & 24 & 13 \end{pmatrix}$$

$$a_{80} = \begin{pmatrix} 24 & 1 & 0 & 21 & 32 \\ 0 & 21 & 11 & 22 & 11 \\ 22 & 38 & 21 & 4 & 2 \\ 16 & 2 & 11 & 31 & 16 \\ 32 & 4 & 22 & 21 & 31 \end{pmatrix}$$

$$a_{81} = \begin{pmatrix} 37 & 10 & 0 & 41 & 39 \\ 0 & 16 & 35 & 27 & 35 \\ 5 & 13 & 16 & 36 & 21 \\ 41 & 21 & 35 & 8 & 42 \\ 42 & 36 & 27 & 2 & 8 \end{pmatrix}$$

$$a_{82} = \begin{pmatrix} 6 & 33 & 0 & 2 & 4 \\ 0 & 16 & 35 & 27 & 35 \\ 38 & 41 & 16 & 28 & 11 \\ 2 & 11 & 35 & 3 & 28 \\ 1 & 28 & 27 & 20 & 3 \end{pmatrix}$$

$$a_{83} = \begin{pmatrix} 27 & 38 & 0 & 3 & 1 \\ 0 & 4 & 41 & 39 & 41 \\ 19 & 15 & 4 & 33 & 12 \\ 22 & 12 & 41 & 26 & 22 \\ 23 & 33 & 39 & 36 & 26 \end{pmatrix}$$

$$a_{84} = \begin{pmatrix} 16 & 5 & 0 & 40 & 42 \\ 0 & 4 & 41 & 39 & 41 \\ 24 & 11 & 4 & 26 & 39 \\ 21 & 39 & 41 & 9 & 17 \\ 20 & 26 & 39 & 34 & 9 \end{pmatrix}$$

Kernel has order 1 and is generated by: