

$O_7(3) \pmod{7}$

	blocks	defect	matrix
$G :$	1	1	7×6
	2	0	$91_1 = \chi_3, \varphi_3$
	3	0	$105_1 = \chi_4, \varphi_4$
	4	0	$168_1 = \chi_5, \varphi_5$
	5	0	$182_1 = \chi_6, \varphi_6$
	6	1	7×6
	7	0	$273_1 = \chi_{10}, \varphi_{10}$
	8	0	$546_1 = \chi_{11}, \varphi_{11}$
	9	0	$819_1 = \chi_{12}, \varphi_{12}$
	10	0	$910_1 = \chi_{13}, \varphi_{13}$
	11	0	$910_2 = \chi_{14}, \varphi_{14}$
	12	0	$1092_1 = \chi_{15}, \varphi_{15}$
	13	0	$1365_1 = \chi_{16}, \varphi_{16}$
	14	0	$1365_2 = \chi_{17}, \varphi_{17}$
	15	0	$1638_1 = \chi_{20}, \varphi_{20}$
	16	0	$1820_1 = \chi_{21}, \varphi_{21}$
	17	0	$2184_1 = \chi_{23}, \varphi_{23}$
	18	0	$2457_1 = \chi_{24}, \varphi_{24}$
	19	0	$2730_1 = \chi_{25}, \varphi_{25}$
	20	0	$2730_2 = \chi_{26}, \varphi_{26}$
	21	0	$2835_1 = \chi_{27}, \varphi_{27}$
	22	0	$4095_1 = \chi_{28}, \varphi_{28}$
	23	0	$4095_2 = \chi_{29}, \varphi_{29}$
	24	0	$4368_1 = \chi_{30}, \varphi_{30}$
	25	0	$4536_1 = \chi_{31}, \varphi_{31}$
	26	0	$5460_1 = \chi_{33}, \varphi_{33}$
	27	0	$5460_2 = \chi_{34}, \varphi_{34}$
	28	0	$5460_3 = \chi_{35}, \varphi_{35}$
	29	0	$5824_1 = \chi_{36}, \varphi_{36}$
	30	0	$5824_2 = \chi_{37}, \varphi_{37}$
	31	0	$6552_1 = \chi_{38}, \varphi_{38}$
	32	0	$7280_1 = \chi_{41}, \varphi_{41}$
	33	0	$7280_2 = \chi_{42}, \varphi_{42}$
	34	0	$7280_3 = \chi_{43}, \varphi_{43}$
	35	0	$7371_1 = \chi_{44}, \varphi_{44}$
	36	0	$8190_1 = \chi_{45}, \varphi_{45}$
	37	0	$8190_2 = \chi_{46}, \varphi_{46}$
	38	0	$11648_1 = \chi_{47}, \varphi_{47}$
	39	0	$14742_1 = \chi_{48}, \varphi_{49}$
	40	0	$16380_1 = \chi_{49}, \varphi_{50}$

	blocks	defect	matrix
	41	0	$17472_1 = \chi_{52}, \varphi_{51}$
	42	0	$17472_2 = \chi_{53}, \varphi_{52}$
	43	0	$17920_1 = \chi_{54}, \varphi_{53}$
	44	0	$17920_2 = \chi_{55}, \varphi_{54}$
	45	0	$21840_1 = \chi_{57}, \varphi_{55}$
	46	0	$22113_1 = \chi_{58}, \varphi_{56}$
2.G :	47	1	5×3
	48	0	$560_1 = \chi_{60}, \varphi_{58}$
	49	0	$560_2 = \chi_{61}, \varphi_{59}$
	50	0	$1456_1 = \chi_{62}, \varphi_{60}$
	51	0	$1456_2 = \chi_{63}, \varphi_{61}$
	52	0	$1456_3 = \chi_{64}, \varphi_{62}$
	53	0	$3640_1 = \chi_{66}, \varphi_{64}$
	54	0	$6720_1 = \chi_{67}, \varphi_{65}$
	55	0	$6720_2 = \chi_{68}, \varphi_{66}$
	56	0	$7280_4 = \chi_{69}, \varphi_{67}$
	57	0	$7280_5 = \chi_{70}, \varphi_{68}$
	58	0	$7280_6 = \chi_{71}, \varphi_{69}$
	59	0	$7280_7 = \chi_{72}, \varphi_{70}$
	60	0	$10920_1 = \chi_{73}, \varphi_{71}$
	61	0	$11648_2 = \chi_{74}, \varphi_{72}$
	62	0	$11648_3 = \chi_{75}, \varphi_{73}$
	63	0	$13104_1 = \chi_{76}, \varphi_{74}$
	64	0	$13104_2 = \chi_{77}, \varphi_{75}$
	65	0	$13104_3 = \chi_{78}, \varphi_{76}$
	66	0	$15120_1 = \chi_{80}, \varphi_{78}$
	67	0	$15120_2 = \chi_{81}, \varphi_{79}$
	68	0	$17920_3 = \chi_{84}, \varphi_{80}$
	69	0	$17920_4 = \chi_{85}, \varphi_{81}$
	70	0	$21840_2 = \chi_{86}, \varphi_{82}$
	71	0	$21840_3 = \chi_{87}, \varphi_{83}$
	72	0	$23296_1 = \chi_{88}, \varphi_{84}$
3.G :	73	1	7×6
	74 = 73*		
	75	1	7×6
	76 = 75*		
	77	0	$378_1 = \chi_{92}, \varphi_{88}$
	78 = 77*		
	79	0	$2457_2 = \chi_{95}, \varphi_{92}$
	80 = 79*		

	blocks	defect	matrix
	81	0	$2457_4 = \chi_{96}, \varphi_{93}$
	82 = 81*		
	83	0	$2457_6 = \chi_{97}, \varphi_{94}$
	84 = 83*		
	85	0	$4914_1 = \chi_{100}, \varphi_{97}$
	86 = 85*		
	87	0	$4914_3 = \chi_{101}, \varphi_{98}$
	88 = 87*		
	89	0	$7371_2 = \chi_{104}, \varphi_{100}$
	90 = 89*		
	91	0	$7371_4 = \chi_{105}, \varphi_{101}$
	92 = 91*		
	93	0	$7560_1 = \chi_{106}, \varphi_{102}$
	94 = 93*		
	95	0	$7560_3 = \chi_{107}, \varphi_{103}$
	96 = 95*		
	97	0	$9828_1 = \chi_{109}, \varphi_{105}$
	98 = 97*		
	99	0	$12285_1 = \chi_{110}, \varphi_{106}$
	100 = 99*		
	101	0	$12285_3 = \chi_{111}, \varphi_{107}$
	102 = 101*		
	103	0	$12285_5 = \chi_{112}, \varphi_{108}$
	104 = 103*		
	105	0	$12285_7 = \chi_{113}, \varphi_{109}$
	106 = 105*		
	107	0	$12285_9 = \chi_{114}, \varphi_{110}$
	108 = 107*		
	109	0	$14742_2 = \chi_{115}, \varphi_{112}$
	110 = 109*		
	111	0	$19656_1 = \chi_{117}, \varphi_{114}$
	112 = 111*		
	113	0	$19656_3 = \chi_{118}, \varphi_{115}$
	114 = 113*		
	115	0	$24192_1 = \chi_{122}, \varphi_{116}$
	116 = 115*		
6.G :	117	0	$4536_2 = \chi_{123}, \varphi_{117}$
	118 = 117*		
	119	0	$12096_1 = \chi_{124}, \varphi_{119}$
	120 = 119*		

	blocks	defect	matrix
	121	0	12096 ₃ = $\chi_{125}, \varphi_{120}$
	122 = 121*		
	123	1	5 × 3
	124 = 123*		
	125	0	15120 ₃ = $\chi_{127}, \varphi_{122}$
	126 = 125*		
	127	0	19656 ₅ = $\chi_{128}, \varphi_{123}$
	128 = 127*		
	129	0	24192 ₃ = $\chi_{132}, \varphi_{125}$
	130 = 129*		
	131	0	24192 ₅ = $\chi_{133}, \varphi_{126}$
	132 = 131*		

Block 1:	φ_1	φ_2	φ_7	φ_{22}	φ_{32}	φ_{48}	
1 ₁ = χ_1	1	.	.	.	.	.	$\varphi_1 = 1_1$
78 ₁ = χ_2	.	1	.	.	.	.	$\varphi_2 = 78_1$
195 ₁ = χ_7	1	.	1	.	.	.	$\varphi_7 = 194_1$
2106 ₁ = χ_{22}	.	1	.	1	.	.	$\varphi_{22} = 2028_1$
5265 ₁ = χ_{32}	.	.	1	.	1	.	$\varphi_{32} = 5071_1$
16640 ₂ = χ_{51}	.	.	.	1	.	1	$\varphi_{48} = 14612_1$
19683 ₁ = χ_{56}	.	.	.	.	1	1	

Block 6:	φ_8	φ_9	φ_{18}	φ_{19}	φ_{39}	φ_{40}	
260 ₁ = χ_8	1	.	.	.	.	.	$\varphi_8 = 260_1$
260 ₂ = χ_9	.	1	.	.	.	.	$\varphi_9 = 260_2$
1560 ₁ = χ_{18}	.	.	1	.	.	.	$\varphi_{18} = 1560_1$
1560 ₂ = χ_{19}	.	.	.	1	.	.	$\varphi_{19} = 1560_2$
7020 ₁ = χ_{39}	1	.	.	.	1	.	$\varphi_{39} = 6760_1$
7020 ₂ = χ_{40}	.	1	.	.	.	1	$\varphi_{40} = 6760_2$
16640 ₁ = χ_{50}	.	.	1	1	1	1	

Block 47:	φ_{57}	φ_{63}	φ_{77}	
$520_1 = \chi_{59}$	1	.	.	$\varphi_{57} = 520_1$
$3120_1 = \chi_{65}$	.	1	.	$\varphi_{63} = 3120_1$
$14040_1 = \chi_{79}$	1	.	1	$\varphi_{77} = 13520_1$
$16640_3 = \chi_{82}$	.	1	1	
$16640_4 = \chi_{83}$	.	1	1	

Blocks 73, 74:	φ_{85}	φ_{86}	φ_{91}	φ_{96}	φ_{104}	φ_{111}	
$27_1 = \chi_{89}$	1	.	.	.	.	.	$\varphi_{85} = 27_1$
$351_1 = \chi_{90}$	1	1	.	.	.	.	$\varphi_{86} = 324_1$
$1728_3 = \chi_{94}$	.	.	1	.	.	.	$\varphi_{91} = 1728_1$
$5265_2 = \chi_{102}$	.	.	1	1	.	.	$\varphi_{96} = 3537_1$
$9477_1 = \chi_{108}$	.	1	.	.	1	.	$\varphi_{104} = 9153_1$
$16848_1 = \chi_{116}$	.	.	.	1	.	1	$\varphi_{111} = 13311_1$
$22464_1 = \chi_{120}$	.	.	.	.	1	1	

Blocks 75, 76:	φ_{87}	φ_{89}	φ_{90}	φ_{95}	φ_{99}	φ_{113}	
$351_3 = \chi_{91}$	1	.	.	.	.	.	$\varphi_{87} = 351_1$
$1728_1 = \chi_{93}$	1	1	.	.	.	.	$\varphi_{89} = 1377_1$
$2808_1 = \chi_{98}$	.	.	.	1	.	.	$\varphi_{90} = 1431_1$
$2808_3 = \chi_{99}$	.	1	1	.	.	.	$\varphi_{95} = 2808_1$
$7020_3 = \chi_{103}$	.	.	1	.	1	.	$\varphi_{99} = 5589_1$
$19683_2 = \chi_{119}$	.	.	.	1	.	1	$\varphi_{113} = 16875_1$
$22464_3 = \chi_{121}$	.	.	.	.	1	1	

Blocks 123, 124:	φ_{118}	φ_{121}	φ_{124}	
$14040_2 = \chi_{126}$	.	1	.	$\varphi_{118} = 6696_1$
$20736_1 = \chi_{129}$	1	1	.	$\varphi_{121} = 14040_1$
$22464_5 = \chi_{130}$	.	.	1	$\varphi_{124} = 22464_1$
$22464_7 = \chi_{131}$	.	.	1	
$29160_1 = \chi_{134}$	1	.	1	