Conversion of ijk to labeling of rows and columns

123	1	124	2	125	3	126	4	127	5	128	6	134	7	135	8
136	9	137	10	138	11	145	12	146	13	147	14	148	15	156	16
157	17	158	18	167	19	168	20	178	21	234	22	235	23	236	24
237	25	238	26	245	27	246	28	247	29	248	30	256	31	257	32
258	33	267	34	268	35	278	36	345	37	346	38	347	39	348	40
356	41	357	42	358	43	367	44	368	45	378	46	456	47	457	48
458	49	467	50	468	51	478	52	567	53	568	54	578	55	678	56

1 Matrix relations $\phi = S \circ \chi$

$$2\sqrt{2}S$$

0,0,0,0,-2 i,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,-1,-i,0,0,-i,1,0,0,0,0,0,0,0,0,0,i,-1,0,0,-1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,-i,-i,1,0,0,0,0,0,0,0,0,0,0,i,-1,-1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,1,i,0,0,-i,1,0,0,0,0,0,0,0,0,0,i,-1,0,0,1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-2 i,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,i,-i,1,0,0,0,0,0,0,0,0,0,0,i,-1,1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,1,-i,0,0,-i,-1,0,0,0,0,0,0,0,0,0,i,1,0,0,1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,2 i,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,1,-i,0,0,i,1,0,0,0,0,0,0,0,0,-i,-1,0,0,1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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-2 i,-2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,1,i,0,0,-i,1,0,0,0,0,0,0,0,-i,1,0,0,-1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,2 i,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,-1,i,0,0,i,1,0,0,0,0,0,0,0,0,-i,-1,0,0,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,i,i,1,0,0,0,0,0,0,0,0,-i,-1,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,1,-i,0,0,i,1,0,0,0,0,0,0,0,-i,-1,0,0,1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,1,i,0,0,i,-1,0,0,0,0,0,0,0,0,-i,1,0,0,1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,2 i,-2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,-2 i,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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2 i,-2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,-2 i,0,0,0,0,0,0,0,0,0,0,0,0,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,1,-i,0,0,i,1,0,0,0,0,0,0,0,0,i,1,0,0,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,-i,i,1,0,0,0,i,1,-1,i,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,i,-i,-1,0,0,0,0,0,0,0,0,0,0,0,-i,-1,1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,1,-i,0,0,i,1,0,0,0,0,0,0,0,0,0,0,i,1,0,0,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,-i,-i,-1,0,0,-i,-1,-1,i,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,i,i,1,0,0,0,0,0,0,0,0,0,0,0,i,1,1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,1,-i,0,0,-i,-1,0,0,0,0,0,0,0,0,0,-i,-1,0,0,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1,i,-i,1,0,0,-i,1,-1,-i,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,-i,i,-1,0,0,0,0,0,0,0,0,0,0,0,i,-1,1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-2 i,0,0,0,0,0,0,0,0,0,0,0,0,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-2 i,2

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,2 i,0,0,0,0,0,0,0,0,0,0,0,0,2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,2 i,0,0,0,0,0,2,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,2 i,2

0,0,0,0,0,0,0,1,i,0,0,i,-1,0,0,0,0,0,0,0,0,i,-1,0,0,-1,-i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,1,-i,0,0,-i,-1,0,0,0,0,0,0,0,0,-i,-1,0,0,-1,i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

$$S^{-1}/(2\sqrt{2})$$

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,1/8,0,0,0,1/8,0,0,0,1/8,0,0,0,0,0,0,0,0,1/8,0,0,0,1/8,0,0,0,1/8,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/8,1/8

0,0,0,0,0,0,0,0,0,1/8 i,0,0,0,1/8 i,0,0,0,-1/8 i,0,0,0,0,0,0,0,0,-1/8 i,0,0,0,-1/8 i,0,0,0,1/8 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/8 i,1/8 i

0,-1/8,0,1/8,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/8,0,1/8,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/8,0,0,1/8,0,0,1/8,0,0,1/8,0,0,0,0,0,0,0,0

0,1/8 i,0,-1/8 i0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/8 i,0,1/8 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/8 i,0,0,1/8 i,0,0,-1/8 i,0,0,-1/8 i,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,1/4,0,0,0

2 $SU(2)_w$ matrices

Antihermitian generators of $SU(2)_w$ and $SU(3)_c$ as 56×56 matrices; all matrices are antihermitian and the Lie algebra relations are satisfied.

$$i J_3$$

-1/2 i,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,1/8,-3/8 i,0,0,1/8 i,-1/8,0,0,0,0,1/8 i,-1/8,0,0,3/8,-1/8 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,0,0,1/4 i,-1/4,0,0,-1/4,1/4 i,0,0,0,0,0,0,0,0,-1/4,1/4 i,0,0,1/4 i,-1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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$$\mathrm{i}J_x$$

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$$\mathrm{i}J_y$$

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4 i,1/4,-1/4,-1/4 i,0,0,0,0,0,0,0,0,0,0,1/4,1/4 i,-1/4 i,1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,1/4 i,0,0,0,0,0,0,1/4 i,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,1/4 i,1/4,0,0,1/4 i,1/4,0,0,0,0,0,0
0,0,0,0,0,1/4,0,0,0,0,0,0,1/4,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,-1/4,1/4,0,0,-1/4,1/4,0,0,0,0,0,0
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,1/4 i,-1/4,0,0,1/4,1/4 i,0,0,0,0,0,0,0,0,0,-1/4 i,1/4,1/4,1/4 i,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,1/4,0,0,0,0,0,0,-1/4,0,0,0,0,0,-1/4 i,0,0,0,0,0,0,0,0,0,1/4 i,0,0,0,0,0,0,0,0,-1/4 i,-1/4,0,0,0,0,0,1/4 i,1/4,0,0,0,0
0,0,0,0,0,-1/4 i,0,0,0,0,0,0,1/4 i,0,0,0,0,0,-1/4,0,0,0,0,0,-1/4,0,0,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,1/4,-1/4 i,0,0,0,0,0,-1/4,1/4,-1/4 i,0,0,0,0,0
0,0,0,0,0,1/4 i,0,0,0,0,0,0,1/4 i,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,1/4,0,0,0,0,0,0,0,0,0,1/4 i,1/4,0,0,1/4 i,1/4,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

3 $SU(3)_c$ matrices

$$i\lambda_1$$

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,0,0,1/2,0,0,1/2,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,-1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,1/4,0,0,0,-1/4,0,0,-1/4,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,1/4,0,0,0,-1/4,1/4,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,0,0,0,-1/4,0,0,0,1/4,-1/4,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,1/4,0,0,0,-1/4,0,0,-1/4,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,0,0,0,0

1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/4,0,0,1/4,0,0,0,-1/4,1/4,0,0,0,0,0,0

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0,0,0,0,0,0,0,-1/2,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,-1/2,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,-1/2,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,1/2,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0

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$$i\lambda_3$$

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$$i\lambda_4$$

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$$i\lambda_5$$

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$$i\lambda_6$$

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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0
0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0
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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,1
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$$\mathrm{i}\sqrt{3} \cdot \lambda_8$$

0,1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,0,0,0,1/2,0,0,0,0,0,0,0,0,0,0,1/2,0,0,-1,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,-1/2,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,3/4,0,0,-1/4,0,0,0,0,0,0,0,0,0,0,1/4,3/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,-1/4,0,0,3/4,0,0,0,0,0,0,0,0,0,0,-3/4,-1/4,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0
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