SAMB for "Oh1"

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- Group: No. 221 O_h^1 $Pm-3m$ [cubic]
- Associated point group: No. 32 O_h $m-3m$ [cubic]

- Generation condition
  - model type: `tight_binding`
  - time-reversal type: `electric`
  - irrep: `[A1g]`
  - `spinful`

- Unit cell:
  $a = 1.0,\ b = 1.0,\ c = 1.0,\ \alpha = 90.0,\ \beta = 90.0,\ \gamma = 90.0$
- Lattice vectors:
  $\boldsymbol{a}_1 = \begin{pmatrix} 1.0 & 0 & 0 \end{pmatrix}$
  $\boldsymbol{a}_2 = \begin{pmatrix} 0 & 1.0 & 0 \end{pmatrix}$
  $\boldsymbol{a}_3 = \begin{pmatrix} 0 & 0 & 1.0 \end{pmatrix}$

Table 1: High-symmetry line: Γ-X.

	symbol	position	symbol	position
	Γ	$\begin{pmatrix} 0 & 0 & 0 \end{pmatrix}$	X	$\begin{pmatrix} \frac{1}{2} & 0 & 0 \end{pmatrix}$

- Kets: dimension = 8

Table 2: Hilbert space for full matrix.

No.	ket	No.	ket	No.	ket	No.	ket	No.	ket
1	$(s,\uparrow)$@A_1	2	$(s,\downarrow)$@A_1	3	$(p_x,\uparrow)$@A_1	4	$(p_x,\downarrow)$@A_1	5	$(p_y,\uparrow)$@A_1
6	$(p_y,\downarrow)$@A_1	7	$(p_z,\uparrow)$@A_1	8	$(p_z,\downarrow)$@A_1				

- Sites in (primitive) unit cell:

Table 3: Site-clusters.

	site	position	mapping
S_1 [1a: m-3m]	A_1	$\begin{pmatrix}0 & 0 & 0\end{pmatrix}$	[1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48]

- Bonds in (primitive) unit cell:

Table 4: Bond-clusters.

	bond	tail	head	n	#	$\boldsymbol{b}$@$\boldsymbol{c}$	mapping
B_1 [3d: 4/mm.m]	b_1	A_1	A_1	1	1	$\begin{pmatrix}0 & 0 & 1\end{pmatrix}$ @ $\begin{pmatrix}0 & 0 & \frac{1}{2}\end{pmatrix}$	[1,2,-3,-4,-5,-8,19,22,-25,-26,27,28,29,32,-43,-46]
	b_2	A_1	A_1	1	1	$\begin{pmatrix}1 & 0 & 0\end{pmatrix}$ @ $\begin{pmatrix}\frac{1}{2} & 0 & 0\end{pmatrix}$	[6,-9,11,-12,13,-14,21,-24,-30,33,-35,36,-37,38,-45,48]
	b_3	A_1	A_1	1	1	$\begin{pmatrix}0 & 1 & 0\end{pmatrix}$ @ $\begin{pmatrix}0 & \frac{1}{2} & 0\end{pmatrix}$	[7,-10,15,16,-17,-18,-20,23,-31,34,-39,-40,41,42,44,-47]
B_2 [3c: 4/mm.m]	b_4	A_1	A_1	2	1	$\begin{pmatrix}0 & 1 & 1\end{pmatrix}$ @ $\begin{pmatrix}0 & \frac{1}{2} & \frac{1}{2}\end{pmatrix}$	[1,-3,7,-10,-25,27,-31,34]
	b_5	A_1	A_1	2	1	$\begin{pmatrix}0 & 1 & -1\end{pmatrix}$ @ $\begin{pmatrix}0 & \frac{1}{2} & \frac{1}{2}\end{pmatrix}$	[-2,4,-20,23,26,-28,44,-47]
	b_6	A_1	A_1	2	1	$\begin{pmatrix}1 & 0 & -1\end{pmatrix}$ @ $\begin{pmatrix}\frac{1}{2} & 0 & \frac{1}{2}\end{pmatrix}$	[5,-12,13,-19,-29,36,-37,43]
	b_7	A_1	A_1	2	1	$\begin{pmatrix}1 & -1 & 0\end{pmatrix}$ @ $\begin{pmatrix}\frac{1}{2} & \frac{1}{2} & 0\end{pmatrix}$	[6,-16,18,-24,-30,40,-42,48]
	b_8	A_1	A_1	2	1	$\begin{pmatrix}1 & 0 & 1\end{pmatrix}$ @ $\begin{pmatrix}\frac{1}{2} & 0 & \frac{1}{2}\end{pmatrix}$	[-8,11,-14,22,32,-35,38,-46]
	b_9	A_1	A_1	2	1	$\begin{pmatrix}1 & 1 & 0\end{pmatrix}$ @ $\begin{pmatrix}\frac{1}{2} & \frac{1}{2} & 0\end{pmatrix}$	[-9,15,-17,21,33,-39,41,-45]

- SAMB:

$\boxed{\text{No. 1}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}$ $[\mathrm{M}_1, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_{1} = \mathbb{X}_{1}[\mathbb{Q}_{0}^{(a,A_{1g})}] \otimes \mathbb{Y}_{1}[\mathbb{Q}_{0}^{(s,A_{1g})}]$

$\boxed{\text{No. 2}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_{2} = \mathbb{X}_{11}[\mathbb{Q}_{0}^{(a,A_{1g})}] \otimes \mathbb{Y}_{1}[\mathbb{Q}_{0}^{(s,A_{1g})}]$

$\boxed{\text{No. 3}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}(1,1)$ $[\mathrm{M}_3, \mathrm{S}_1]$

$\hat{\mathbb{Z}}_{3} = \mathbb{X}_{12}[\mathbb{Q}_{0}^{(a,A_{1g})}(1,1)] \otimes \mathbb{Y}_{1}[\mathbb{Q}_{0}^{(s,A_{1g})}]$

$\boxed{\text{No. 4}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}$ $[\mathrm{M}_1, \mathrm{B}_1]$

$\hat{\mathbb{Z}}_{4} = \mathbb{X}_{1}[\mathbb{Q}_{0}^{(a,A_{1g})}] \otimes \mathbb{Y}_{2}[\mathbb{Q}_{0}^{(b,A_{1g})}]$

$\boxed{\text{No. 5}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}$ $[\mathrm{M}_2, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{5} = \frac{\sqrt{3}\mathbb{X}_{5}[\mathbb{T}_{1,0}^{(a,T_{1u})}] \otimes \mathbb{Y}_{5}[\mathbb{T}_{1,0}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{6}[\mathbb{T}_{1,1}^{(a,T_{1u})}] \otimes \mathbb{Y}_{6}[\mathbb{T}_{1,1}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{7}[\mathbb{T}_{1,2}^{(a,T_{1u})}] \otimes \mathbb{Y}_{7}[\mathbb{T}_{1,2}^{(b,T_{1u})}]}{3}$$

$\boxed{\text{No. 6}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}(1,0)$ $[\mathrm{M}_2, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{6} = \frac{\sqrt{3}\mathbb{X}_{10}[\mathbb{T}_{1,2}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{7}[\mathbb{T}_{1,2}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{8}[\mathbb{T}_{1,0}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{5}[\mathbb{T}_{1,0}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_{9}[\mathbb{T}_{1,1}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{6}[\mathbb{T}_{1,1}^{(b,T_{1u})}]}{3}$$

$\boxed{\text{No. 7}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{B}_1]$

$\hat{\mathbb{Z}}_{7} = \mathbb{X}_{11}[\mathbb{Q}_{0}^{(a,A_{1g})}] \otimes \mathbb{Y}_{2}[\mathbb{Q}_{0}^{(b,A_{1g})}]$

$\boxed{\text{No. 8}}$ $\hat{\mathbb{Q}}_{0}^{(A_{1g})}(1,1)$ $[\mathrm{M}_3, \mathrm{B}_1]$

$\hat{\mathbb{Z}}_{8} = \mathbb{X}_{12}[\mathbb{Q}_{0}^{(a,A_{1g})}(1,1)] \otimes \mathbb{Y}_{2}[\mathbb{Q}_{0}^{(b,A_{1g})}]$

$\boxed{\text{No. 9}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_9 = \frac{\sqrt{2}\mathbb{X}_{13}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{Y}_3[\mathbb{Q}_{2,0}^{(b,E_g)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{14}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{Y}_4[\mathbb{Q}_{2,1}^{(b,E_g)}]}{2}$$

$\boxed{\text{No. 10}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}(1,-1)$ $[\mathrm{M}_3, \mathrm{B}_1]$

$$\hat{\mathbb{Z}}_{10} = \frac{\sqrt{2}\mathbb{X}_{18}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_3[\mathbb{Q}_{2,0}^{(b,E_g)}]}{2} + \frac{\sqrt{2}\mathbb{X}_{19}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_4[\mathbb{Q}_{2,1}^{(b,E_g)}]}{2}$$

$\boxed{\text{No. 11}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}$ $[\mathrm{M}_1, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{11} = \mathbb{X}_1[\mathbb{Q}_0^{(a,A_{1g})}] \otimes \mathbb{Y}_8[\mathbb{Q}_0^{(b,A_{1g})}]$$

$\boxed{\text{No. 12}}$ $\hat{\mathbb{Q}}_4^{(A_{1g})}(1,-1)$ $[\mathrm{M}_2, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{12} = \frac{\sqrt{3}\mathbb{X}_2[\mathbb{M}_{2,0}^{(a,T_{2u})}(1,-1)] \otimes \mathbb{Y}_{17}[\mathbb{T}_{3,0}^{(b,T_{2u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_3[\mathbb{M}_{2,1}^{(a,T_{2u})}(1,-1)] \otimes \mathbb{Y}_{18}[\mathbb{T}_{3,1}^{(b,T_{2u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_4[\mathbb{M}_{2,2}^{(a,T_{2u})}(1,-1)] \otimes \mathbb{Y}_{19}[\mathbb{T}_{3,2}^{(b,T_{2u})}]}{3}$$

$\boxed{\text{No. 13}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}$ $[\mathrm{M}_2, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{13} = \frac{\sqrt{3}\mathbb{X}_5[\mathbb{T}_{1,0}^{(a,T_{1u})}] \otimes \mathbb{Y}_{14}[\mathbb{T}_{1,0}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_6[\mathbb{T}_{1,1}^{(a,T_{1u})}] \otimes \mathbb{Y}_{15}[\mathbb{T}_{1,1}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_7[\mathbb{T}_{1,2}^{(a,T_{1u})}] \otimes \mathbb{Y}_{16}[\mathbb{T}_{1,2}^{(b,T_{1u})}]}{3}$$

$\boxed{\text{No. 14}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}(1,0)$ $[\mathrm{M}_2, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{14} = \frac{\sqrt{3}\mathbb{X}_{10}[\mathbb{T}_{1,2}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{16}[\mathbb{T}_{1,2}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_8[\mathbb{T}_{1,0}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{14}[\mathbb{T}_{1,0}^{(b,T_{1u})}]}{3} + \frac{\sqrt{3}\mathbb{X}_9[\mathbb{T}_{1,1}^{(a,T_{1u})}(1,0)] \otimes \mathbb{Y}_{15}[\mathbb{T}_{1,1}^{(b,T_{1u})}]}{3}$$

$\boxed{\text{No. 15}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{15} = \mathbb{X}_{11}[\mathbb{Q}_0^{(a,A_{1g})}] \otimes \mathbb{Y}_8[\mathbb{Q}_0^{(b,A_{1g})}]$$

$\boxed{\text{No. 16}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}(1,1)$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{16} = \mathbb{X}_{12}[\mathbb{Q}_0^{(a,A_{1g})}(1,1)] \otimes \mathbb{Y}_8[\mathbb{Q}_0^{(b,A_{1g})}]$$

$\boxed{\text{No. 17}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{17} = \frac{\sqrt{5}\mathbb{X}_{13}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{Y}_9[\mathbb{Q}_{2,0}^{(b,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{14}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{Y}_{10}[\mathbb{Q}_{2,1}^{(b,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{15}[\mathbb{Q}_{2,0}^{(a,T_{2g})}] \otimes \mathbb{Y}_{11}[\mathbb{Q}_{2,0}^{(b,T_{2g})}]}{5} + \frac{\sqrt{5}\mathbb{X}_{16}[\mathbb{Q}_{2,1}^{(a,T_{2g})}] \otimes \mathbb{Y}_{12}[\mathbb{Q}_{2,1}^{(b,T_{2g})}]}{5} + \frac{\sqrt{5}\mathbb{X}_{17}[\mathbb{Q}_{2,2}^{(a,T_{2g})}] \otimes \mathbb{Y}_{13}[\mathbb{Q}_{2,2}^{(b,T_{2g})}]}{5}$$

$\boxed{\text{No. 18}}$ $\hat{\mathbb{Q}}_4^{(A_{1g})}$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{18} = \frac{\sqrt{30}\mathbb{X}_{13}[\mathbb{Q}_{2,0}^{(a,E_g)}] \otimes \mathbb{Y}_9[\mathbb{Q}_{2,0}^{(b,E_g)}]}{10} + \frac{\sqrt{30}\mathbb{X}_{14}[\mathbb{Q}_{2,1}^{(a,E_g)}] \otimes \mathbb{Y}_{10}[\mathbb{Q}_{2,1}^{(b,E_g)}]}{10} - \frac{\sqrt{30}\mathbb{X}_{15}[\mathbb{Q}_{2,0}^{(a,T_{2g})}] \otimes \mathbb{Y}_{11}[\mathbb{Q}_{2,0}^{(b,T_{2g})}]}{15} - \frac{\sqrt{30}\mathbb{X}_{16}[\mathbb{Q}_{2,1}^{(a,T_{2g})}] \otimes \mathbb{Y}_{12}[\mathbb{Q}_{2,1}^{(b,T_{2g})}]}{15} - \frac{\sqrt{30}\mathbb{X}_{17}[\mathbb{Q}_{2,2}^{(a,T_{2g})}] \otimes \mathbb{Y}_{13}[\mathbb{Q}_{2,2}^{(b,T_{2g})}]}{15}$$

$\boxed{\text{No. 19}}$ $\hat{\mathbb{Q}}_0^{(A_{1g})}(1,-1)$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{19} = \frac{\sqrt{5}\mathbb{X}_{18}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_9[\mathbb{Q}_{2,0}^{(b,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{19}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_{2,1}^{(b,E_g)}]}{5} + \frac{\sqrt{5}\mathbb{X}_{20}[\mathbb{Q}_{2,0}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_{2,0}^{(b,T_{2g})}]}{5} + \frac{\sqrt{5}\mathbb{X}_{21}[\mathbb{Q}_{2,1}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{12}[\mathbb{Q}_{2,1}^{(b,T_{2g})}]}{5} + \frac{\sqrt{5}\mathbb{X}_{22}[\mathbb{Q}_{2,2}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{13}[\mathbb{Q}_{2,2}^{(b,T_{2g})}]}{5}$$

$\boxed{\text{No. 20}}$ $\hat{\mathbb{Q}}_4^{(A_{1g})}(1,-1)$ $[\mathrm{M}_3, \mathrm{B}_2]$

$$\hat{\mathbb{Z}}_{20} = \frac{\sqrt{30}\mathbb{X}_{18}[\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_9[\mathbb{Q}_{2,0}^{(b,E_g)}]}{10} + \frac{\sqrt{30}\mathbb{X}_{19}[\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)] \otimes \mathbb{Y}_{10}[\mathbb{Q}_{2,1}^{(b,E_g)}]}{10} - \frac{\sqrt{30}\mathbb{X}_{20}[\mathbb{Q}_{2,0}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{11}[\mathbb{Q}_{2,0}^{(b,T_{2g})}]}{15} - \frac{\sqrt{30}\mathbb{X}_{21}[\mathbb{Q}_{2,1}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{12}[\mathbb{Q}_{2,1}^{(b,T_{2g})}]}{15} - \frac{\sqrt{30}\mathbb{X}_{22}[\mathbb{Q}_{2,2}^{(a,T_{2g})}(1,-1)] \otimes \mathbb{Y}_{13}[\mathbb{Q}_{2,2}^{(b,T_{2g})}]}{15}$$

Table 5: Atomic SAMB group.

group	bra	ket
M_1	$(s,\uparrow),(s,\downarrow)$	$(s,\uparrow),(s,\downarrow)$
M_2	$(s,\uparrow),(s,\downarrow)$	$(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$
M_3	$(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$	$(p_x,\uparrow),(p_x,\downarrow),(p_y,\uparrow),(p_y,\downarrow),(p_z,\uparrow),(p_z,\downarrow)$

Table 6: Atomic SAMB.

symbol	type	group	form
$\mathbb{X}_1$	$\mathbb{Q}_0^{(a,A_{1g})}$	M_1	$\begin{pmatrix} \frac{\sqrt{2}}{2} & 0 \\ 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{X}_2$	$\mathbb{M}_{2,0}^{(a,T_{2u})}(1,-1)$	M_2	$\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & 0 & -\frac{1}{2} & \frac{i}{2} & 0 \end{pmatrix}$
$\mathbb{X}_3$	$\mathbb{M}_{2,1}^{(a,T_{2u})}(1,-1)$	M_2	$\begin{pmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & -\frac{1}{2} & 0 & 0 & \frac{1}{2} & 0 \end{pmatrix}$
$\mathbb{X}_4$	$\mathbb{M}_{2,2}^{(a,T_{2u})}(1,-1)$	M_2	$\begin{pmatrix} 0 & -\frac{i}{2} & 0 & \frac{1}{2} & 0 & 0 \\ \frac{i}{2} & 0 & \frac{1}{2} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_5$	$\mathbb{T}_{1,0}^{(a,T_{1u})}$	M_2	$\begin{pmatrix} \frac{\sqrt{2}i}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{2} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_6$	$\mathbb{T}_{1,1}^{(a,T_{1u})}$	M_2	$\begin{pmatrix} 0 & 0 & \frac{\sqrt{2}i}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{2}i}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_7$	$\mathbb{T}_{1,2}^{(a,T_{1u})}$	M_2	$\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{2} \end{pmatrix}$
$\mathbb{X}_8$	$\mathbb{T}_{1,0}^{(a,T_{1u})}(1,0)$	M_2	$\begin{pmatrix} 0 & 0 & -\frac{1}{2} & 0 & 0 & -\frac{i}{2} \\ 0 & 0 & 0 & \frac{1}{2} & \frac{i}{2} & 0 \end{pmatrix}$
$\mathbb{X}_9$	$\mathbb{T}_{1,1}^{(a,T_{1u})}(1,0)$	M_2	$\begin{pmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & -\frac{1}{2} \\ 0 & -\frac{1}{2} & 0 & 0 & -\frac{1}{2} & 0 \end{pmatrix}$
$\mathbb{X}_{10}$	$\mathbb{T}_{1,2}^{(a,T_{1u})}(1,0)$	M_2	$\begin{pmatrix} 0 & \frac{i}{2} & 0 & \frac{1}{2} & 0 & 0 \\ -\frac{i}{2} & 0 & \frac{1}{2} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{11}$	$\mathbb{Q}_0^{(a,A_{1g})}$	M_3	$\begin{pmatrix} \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{6}}{6} \end{pmatrix}$
$\mathbb{X}_{12}$	$\mathbb{Q}_0^{(a,A_{1g})}(1,1)$	M_3	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & \frac{\sqrt{3}}{6} \\ 0 & 0 & 0 & \frac{\sqrt{3}i}{6} & -\frac{\sqrt{3}}{6} & 0 \\ \frac{\sqrt{3}i}{6} & 0 & 0 & 0 & 0 & -\frac{\sqrt{3}i}{6} \\ 0 & -\frac{\sqrt{3}i}{6} & 0 & 0 & -\frac{\sqrt{3}i}{6} & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 \\ \frac{\sqrt{3}}{6} & 0 & \frac{\sqrt{3}i}{6} & 0 & 0 & 0 \end{pmatrix}$

continued …

Table 6

symbol	type	group	form
$\mathbb{X}_{13}$	$\mathbb{Q}_{2,0}^{(a,E_g)}$	M_3	$\begin{pmatrix} -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 & 0 \\ 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{3}}{6} & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{3}}{3} \end{pmatrix}$
$\mathbb{X}_{14}$	$\mathbb{Q}_{2,1}^{(a,E_g)}$	M_3	$\begin{pmatrix} \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & -\frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{1}{2} & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{15}$	$\mathbb{Q}_{2,0}^{(a,T_{2g})}$	M_3	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{16}$	$\mathbb{Q}_{2,1}^{(a,T_{2g})}$	M_3	$\begin{pmatrix} 0 & 0 & 0 & 0 & \frac{1}{2} & 0 \\ 0 & 0 & 0 & 0 & 0 & \frac{1}{2} \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{17}$	$\mathbb{Q}_{2,2}^{(a,T_{2g})}$	M_3	$\begin{pmatrix} 0 & 0 & \frac{1}{2} & 0 & 0 & 0 \\ 0 & 0 & 0 & \frac{1}{2} & 0 & 0 \\ \frac{1}{2} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{1}{2} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$

continued …

Table 6

symbol	type	group	form
$\mathbb{X}_{18}$	$\mathbb{Q}_{2,0}^{(a,E_g)}(1,-1)$	M_3	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & -\frac{\sqrt{6}}{12} \\ 0 & 0 & 0 & \frac{\sqrt{6}i}{6} & \frac{\sqrt{6}}{12} & 0 \\ \frac{\sqrt{6}i}{6} & 0 & 0 & 0 & 0 & \frac{\sqrt{6}i}{12} \\ 0 & -\frac{\sqrt{6}i}{6} & 0 & 0 & \frac{\sqrt{6}i}{12} & 0 \\ 0 & \frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 \\ -\frac{\sqrt{6}}{12} & 0 & -\frac{\sqrt{6}i}{12} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{19}$	$\mathbb{Q}_{2,1}^{(a,E_g)}(1,-1)$	M_3	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ 0 & \frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{20}$	$\mathbb{Q}_{2,0}^{(a,T_{2g})}(1,-1)$	M_3	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{4} & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & \frac{\sqrt{2}}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} \\ 0 & \frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}}{4} & 0 & 0 & 0 & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{21}$	$\mathbb{Q}_{2,1}^{(a,T_{2g})}(1,-1)$	M_3	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \\ 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 \\ \frac{\sqrt{2}i}{4} & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & \frac{\sqrt{2}i}{4} & 0 & 0 & 0 \\ 0 & 0 & 0 & -\frac{\sqrt{2}i}{4} & 0 & 0 \end{pmatrix}$
$\mathbb{X}_{22}$	$\mathbb{Q}_{2,2}^{(a,T_{2g})}(1,-1)$	M_3	$\begin{pmatrix} 0 & 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}i}{4} & 0 \\ 0 & 0 & 0 & 0 & 0 & -\frac{\sqrt{2}}{4} \\ 0 & 0 & 0 & 0 & \frac{\sqrt{2}}{4} & 0 \\ 0 & -\frac{\sqrt{2}i}{4} & 0 & \frac{\sqrt{2}}{4} & 0 & 0 \\ -\frac{\sqrt{2}i}{4} & 0 & -\frac{\sqrt{2}}{4} & 0 & 0 & 0 \end{pmatrix}$

Table 7: Cluster SAMB.

symbol	type	cluster	form
$\mathbb{Y}_{1}$	$\mathbb{Q}_{0}^{(s,A_{1g})}$	S_{1}	$\begin{pmatrix} 1 \end{pmatrix}$
$\mathbb{Y}_{2}$	$\mathbb{Q}_{0}^{(b,A_{1g})}$	B_{1}	$\begin{pmatrix} \frac{\sqrt{3}}{3} & \frac{\sqrt{3}}{3} & \frac{\sqrt{3}}{3} \end{pmatrix}$
$\mathbb{Y}_{3}$	$\mathbb{Q}_{2,0}^{(b,E_{g})}$	B_{1}	$\begin{pmatrix} -\frac{\sqrt{6}}{3} & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} \end{pmatrix}$
$\mathbb{Y}_{4}$	$\mathbb{Q}_{2,1}^{(b,E_{g})}$	B_{1}	$\begin{pmatrix} 0 & -\frac{\sqrt{2}}{2} & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_{5}$	$\mathbb{T}_{1,0}^{(b,T_{1u})}$	B_{1}	$\begin{pmatrix} 0 & i & 0 \end{pmatrix}$
$\mathbb{Y}_{6}$	$\mathbb{T}_{1,1}^{(b,T_{1u})}$	B_{1}	$\begin{pmatrix} 0 & 0 & i \end{pmatrix}$
$\mathbb{Y}_{7}$	$\mathbb{T}_{1,2}^{(b,T_{1u})}$	B_{1}	$\begin{pmatrix} i & 0 & 0 \end{pmatrix}$
$\mathbb{Y}_{8}$	$\mathbb{Q}_{0}^{(b,A_{1g})}$	B_{2}	$\begin{pmatrix} \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} & \frac{\sqrt{6}}{6} \end{pmatrix}$
$\mathbb{Y}_{9}$	$\mathbb{Q}_{2,0}^{(b,E_{g})}$	B_{2}	$\begin{pmatrix} -\frac{\sqrt{3}}{6} & -\frac{\sqrt{3}}{6} & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}}{3} & -\frac{\sqrt{3}}{6} & \frac{\sqrt{3}}{3} \end{pmatrix}$
$\mathbb{Y}_{10}$	$\mathbb{Q}_{2,1}^{(b,E_{g})}$	B_{2}	$\begin{pmatrix} \frac{1}{2} & \frac{1}{2} & -\frac{1}{2} & 0 & -\frac{1}{2} & 0 \end{pmatrix}$
$\mathbb{Y}_{11}$	$\mathbb{Q}_{2,0}^{(b,T_{2g})}$	B_{2}	$\begin{pmatrix} \frac{\sqrt{2}}{2} & -\frac{\sqrt{2}}{2} & 0 & 0 & 0 & 0 \end{pmatrix}$
$\mathbb{Y}_{12}$	$\mathbb{Q}_{2,1}^{(b,T_{2g})}$	B_{2}	$\begin{pmatrix} 0 & 0 & -\frac{\sqrt{2}}{2} & 0 & \frac{\sqrt{2}}{2} & 0 \end{pmatrix}$
$\mathbb{Y}_{13}$	$\mathbb{Q}_{2,2}^{(b,T_{2g})}$	B_{2}	$\begin{pmatrix} 0 & 0 & 0 & -\frac{\sqrt{2}}{2} & 0 & \frac{\sqrt{2}}{2} \end{pmatrix}$
$\mathbb{Y}_{14}$	$\mathbb{T}_{1,0}^{(b,T_{1u})}$	B_{2}	$\begin{pmatrix} 0 & 0 & \frac{i}{2} & \frac{i}{2} & \frac{i}{2} & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{15}$	$\mathbb{T}_{1,1}^{(b,T_{1u})}$	B_{2}	$\begin{pmatrix} \frac{i}{2} & \frac{i}{2} & 0 & -\frac{i}{2} & 0 & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{16}$	$\mathbb{T}_{1,2}^{(b,T_{1u})}$	B_{2}	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & -\frac{i}{2} & 0 & \frac{i}{2} & 0 \end{pmatrix}$
$\mathbb{Y}_{17}$	$\mathbb{T}_{3,0}^{(b,T_{2u})}$	B_{2}	$\begin{pmatrix} 0 & 0 & \frac{i}{2} & -\frac{i}{2} & \frac{i}{2} & -\frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{18}$	$\mathbb{T}_{3,1}^{(b,T_{2u})}$	B_{2}	$\begin{pmatrix} -\frac{i}{2} & -\frac{i}{2} & 0 & -\frac{i}{2} & 0 & \frac{i}{2} \end{pmatrix}$
$\mathbb{Y}_{19}$	$\mathbb{T}_{3,2}^{(b,T_{2u})}$	B_{2}	$\begin{pmatrix} \frac{i}{2} & -\frac{i}{2} & \frac{i}{2} & 0 & -\frac{i}{2} & 0 \end{pmatrix}$

Table 8: Polar harmonics.

No.	symbol	rank	irrep.	mul.	comp.	form
1	$\mathbb{Q}_{0}^{(A_{1g})}$	0	A_{1g}	–	–	1

continued ...

Table 8

No.	symbol	rank	irrep.	mul.	comp.	form
2	$\mathbb{Q}_{1,0}^{(T_{1u})}$	1	T_{1u}	–	0	x
3	$\mathbb{Q}_{1,1}^{(T_{1u})}$	1	T_{1u}	–	1	y
4	$\mathbb{Q}_{1,2}^{(T_{1u})}$	1	T_{1u}	–	2	z
5	$\mathbb{Q}_{2,0}^{(E_g)}$	2	E_g	–	0	$-\frac{x^2}{2}-\frac{y^2}{2}+z^2$
6	$\mathbb{Q}_{2,1}^{(E_g)}$	2	E_g	–	1	$\frac{\sqrt{3}(x-y)(x+y)}{2}$
7	$\mathbb{Q}_{2,0}^{(T_{2g})}$	2	T_{2g}	–	0	$\sqrt{3}yz$
8	$\mathbb{Q}_{2,1}^{(T_{2g})}$	2	T_{2g}	–	1	$\sqrt{3}xz$
9	$\mathbb{Q}_{2,2}^{(T_{2g})}$	2	T_{2g}	–	2	$\sqrt{3}xy$
10	$\mathbb{Q}_{3,0}^{(T_{2u})}$	3	T_{2u}	–	0	$\frac{\sqrt{15}x(y-z)(y+z)}{2}$
11	$\mathbb{Q}_{3,1}^{(T_{2u})}$	3	T_{2u}	–	1	$-\frac{\sqrt{15}y(x-z)(x+z)}{2}$
12	$\mathbb{Q}_{3,2}^{(T_{2u})}$	3	T_{2u}	–	2	$\frac{\sqrt{15}z(x-y)(x+y)}{2}$

Table 9: Axial harmonics.

No.	symbol	rank	irrep.	mul.	comp.	form
1	$\mathbb{G}_{2,0}^{(T_{2u})}$	2	T_{2u}	–	0	$\sqrt{3}YZ$
2	$\mathbb{G}_{2,1}^{(T_{2u})}$	2	T_{2u}	–	1	$\sqrt{3}XZ$
3	$\mathbb{G}_{2,2}^{(T_{2u})}$	2	T_{2u}	–	2	$\sqrt{3}XY$

- Group info.: Generator = $\{2_{001}|0\},\ \{2_{010}|0\},\ \{3^{+}_{111}|0\},\ \{2_{110}|0\},\ \{-1|0\}$

Table 10: Conjugacy class (point-group part).

rep. SO	symmetry operations
$\{1\|0\}$	$\{1\|0\}$
$\{2_{001}\|0\}$	$\{2_{001}\|0\}$, $\{2_{100}\|0\}$, $\{2_{010}\|0\}$
$\{2_{110}\|0\}$	$\{2_{110}\|0\}$, $\{2_{101}\|0\}$, $\{2_{011}\|0\}$, $\{2_{1-10}\|0\}$, $\{2_{-101}\|0\}$, $\{2_{01-1}\|0\}$
$\{3^{+}_{111}\|0\}$	$\{3^{+}_{111}\|0\}$, $\{3^{+}_{1-1-1}\|0\}$, $\{3^{+}_{-11-1}\|0\}$, $\{3^{+}_{-1-11}\|0\}$, $\{3^{-}_{111}\|0\}$, $\{3^{-}_{1-1-1}\|0\}$, $\{3^{-}_{-11-1}\|0\}$, $\{3^{-}_{-1-11}\|0\}$
$\{4^{+}_{001}\|0\}$	$\{4^{+}_{001}\|0\}$, $\{4^{+}_{100}\|0\}$, $\{4^{+}_{010}\|0\}$, $\{4^{-}_{001}\|0\}$, $\{4^{-}_{100}\|0\}$, $\{4^{-}_{010}\|0\}$
$\{-1\|0\}$	$\{-1\|0\}$
$\{m_{001}\|0\}$	$\{m_{001}\|0\}$, $\{m_{100}\|0\}$, $\{m_{010}\|0\}$
$\{m_{110}\|0\}$	$\{m_{110}\|0\}$, $\{m_{101}\|0\}$, $\{m_{011}\|0\}$, $\{m_{1-10}\|0\}$, $\{m_{-101}\|0\}$, $\{m_{01-1}\|0\}$
$\{-3^{+}_{111}\|0\}$	$\{-3^{+}_{111}\|0\}$, $\{-3^{+}_{1-1-1}\|0\}$, $\{-3^{+}_{-11-1}\|0\}$, $\{-3^{+}_{-1-11}\|0\}$, $\{-3^{-}_{111}\|0\}$, $\{-3^{-}_{1-1-1}\|0\}$, $\{-3^{-}_{-11-1}\|0\}$, $\{-3^{-}_{-1-11}\|0\}$
$\{-4^{+}_{001}\|0\}$	$\{-4^{+}_{001}\|0\}$, $\{-4^{+}_{100}\|0\}$, $\{-4^{+}_{010}\|0\}$, $\{-4^{-}_{001}\|0\}$, $\{-4^{-}_{100}\|0\}$, $\{-4^{-}_{010}\|0\}$

Table 11: Symmetry operations.

No.	SO	No.	SO	No.	SO	No.	SO	No.	SO
1	$\{1\|0\}$	2	$\{2_{001}\|0\}$	3	$\{2_{100}\|0\}$	4	$\{2_{010}\|0\}$	5	$\{2_{110}\|0\}$
6	$\{2_{101}\|0\}$	7	$\{2_{011}\|0\}$	8	$\{2_{1-10}\|0\}$	9	$\{2_{-101}\|0\}$	10	$\{2_{01-1}\|0\}$
11	$\{3^{+}_{111}\|0\}$	12	$\{3^{+}_{1-1-1}\|0\}$	13	$\{3^{+}_{-11-1}\|0\}$	14	$\{3^{+}_{-1-11}\|0\}$	15	$\{3^{-}_{111}\|0\}$
16	$\{3^{-}_{1-1-1}\|0\}$	17	$\{3^{-}_{-11-1}\|0\}$	18	$\{3^{-}_{-1-11}\|0\}$	19	$\{4^{+}_{001}\|0\}$	20	$\{4^{+}_{100}\|0\}$
21	$\{4^{+}_{010}\|0\}$	22	$\{4^{-}_{001}\|0\}$	23	$\{4^{-}_{100}\|0\}$	24	$\{4^{-}_{010}\|0\}$	25	$\{-1\|0\}$
26	$\{m_{001}\|0\}$	27	$\{m_{100}\|0\}$	28	$\{m_{010}\|0\}$	29	$\{m_{110}\|0\}$	30	$\{m_{101}\|0\}$
31	$\{m_{011}\|0\}$	32	$\{m_{1-10}\|0\}$	33	$\{m_{-101}\|0\}$	34	$\{m_{01-1}\|0\}$	35	$\{-3^{+}_{111}\|0\}$
36	$\{-3^{+}_{1-1-1}\|0\}$	37	$\{-3^{+}_{-11-1}\|0\}$	38	$\{-3^{+}_{-1-11}\|0\}$	39	$\{-3^{-}_{111}\|0\}$	40	$\{-3^{-}_{1-1-1}\|0\}$
41	$\{-3^{-}_{-11-1}\|0\}$	42	$\{-3^{-}_{-1-11}\|0\}$	43	$\{-4^{+}_{001}\|0\}$	44	$\{-4^{+}_{100}\|0\}$	45	$\{-4^{+}_{010}\|0\}$
46	$\{-4^{-}_{001}\|0\}$	47	$\{-4^{-}_{100}\|0\}$	48	$\{-4^{-}_{010}\|0\}$				

Table 12: Character table (point-group part).

	1	2_{001}	2_{110}	3^+_{111}	4^+_{001}	-1	m_{001}	m_{110}	-3^+_{111}	-4^+_{001}
A_{1g}	1	1	1	1	1	1	1	1	1	1
A_{2g}	1	1	-1	1	-1	1	1	-1	1	-1
E_g	2	2	0	-1	0	2	2	0	-1	0
T_{1g}	3	-1	-1	0	1	3	-1	-1	0	1
T_{2g}	3	-1	1	0	-1	3	-1	1	0	-1
A_{1u}	1	1	1	1	1	-1	-1	-1	-1	-1
A_{2u}	1	1	-1	1	-1	-1	-1	1	-1	1
E_u	2	2	0	-1	0	-2	-2	0	1	0
T_{1u}	3	-1	-1	0	1	-3	1	1	0	-1
T_{2u}	3	-1	1	0	-1	-3	1	-1	0	1

Table 13: Parity conversion.

	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$	$\leftrightarrow$
	A_{1g} (A_{1u})	A_{2g} (A_{2u})	E_g (E_u)	T_{1g} (T_{1u})	T_{2g} (T_{2u})
	A_{1u} (A_{1g})	A_{2u} (A_{2g})	E_u (E_g)	T_{1u} (T_{1g})	T_{2u} (T_{2g})

Table 14: Symmetric product, $[\Gamma \otimes \Gamma']_+$.

	A_{1g}	A_{2g}	E_g	T_{1g}	T_{2g}	A_{1u}	A_{2u}	E_u	T_{1u}	T_{2u}
A_{1g}	A_{1g}	A_{2g}	E_g	T_{1g}	T_{2g}	A_{1u}	A_{2u}	E_u	T_{1u}	T_{2u}
A_{2g}		A_{1g}	E_g	T_{2g}	T_{1g}	A_{2u}	A_{1u}	E_u	T_{2u}	T_{1u}
E_g			$A_{1g}+E_g$	$T_{1g}+T_{2g}$	$T_{1g}+T_{2g}$	E_u	E_u	$A_{1u}+A_{2u}+E_u$	$T_{1u}+T_{2u}$	$T_{1u}+T_{2u}$
T_{1g}				$A_{1g}+E_g+T_{2g}$	$A_{2g}+E_g+T_{1g}+T_{2g}$	T_{1u}	T_{2u}	$T_{1u}+T_{2u}$	$A_{1u}+E_u+T_{1u}+T_{2u}$	$A_{2u}+E_u+T_{1u}+T_{2u}$
T_{2g}					$A_{1g}+E_g+T_{2g}$	T_{2u}	T_{1u}	$T_{1u}+T_{2u}$	$A_{2u}+E_u+T_{1u}+T_{2u}$	$A_{1u}+E_u+T_{1u}+T_{2u}$
A_{1u}						A_{1g}	A_{2g}	E_g	T_{1g}	T_{2g}
A_{2u}							A_{1g}	E_g	T_{2g}	T_{1g}
E_u								$A_{1g}+E_g$	$T_{1g}+T_{2g}$	$T_{1g}+T_{2g}$
T_{1u}									$A_{1g}+E_g+T_{2g}$	$A_{2g}+E_g+T_{1g}+T_{2g}$
T_{2u}										$A_{1g}+E_g+T_{2g}$

Table 15: Anti-symmetric product, $[\Gamma \otimes \Gamma]_-$.

A_{1g}	A_{2g}	E_g	T_{1g}	T_{2g}	A_{1u}	A_{2u}	E_u	T_{1u}	T_{2u}
–	–	A_{2g}	T_{1g}	T_{1g}	–	–	A_{2g}	T_{1g}	T_{1g}

Table 16: Virtual-cluster sites.

No.	position	No.	position	No.	position	No.	position
1	$\begin{pmatrix} 3 & 2 & 1 \end{pmatrix}$	2	$\begin{pmatrix} -3 & -2 & 1 \end{pmatrix}$	3	$\begin{pmatrix} 3 & -2 & -1 \end{pmatrix}$	4	$\begin{pmatrix} -3 & 2 & -1 \end{pmatrix}$
5	$\begin{pmatrix} 2 & 3 & -1 \end{pmatrix}$	6	$\begin{pmatrix} 1 & -2 & 3 \end{pmatrix}$	7	$\begin{pmatrix} -3 & 1 & 2 \end{pmatrix}$	8	$\begin{pmatrix} -2 & -3 & -1 \end{pmatrix}$
9	$\begin{pmatrix} -1 & -2 & -3 \end{pmatrix}$	10	$\begin{pmatrix} -3 & -1 & -2 \end{pmatrix}$	11	$\begin{pmatrix} 1 & 3 & 2 \end{pmatrix}$	12	$\begin{pmatrix} -1 & -3 & 2 \end{pmatrix}$
13	$\begin{pmatrix} 1 & -3 & -2 \end{pmatrix}$	14	$\begin{pmatrix} -1 & 3 & -2 \end{pmatrix}$	15	$\begin{pmatrix} 2 & 1 & 3 \end{pmatrix}$	16	$\begin{pmatrix} -2 & 1 & -3 \end{pmatrix}$
17	$\begin{pmatrix} -2 & -1 & 3 \end{pmatrix}$	18	$\begin{pmatrix} 2 & -1 & -3 \end{pmatrix}$	19	$\begin{pmatrix} -2 & 3 & 1 \end{pmatrix}$	20	$\begin{pmatrix} 3 & -1 & 2 \end{pmatrix}$
21	$\begin{pmatrix} 1 & 2 & -3 \end{pmatrix}$	22	$\begin{pmatrix} 2 & -3 & 1 \end{pmatrix}$	23	$\begin{pmatrix} 3 & 1 & -2 \end{pmatrix}$	24	$\begin{pmatrix} -1 & 2 & 3 \end{pmatrix}$
25	$\begin{pmatrix} -3 & -2 & -1 \end{pmatrix}$	26	$\begin{pmatrix} 3 & 2 & -1 \end{pmatrix}$	27	$\begin{pmatrix} -3 & 2 & 1 \end{pmatrix}$	28	$\begin{pmatrix} 3 & -2 & 1 \end{pmatrix}$
29	$\begin{pmatrix} -2 & -3 & 1 \end{pmatrix}$	30	$\begin{pmatrix} -1 & 2 & -3 \end{pmatrix}$	31	$\begin{pmatrix} 3 & -1 & -2 \end{pmatrix}$	32	$\begin{pmatrix} 2 & 3 & 1 \end{pmatrix}$
33	$\begin{pmatrix} 1 & 2 & 3 \end{pmatrix}$	34	$\begin{pmatrix} 3 & 1 & 2 \end{pmatrix}$	35	$\begin{pmatrix} -1 & -3 & -2 \end{pmatrix}$	36	$\begin{pmatrix} 1 & 3 & -2 \end{pmatrix}$
37	$\begin{pmatrix} -1 & 3 & 2 \end{pmatrix}$	38	$\begin{pmatrix} 1 & -3 & 2 \end{pmatrix}$	39	$\begin{pmatrix} -2 & -1 & -3 \end{pmatrix}$	40	$\begin{pmatrix} 2 & -1 & 3 \end{pmatrix}$
41	$\begin{pmatrix} 2 & 1 & -3 \end{pmatrix}$	42	$\begin{pmatrix} -2 & 1 & 3 \end{pmatrix}$	43	$\begin{pmatrix} 2 & -3 & -1 \end{pmatrix}$	44	$\begin{pmatrix} -3 & 1 & -2 \end{pmatrix}$
45	$\begin{pmatrix} -1 & -2 & 3 \end{pmatrix}$	46	$\begin{pmatrix} -2 & 3 & -1 \end{pmatrix}$	47	$\begin{pmatrix} -3 & -1 & 2 \end{pmatrix}$	48	$\begin{pmatrix} 1 & -2 & -3 \end{pmatrix}$

Table 17: Virtual-cluster basis.

symbol	1	2	3	4	5	6	7	8	9	10
$\mathbb{Q}_0^{(A_{1g})}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{1,0}^{(T_{1u})}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$
	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$
	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$
	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$
	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$		
$\mathbb{Q}_{1,1}^{(T_{1u})}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$
	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$
	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$
	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$
	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$		
$\mathbb{Q}_{1,2}^{(T_{1u})}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$
	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$
	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$
	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$
	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$		
$\mathbb{Q}_{2,0}^{(E_g)}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$
	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$
	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$		
$\mathbb{Q}_{2,1}^{(E_g)}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$
	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$
	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$
	$\frac{\sqrt{2}}{7}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$
	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$		
$\mathbb{Q}_{2,0}^{(T_{2g})}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$-\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$
	$-\frac{3}{14}$	$-\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$-\frac{3}{14}$
	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{3}{28}$
	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{14}$		
$\mathbb{Q}_{2,1}^{(T_{2g})}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{28}$	$-\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$
	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{1}{14}$	$\frac{3}{14}$
	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{28}$
	$-\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{14}$
	$-\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{1}{14}$	$\frac{3}{14}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$		
$\mathbb{Q}_{2,2}^{(T_{2g})}$	$\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$
	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$
	$\frac{1}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{1}{14}$
	$-\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{1}{14}$
	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{1}{14}$		
$\mathbb{Q}_{3}^{(A_{2u})}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{3,0}^{(T_{1u})}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{3,1}^{(T_{1u})}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{3,2}^{(T_{1u})}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{3,0}^{(T_{2u})}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$
	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$
	$-\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$
	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$		
$\mathbb{Q}_{3,1}^{(T_{2u})}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$
	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$
	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$
	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$
	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$		
$\mathbb{Q}_{3,2}^{(T_{2u})}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$
	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$
	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$
	$-\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$		
$\mathbb{Q}_{4,0}^{(E_g)}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$
	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$
	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$
	$-\frac{\sqrt{2}}{7}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$
	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$		
$\mathbb{Q}_{4,1}^{(E_g)}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$
	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$
	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$		
$\mathbb{Q}_{4,0}^{(T_{1g})}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$
	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$
	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$
	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$		
$\mathbb{Q}_{4,1}^{(T_{1g})}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$
	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$
	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$
	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$
	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$		
$\mathbb{Q}_{4,2}^{(T_{1g})}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$
	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$
	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$
	$-\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$
	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$		
$\mathbb{Q}_{4,0}^{(T_{2g})}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$
	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$
	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$
	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$
	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$		
$\mathbb{Q}_{4,1}^{(T_{2g})}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$
	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$
	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$
	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$
	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$		
$\mathbb{Q}_{4,2}^{(T_{2g})}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$
	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$
	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$
	$-\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$
	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$		
$\mathbb{Q}_{5,0}^{(E_u)}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$

continued …

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$
	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$
	$\frac{\sqrt{2}}{7}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$
	$-\frac{3\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$		
$\mathbb{Q}_{5,1}^{(E_u)}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$
	$\frac{\sqrt{6}}{84}$	$\frac{11\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$
	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$		
$\mathbb{Q}_{5,0}^{(T_{1u},1)}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$
	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$
	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$
	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$
	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$		
$\mathbb{Q}_{5,1}^{(T_{1u},1)}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$
	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$
	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$
	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$
	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$		
$\mathbb{Q}_{5,2}^{(T_{1u},1)}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$
	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$
	$-\frac{\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{168}$
	$\frac{\sqrt{42}}{42}$	$\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$
	$-\frac{\sqrt{42}}{168}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$\frac{\sqrt{42}}{42}$	$\frac{\sqrt{42}}{168}$	$-\frac{5\sqrt{42}}{168}$	$-\frac{\sqrt{42}}{42}$	$-\frac{\sqrt{42}}{168}$		
$\mathbb{Q}_{5,0}^{(T_{2u})}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$
	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$
	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$
	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$
	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$		
$\mathbb{Q}_{5,1}^{(T_{2u})}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$
	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$
	$-\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$
	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$		
$\mathbb{Q}_{5,2}^{(T_{2u})}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$
	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$
	$\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{59\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$
	$\frac{11\sqrt{362}}{2534}$	$\frac{59\sqrt{362}}{10136}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$
	$-\frac{111\sqrt{362}}{10136}$	$\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$\frac{11\sqrt{362}}{2534}$	$-\frac{111\sqrt{362}}{10136}$	$-\frac{59\sqrt{362}}{10136}$	$-\frac{11\sqrt{362}}{2534}$	$\frac{111\sqrt{362}}{10136}$		
$\mathbb{Q}_{6}^{(A_{2g})}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{6,0}^{(T_{1g})}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{6,1}^{(T_{1g})}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{6,2}^{(T_{1g})}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$		
$\mathbb{Q}_{6,0}^{(T_{2g},1)}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$
	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$
	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$		
$\mathbb{Q}_{6,1}^{(T_{2g},1)}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$
	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$
	$\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$
	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$		
$\mathbb{Q}_{6,2}^{(T_{2g},1)}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$
	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{5\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$
	$-\frac{2\sqrt{362}}{181}$	$-\frac{5\sqrt{362}}{1448}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$
	$-\frac{9\sqrt{362}}{1448}$	$\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$-\frac{2\sqrt{362}}{181}$	$-\frac{9\sqrt{362}}{1448}$	$\frac{5\sqrt{362}}{1448}$	$\frac{2\sqrt{362}}{181}$	$\frac{9\sqrt{362}}{1448}$		
$\mathbb{Q}_{7,0}^{(E_u)}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$-\frac{11\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$
	$\frac{13\sqrt{6}}{168}$	$-\frac{11\sqrt{6}}{168}$	$-\frac{\sqrt{6}}{84}$	$\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$
	$\frac{\sqrt{6}}{84}$	$\frac{11\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$
	$-\frac{13\sqrt{6}}{168}$	$-\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$	$\frac{11\sqrt{6}}{168}$	$\frac{\sqrt{6}}{84}$	$-\frac{13\sqrt{6}}{168}$		
$\mathbb{Q}_{7,1}^{(E_u)}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$
	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$
	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$-\frac{5\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$
	$-\frac{\sqrt{2}}{7}$	$\frac{5\sqrt{2}}{56}$	$\frac{3\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$\frac{\sqrt{2}}{7}$	$-\frac{3\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$
	$-\frac{3\sqrt{2}}{56}$	$-\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$	$\frac{5\sqrt{2}}{56}$	$-\frac{\sqrt{2}}{7}$	$\frac{3\sqrt{2}}{56}$		
$\mathbb{Q}_{7,0}^{(T_{2u},1)}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$-\frac{3}{14}$	$-\frac{1}{14}$
	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{1}{14}$
	$\frac{3}{14}$	$\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$-\frac{3}{14}$
	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{3}{28}$
	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{14}$		
$\mathbb{Q}_{7,1}^{(T_{2u},1)}$	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{28}$	$\frac{3}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$	$-\frac{3}{14}$

continued ...

Table 17

symbol	1	2	3	4	5	6	7	8	9	10
	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$\frac{3}{14}$	$\frac{1}{14}$	$-\frac{3}{14}$
	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{3}{28}$
	$-\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{14}$
	$-\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{1}{14}$	$\frac{3}{14}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$		
$\mathbb{Q}_{7,2}^{(T_{2u},1)}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$-\frac{3}{14}$	$-\frac{1}{14}$	$-\frac{3}{28}$
	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{1}{14}$	$\frac{1}{14}$	$-\frac{1}{14}$	$\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{28}$
	$-\frac{1}{14}$	$\frac{3}{14}$	$-\frac{3}{28}$	$\frac{1}{14}$	$\frac{3}{14}$	$\frac{3}{14}$	$-\frac{3}{14}$	$-\frac{3}{14}$	$\frac{3}{14}$	$-\frac{1}{14}$
	$-\frac{3}{28}$	$\frac{3}{14}$	$\frac{1}{14}$	$\frac{3}{28}$	$\frac{3}{28}$	$\frac{3}{28}$	$-\frac{3}{28}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{1}{14}$
	$\frac{1}{14}$	$-\frac{1}{14}$	$-\frac{3}{14}$	$-\frac{3}{28}$	$\frac{1}{14}$	$-\frac{3}{14}$	$\frac{3}{28}$	$-\frac{1}{14}$		
$\mathbb{Q}_{8,0}^{(T_{1g},1)}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$
	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$
	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$
	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$
	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$		
$\mathbb{Q}_{8,1}^{(T_{1g},1)}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$
	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$
	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$
	$-\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$
	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$		
$\mathbb{Q}_{8,2}^{(T_{1g},1)}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$
	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$
	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{56}$	$-\frac{3\sqrt{14}}{56}$
	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$-\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$
	$-\frac{3\sqrt{14}}{56}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{28}$	$\frac{3\sqrt{14}}{56}$	$-\frac{\sqrt{14}}{56}$	$\frac{\sqrt{14}}{28}$	$-\frac{3\sqrt{14}}{56}$		
$\mathbb{Q}_{9}^{(A_{1u})}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$
	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$
	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$	$-\frac{\sqrt{3}}{12}$		