

Tables of Topological Characteristics of Polyhedral Graphs with Eight Vertices

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Introduction

Very recently the famous open question, "Can one hear the shape of a drum?", an inverse problem between the eigenvalues (or spectra) and structure of a graph, posed by Kac [1] was negatively solved by the group of Gordon and Webb [2]. However, in graph theory and information sciences, search for a proper selection of a single or a set of topological indices to identify a given graph has long been and still will be one of the biggest targets, even within a group of graphs of finite size [3, 4]. On the other hand, a number of theoretical and experimental chemists and physicists are presently involved in the study of soccer-ball shaped molecules and crystal networks, such as buckminsterfullerenes [5].

Despite these growing interest in the mathematical structure of polyhedral networks in various areas of science, very few systematic studies seem to have been performed, especially on the characteristic properties of polyhedral graphs [6, 7]. In our preliminary work in this direction such a novel pair of graphs (Nos. 167 and 172 in Table 1d) with eight vertices called as "topological twin graphs" were found that have common characteristic quantities, i.e., characteristic polynomial, distance polynomial, Wiener number, and Z (or Hosoya) index [8].

To verify that this is the smallest twin graph pair we have calculated these topological characteristics of all the polyhedral graphs with fewer than eight vertices using the list of the polyhedral graphs prepared by Britton and Dunitz [9, 10].

Explanation of Tables

For a graph G with N vertices the characteristic polynomial $P_G(x)$ is defined with its adjacency matrix A and unit matrix E as

$$P_G(x) = (-1)^N \det(\mathbf{A} - x\mathbf{E}) = \sum_{k=0}^N a_k x^{N-k}. \quad (1)$$

The distance polynomial $S_G(x)$ is similarly defined in terms of the distance matrix \mathbf{D} as [11]

$$S_G(x) = (-1)^N \det(\mathbf{D} - x\mathbf{E}) = \sum_{k=0}^N b_k x^{N-k} \quad (2)$$

The set of the solutions of the characteristic polynomial $P_G(x)$ can also be used as one of the characteristic properties,

$$\{x\} = \{x | P_G(x) = 0\}. \quad (3)$$

Let us define the non-adjacent number $p(\mathbf{G}, k)$ for \mathbf{G} as the number of ways for choosing k disjoint edges from \mathbf{G} [12], and with the set of $p(\mathbf{G}, k)$'s the Z -index and the Z -counting polynomial $Q_G(x)$ can be defined as

$$Q_G(x) = \sum_{k=0}^{\lfloor N/2 \rfloor} p(\mathbf{G}, k) x^k \quad (4)$$

and

$$Z = \sum_{k=0}^{\lfloor N/2 \rfloor} p(\mathbf{G}, k). \quad (5)$$

The mathematical properties of the polynomial $Q_G(x)$ is essentially the same as those for the matching polynomial $M_G(x)$ as

$$M_G(x) = \sum_{k=0}^{\lfloor N/2 \rfloor} (-1)^k p(\mathbf{G}, k) x^{N-2k}. \quad (6)$$

For a tree graph the matching polynomial is identical to the characteristic polynomial [12], namely,

$$M_G(x) = P_G(x) \quad \mathbf{G} \in \text{tree}, \quad (7)$$

while for a non-tree graph some ring correction is necessary for $M_G(x)$ to be equated with $P_G(x)$ [13]. The discrepancy between these two polynomials can be taken into consideration by introducing the modified Z index as [14]

$$\tilde{Z} = Z' = \sum_{k=0}^{\lfloor N/2 \rfloor} (-1)^k a_{2k}. \quad (8)$$

For tree graphs \tilde{Z} is identical to Z . Since for the distance polynomial of all the graphs $b_0=1$ and $b_1=0$, the sum of the absolute magnitudes of the coefficients of the distance polynomial can also be used as a characteristic quantity,

$$S_Z = \sum_{k=2}^N |b_k|. \quad (9)$$

Finally the Wiener index is defined as the half sum of the off-diagonal elements of the distance matrix D as [12, 15]

$$W = \sum_{j < k}^N D_{jk} = \sum_{k=1}^d k p_k, \quad (10)$$

where p_k is the number of pairs of vertices separated by k edges and d is the maximum number of p_k .

In Table 1a-d are given these topological characteristics of all the polyhedral graphs with four to eight vertices. The order, point group symmetry, and drawing of the graph follow what are given by Britton and Dunitz [9]. It is not difficult to read these Tables with the following information on the second entry in Table 1a for No. 1 graph with five vertices as

$$Q_G(x) = 1 + 9x + 12x^2$$

$$P_G(x) = x^5 - 9x^3 - 14x^2 - 6x$$

$$S_G(x) = x^5 - 13x^3 - 26x^2 - 18x - 4$$

$$p_1 = 9, \quad p_2 = 1, \quad p_3 = 0.$$

Further, key numbers representing the characteristic property of the graph are printed in bold style.

Isospectral (or Cospectral) Graphs and Twin Graphs

From these Tables we could find three pairs of isospectral graphs (Nos. (81, 89), (100, 110), (167, 172) in Table 1d) with eight vertices, and no such pair in the smaller graphs. The last pair is the topological twin graphs which have been discovered by our group [8]. All the topological characteristics given in Table 1 of these two non-isomorphic graphs are identical. On the other hand, the former two pairs of graphs were shown to have the same distance polynomial and Wiener number within each other. Only their Z values are different from each other. In the tables of the topological characteristics of the tree ($N \leq 10$) and mono- and bicyclic ($N \leq 8$) graphs (connected, non-directed, and without a multiple line and a loop) prepared by our group [16, 17] we could not find any pair of graphs with common $P_G(x)$ and $S_G(x)$. Then the above two pairs (81, 89) and (100, 110) may be called to have almost twin property. Since we have not checked all the possible graphs with fewer than eight vertices, it has not yet been verified if the pair of graphs (167, 172) are the smallest twin graphs. Anyway it was verified that they are the smallest pair of polyhedral twin graphs.

In Table 2 is given the list of graphs with common Z and W values. Among the 257 polyhedral graphs with eight vertices 105 graphs have one or more counterparts with the same Z and W values, which is contrasted with the observation that for tree graphs with fewer than ten vertices only one pair of graphs were found to have this property.

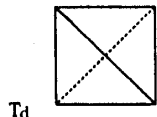
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Table 1a

$$N = |V| = 4$$

1

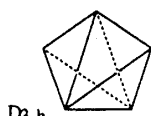


Td

Z	10	Q	1	6	3			
Z'	4	P	1	0	-6	-8	-3	
Sz	17	S	1	0	-6	-8	-3	
W	6	p	6	0	0			
X	3.000000	-1.000000	-1.000000	-1.000000				

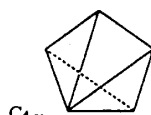
$$N = |V| = 5$$

1

D_{3h}

Z	22	Q	1	9	12			
Z'	4	P	1	0	-9	-14	-6	0
Sz	61	S	1	0	-13	-26	-18	-4
W	11	p	9	1	0			
X	3.645751	0.000000	-1.000000	-1.000000	-1.645751			

2

C_{4v}

Z	19	Q	1	8	10			
Z'	9	P	1	0	-8	-8	0	0
Sz	64	S	1	0	-16	-32	-16	0
W	12	p	8	2	0			
X	3.236068	0.000000	0.000000	-1.236068	-2.000000			

Table 1b

 $N = |V| = 6$

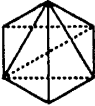
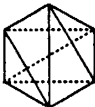
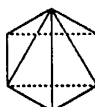
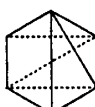
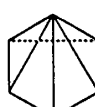
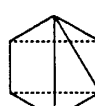
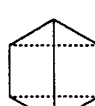
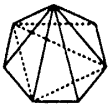
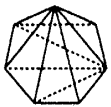
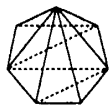
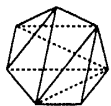
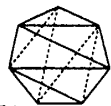
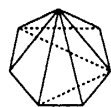
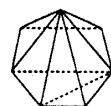
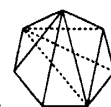
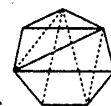
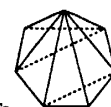
1		Z	48	Q	1	12	28	7		
		Z'	6	P	1	0	-12	-20	-4	8
		Sz	201	S	1	0	-24	-68	-72	-32
		W	18	p	12	3	0			-5
C_{2v}		X	4.119027			-1.000000	-1.618034	-1.687400		
2		Z	51	Q	1	12	30	8		
		Z'	13	P	1	0	-12	-16	0	0
		Sz	136	S	1	0	-24	-64	-48	0
		W	18	p	12	3	0			0
O_h		X	4.000000			0.000000	-2.000000	-2.000000		
3		Z	42	Q	1	11	24	6		
		Z'	16	P	1	0	-11	-14	4	8
		Sz	205	S	1	0	-27	-78	-76	-24
		W	19	p	11	4	0			0
C_s		X	3.778457			-1.000000	-1.489289	-2.000000		
4		Z	43	Q	1	11	25	6		
		Z'	17	P	1	0	-11	-12	5	4
		Sz	166	S	1	0	-27	-76	-63	-4
		W	19	p	11	4	0			4
C_{2v}		X	3.713585			-0.482859	-1.618034	-2.230725		
5		Z	36	Q	1	10	20	5		
		Z'	26	P	1	0	-10	-10	10	8
		Sz	251	S	1	0	-30	-90	-90	-36
		W	20	p	10	5	0			-5
C_{5v}		X	3.449490			-1.449490	-1.618034	-1.618034		
6		Z	37	Q	1	10	21	5		
		Z'	21	P	1	0	-10	-8	9	4
		Sz	190	S	1	0	-30	-88	-75	-4
		W	20	p	10	5	0			-1
C_2		X	3.388490			-0.554958	-1.575773	-2.246980		7
7		Z	32	Q	1	9	18	4		
		Z'	22	P	1	0	-9	-4	12	0
		Sz	217	S	1	0	-33	-100	-84	0
		W	21	p	9	6	0			0
D_{3h}		X	3.000000			0.000000	-2.000000	-2.000000		

Table 1c

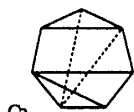
 $N = |V| = 7$

1		Z	99	Q	1	15	51	32						
		Z'	17	P	1	0	-15	-26	3	24	2	-6		
		Sz	626	S	1	0	-39	-150	-225	-156	-50	-6		
		W	27	p	15	6	0							
	C_{3v}	X	4.511405		0.618034	0.618034	-0.758887	-1.618034	-1.618034	-1.752518				
2		Z	100	Q	1	15	51	33						
		Z'	8	P	1	0	-15	-26	3	28	11	-2		
		Sz	641	S	1	0	-39	-150	-229	-164	-53	-6		
		W	27	p	15	6	0							
	C_{2v}	X	4.504664		1.000000	0.135359	-1.000000	-1.000000	-1.640023	-2.000000				
3		Z	103	Q	1	15	52	35						
		Z'	-1	P	1	0	-15	-26	6	38	23	4		
		Sz	586	S	1	0	-39	-146	-214	-142	-41	-4		
		W	27	p	15	6	0							
	C_2	X	4.475122		1.246980	-0.373494	-0.445042	-1.441876	-1.659752	-1.801938				
4		Z	108	Q	1	15	54	38						
		Z'	28	P	1	0	-15	-22	12	24	0	0		
		Sz	433	S	1	0	-39	-142	-180	-72	0	0		
		W	27	p	15	6	0							
	C_{3v}	X	4.372281		1.000000	0.000000	0.000000	-1.372281	-2.000000	-2.000000				
5		Z	111	Q	1	15	55	40						
		Z'	41	P	1	0	-15	-20	15	18	-10	0		
		Sz	376	S	1	0	-39	-140	-165	-46	10	4		
		W	27	p	15	6	0							
	D_{5h}	X	4.316625		0.618034	0.618034	0.000000	-1.618034	-1.618034	-2.316625				
6		Z	88	Q	1	14	45	28						
		Z'	28	P	1	0	-14	-20	13	28	0	-8		
		Sz	641	S	1	0	-42	-164	-243	-156	-36	0		
		W	28	p	14	7	0							
	C_s	X	4.201472		1.000000	0.545096	-1.000000	-1.000000	-1.746568	-2.000000				
7		Z	89	Q	1	14	45	29						
		Z'	21	P	1	0	-14	-20	11	26	5	-2		
		Sz	602	S	1	0	-42	-164	-241	-142	-19	6		
		W	28	p	14	7	0							
	C_1	X	4.214783		1.097019	0.194212	-0.528315	-1.255231	-1.536166	-2.186300				
8		Z	91	Q	1	14	46	30						
		Z'	17	P	1	0	-14	-20	14	34	12	0		
		Sz	574	S	1	0	-42	-160	-226	-126	-20	0		
		W	28	p	14	7	0							
	C_s	X	4.180707		1.305738	0.000000	-0.512206	-1.230864	-1.743375	-2.000000				
9		Z	90	Q	1	14	46	29						
		Z'	36	P	1	0	-14	-18	14	18	-7	-2		
		Sz	521	S	1	0	-42	-162	-222	-102	1	6		
		W	28	p	14	7	0							
	C_s	X	4.158557		0.734583	0.618034	-0.201354	-1.451177	-1.618034	-2.240609				
10		Z	91	Q	1	14	46	30						
		Z'	15	P	1	0	-14	-20	16	40	16	0		
		Sz	610	S	1	0	-42	-160	-232	-144	-32	0		
		W	28	p	14	7	0							
	C_{2v}	X	4.156325		1.414214	0.000000	-0.630898	-1.414214	-1.525428	-2.000000				

11		Z Z' Sz W X	92 32 433 28 4.097081	Q P S p	1 1 1 14	14 0 0 7	47 -14 -42 0	30 -16 -160 -209	-2 16 -68 -1.697908	0 12 34 -2.513554
12		Z Z' Sz W X	93 27 494 28 4.113913	Q P S p	1 1 1 14	14 0 0 7	47 -14 -42 0	31 -18 -158 -211	5 30 -94 -1.692339	-2 6 5 -2.233701
13		Z Z' Sz W X	96 46 431 28 4.058485	Q P S p	1 1 1 14	14 0 0 7	48 -14 -42 0	33 -16 -156 -192	20 20 -60 -1.618034	-11 -2 13 -2.278700
14		Z Z' Sz W X	77 37 746 29 3.921072	Q P S p	1 1 1 13	13 0 0 8	39 -13 -45 0	24 -16 -180 -273	19 30 -186 -1.618034	-4 -10 -6 -1.823366
15		Z Z' Sz W X	81 45 596 29 3.825573	Q P S p	1 1 1 13	13 0 0 8	41 -13 -45 0	26 -14 -174 -237	23 28 -120 -1.618034	-8 -8 -20 -2.000000
16		Z Z' Sz W X	78 32 545 29 3.917286	Q P S p	1 1 1 13	13 0 0 8	39 -13 -45 0	25 -14 -182 -265	15 16 -120 -1.597735	-3 -2 30 -2.414214
17		Z Z' Sz W X	79 37 566 29 3.885405	Q P S p	1 1 1 13	13 0 0 8	40 -13 -45 0	25 -14 -178 -250	18 20 -116 -1.667421	-5 -4 12 -2.284973
18		Z Z' Sz W X	79 31 560 29 3.877352	Q P S p	1 1 1 13	13 0 0 8	40 -13 -45 0	25 -14 -178 -250	18 22 -110 -1.801938	1 -2 6 -2.266761
19		Z Z' Sz W X	81 37 442 29 3.817182	Q P S p	1 1 1 13	13 0 0 8	41 -13 -45 0	26 -12 -176 -233	19 16 -68 -1.582036	-4 0 24 -2.517525
20		Z Z' Sz W X	81 31 550 29 3.830634	Q P S p	1 1 1 13	13 0 0 8	41 -13 -45 0	26 -14 -174 -239	21 30 -110 -1.589067	4 -2 10 -2.258288

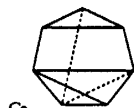
21		Z	81	Q	1	13	41	26						
		Z'	49	P	1	0	-13	-12	21	12	-14	2		
		Sz	496	S	1	0	-45	-176	-231	-76	22	10		
		W	29	p	13	8	0							
C _s		X	3.814456		0.844734	0.618034	0.177045	-1.501792	-1.618034	-2.334443				
22		Z	80	Q	1	13	41	25						
		Z'	44	P	1	0	-13	-12	21	16	-9	-4		
		Sz	497	S	1	0	-45	-176	-235	-84	31	12		
		W	29	p	13	8	0							
C _s		X	3.802700		1.000000	0.718972	-0.341523	-1.000000	-1.799304	-2.380844				
23		Z	84	Q	1	13	42	28						
		Z'	54	P	1	0	-13	-12	24	16	-16	0		
		Sz	505	S	1	0	-45	-172	-216	-72	0	0		
		W	29	p	13	8	0							
C _{2v}		X	3.778457		1.000000	0.710831	0.000000	-1.489289	-2.000000	-2.000000				
24		Z	83	Q	1	13	42	27						
		Z'	47	P	1	0	-13	-12	24	22	-9	-6		
		Sz	482	S	1	0	-45	-172	-220	-74	23	6		
		W	29	p	13	8	0							
C ₂		X	3.759366		1.246980	0.633065	-0.445042	-1.099512	-1.801938	-2.292918				
25		Z	66	Q	1	12	33	20						
		Z'	44	P	1	0	-12	-12	21	24	-10	-12		
		Sz	833	S	1	0	-48	-200	-315	-216	-54	0		
		W	30	p	12	9	0							
C _{6v}		X	3.645751		1.000000	1.000000	-1.000000	-1.000000	-1.645751	-2.000000				
26		Z	69	Q	1	12	35	21						
		Z'	45	P	1	0	-12	-10	23	20	-9	-6		
		Sz	650	S	1	0	-48	-194	-277	-136	-1	6		
		W	30	p	12	9	0							
C ₁		X	3.551467		1.296778	0.658461	-0.466264	-1.126803	-1.705324	-2.208316				
27		Z	71	Q	1	12	36	22						
		Z'	51	P	1	0	-12	-10	26	24	-12	-8		
		Sz	652	S	1	0	-48	-190	-262	-132	-20	0		
		W	30	p	12	9	0							
C _s		X	3.503224		1.414214	0.701767	-0.468481	-1.414214	-1.736510	-2.000000				
28		Z	70	Q	1	12	35	22						
		Z'	40	P	1	0	-12	-8	19	8	-8	0		
		Sz	433	S	1	0	-48	-196	-269	-68	100	48		
		W	30	p	12	9	0							
C _s		X	3.552199		1.000000	0.568568	0.000000	-1.000000	-1.527347	-2.593419				
29		Z	72	Q	1	12	36	23						
		Z'	56	P	1	0	-12	-8	24	6	-19	6		
		Sz	551	S	1	0	-48	-192	-252	-78	13	6		
		W	30	p	12	9	0							
C _{3v}		X	3.507903		0.755640	0.618034	0.618034	-1.618034	-1.618034	-2.263543				
30		Z	71	Q	1	12	36	22						
		Z'	49	P	1	0	-12	-8	24	10	-12	0		
		Sz	550	S	1	0	-48	-192	-256	-82	28	0		
		W	30	p	12	9	0							
C ₁		X	3.488026		1.163967	0.630135	0.000000	-1.051319	-2.000000	-2.230809				

31

 C_2

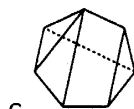
Z	71	Q	1	12	36	22				
Z'	39	P	1	0	-12	-8	22	16	-4	0
Sz	442	S	1	0	-48	-192	-258	-68	84	40
W	30	p	12	9	0					
X	3.483095		1.414214	0.200134	0.000000	-1.118806	-1.414214	-2.564423		

32

 C_{3v}

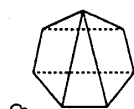
Z	71	Q	1	12	36	22				
Z'	37	P	1	0	-12	-10	24	24	0	0
Sz	622	S	1	0	-48	-190	-264	-120	0	0
W	30	p	12	9	0					
X	3.514137		1.571993	0.000000	0.000000	-1.086130	-2.000000	-2.000000		

33

 C_5

Z	61	Q	1	11	31	18				
Z'	49	P	1	0	-11	-6	25	14	-12	-2
Sz	676	S	1	0	-51	-210	-299	-134	8	10
W	31	p	11	10	0					
X	3.178117		1.488030	0.618034	-0.148034	-1.271789	-1.618034	-2.246325		

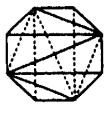
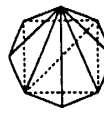
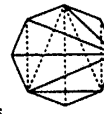
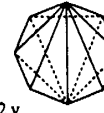
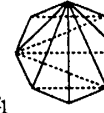
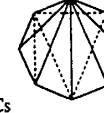
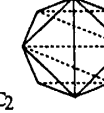
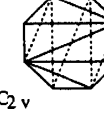
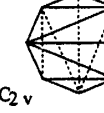
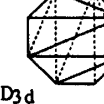
34

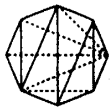
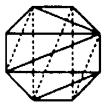
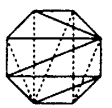
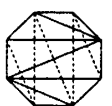
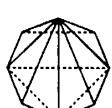
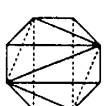
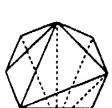
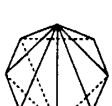
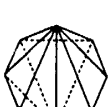
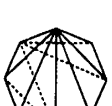
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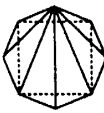
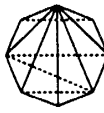
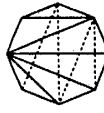
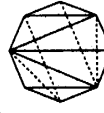
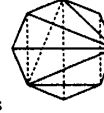
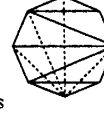
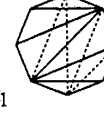
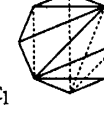
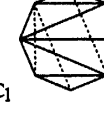

Z	62	Q	1	11	31	19				
Z'	48	P	1	0	-11	-4	23	0	-13	4
Sz	545	S	1	0	-51	-212	-289	-72	67	12
W	31	p	11	10	0					
X	3.177410		1.000000	0.678363	0.414214	-1.000000	-1.855773	-2.414214		

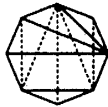
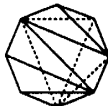
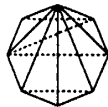
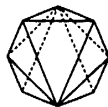
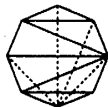
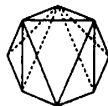
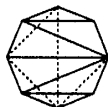
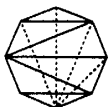
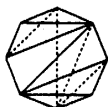
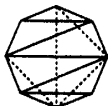
Table 1d

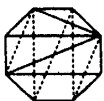
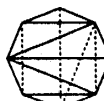
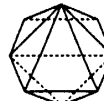
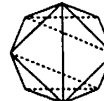
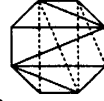
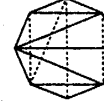
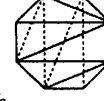

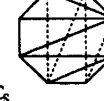

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









1		Z	195	Q	1	18	81	86	9					
		Z'	53	P	1	0	-18	-32	15	48	-10	-24	9	
		Sz	1876	S	1	0	-58	-288	-585	-576	-290	-72	-7	
		W	38	p	18	10	0							
	T_d	X	4.854102		0.618034	0.618034	0.618034	-1.618034	-1.618034	-1.618034	-1.618034	-1.854102		
2		Z	206	Q	1	18	82	93	12					
		Z'	10	P	1	0	-18	-32	18	66	19	-22	-8	
		Sz	1801	S	1	0	-58	-284	-570	-558	-269	-58	-4	
		W	38	p	18	10	0							
	C_1	X	4.821583		1.279168	0.618034	-0.376031	-1.000000	-1.618034	-1.724721	-2.000000			
3		Z	211	Q	1	18	83	96	13					
		Z'	3	P	1	0	-18	-32	21	76	26	-26	-11	
		Sz	1676	S	1	0	-58	-280	-547	-512	-230	-46	-3	
		W	38	p	18	10	0							
	C_5	X	4.799027		1.399742	0.618034	-0.428774	-1.212244	-1.618034	-1.660792	-1.896959			
4		Z	204	Q	1	18	81	91	13					
		Z'	6	P	1	0	-18	-32	15	60	21	-16	-7	
		Sz	1977	S	1	0	-58	-288	-597	-620	-327	-80	-7	
		W	38	p	18	10	0							
	C_{2v}	X	4.838538		1.246980	0.553719	-0.445042	-1.000000	-1.182200	-1.801938	-2.210057			
5		Z	214	Q	1	18	83	98	14					
		Z'	-12	P	1	0	-18	-32	21	82	48	-2	-4	
		Sz	1745	S	1	0	-58	-280	-555	-538	-256	-54	-4	
		W	38	p	18	10	0							
	C_1	X	4.788512		1.593477	0.254481	-0.397441	-1.000000	-1.442575	-1.796454	-2.000000			
6		Z	220	Q	1	18	84	102	15					
		Z'	-24	P	1	0	-18	-32	24	94	64	6	-3	
		Sz	1657	S	1	0	-58	-276	-536	-506	-232	-46	-3	
		W	38	p	18	10	0							
	C_5	X	4.760752		1.732051	0.160133	-0.434990	-1.000000	-1.593538	-1.732051	-1.892356			
7		Z	225	Q	1	18	85	105	16					
		Z'	-43	P	1	0	-18	-32	25	104	91	32	4	
		Sz	1712	S	1	0	-63	-296	-563	-516	-227	-44	-3	
		W	39	p	18	9	1							
	C_2	X	4.740019		1.879385	-0.347296	-0.404635	-0.601352	-1.532089	-1.734031	-2.000000			
8		Z	220	Q	1	18	85	102	14					
		Z'	60	P	1	0	-18	-28	29	60	-12	-32	0	
		Sz	1345	S	1	0	-58	-276	-507	-396	-108	0	0	
		W	38	p	18	10	0							
	C_{2v}	X	4.701562		1.000000	1.000000	0.000000	-1.000000	-1.701562	-2.000000	-2.000000			
9		Z	227	Q	1	18	86	106	16					
		Z'	51	P	1	0	-18	-28	32	72	0	-32	0	
		Sz	1282	S	1	0	-58	-272	-488	-368	-96	0	0	
		W	38	p	18	10	0							
	C_{2v}	X	4.672824		1.414214	0.648061	0.000000	-1.320884	-1.414214	-2.000000	-2.000000			
10		Z	234	Q	1	18	87	110	18					
		Z'	16	P	1	0	-18	-28	33	84	36	0	0	
		Sz	1378	S	1	0	-63	-292	-519	-396	-108	0	0	
		W	39	p	18	9	1							
	D_{3d}	X	4.645751		1.732051	0.000000	0.000000	-0.645751	-1.732051	-2.000000	-2.000000			

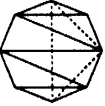
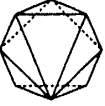
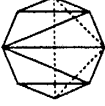
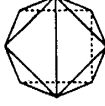
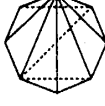
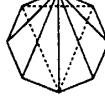
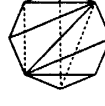
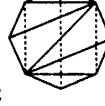
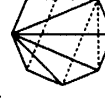
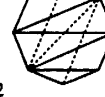
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		W	38	p	18	10	0								
C _s		X	4.673965		1.593843	0.200899	0.000000	-0.876330	-1.376180	-2.000000	-2.216197				
12		Z	233	Q	1	18	87	110	17						
		Z'	71	P	1	0	-18	-26	35	64	-12	-28	5		
		Sz	1116	S	1	0	-58	-270	-469	-312	-36	24	5		
		W	38	p	18	10	0								
C _s		X	4.623592		1.369579	0.618034	0.179044	-1.060869	-1.618034	-1.793407	-2.317939				
13		Z	234	Q	1	18	87	110	18						
		Z'	68	P	1	0	-18	-24	33	48	-16	-24	0		
		Sz	961	S	1	0	-58	-272	-471	-280	48	72	0		
		W	38	p	18	10	0								
D _{6h}		X	4.605551		1.000000	1.000000	0.000000	-1.000000	-1.000000	-2.000000	-2.605551				
14		Z	245	Q	1	18	89	118	19						
		Z'	121	P	1	0	-18	-24	43	64	-38	-40	21		
		Sz	976	S	1	0	-58	-264	-429	-240	-14	24	5		
		W	38	p	18	10	0								
D _{2d}		X	4.541381		1.302776	0.618034	0.618034	-1.541381	-1.618034	-1.618034	-2.302776				
15		Z	182	Q	1	17	73	80	11						
		Z'	32	P	1	0	-17	-26	23	52	2	-22	-7		
		Sz	1695	S	1	0	-61	-306	-617	-564	-186	22	17		
		W	39	p	17	11	0								
C _s		X	4.587290		1.162537	0.801938	-0.509179	-0.554958	-1.402243	-1.838405	-2.246980				
16		Z	180	Q	1	17	74	79	9						
		Z'	76	P	1	0	-17	-24	28	44	-21	-20	9		
		Sz	1601	S	1	0	-61	-304	-596	-508	-153	12	9		
		W	39	p	17	11	0								
C _{2v}		X	4.529855		1.000000	0.618034	0.497521	-1.000000	-1.618034	-1.765685	-2.261691				
17		Z	185	Q	1	17	74	82	11						
		Z'	37	P	1	0	-17	-26	26	60	4	-24	-3		
		Sz	1652	S	1	0	-61	-302	-594	-524	-176	0	5		
		W	39	p	17	11	0								
C ₁		X	4.562999		1.339424	0.651139	-0.127127	-1.227923	-1.264020	-1.744562	-2.189931				
18		Z	182	Q	1	17	73	80	11						
		Z'	32	P	1	0	-17	-26	25	58	4	-26	-7		
		Sz	1845	S	1	0	-61	-306	-623	-598	-248	-18	9		
		W	39	p	17	11	0								
C ₁		X	4.570454		1.268840	0.767160	-0.309564	-1.000000	-1.260412	-1.816479	-2.220000				
19		Z	184	Q	1	17	73	81	12						
		Z'	28	P	1	0	-17	-26	23	54	9	-14	-4		
		Sz	1787	S	1	0	-61	-306	-621	-582	-219	-6	8		
		W	39	p	17	11	0								
C ₁		X	4.583020		1.329250	0.542024	-0.328203	-0.640187	-1.398835	-1.810231	-2.276839				
20		Z	186	Q	1	17	74	83	11						
		Z'	20	P	1	0	-17	-26	28	70	19	-20	-7		
		Sz	1761	S	1	0	-61	-302	-604	-566	-225	-12	9		
		W	39	p	17	11	0								
C ₁		X	4.537311		1.540141	0.547186	-0.360962	-1.000000	-1.320477	-1.755963	-2.187237				

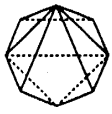
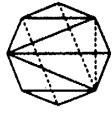
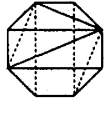
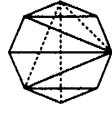
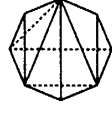
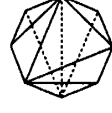
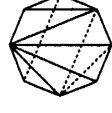
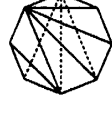
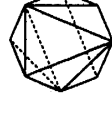
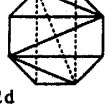
21		Z	184	Q	1	17	74	82	10					
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		Sz	1877	S	1	0	-61	-302	-606	-588	-272	-48	0	
		W	39	p	17	11	0							
C _s		X	4.528472		1.414214	0.871572	-0.546878	-1.000000	-1.414214	-1.853166	-2.000000			
22		Z	190	Q	1	17	74	85	13					
		Z'	32	P	1	0	-17	-26	26	62	13	-12	1	
		Sz	1681	S	1	0	-61	-302	-598	-538	-191	0	9	
		W	39	p	17	11	0							
C _i		X	4.557844		1.473695	0.267679	0.099241	-1.000000	-1.486869	-1.719432	-2.192158			
23		Z	189	Q	1	17	75	85	11					
		Z'	45	P	1	0	-17	-24	29	54	-1	-18	-3	
		Sz	1460	S	1	0	-61	-300	-575	-462	-97	30	5	
		W	39	p	17	11	0							
C _i		X	4.507759		1.352446	0.631890	-0.185591	-0.665786	-1.454688	-1.873402	-2.312627			
24		Z	188	Q	1	17	75	84	11					
		Z'	60	P	1	0	-17	-24	31	56	-10	-26	1	
		Sz	1525	S	1	0	-61	-300	-577	-480	-134	18	9	
		W	39	p	17	11	0							
C _i		X	4.497402		1.293010	0.734368	0.038026	-1.000000	-1.557540	-1.764154	-2.241112			
25		Z	191	Q	1	17	75	86	12					
		Z'	61	P	1	0	-17	-24	29	52	-10	-22	4	
		Sz	1356	S	1	0	-61	-300	-571	-444	-66	66	20	
		W	39	p	17	11	0							
C _s		X	4.512631		1.257539	0.618034	0.182234	-1.103605	-1.478880	-1.618034	-2.369918			
26		Z	191	Q	1	17	75	86	12					
		Z'	23	P	1	0	-17	-26	29	72	24	-8	0	
		Sz	1666	S	1	0	-61	-298	-579	-512	-192	-24	0	
		W	39	p	17	11	0							
C _s		X	4.527604		1.628680	0.202432	0.000000	-0.893012	-1.686990	-1.778714	-2.000000			
27		Z	193	Q	1	17	75	87	13					
		Z'	7	P	1	0	-17	-26	27	72	35	-2	-3	
		Sz	1680	S	1	0	-66	-322	-618	-530	-165	12	9	
		W	40	p	17	10	1							
C _i		X	4.535087		1.658370	0.253666	-0.508568	-0.593933	-1.258690	-1.848898	-2.237035			
28		Z	190	Q	1	17	75	85	12					
		Z'	16	P	1	0	-17	-26	31	78	21	-28	-12	
		Sz	1697	S	1	0	-61	-298	-581	-526	-207	-24	0	
		W	39	p	17	11	0							
C _i		X	4.511790		1.608243	0.635777	-0.501069	-1.000000	-1.397865	-1.856877	-2.000000			
29		Z	191	Q	1	17	76	86	11					
		Z'	63	P	1	0	-17	-22	32	48	-12	-18	1	
		Sz	1252	S	1	0	-61	-298	-556	-404	-24	74	17	
		W	39	p	17	11	0							
C _i		X	4.452394		1.291305	0.670870	0.054044	-0.744803	-1.494444	-1.712269	-2.517097			
30		Z	193	Q	1	17	76	87	12					
		Z'	47	P	1	0	-17	-24	34	68	1	-30	-4	
		Sz	1460	S	1	0	-61	-296	-558	-452	-119	18	8	
		W	39	p	17	11	0							
C _i		X	4.463248		1.512560	0.685945	-0.138233	-1.126323	-1.460519	-1.693100	-2.243578			

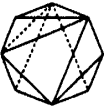
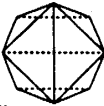
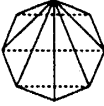
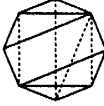
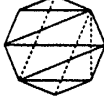
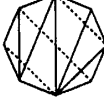
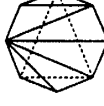
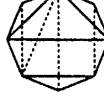
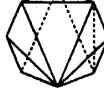

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		Z'	40	P	1	0	-17	-24	34	68	-3	-44	-15				
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		W	39	p	17	11	0										
C _s		X	4.465427		1.356250	1.000000	-0.471019	-1.000000	-1.287634	-1.823418	-2.239606						
32		Z	197	Q	1	17	76	90	13								
		Z'	1	P	1	0	-17	-26	30	82	44	0	-3				
		Sz	1712	S	1	0	-66	-318	-599	-514	-191	-24	0				
		W	40	p	17	10	1										
C _i		X	4.504420		1.775726	0.218197	-0.448055	-0.720026	-1.387292	-1.756870	-2.186099						
33		Z	192	Q	1	17	75	87	12								
		Z'	4	P	1	0	-17	-26	31	84	41	-6	-4				
		Sz	1721	S	1	0	-61	-298	-589	-548	-219	-14	8				
		W	39	p	17	11	0										
C _i		X	4.497624		1.775753	0.292124	-0.341436	-1.000000	-1.425549	-1.608041	-2.190475						
34		Z	191	Q	1	17	76	85	12								
		Z'	57	P	1	0	-17	-20	30	36	-9	-8	0				
		Sz	1132	S	1	0	-61	-300	-562	-388	39	120	20				
		W	39	p	17	11	0										
C _{2v}		X	4.427209		1.246980	0.542909	0.000000	-0.445042	-1.202706	-1.801938	-2.767412						
35		Z	195	Q	1	17	76	89	12								
		Z'	29	P	1	0	-17	-24	32	68	17	-14	-4				
		Sz	1418	S	1	0	-61	-296	-560	-448	-95	34	8				
		W	39	p	17	11	0										
C _i		X	4.468999		1.619683	0.448545	-0.280928	-0.791740	-1.283766	-1.855732	-2.325061						
36		Z	200	Q	1	17	77	91	14								
		Z'	24	P	1	0	-17	-24	37	82	19	-30	-12				
		Sz	1417	S	1	0	-61	-292	-543	-438	-113	22	8				
		W	39	p	17	11	0										
C _s		X	4.422289		1.732051	0.634437	-0.473354	-1.000000	-1.346426	-1.732051	-2.236946						
37		Z	200	Q	1	17	77	92	13								
		Z'	24	P	1	0	-17	-24	35	78	26	-12	-3				
		Sz	1373	S	1	0	-61	-292	-541	-422	-90	28	5				
		W	39	p	17	11	0										
C _i		X	4.436028		1.758851	0.357669	-0.208536	-1.000000	-1.230912	-1.853146	-2.259954						
38		Z	198	Q	1	17	77	90	13								
		Z'	48	P	1	0	-17	-22	35	62	6	-14	1				
		Sz	1213	S	1	0	-61	-294	-541	-390	-22	78	17				
		W	39	p	17	11	0										
C _i		X	4.411204		1.608166	0.357352	0.075915	-1.000000	-1.165827	-1.773200	-2.513609						
39		Z	201	Q	1	17	77	92	14								
		Z'	-19	P	1	0	-17	-26	35	102	72	16	0				
		Sz	1708	S	1	0	-66	-314	-592	-516	-196	-24	0				
		W	40	p	17	10	1										
C _s		X	4.440824		2.018548	0.000000	-0.506072	-0.663922	-1.423737	-1.865641	-2.000000						
40		Z	201	Q	1	17	77	93	13								
		Z'	11	P	1	0	-17	-24	33	78	37	-2	-3				
		Sz	1452	S	1	0	-66	-316	-580	-446	-89	36	9				
		W	40	p	17	10	1										
C _i		X	4.443814		1.793258	0.245882	-0.472176	-0.622216	-1.266897	-1.695391	-2.426274						

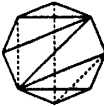
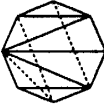
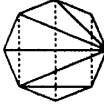
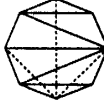
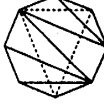
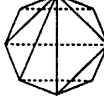
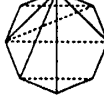
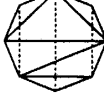
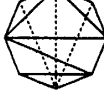
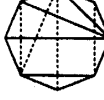
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		W	39	p	17	11	0								
C ₁		X	4.416842		1.272215	0.928783	0.030684	-0.935678	-1.604195	-1.809423	-2.299228				
42		Z	201	Q	1	17	77	92	14						
		Z'	103	P	1	0	-17	-22	37	52	-32	-30	16		
		Sz	1276	S	1	0	-61	-294	-531	-372	-56	30	8		
		W	39	p	17	11	0								
C ₅		X	4.425041		1.190770	0.618034	0.618034	-1.326227	-1.618034	-1.618034	-2.289584				
43		Z	202	Q	1	17	77	93	14						
		Z'	48	P	1	0	-17	-22	33	54	3	-12	0		
		Sz	1081	S	1	0	-61	-294	-531	-338	55	92	-4		
		W	39	p	17	11	0								
C ₅		X	4.434294		1.507555	0.414214	0.000000	-0.863850	-1.000000	-2.077999	-2.414214				
44		Z	205	Q	1	17	78	94	15						
		Z'	5	P	1	0	-17	-24	38	92	48	0	-3		
		Sz	1473	S	1	0	-66	-312	-569	-448	-111	24	9		
		W	40	p	17	10	1								
C ₂		X	4.390832		1.956295	0.209057	-0.410007	-0.745486	-1.338261	-1.827091	-2.235339				
45		Z	202	Q	1	17	78	93	13						
		Z'	116	P	1	0	-17	-20	40	44	-41	-24	17		
		Sz	1121	S	1	0	-61	-292	-512	-316	3	48	9		
		W	39	p	17	11	0								
C _{2v}		X	4.368017		1.000000	0.877328	0.618034	-1.000000	-1.618034	-1.858807	-2.386538				
46		Z	204	Q	1	17	78	94	14						
		Z'	74	P	1	0	-17	-22	40	66	-16	-38	0		
		Sz	1247	S	1	0	-61	-290	-516	-362	-56	30	8		
		W	39	p	17	11	0								
C ₁		X	4.384123		1.490143	0.827804	0.000000	-1.162938	-1.563839	-1.692528	-2.282765				
47		Z	206	Q	1	17	78	95	15						
		Z'	56	P	1	0	-17	-22	38	64	-3	-22	-3		
		Sz	1356	S	1	0	-66	-314	-555	-392	-68	30	9		
		W	40	p	17	10	1								
C ₅		X	4.393873		1.583858	0.618034	-0.147861	-0.689877	-1.618034	-1.827400	-2.312594				
48		Z	205	Q	1	17	78	95	14						
		Z'	57	P	1	0	-17	-22	40	70	-3	-30	-4		
		Sz	1250	S	1	0	-61	-290	-520	-370	-51	34	8		
		W	39	p	17	11	0								
C ₁		X	4.373775		1.634985	0.680768	-0.141352	-0.913186	-1.566618	-1.760810	-2.307563				
49		Z	206	Q	1	17	78	95	15						
		Z'	80	P	1	0	-17	-20	38	48	-23	-28	1		
		Sz	1009	S	1	0	-61	-292	-514	-308	61	96	9		
		W	39	p	17	11	0								
C ₅		X	4.369443		1.195309	1.000000	0.034794	-1.000000	-1.112302	-1.949422	-2.537821				
50		Z	209	Q	1	17	79	98	14						
		Z'	79	P	1	0	-17	-20	41	58	-16	-24	4		
		Sz	946	S	1	0	-61	-288	-495	-282	64	96	20		
		W	39	p	17	11	0								
C ₅		X	4.333558		1.548998	0.618034	0.160518	-0.928317	-1.573785	-1.618034	-2.540972				

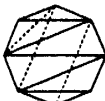
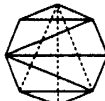
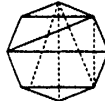
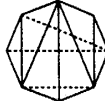
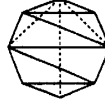
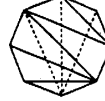
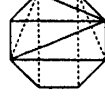
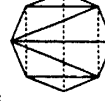
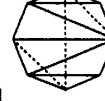
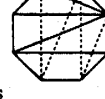
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		W	39	p	17	11	0								
C ₁		X	4.333947		1.336887	0.838678	0.356757	-1.097572	-1.584718	-1.836890	-2.347088				
52		Z	216	Q	1	17	80	102	16						
		Z'	126	P	1	0	-17	-20	48	64	-44	-48	16		
		Sz	1177	S	1	0	-61	-284	-476	-296	-60	0	0		
		W	39	p	17	11	0								
C _{2v}		X	4.289945		1.414214	1.000000	0.294280	-1.414214	-1.584225	-2.000000	-2.000000				
53		Z	160	Q	1	16	65	69	9						
		Z'	42	P	1	0	-16	-22	33	64	-7	-46	-15		
		Sz	2185	S	1	0	-64	-326	-675	-684	-347	-82	-7		
		W	40	p	16	12	0								
C _s		X	4.310709		1.246980	1.161792	-0.445042	-1.000000	-1.596800	-1.801938	-1.875701				
54		Z	162	Q	1	16	65	70	10						
		Z'	44	P	1	0	-16	-22	31	60	0	-26	-4		
		Sz	2105	S	1	0	-64	-326	-673	-664	-312	-62	-4		
		W	40	p	16	12	0								
C ₁		X	4.324997		1.478131	0.695181	-0.162896	-1.000000	-1.531278	-1.804135	-2.000000				
55		Z	167	Q	1	16	67	73	10						
		Z'	81	P	1	0	-16	-20	37	56	-23	-36	4		
		Sz	1762	S	1	0	-64	-320	-623	-536	-195	-24	0		
		W	40	p	16	12	0								
C ₁		X	4.245282		1.338737	0.937312	0.105914	-1.246495	-1.573959	-1.806791	-2.000000				
56		Z	169	Q	1	16	67	74	11						
		Z'	23	P	1	0	-16	-22	35	76	18	-26	-11		
		Sz	1956	S	1	0	-69	-342	-665	-600	-244	-36	0		
		W	41	p	16	11	1								
C _s		X	4.268712		1.752087	0.618034	-0.554499	-0.781606	-1.618034	-1.815622	-1.869072				
57		Z	164	Q	1	16	66	72	9						
		Z'	24	P	1	0	-16	-22	36	78	14	-36	-15		
		Sz	2137	S	1	0	-64	-322	-660	-666	-338	-80	-7		
		W	40	p	16	12	0								
C _s		X	4.261200		1.732051	0.731339	-0.547535	-1.000000	-1.530810	-1.732051	-1.914195				
58		Z	171	Q	1	16	68	76	10						
		Z'	49	P	1	0	-16	-20	40	70	-8	-48	-16		
		Sz	1730	S	1	0	-64	-316	-608	-526	-192	-24	0		
		W	40	p	16	12	0								
C ₁		X	4.196796		1.601164	0.974377	-0.488593	-0.853429	-1.607526	-1.822789	-2.000000				
59		Z	175	Q	1	16	69	78	11						
		Z'	81	P	1	0	-16	-18	41	56	-18	-24	5		
		Sz	1466	S	1	0	-64	-314	-583	-436	-90	16	5		
		W	40	p	16	12	0								
C _s		X	4.153879		1.611705	0.618034	0.199436	-0.936218	-1.618034	-1.773783	-2.255018				
60		Z	177	Q	1	16	69	79	12						
		Z'	41	P	1	0	-16	-20	41	76	5	-36	-12		
		Sz	1755	S	1	0	-69	-336	-623	-516	-187	-24	0		
		W	41	p	16	11	1								
C ₁		X	4.172048		1.801607	0.738090	-0.433232	-0.857260	-1.591516	-1.829738	-2.000000				

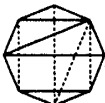
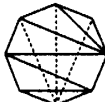
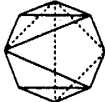
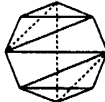
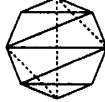
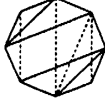
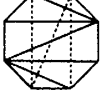
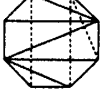
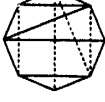
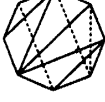
61		Z	177	Q	1	16	69	80	11				
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		Sz	1766	S	1	0	-69	-336	-627	-522	-188	-24	0
		W	41	p	16	11	1						
C ₅		X	4.159047		1.898377	0.618034	-0.507745	-0.800138	-1.582426	-1.618034	-2.167115		
62		Z	178	Q	1	16	69	80	12				
		Z'	68	P	1	0	-16	-18	41	58	-18	-40	-8
		Sz	1425	S	1	0	-64	-314	-583	-434	-66	36	0
		W	40	p	16	12	0						
C ₅		X	4.152268		1.507436	1.000000	-0.243858	-1.000000	-1.163481	-2.000000	-2.252365		
63		Z	180	Q	1	16	70	82	11				
		Z'	72	P	1	0	-16	-18	44	66	-14	-36	-3
		Sz	1417	S	1	0	-64	-310	-564	-414	-86	16	5
		W	40	p	16	12	0						
C ₅		X	4.111677		1.732051	0.787469	-0.087461	-1.000000	-1.588132	-1.732051	-2.223554		
64		Z	181	Q	1	16	70	82	12				
		Z'	99	P	1	0	-16	-18	46	64	-36	-56	0
		Sz	1520	S	1	0	-64	-310	-562	-428	-140	-16	0
		W	40	p	16	12	0						
C		X	4.112191		1.414214	1.225790	0.000000	-1.414214	-1.578825	-1.759157	-2.000000		
65		Z	162	Q	1	16	65	70	10				
		Z'	48	P	1	0	-16	-20	29	44	-6	-18	-4
		Sz	1595	S	1	0	-64	-328	-667	-580	-110	110	44
		W	40	p	16	12	0						
C ₁		X	4.308106		1.290346	0.764548	-0.309377	-0.547949	-1.254042	-1.822560	-2.429072		
66		Z	164	Q	1	16	65	71	11				
		Z'	60	P	1	0	-16	-20	29	38	-13	-8	1
		Sz	1717	S	1	0	-64	-328	-663	-570	-137	36	9
		W	40	p	16	12	0						
C ₅		X	4.318214		1.246980	0.538136	0.111839	-0.445042	-1.686040	-1.801938	-2.282148		
67		Z	164	Q	1	16	66	71	10				
		Z'	52	P	1	0	-16	-20	32	50	-7	-22	-4
		Sz	1655	S	1	0	-64	-324	-644	-546	-127	42	8
		W	40	p	16	12	0						
C ₁		X	4.280797		1.391943	0.763370	-0.216077	-0.704490	-1.344017	-1.857349	-2.314177		
68		Z	164	Q	1	16	66	71	10				
		Z'	62	P	1	0	-16	-20	32	48	-13	-24	0
		Sz	1657	S	1	0	-64	-324	-644	-552	-141	48	20
		W	40	p	16	12	0						
C ₂		X	4.286004		1.302776	0.809820	0.000000	-1.000000	-1.246002	-1.849822	-2.302776		
69		Z	165	Q	1	16	66	72	10				
		Z'	51	P	1	0	-16	-20	30	44	-8	-18	-4
		Sz	1616	S	1	0	-64	-324	-642	-536	-112	50	12
		W	40	p	16	12	0						
C ₁		X	4.302509		1.286118	0.783741	-0.373020	-0.417418	-1.295196	-2.000000	-2.286734		
70		Z	166	Q	1	16	66	72	11				
		Z'	40	P	1	0	-16	-20	30	48	4	-12	-3
		Sz	1665	S	1	0	-69	-348	-676	-544	-97	60	9
		W	41	p	16	11	1						
C ₂		X	4.291982		1.481194	0.527612	-0.311108	-0.595713	-1.000000	-2.170086	-2.223881		

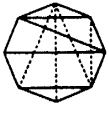
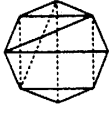
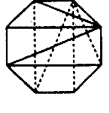
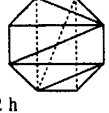
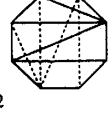
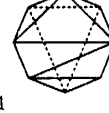
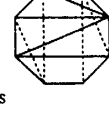
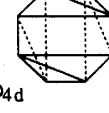

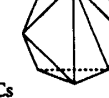
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		W	40	p	16	12	0							
C _s		X	4.233837		1.328767	0.801938	-0.338581	-0.554958	-0.905894	-2.246980	-2.318129			
72		Z	167	Q	1	16	67	73	10					
		Z'	69	P	1	0	-16	-18	33	38	-19	-16	0	
		Sz	1282	S	1	0	-64	-322	-619	-454	9	132	36	
		W	40	p	16	12	0							
C _i		X	4.240481		1.188268	0.868335	0.000000	-0.565707	-1.488951	-1.723563	-2.518862			
73		Z	165	Q	1	16	67	72	9					
		Z'	89	P	1	0	-16	-18	35	38	-28	-16	9	
		Sz	1476	S	1	0	-64	-322	-621	-478	-68	60	17	
		W	40	p	16	12	0							
C _s		X	4.230238		1.192378	0.618034	0.523394	-0.828074	-1.618034	-1.708982	-2.408953			
74		Z	167	Q	1	16	67	73	10					
		Z'	47	P	1	0	-16	-20	35	60	1	-22	-4	
		Sz	1610	S	1	0	-64	-320	-625	-520	-123	34	8	
		W	40	p	16	12	0							
C _i		X	4.242337		1.607488	0.628468	-0.198703	-0.844835	-1.348692	-1.815620	-2.270443			
75		Z	166	Q	1	16	67	73	9					
		Z'	54	P	1	0	-16	-20	35	58	-9	-34	-7	
		Sz	1625	S	1	0	-64	-320	-625	-530	-141	38	17	
		W	40	p	16	12	0							
C _i		X	4.250415		1.445109	0.893618	-0.241431	-1.000000	-1.372550	-1.668257	-2.306905			
76		Z	168	Q	1	16	67	74	10					
		Z'	72	P	1	0	-16	-18	33	38	-18	-14	4	
		Sz	1227	S	1	0	-64	-322	-615	-430	46	138	20	
		W	40	p	16	12	0							
C _i		X	4.239851		1.278805	0.631418	0.255383	-0.771496	-1.279642	-1.851836	-2.502483			
77		Z	169	Q	1	16	67	75	10					
		Z'	37	P	1	0	-16	-20	31	54	7	-14	-4	
		Sz	1620	S	1	0	-69	-344	-655	-514	-95	48	9	
		W	41	p	16	11	1							
C _i		X	4.275577		1.558795	0.533335	-0.353148	-0.627057	-1.183971	-1.747775	-2.455755			
78		Z	170	Q	1	16	67	75	11					
		Z'	48	P	1	0	-16	-20	33	54	3	-8	1	
		Sz	1717	S	1	0	-69	-344	-653	-516	-135	0	0	
		W	41	p	16	11	1							
C _i		X	4.263230		1.596155	0.203740	0.182644	-0.625050	-1.515722	-1.841921	-2.263077			
79		Z	170	Q	1	16	67	75	11					
		Z'	60	P	1	0	-16	-20	33	52	-9	-22	1	
		Sz	1517	S	1	0	-64	-320	-619	-496	-93	58	17	
		W	40	p	16	12	0							
C _i		X	4.271855		1.439279	0.660484	0.044851	-1.000000	-1.382557	-1.705675	-2.328237			
80		Z	166	Q	1	16	68	72	9					
		Z'	96	P	1	0	-16	-16	38	32	-32	-16	9	
		Sz	1281	S	1	0	-64	-320	-602	-416	16	96	9	
		W	40	p	16	12	0							
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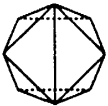
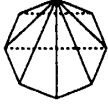
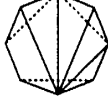
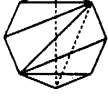
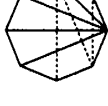
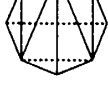
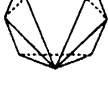
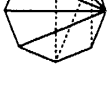
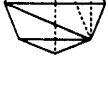

81		Z	170	Q	1	16	68	75	10						
		Z'	72	P	1	0	-16	-18	36	48	-15	-20	4		
		Sz	1261	S	1	0	-64	-318	-600	-432	1	120	32		
		W	40	p	16	12	0								
C ₁		X	4.202459	1.468296	0.618034	0.191500	-1.000000	-1.344499	-1.618034	-2.517756					
82		Z	174	Q	1	16	68	78	11						
		Z'	32	P	1	0	-16	-20	34	64	16	-12	-3		
		Sz	1665	S	1	0	-74	-364	-651	-468	-108	0	0		
		W	42	p	16	10	2								
C _{2v}		X	4.236068	1.732051	0.414214	-0.236068	-1.000000	-1.000000	-1.732051	-2.414214					
83		Z	168	Q	1	16	66	74	11						
		Z'	48	P	1	0	-16	-20	32	54	2	-14	1		
		Sz	1561	S	1	0	-64	-324	-648	-554	-110	98	41		
		W	40	p	16	12	0								
C _s		X	4.270714	1.555839	0.414214	0.073824	-1.000000	-1.196396	-1.703981	-2.414214					
84		Z	169	Q	1	16	68	74	10						
		Z'	73	P	1	0	-16	-16	36	36	-20	-16	0		
		Sz	1156	S	1	0	-64	-320	-604	-412	60	152	32		
		W	40	p	16	12	0								
C ₁		X	4.165002	1.288214	0.850302	0.000000	-0.584453	-1.245690	-1.805772	-2.667604					
85		Z	171	Q	1	16	68	75	11						
		Z'	65	P	1	0	-16	-16	34	34	-13	-8	1		
		Sz	1072	S	1	0	-64	-320	-602	-394	99	176	33		
		W	40	p	16	12	0								
C ₁		X	4.179076	1.382304	0.539452	0.111337	-0.489334	-1.201570	-1.804008	-2.717258					
86		Z	171	Q	1	16	68	76	10						
		Z'	57	P	1	0	-16	-18	36	52	-4	-16	0		
		Sz	1282	S	1	0	-64	-318	-604	-444	-4	120	32		
		W	40	p	16	12	0								
C ₁		X	4.190973	1.597257	0.533570	0.000000	-0.825541	-1.257651	-1.698762	-2.539847					
87		Z	170	Q	1	16	68	75	10						
		Z'	68	P	1	0	-16	-18	38	52	-13	-24	0		
		Sz	1405	S	1	0	-64	-318	-606	-464	-53	80	20		
		W	40	p	16	12	0								
C ₁		X	4.181058	1.534000	0.720715	0.000000	-1.000000	-1.141021	-1.900603	-2.394149					
88		Z	169	Q	1	16	68	75	9						
		Z'	63	P	1	0	-16	-18	38	52	-15	-30	-7		
		Sz	1436	S	1	0	-64	-318	-606	-468	-63	66	17		
		W	40	p	16	12	0								
C ₁		X	4.182643	1.449627	0.929080	-0.341509	-0.594533	-1.401036	-1.807452	-2.416819					
89		Z	174	Q	1	16	68	77	12						
		Z'	72	P	1	0	-16	-18	36	48	-15	-20	4		
		Sz	1261	S	1	0	-64	-318	-600	-432	1	120	32		
		W	40	p	16	12	0								
C ₁		X	4.202459	1.468296	0.618034	0.191500	-1.000000	-1.344499	-1.618034	-2.517756					
90		Z	173	Q	1	16	68	77	11						
		Z'	59	P	1	0	-16	-18	36	48	-5	-12	1		
		Sz	1354	S	1	0	-64	-318	-600	-428	-5	68	-7		
		W	40	p	16	12	0								
C ₁		X	4.197763	1.569779	0.451252	0.082884	-0.733909	-1.120388	-2.122240	-2.325142					

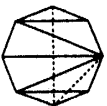
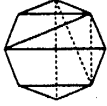
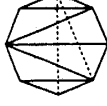
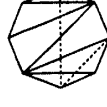
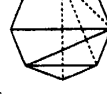
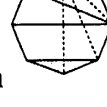
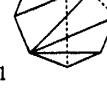
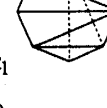
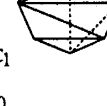

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		W	40	p	16	12	0							
C ₁		X	4.197046		1.794183	0.585866	-0.320131	-1.000000	-1.295717	-1.668073	-2.293173			
92		Z	171	Q	1	16	68	76	10					
		Z'	79	P	1	0	-16	-18	38	48	-20	-20	4	
		Sz	1432	S	1	0	-64	-318	-602	-452	-60	52	12	
		W	40	p	16	12	0							
C ₁		X	4.190308		1.462073	0.673638	0.183125	-0.803149	-1.548187	-1.823250	-2.334559			
93		Z	173	Q	1	16	68	77	11					
		Z'	93	P	1	0	-16	-18	38	46	-29	-26	9	
		Sz	1380	S	1	0	-64	-318	-598	-438	-45	66	17	
		W	40	p	16	12	0							
C ₁		X	4.197777		1.298757	0.840650	0.303043	-1.072466	-1.512584	-1.686235	-2.368942			
94		Z	172	Q	1	16	68	77	10					
		Z'	40	P	1	0	-16	-20	36	66	13	-12	0	
		Sz	1549	S	1	0	-64	-316	-608	-498	-115	40	12	
		W	40	p	16	12	0							
C ₁		X	4.219895		1.764288	0.322617	0.000000	-1.000000	-1.196985	-1.833967	-2.275848			
95		Z	173	Q	1	16	68	77	11					
		Z'	25	P	1	0	-16	-20	36	70	25	-6	-3	
		Sz	1614	S	1	0	-69	-340	-644	-510	-102	42	9	
		W	41	p	16	11	1							
C ₁		X	4.207800		1.848655	0.313353	-0.405960	-0.589167	-1.180570	-1.899891	-2.294221			
96		Z	174	Q	1	16	68	78	11					
		Z'	44	P	1	0	-16	-18	34	50	4	-12	-3	
		Sz	1323	S	1	0	-69	-342	-632	-428	31	108	9	
		W	41	p	16	11	1							
C ₁		X	4.205018		1.603232	0.511125	-0.317450	-0.574603	-1.000000	-1.856808	-2.570514			
97		Z	173	Q	1	16	68	78	10					
		Z'	27	P	1	0	-16	-20	34	66	20	-10	-4	
		Sz	1640	S	1	0	-69	-340	-640	-512	-123	32	12	
		W	41	p	16	11	1							
C ₁		X	4.231078		1.766825	0.399422	-0.403004	-0.662038	-1.283465	-1.592949	-2.455870			
98		Z	174	Q	1	16	69	78	10					
		Z'	88	P	1	0	-16	-16	39	38	-28	-16	4	
		Sz	1135	S	1	0	-64	-316	-577	-362	60	104	20	
		W	40	p	16	12	0							
C ₁		X	4.142788		1.323350	0.818513	0.201869	-0.639976	-1.579129	-1.705511	-2.561904			
99		Z	173	Q	1	16	69	77	10					
		Z'	107	P	1	0	-16	-16	41	38	-37	-18	12	
		Sz	1260	S	1	0	-64	-316	-579	-382	7	66	8	
		W	40	p	16	12	0							
C ₁		X	4.131771		1.279397	0.737948	0.524821	-0.848809	-1.503519	-1.884752	-2.436857			
100		Z	174	Q	1	16	69	78	10					
		Z'	88	P	1	0	-16	-16	39	40	-28	-24	4	
		Sz	1009	S	1	0	-64	-316	-577	-356	100	168	36	
		W	40	p	16	12	0							
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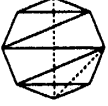
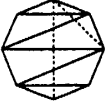
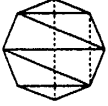
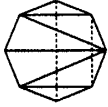
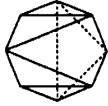
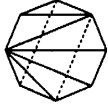
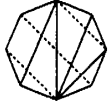
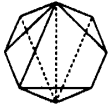
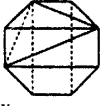
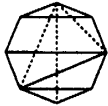
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		Sz	1261	S	1	0	-69	-338	-619	-424	21	132	36	
		W	41	p	16	11	1							
C _i		X	4.166977		1.756478	0.285330	0.000000	-0.726169	-1.164668	-1.795959	-2.521989			
102		Z	174	Q	1	16	69	77	11					
		Z'	60	P	1	0	-16	-18	41	62	-9	-34	-7	
		Sz	1373	S	1	0	-64	-314	-587	-442	-53	70	17	
		W	40	p	16	12	0							
C _i		X	4.140306		1.666316	0.815025	-0.243195	-1.000000	-1.191565	-1.799327	-2.387559			
103		Z	175	Q	1	16	69	78	11					
		Z'	79	P	1	0	-16	-18	41	58	-16	-26	5	
		Sz	1396	S	1	0	-64	-314	-583	-430	-64	46	13	
		W	40	p	16	12	0							
C _s		X	4.149588		1.638176	0.618034	0.187125	-1.084454	-1.546157	-1.618034	-2.344278			
104		Z	174	Q	1	16	69	78	10					
		Z'	70	P	1	0	-16	-18	41	58	-20	-42	-8	
		Sz	1397	S	1	0	-64	-314	-583	-434	-60	50	8	
		W	40	p	16	12	0							
C _i		X	4.153349		1.467134	1.051418	-0.229215	-1.000000	-1.263683	-1.854693	-2.324309			
105		Z	177	Q	1	16	69	80	11					
		Z'	23	P	1	0	-16	-20	37	74	28	-6	-3	
		Sz	1576	S	1	0	-69	-336	-623	-484	-108	32	12	
		W	41	p	16	11	1							
C _i		X	4.192335		1.898388	0.301255	-0.352040	-0.690172	-1.248499	-1.767362	-2.333905			
106		Z	177	Q	1	16	69	80	11					
		Z'	43	P	1	0	-16	-18	37	58	8	-12	-3	
		Sz	1395	S	1	0	-69	-338	-613	-418	-20	54	9	
		W	41	p	16	11	1							
C _i		X	4.167889		1.736797	0.461114	-0.285548	-0.603674	-1.137214	-1.819425	-2.519938			
107		Z	178	Q	1	16	69	80	12					
		Z'	76	P	1	0	-16	-18	39	50	-20	-24	0	
		Sz	1570	S	1	0	-69	-338	-611	-444	-108	0	0	
		W	41	p	16	11	1							
C _s		X	4.180182		1.466578	0.806529	0.000000	-0.723150	-1.515200	-2.000000	-2.214939			
108		Z	178	Q	1	16	69	80	12					
		Z'	114	P	1	0	-16	-18	41	48	-40	-32	16	
		Sz	1465	S	1	0	-64	-314	-575	-416	-96	0	0	
		W	40	p	16	12	0							
C _s		X	4.177878		1.190453	1.000000	0.420434	-1.217198	-1.571567	-2.000000	-2.000000			
109		Z	176	Q	1	16	69	79	11					
		Z'	48	P	1	0	-16	-18	39	64	9	-12	1	
		Sz	1261	S	1	0	-64	-314	-589	-432	-11	116	33	
		W	40	p	16	12	0							
C _i		X	4.141307		1.822750	0.284349	0.094896	-1.000000	-1.214586	-1.595886	-2.532830			
110		Z	178	Q	1	16	69	80	12					
		Z'	88	P	1	0	-16	-16	39	40	-28	-24	4	
		Sz	1009	S	1	0	-64	-316	-577	-356	100	168	36	
		W	40	p	16	12	0							
C _s		X	4.140031		1.243749	1.000000	0.147375	-1.000000	-1.115370	-1.821961	-2.593824			

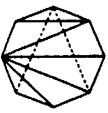
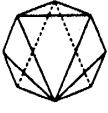
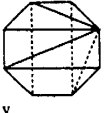
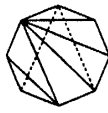
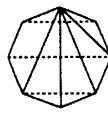
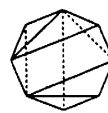
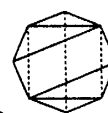
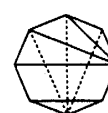
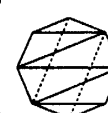

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		Z'	116	P	1	0	-16	-16	41	36	-42	-20	16	
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		W	40	p	16	12	0							
C _{2v}		X	4.137693	1.000000	1.000000	0.599690	-1.000000	-1.351072	-2.000000	-2.386311				
112		Z	179	Q	1	16	70	81	11					
		Z'	79	P	1	0	-16	-16	42	50	-19	-24	1	
		Sz	1114	S	1	0	-64	-312	-562	-354	53	108	17	
		W	40	p	16	12	0							
C ₁		X	4.094148	1.602277	0.747279	0.040511	-0.870034	-1.254729	-1.807648	-2.551803				
113		Z	180	Q	1	16	70	81	12					
		Z'	56	P	1	0	-16	-18	44	70	-7	-42	-12	
		Sz	1373	S	1	0	-64	-310	-568	-422	-63	46	8	
		W	40	p	16	12	0							
C ₁		X	4.101454	1.776095	0.854594	-0.373091	-1.000000	-1.223374	-1.838193	-2.297486				
114		Z	181	Q	1	16	70	81	13					
		Z'	9	P	1	0	-16	-20	42	92	47	0	-3	
		Sz	1585	S	1	0	-69	-332	-616	-492	-120	32	12	
		W	41	p	16	11	1							
C ₂		X	4.109785	2.140123	0.210095	-0.428833	-0.727151	-1.437829	-1.592728	-2.273461				
115		Z	181	Q	1	16	70	83	11					
		Z'	53	P	1	0	-16	-16	38	52	3	-8	1	
		Sz	1009	S	1	0	-69	-336	-592	-336	120	168	36	
		W	41	p	16	11	1							
C ₂		X	4.109785	1.745281	0.210095	0.177283	-0.727151	-1.177283	-1.592728	-2.745281				
116		Z	181	Q	1	16	70	82	12					
		Z'	47	P	1	0	-16	-18	42	68	4	-26	-8	
		Sz	1437	S	1	0	-69	-334	-602	-432	-57	48	9	
		W	41	p	16	11	1							
C ₁		X	4.114260	1.831379	0.653538	-0.414325	-0.725263	-1.215705	-1.886442	-2.357441				
117		Z	180	Q	1	16	70	81	12					
		Z'	94	P	1	0	-16	-16	44	48	-33	-36	0	
		Sz	1225	S	1	0	-64	-312	-560	-360	15	60	-4	
		W	40	p	16	12	0							
C ₂		X	4.090185	1.302776	1.191950	0.000000	-1.000000	-1.159700	-2.122436	-2.302776				
118		Z	181	Q	1	16	70	82	12					
		Z'	121	P	1	0	-16	-16	44	42	-44	-24	16	
		Sz	1282	S	1	0	-64	-312	-556	-354	-20	24	0	
		W	40	p	16	12	0							
C ₁		X	4.105075	1.298685	0.865145	0.511623	-0.957831	-1.574011	-2.000000	-2.248686				
119		Z	181	Q	1	16	70	82	12					
		Z'	119	P	1	0	-16	-16	44	44	-42	-26	16	
		Sz	1212	S	1	0	-64	-312	-556	-348	6	54	8	
		W	40	p	16	12	0							
C ₁		X	4.100560	1.361737	0.819942	0.500187	-1.049900	-1.539098	-1.827405	-2.366023				
120		Z	182	Q	1	16	70	83	12					
		Z'	80	P	1	0	-16	-16	40	46	-19	-20	4	
		Sz	925	S	1	0	-64	-312	-556	-318	125	168	32	
		W	40	p	16	12	0							
C ₁		X	4.116965	1.542608	0.658591	0.184240	-1.000000	-1.127321	-1.762253	-2.612830				

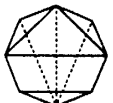
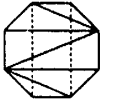
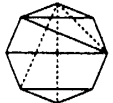
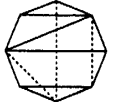
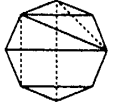
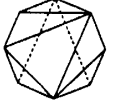
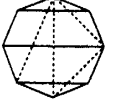
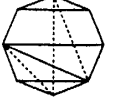
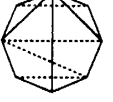
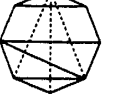
121		Z	181	Q	1	16	70	82	12						
		Z'	77	P	1	0	-16	-18	44	64	-16	-32	0		
		Sz	1450	S	1	0	-64	-310	-564	-416	-96	0	0		
		W	40	p	16	12	0								
C _s		X	4.115942		1.719473	0.737879	0.000000	-0.935185	-1.638109	-2.000000	-2.000000				
122		Z	181	Q	1	16	70	82	12						
		Z'	87	P	1	0	-16	-16	42	48	-28	-32	0		
		Sz	1030	S	1	0	-64	-312	-558	-340	76	136	32		
		W	40	p	16	12	0								
C ₂		X	4.103200		1.414214	1.017902	0.000000	-0.904628	-1.414214	-1.650006	-2.566467				
123		Z	183	Q	1	16	70	83	13						
		Z'	93	P	1	0	-16	-16	42	44	-29	-20	5		
		Sz	1297	S	1	0	-69	-336	-588	-364	-8	56	12		
		W	41	p	16	11	1								
C ₂		X	4.109785		1.466732	0.777484	0.210095	-0.727151	-1.592728	-1.777484	-2.466732				
124		Z	182	Q	1	16	70	82	13						
		Z'	72	P	1	0	-16	-16	42	48	-20	-32	-7		
		Sz	1281	S	1	0	-69	-336	-592	-376	11	72	9		
		W	41	p	16	11	1								
C _{2h}		X	4.099648		1.481194	1.000000	-0.311108	-0.716463	-1.000000	-2.170086	-2.383185				
125		Z	183	Q	1	16	70	83	13						
		Z'	105	P	1	0	-16	-16	42	40	-37	-24	9		
		Sz	1198	S	1	0	-64	-312	-554	-336	27	48	-7		
		W	40	p	16	12	0								
C ₂		X	4.121246		1.193527	1.051263	0.294963	-0.923769	-1.294963	-2.193527	-2.248740				
126		Z	185	Q	1	16	71	85	12						
		Z'	103	P	1	0	-16	-16	47	54	-35	-36	4		
		Sz	1258	S	1	0	-64	-308	-541	-346	-23	24	0		
		W	40	p	16	12	0								
C ₁		X	4.054430		1.571782	0.959580	0.102631	-0.943681	-1.513419	-2.000000	-2.231323				
127		Z	187	Q	1	16	71	86	13						
		Z'	131	P	1	0	-16	-16	47	50	-46	-32	21		
		Sz	1256	S	1	0	-64	-308	-537	-338	-38	24	5		
		W	40	p	16	12	0								
C _s		X	4.067148		1.489770	0.702684	0.618034	-1.246772	-1.618034	-1.742516	-2.270314				
128		Z	191	Q	1	16	72	88	14						
		Z'	117	P	1	0	-16	-16	52	64	-48	-64	0		
		Sz	1324	S	1	0	-64	-304	-524	-352	-80	0	0		
		W	40	p	16	12	0								
D _{4d}		X	4.000000		1.414214	1.414214	0.000000	-1.414214	-1.414214	-2.000000	-2.000000				
129		Z	140	Q	1	15	57	59	8						
		Z'	48	P	1	0	-15	-18	35	58	-9	-40	-12		
		Sz	2385	S	1	0	-67	-350	-745	-770	-381	-72	0		
		W	41	p	15	13	0								
C _s		X	4.064200		1.493881	1.000000	-0.408849	-1.000000	-1.325014	-1.824219	-2.000000				
130		Z	150	Q	1	15	60	65	9						
		Z'	52	P	1	0	-15	-16	40	60	-11	-44	-15		
		Sz	1905	S	1	0	-72	-364	-701	-588	-180	0	0		
		W	42	p	15	12	1								
C _s		X	3.950826		1.666072	1.000000	-0.557603	-1.000000	-1.000000	-1.848933	-2.210362				

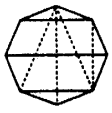
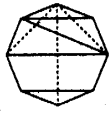

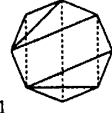
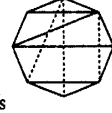
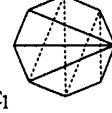
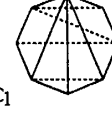
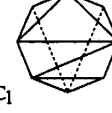
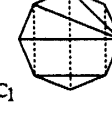
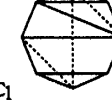
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		W	43	p	15	11	2						
C _{2v}		X	3.917286		1.732051	1.000000	-0.319551	-1.000000	-1.597735	-1.732051	-2.000000		
132		Z	142	Q	1	15	57	60	9				
		Z'	70	P	1	0	-15	-16	33	36	-20	-14	1
		Sz	1975	S	1	0	-67	-352	-735	-672	-200	34	17
		W	41	p	15	13	0						
C _s		X	4.060442		1.287016	0.801938	0.065990	-0.554958	-1.592191	-1.821257	-2.246980		
133		Z	145	Q	1	15	59	62	8				
		Z'	65	P	1	0	-15	-16	37	48	-20	-34	-8
		Sz	1880	S	1	0	-67	-344	-691	-608	-188	10	8
		W	41	p	15	13	0						
C ₁		X	4.006850		1.335432	1.140652	-0.349586	-0.627706	-1.564778	-1.714768	-2.226096		
134		Z	146	Q	1	15	59	62	9				
		Z'	60	P	1	0	-15	-16	37	50	-10	-20	-3
		Sz	1887	S	1	0	-72	-368	-720	-596	-158	18	9
		W	42	p	15	12	1						
C ₁		X	3.995294		1.629877	0.704602	-0.177944	-0.595792	-1.576450	-1.772679	-2.206908		
135		Z	146	Q	1	15	59	62	9				
		Z'	72	P	1	0	-15	-16	37	48	-18	-26	1
		Sz	1861	S	1	0	-67	-344	-691	-604	-182	18	9
		W	41	p	15	13	0						
C ₁		X	4.004460		1.518493	0.811172	0.037584	-1.000000	-1.339607	-1.821637	-2.210465		
136		Z	148	Q	1	15	60	64	8				
		Z'	84	P	1	0	-15	-16	40	52	-28	-40	0
		Sz	1891	S	1	0	-67	-340	-668	-580	-212	-24	0
		W	41	p	15	13	0						
C _s		X	3.977423		1.414214	1.105666	0.000000	-1.221474	-1.414214	-1.861615	-2.000000		
137		Z	147	Q	1	15	60	63	8				
		Z'	73	P	1	0	-15	-14	40	44	-25	-34	-8
		Sz	1652	S	1	0	-67	-342	-672	-544	-97	58	12
		W	41	p	15	13	0						
C _s		X	3.922320		1.317954	1.246980	-0.445042	-0.473816	-1.353706	-1.801938	-2.412753		
138		Z	149	Q	1	15	60	64	9				
		Z'	71	P	1	0	-15	-14	38	42	-16	-18	1
		Sz	1546	S	1	0	-67	-342	-670	-522	-52	90	17
		W	41	p	15	13	0						
C ₁		X	3.937214		1.589449	0.699294	0.053393	-0.804633	-1.187796	-1.802143	-2.484778		
139		Z	150	Q	1	15	60	65	9				
		Z'	100	P	1	0	-15	-14	40	38	-35	-24	9
		Sz	1585	S	1	0	-67	-342	-664	-510	-71	60	9
		W	41	p	15	13	0						
C ₁		X	3.939972		1.302776	1.000000	0.298562	-1.000000	-1.351469	-1.887065	-2.302776		
140		Z	149	Q	1	15	60	65	8				
		Z'	47	P	1	0	-15	-16	38	58	-1	-26	-8
		Sz	1860	S	1	0	-72	-364	-703	-584	-164	18	9
		W	42	p	15	12	1						
C ₁		X	3.964879		1.760000	0.725981	-0.461301	-0.678396	-1.250299	-1.735890	-2.324974		

141		Z	148	Q	1	15	60	64	8						
		Z'	56	P	1	0	-15	-16	40	60	-8	-34	-8		
		Sz	1853	S	1	0	-67	-340	-676	-596	-192	10	8		
		W	41	p	15	13	0								
C ₁		X	3.947303		1.748385	0.823995	-0.288346	-1.000000	-1.240632	-1.774207	-2.216498				
142		Z	152	Q	1	15	61	66	9						
		Z'	110	P	1	0	-15	-14	43	44	-38	-28	13		
		Sz	1655	S	1	0	-67	-338	-645	-500	-122	12	5		
		W	41	p	15	13	0								
C ₁		X	3.900362		1.500870	0.860899	0.380922	-1.126791	-1.547574	-1.751502	-2.217185				
143		Z	151	Q	1	15	61	65	9						
		Z'	89	P	1	0	-15	-14	43	48	-29	-32	1		
		Sz	1618	S	1	0	-67	-338	-649	-508	-101	36	9		
		W	41	p	15	13	0								
C ₁		X	3.885884		1.593454	0.958469	0.030453	-0.917676	-1.445882	-1.847140	-2.257563				
144		Z	153	Q	1	15	61	66	10						
		Z'	45	P	1	0	-15	-16	41	66	4	-26	-8		
		Sz	1773	S	1	0	-72	-360	-686	-556	-138	30	9		
		W	42	p	15	12	1								
C ₁		X	3.914733		1.916019	0.658505	-0.403465	-0.770237	-1.326618	-1.772738	-2.216200				
145		Z	153	Q	1	15	61	67	9						
		Z'	85	P	1	0	-15	-14	41	44	-27	-28	1		
		Sz	1506	S	1	0	-67	-338	-643	-476	-51	60	9		
		W	41	p	15	13	0								
C ₁		X	3.912937		1.516379	0.950743	0.034625	-0.889628	-1.305567	-1.901870	-2.317619				
146		Z	153	Q	1	15	61	67	9						
		Z'	55	P	1	0	-15	-16	41	62	-9	-38	-11		
		Sz	1907	S	1	0	-72	-360	-680	-568	-203	-24	0		
		W	42	p	15	12	1								
C ₁		X	3.934595		1.763581	0.876534	-0.404427	-0.825557	-1.433938	-1.740896	-2.169892				
147		Z	154	Q	1	15	61	67	10						
		Z'	84	P	1	0	-15	-14	41	44	-23	-18	4		
		Sz	1620	S	1	0	-72	-362	-672	-482	-77	36	9		
		W	42	p	15	12	1								
C ₁		X	3.908779		1.632940	0.672792	0.194817	-0.736145	-1.549624	-1.817605	-2.305954				
148		Z	155	Q	1	15	62	68	9						
		Z'	83	P	1	0	-15	-14	46	56	-32	-52	-11		
		Sz	1634	S	1	0	-67	-334	-630	-496	-124	12	5		
		W	41	p	15	13	0								
C ₁		X	3.840702		1.594924	1.229932	-0.275232	-0.896564	-1.506557	-1.776474	-2.210732				
149		Z	156	Q	1	15	62	69	9						
		Z'	88	P	1	0	-15	-14	44	52	-23	-26	5		
		Sz	1577	S	1	0	-67	-334	-628	-476	-99	22	5		
		W	41	p	15	13	0								
C ₁		X	3.860384		1.767832	0.702721	0.177214	-1.000000	-1.427971	-1.835224	-2.244957				
150		Z	157	Q	1	15	62	69	10						
		Z'	67	P	1	0	-15	-14	44	56	-19	-42	-12		
		Sz	1632	S	1	0	-72	-358	-657	-488	-96	30	9		
		W	42	p	15	12	1								
C ₁		X	3.850602		1.740477	1.008876	-0.464536	-0.720964	-1.216308	-1.877071	-2.321075				

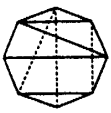
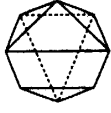
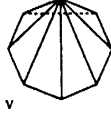
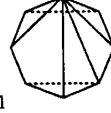
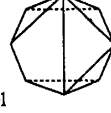
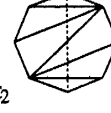
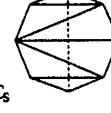
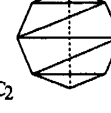
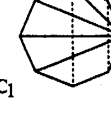

151		Z	157	Q	1	15	62	69	10						
		Z'	47	P	1	0	-15	-16	44	72	1	-36	-12		
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		W	42	p	15	12	1								
C ₁		X	3.872814		1.981541	0.754355	-0.467848	-0.813621	-1.451923	-1.875317	-2.000000				
152		Z	157	Q	1	15	62	70	9						
		Z'	65	P	1	0	-15	-14	42	54	-10	-24	-3		
		Sz	1575	S	1	0	-72	-358	-655	-464	-71	36	9		
		W	42	p	15	12	1								
C ₁		X	3.866628		1.824034	0.702262	-0.138243	-0.820703	-1.260582	-1.741321	-2.432074				
153		Z	158	Q	1	15	62	70	10						
		Z'	92	P	1	0	-15	-14	44	50	-32	-38	0		
		Sz	1541	S	1	0	-67	-334	-624	-466	-88	30	8		
		W	41	p	15	13	0								
C ₁		X	3.873971		1.575454	1.054096	0.000000	-1.000000	-1.486884	-1.761668	-2.254968				
154		Z	158	Q	1	15	62	70	10						
		Z'	126	P	1	0	-15	-14	46	48	-48	-40	16		
		Sz	1667	S	1	0	-67	-334	-622	-476	-152	-16	0		
		W	41	p	15	13	0								
C _s		X	3.869469		1.414214	1.145251	0.325446	-1.414214	-1.544902	-1.795264	-2.000000				
155		Z	160	Q	1	15	63	71	10						
		Z'	88	P	1	0	-15	-14	49	62	-35	-60	-12		
		Sz	1657	S	1	0	-67	-330	-611	-482	-151	-16	0		
		W	41	p	15	13	0								
C _s		X	3.794894		1.732051	1.208068	-0.248679	-1.000000	-1.732051	-1.754283	-2.000000				
156		Z	147	Q	1	15	59	63	9						
		Z'	55	P	1	0	-15	-14	33	32	-9	-14	-3		
		Sz	1530	S	1	0	-72	-370	-710	-498	31	104	-15		
		W	42	p	15	12	1								
C ₁		X	3.998279		1.405367	0.762708	-0.367267	-0.520866	-0.707923	-2.055115	-2.515182				
157		Z	147	Q	1	15	59	63	9						
		Z'	69	P	1	0	-15	-14	33	30	-19	-12	1		
		Sz	1252	S	1	0	-67	-346	-683	-502	61	220	65		
		W	41	p	15	13	0								
C ₁		X	4.007173		1.269875	0.808873	0.075475	-0.564610	-1.265450	-1.735770	-2.595566				
158		Z	147	Q	1	15	59	63	9						
		Z'	75	P	1	0	-15	-14	35	28	-23	-8	1		
		Sz	1516	S	1	0	-67	-346	-681	-504	1	88	-7		
		W	41	p	15	13	0								
C ₁		X	3.996345		1.266548	0.791650	0.100116	-0.378354	-1.341996	-2.137457	-2.296851				
159		Z	150	Q	1	15	60	65	9						
		Z'	92	P	1	0	-15	-14	36	30	-31	-12	9		
		Sz	1676	S	1	0	-72	-366	-687	-498	-92	30	9		
		W	42	p	15	12	1								
C _{3v}		X	3.988273		1.220978	0.618034	0.618034	-0.752205	-1.618034	-1.618034	-2.457046				
160		Z	150	Q	1	15	60	65	9						
		Z'	68	P	1	0	-15	-14	36	38	-15	-12	1		
		Sz	1556	S	1	0	-72	-366	-687	-474	-20	54	9		
		W	42	p	15	12	1								
C ₁		X	3.962642		1.534373	0.618034	0.077415	-0.575114	-1.447772	-1.618034	-2.551544				

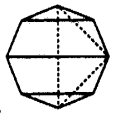
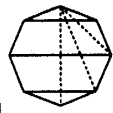
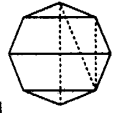
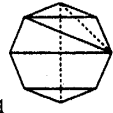
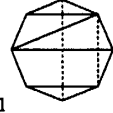
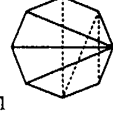
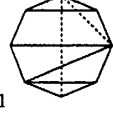
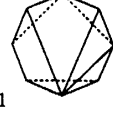
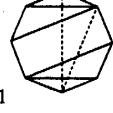
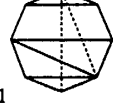
161		Z	149	Q	1	15	60	64	9							
		Z'	75	P	1	0	-15	-12	36	26	-22	-10	1			
		Sz	1036	S	1	0	-67	-344	-664	-438	150	262	65			
		W	41	p	15	13	0									
C ₁		X	3.923346		1.323813	0.826755	0.085675	-0.471110	-1.181680	-1.811762	-2.695037					
162		Z	151	Q	1	15	60	65	10							
		Z'	83	P	1	0	-15	-12	36	22	-27	-4	4			
		Sz	1132	S	1	0	-67	-344	-660	-426	133	200	32			
		W	41	p	15	13	0									
C _s		X	3.934328		1.246980	0.654055	0.429648	-0.445042	-1.362335	-1.801938	-2.655696					
163		Z	150	Q	1	15	60	65	9							
		Z'	92	P	1	0	-15	-12	36	24	-31	-12	9			
		Sz	961	S	1	0	-67	-344	-660	-424	165	288	81			
		W	41	p	15	13	0									
C _{3v}		X	3.933095		1.000000	1.000000	0.492319	-1.000000	-1.000000	-1.714588	-2.710826					
164		Z	151	Q	1	15	60	66	9							
		Z'	61	P	1	0	-15	-14	36	40	-8	-10	1			
		Sz	1564	S	1	0	-72	-366	-691	-488	-19	72	0			
		W	42	p	15	12	1									
C ₁		X	3.953957		1.625232	0.472037	0.096446	-0.659524	-1.107787	-1.846102	-2.534259					
165		Z	152	Q	1	15	60	66	10							
		Z'	72	P	1	0	-15	-14	36	40	-16	-16	4			
		Sz	1213	S	1	0	-67	-342	-664	-480	56	216	68			
		W	41	p	15	13	0									
C ₁		X	3.959227		1.541028	0.592331	0.233224	-1.000000	-1.189337	-1.532150	-2.604323					
166		Z	151	Q	1	15	61	65	9							
		Z'	79	P	1	0	-15	-12	39	34	-23	-16	1			
		Sz	1072	S	1	0	-67	-340	-645	-422	121	224	57			
		W	41	p	15	13	0									
C ₁		X	3.877837		1.505916	0.820248	0.058093	-0.620558	-1.305008	-1.654680	-2.681848					
167		Z	151	Q	1	15	61	65	9							
		Z'	101	P	1	0	-15	-12	41	28	-35	-12	9			
		Sz	1396	S	1	0	-67	-340	-643	-436	21	76	-7			
		W	41	p	15	13	0									
C ₂		X	3.880145		1.355674	0.773167	0.477260	-0.737640	-1.246422	-2.095294	-2.406890					
168		Z	152	Q	1	15	61	66	9							
		Z'	84	P	1	0	-15	-12	39	26	-28	-10	1			
		Sz	1315	S	1	0	-67	-340	-641	-418	64	94	-7			
		W	41	p	15	13	0									
C ₁		X	3.899483		1.305962	0.927282	0.082556	-0.394099	-1.263709	-2.073484	-2.483992					
169		Z	153	Q	1	15	61	66	10							
		Z'	61	P	1	0	-15	-12	37	32	-8	-8	0			
		Sz	1072	S	1	0	-72	-364	-672	-400	164	224	48			
		W	42	p	15	12	1									
C ₂		X	3.891136		1.618034	0.513989	0.000000	-0.618034	-0.754555	-2.000000	-2.650570					
170		Z	152	Q	1	15	61	66	9							
		Z'	80	P	1	0	-15	-12	39	30	-24	-14	1			
		Sz	1135	S	1	0	-67	-340	-641	-406	124	178	17			
		W	41	p	15	13	0									
C ₁		X	3.887997		1.431312	0.854457	0.064851	-0.567007	-1.129308	-1.965023	-2.577280					

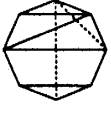
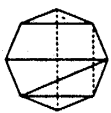
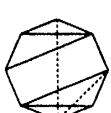
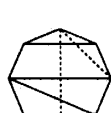
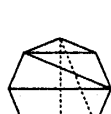
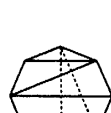
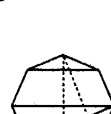

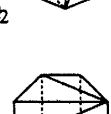
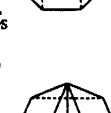
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		Z'	106	P	1	0	-15	-12	41	24	-40	-6	9		
		Sz	1387	S	1	0	-67	-340	-639	-420	28	58	-7		
		W	41	p	15	13	0								
C _s		X	3.892037		1.209329	0.801938	0.584762	-0.554958	-1.486795	-2.199333	-2.246980				
172		Z	151	Q	1	15	61	65	9						
		Z'	101	P	1	0	-15	-12	41	28	-35	-12	9		
		Sz	1396	S	1	0	-67	-340	-643	-436	21	76	-7		
		W	41	p	15	13	0								
C ₂		X	3.880145		1.355674	0.773167	0.477260	-0.737640	-1.246422	-2.095294	-2.406890				
173		Z	152	Q	1	15	61	66	9						
		Z'	64	P	1	0	-15	-14	39	50	-8	-18	1		
		Sz	1261	S	1	0	-67	-338	-649	-474	28	182	57		
		W	41	p	15	13	0								
C ₁		X	3.903955		1.762275	0.565408	0.054699	-1.000000	-1.241362	-1.470695	-2.574281				
174		Z	151	Q	1	15	61	66	8						
		Z'	87	P	1	0	-15	-12	39	32	-28	-16	4		
		Sz	988	S	1	0	-67	-340	-641	-404	148	248	68		
		W	41	p	15	13	0								
C ₁		X	3.885824		1.414214	0.865782	0.199712	-0.710649	-1.414214	-1.566146	-2.674523				
175		Z	151	Q	1	15	61	66	8						
		Z'	81	P	1	0	-15	-14	41	44	-24	-24	0		
		Sz	1576	S	1	0	-67	-338	-647	-492	-72	40	0		
		W	41	p	15	13	0								
C ₁		X	3.910506		1.575325	0.865605	0.000000	-0.728054	-1.374362	-2.000000	-2.249019				
176		Z	153	Q	1	15	61	67	9						
		Z'	97	P	1	0	-15	-12	39	28	-33	-12	9		
		Sz	1060	S	1	0	-67	-340	-637	-392	135	200	41		
		W	41	p	15	13	0								
C ₁		X	3.897762		1.322954	0.735138	0.507667	-0.762151	-1.367400	-1.710486	-2.623485				
177		Z	154	Q	1	15	61	68	9						
		Z'	64	P	1	0	-15	-12	35	32	-12	-10	1		
		Sz	1036	S	1	0	-72	-364	-664	-372	184	216	36		
		W	42	p	15	12	1								
C ₁		X	3.912576		1.534072	0.579061	0.092511	-0.676941	-1.000000	-1.640216	-2.801062				
178		Z	153	Q	1	15	61	67	9						
		Z'	71	P	1	0	-15	-14	39	42	-15	-16	1		
		Sz	1585	S	1	0	-72	-362	-674	-478	-47	48	0		
		W	42	p	15	12	1								
C ₁		X	3.927166		1.629041	0.649086	0.059744	-0.743499	-1.119553	-2.157522	-2.244463				
179		Z	153	Q	1	15	61	67	9						
		Z'	59	P	1	0	-15	-14	39	46	-3	-8	1		
		Sz	1549	S	1	0	-72	-362	-674	-466	-23	48	0		
		W	42	p	15	12	1								
C ₁		X	3.909014		1.783025	0.321657	0.133448	-0.626411	-1.089111	-2.113428	-2.318194				
180		Z	154	Q	1	15	61	67	10						
		Z'	92	P	1	0	-15	-14	41	42	-31	-28	4		
		Sz	1537	S	1	0	-67	-338	-643	-478	-59	48	0		
		W	41	p	15	13	0								
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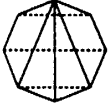
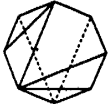
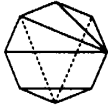
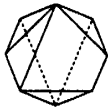
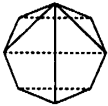
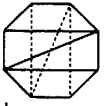
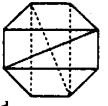
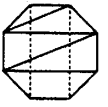
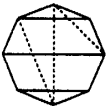
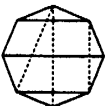
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		Z'	113	P	1	0	-15	-14	41	38	-40	-22	16		
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		W	41	p	15	13	0								
C _s		X	3.933308		1.355794	0.736083	0.618034	-1.055572	-1.618034	-1.705566	-2.264047				
182		Z	153	Q	1	15	61	68	8						
		Z'	45	P	1	0	-15	-16	37	56	8	-8	0		
		Sz	1792	S	1	0	-72	-360	-680	-536	-144	0	0		
		W	42	p	15	12	1								
C _s		X	3.970377		1.836082	0.294406	0.000000	-0.723639	-1.163372	-2.000000	-2.213853				
183		Z	154	Q	1	15	61	68	9						
		Z'	48	P	1	0	-15	-14	37	48	2	-12	-3		
		Sz	1488	S	1	0	-77	-386	-684	-414	25	48	0		
		W	43	p	15	11	2								
C _i		X	3.920814		1.775816	0.521642	-0.354446	-0.509877	-1.000000	-1.766159	-2.587791				
184		Z	155	Q	1	15	62	68	9						
		Z'	103	P	1	0	-15	-12	44	36	-34	-18	9		
		Sz	1378	S	1	0	-67	-336	-624	-416	10	62	-7		
		W	41	p	15	13	0								
C _i		X	3.830142		1.576415	0.747468	0.380168	-0.886672	-1.197126	-2.126757	-2.323638				
185		Z	156	Q	1	15	62	69	9						
		Z'	88	P	1	0	-15	-12	42	40	-29	-28	1		
		Sz	1009	S	1	0	-67	-336	-622	-388	127	220	57		
		W	41	p	15	13	0								
C _s		X	3.838684		1.534253	1.000000	0.034540	-1.000000	-1.158587	-1.604579	-2.644311				
186		Z	157	Q	1	15	62	69	10						
		Z'	89	P	1	0	-15	-12	42	38	-27	-20	4		
		Sz	1114	S	1	0	-67	-336	-622	-390	101	168	32		
		W	41	p	15	13	0								
C _i		X	3.841034		1.596923	0.807220	0.171568	-0.851778	-1.207779	-1.767219	-2.589969				
187		Z	156	Q	1	15	62	68	10						
		Z'	72	P	1	0	-15	-14	44	56	-12	-24	0		
		Sz	1549	S	1	0	-67	-334	-632	-480	-76	40	0		
		W	41	p	15	13	0								
C _i		X	3.841755		1.878730	0.652790	0.000000	-1.000000	-1.140894	-2.000000	-2.232380				
188		Z	156	Q	1	15	62	69	9						
		Z'	116	P	1	0	-15	-12	44	32	-43	-14	13		
		Sz	1391	S	1	0	-67	-336	-620	-408	-7	42	5		
		W	41	p	15	13	0								
C _i		X	3.846063		1.430677	0.710715	0.618034	-0.750395	-1.618034	-1.877265	-2.359794				
189		Z	156	Q	1	15	62	69	9						
		Z'	110	P	1	0	-15	-12	44	34	-41	-24	9		
		Sz	1333	S	1	0	-67	-336	-620	-402	27	72	-7		
		W	41	p	15	13	0								
C _i		X	3.841417		1.302776	1.146462	0.281532	-1.000000	-1.132039	-2.137373	-2.302776				
190		Z	157	Q	1	15	62	69	10						
		Z'	47	P	1	0	-15	-14	40	58	9	-8	0		
		Sz	1261	S	1	0	-72	-358	-663	-448	56	176	48		
		W	42	p	15	12	1								
C _i		X	3.860469		1.969694	0.283364	0.000000	-0.750385	-1.267966	-1.508725	-2.586451				

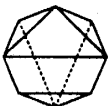
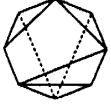
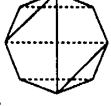
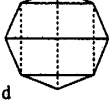
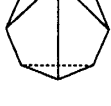
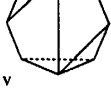
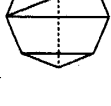
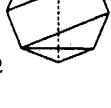
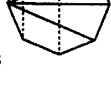

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		Z'	72	P	1	0	-15	-12	40	38	-16	-16	0				
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		W	42	p	15	12	1										
C ₁		X	3.853232		1.658334	0.702880	0.000000	-0.734373	-1.000000		-1.831586	-2.648487					
192		Z	157	Q	1	15	62	70	9								
		Z'	61	P	1	0	-15	-12	38	42	-6	-10	1				
		Sz	1072	S	1	0	-72	-360	-649	-376	137	200	48				
		W	42	p	15	12	1										
C ₁		X	3.855042		1.764039	0.432407	0.098538	-0.710979	-1.208347		-1.438913	-2.791786					
193		Z	154	Q	1	15	62	68	8								
		Z'	96	P	1	0	-15	-12	44	36	-36	-24	0				
		Sz	1387	S	1	0	-67	-336	-624	-420	4	56	0				
		W	41	p	15	13	0										
C _s		X	3.833073		1.414214	1.132005	0.000000	-0.579691	-1.414214		-2.000000	-2.385387					
194		Z	159	Q	1	15	62	70	11								
		Z'	89	P	1	0	-15	-12	42	34	-30	-22	1				
		Sz	1432	S	1	0	-72	-360	-645	-404	1	48	0				
		W	42	p	15	12	1										
C ₁		X	3.854043		1.436936	1.021704	0.043056	-0.736301	-1.097634		-2.079879	-2.441926					
195		Z	160	Q	1	15	62	71	11								
		Z'	112	P	1	0	-15	-12	42	30	-41	-14	13				
		Sz	1446	S	1	0	-72	-360	-641	-396	-28	42	9				
		W	42	p	15	12	1										
C _s		X	3.869566		1.339096	0.754930	0.618034	-0.798902	-1.618034		-1.662348	-2.502342					
196		Z	158	Q	1	15	62	70	10								
		Z'	124	P	1	0	-15	-12	44	30	-48	-16	16				
		Sz	1345	S	1	0	-67	-336	-616	-390	16	48	0				
		W	41	p	15	13	0										
C ₁		X	3.854802		1.220111	1.000000	0.583063	-0.829626	-1.529822		-2.000000	-2.298528					
197		Z	160	Q	1	15	62	71	11								
		Z'	120	P	1	0	-15	-12	42	28	-45	-16	17				
		Sz	1233	S	1	0	-67	-336	-614	-376	55	96	9				
		W	41	p	15	13	0										
C _s		X	3.877259		1.092781	1.000000	0.672383	-1.000000	-1.259351		-1.937605	-2.445468					
198		Z	161	Q	1	15	63	70	12								
		Z'	25	P	1	0	-15	-16	45	84	36	0	0				
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		W	42	p	15	12	1										
D _{3h}		X	3.791288		2.302776	0.000000	0.000000	-0.791288	-1.302776		-2.000000	-2.000000					
199		Z	161	Q	1	15	63	72	10								
		Z'	85	P	1	0	-15	-12	45	44	-24	-24	0				
		Sz	1396	S	1	0	-72	-356	-632	-392	8	48	0				
		W	42	p	15	12	1										
C ₂		X	3.791288		1.756598	0.820249	0.000000	-0.791288	-1.138564		-2.000000	-2.438283					
200		Z	162	Q	1	15	63	72	11								
		Z'	122	P	1	0	-15	-12	47	40	-46	-28	13				
		Sz	1361	S	1	0	-67	-332	-601	-392	-18	44	5				
		W	41	p	15	13	0										
C ₂		X	3.797771		1.532089	1.000000	0.347296	-1.000000	-1.471446		-1.879385	-2.326324					

201		Z	161	Q	1	15	63	72	10				
		Z'	123	P	1	0	-15	-12	47	40	-44	-22	16
		Sz	1346	S	1	0	-67	-332	-601	-388	-12	46	8
		W	41	p	15	13	0						
C ₅		X	3.794917		1.624529	0.652693	0.618034	-0.954178	-1.618034	-1.790419	-2.327541		
202		Z	162	Q	1	15	63	73	10				
		Z'	112	P	1	0	-15	-12	45	38	-39	-22	12
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203		Z	120	Q	1	14	49	49	7				
		Z'	64	P	1	0	-14	-14	35	42	-21	-30	-7
		Sz	2705	S	1	0	-70	-378	-833	-882	-441	-94	-7
		W	42	p	14	14	0						
C _{7v}		X	3.828427		1.246980	1.246980	-0.445042	-0.445042	-1.801938	-1.801938	-1.828427		
204		Z	127	Q	1	14	52	53	7				
		Z'	65	P	1	0	-14	-12	38	42	-19	-30	-7
		Sz	2040	S	1	0	-75	-392	-780	-658	-174	30	9
		W	43	p	14	13	1						
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205		Z	134	Q	1	14	54	57	8				
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		Sz	1920	S	1	0	-80	-408	-745	-552	-135	0	0
		W	44	p	14	12	2						
C ₁		X	3.636204		1.806377	1.036047	-0.435787	-1.000000	-1.000000	-1.822123	-2.220718		
206		Z	130	Q	1	14	53	54	8				
		Z'	80	P	1	0	-14	-12	41	44	-24	-24	0
		Sz	2026	S	1	0	-75	-388	-759	-624	-180	0	0
		W	43	p	14	13	1						
C ₂		X	3.675790		1.732051	0.844569	0.000000	-0.712838	-1.732051	-1.807521	-2.000000		
207		Z	132	Q	1	14	54	56	7				
		Z'	88	P	1	0	-14	-12	44	50	-32	-42	-3
		Sz	2089	S	1	0	-70	-360	-716	-638	-256	-46	-3
		W	42	p	14	14	0						
C ₅		X	3.629416		1.732051	1.088826	-0.076366	-1.000000	-1.732051	-1.774392	-1.867485		
208		Z	137	Q	1	14	55	59	8				
		Z'	73	P	1	0	-14	-12	45	56	-25	-48	-12
		Sz	2060	S	1	0	-75	-380	-719	-600	-239	-44	-3
		W	43	p	14	13	1						
C ₂		X	3.588015		1.879385	1.074036	-0.347296	-0.867704	-1.532089	-1.794348	-2.000000		
209		Z	129	Q	1	14	52	54	8				
		Z'	83	P	1	0	-14	-10	36	22	-28	-8	4
		Sz	1546	S	1	0	-70	-370	-748	-574	12	168	36
		W	42	p	14	14	0						
C ₁		X	3.716490		1.314471	0.858623	0.295590	-0.532968	-1.333991	-1.806837	-2.511378		
210		Z	130	Q	1	14	53	55	7				
		Z'	88	P	1	0	-14	-10	39	26	-33	-14	1
		Sz	1613	S	1	0	-70	-366	-725	-546	-21	98	17
		W	42	p	14	14	0						
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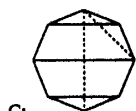
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		W	44	p	14	12	2										
C _s		X	3.638727		1.732051	0.785443	-0.221007	-0.610680	-1.000000	-1.732051	-2.592483						
212		Z	135	Q	1	14	54	58	8								
		Z'	87	P	1	0	-14	-10	40	32	-28	-18	4				
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		W	43	p	14	13	1										
C _i		X	3.640187		1.599735	0.860556	0.183278	-0.822760	-1.173803	-1.851217	-2.435977						
213		Z	135	Q	1	14	54	58	8								
		Z'	119	P	1	0	-14	-10	42	28	-46	-18	16				
		Sz	1702	S	1	0	-70	-362	-702	-528	-86	38	8				
		W	42	p	14	14	0										
C _i		X	3.644969		1.292741	1.062649	0.541931	-0.944897	-1.529078	-1.795830	-2.272486						
214		Z	133	Q	1	14	54	57	7								
		Z'	65	P	1	0	-14	-12	40	48	-13	-24	-3				
		Sz	1891	S	1	0	-75	-384	-740	-592	-144	32	12				
		W	43	p	14	13	1										
C _i		X	3.664769		1.842795	0.759456	-0.140590	-0.814402	-1.280450	-1.744287	-2.287290						
215		Z	133	Q	1	14	54	57	7								
		Z'	105	P	1	0	-14	-10	42	32	-39	-22	9				
		Sz	1646	S	1	0	-70	-362	-706	-536	-63	74	17				
		W	42	p	14	14	0										
C _i		X	3.626180		1.491558	1.025898	0.301821	-0.921047	-1.397470	-1.775849	-2.351090						
216		Z	133	Q	1	14	54	56	8								
		Z'	97	P	1	0	-14	-10	42	34	-32	-18	8				
		Sz	1706	S	1	0	-70	-362	-710	-550	-80	58	8				
		W	42	p	14	14	0										
C _i		X	3.611135		1.672565	0.771534	0.340514	-0.895749	-1.276304	-1.888343	-2.335350						
217		Z	133	Q	1	14	54	57	7								
		Z'	77	P	1	0	-14	-10	40	36	-21	-18	1				
		Sz	1668	S	1	0	-75	-386	-730	-514	-38	66	9				
		W	43	p	14	13	1										
C _i		X	3.619579		1.735146	0.776534	0.052632	-0.764358	-1.157296	-1.760158	-2.502080						
218		Z	132	Q	1	14	54	56	7								
		Z'	88	P	1	0	-14	-10	42	34	-34	-26	-3				
		Sz	1711	S	1	0	-70	-362	-710	-554	-82	54	13				
		W	42	p	14	14	0										
C _i		X	3.616180		1.488927	1.193566	-0.147038	-0.497700	-1.543465	-1.753452	-2.357018						
219		Z	133	Q	1	14	54	56	8								
		Z'	71	P	1	0	-14	-10	40	38	-16	-16	0				
		Sz	1486	S	1	0	-75	-386	-736	-514	33	156	36				
		W	43	p	14	13	1										
C _i		X	3.606735		1.814648	0.692898	0.000000	-0.702413	-1.132421	-1.761693	-2.517754						
220		Z	134	Q	1	14	54	57	8								
		Z'	96	P	1	0	-14	-10	42	32	-35	-20	4				
		Sz	1825	S	1	0	-75	-386	-728	-528	-108	0	0				
		W	43	p	14	13	1										
C _i		X	3.622127		1.551483	1.000000	0.162180	-0.702492	-1.396609	-2.000000	-2.236689						

221		Z	137	Q	1	14	55	60	7					
		Z'	83	P	1	0	-14	-10	41	38	-22	-16	5	
		Sz	1676	S	1	0	-75	-382	-709	-494	-72	44	12	
		W	43	p	14	13	1							
C ₈		X	3.599102		1.805073	0.618034	0.271336	-0.867741	-1.307218	-1.618034	-2.500551			
222		Z	138	Q	1	14	55	60	8					
		Z'	124	P	1	0	-14	-10	45	34	-48	-24	16	
		Sz	1745	S	1	0	-70	-358	-683	-514	-120	0	0	
		W	42	p	14	14	0							
C ₅		X	3.588738		1.546295	1.000000	0.453705	-1.000000	-1.588738	-2.000000	-2.000000			
223		Z	137	Q	1	14	55	58	9					
		Z'	59	P	1	0	-14	-12	43	58	-4	-22	-3	
		Sz	1846	S	1	0	-75	-380	-727	-576	-132	32	12	
		W	43	p	14	13	1							
C ₅		X	3.576099		2.092707	0.618034	-0.147904	-0.844458	-1.426528	-1.618034	-2.249917			
224		Z	137	Q	1	14	55	59	8					
		Z'	85	P	1	0	-14	-10	43	40	-23	-18	4	
		Sz	1662	S	1	0	-75	-382	-713	-498	-51	48	9	
		W	43	p	14	13	1							
C ₁		X	3.565241		1.868897	0.677244	0.193616	-0.849372	-1.208912	-1.899820	-2.346895			
225		Z	137	Q	1	14	55	59	8					
		Z'	81	P	1	0	-14	-10	43	42	-27	-32	-4	
		Sz	1711	S	1	0	-75	-382	-711	-516	-83	44	12	
		W	43	p	14	13	1							
C ₁		X	3.566842		1.776146	1.011514	-0.146646	-0.822847	-1.271884	-1.653692	-2.459434			
226		Z	136	Q	1	14	55	58	8					
		Z'	104	P	1	0	-14	-10	45	40	-36	-26	8	
		Sz	1721	S	1	0	-70	-358	-691	-536	-108	34	8	
		W	42	p	14	14	0							
C ₁		X	3.553377		1.785696	0.878776	0.251108	-1.000000	-1.390752	-1.816124	-2.262080			
227		Z	137	Q	1	14	55	59	8					
		Z'	107	P	1	0	-14	-10	45	38	-43	-34	4	
		Sz	1706	S	1	0	-70	-358	-687	-526	-103	30	8	
		W	42	p	14	14	0							
C ₁		X	3.572071		1.537817	1.241119	0.105126	-0.929045	-1.511553	-1.769204	-2.246331			
228		Z	132	Q	1	14	53	56	8					
		Z'	64	P	1	0	-14	-8	33	16	-16	-8	0	
		Sz	1126	S	1	0	-75	-392	-739	-412	252	240	0	
		W	43	p	14	13	1							
C ₂		X	3.675790		1.342923	0.844569	0.000000	-0.529317	-0.712838	-1.807521	-2.813607			
229		Z	136	Q	1	14	54	58	9					
		Z'	96	P	1	0	-14	-8	38	16	-34	-8	9	
		Sz	1425	S	1	0	-75	-388	-718	-432	71	108	9	
		W	43	p	14	13	1							
C ₅		X	3.632118		1.169292	1.000000	0.526655	-0.816150	-1.000000	-1.857007	-2.654907			
230		Z	134	Q	1	14	54	57	8					
		Z'	100	P	1	0	-14	-8	40	14	-37	-2	8	
		Sz	1379	S	1	0	-70	-364	-700	-454	91	122	-4	
		W	42	p	14	14	0							
C ₁		X	3.615631		1.272814	0.765263	0.674746	-0.520942	-1.250871	-2.122281	-2.434360			

231		Z	136	Q	1	14	54	58	9								
		Z'	96	P	1	0	-14	-10	40	30	-32	-16	9				
		Sz	1529	S	1	0	-70	-362	-704	-514	-8	112	17				
		W	42	p	14	14	0										
C_5		X	3.649842			0.771654	0.414214	-1.000000	-1.111026	-1.858266	-2.414214						
232		Z	135	Q	1	14	54	58	8								
		Z'	75	P	1	0	-14	-8	36	24	-20	-8	4				
		Sz	1132	S	1	0	-75	-388	-720	-406	193	228	36				
		W	43	p	14	13	1										
C_1		X	3.616696			0.542691	0.385537	-0.696603	-1.152445	-1.462784	-2.825955						
233		Z	134	Q	1	14	54	57	8								
		Z'	72	P	1	0	-14	-8	38	18	-19	-8	0				
		Sz	1315	S	1	0	-75	-388	-724	-424	152	144	0				
		W	43	p	14	13	1										
C_1		X	3.611721			0.796926	0.000000	-0.401015	-0.823376	-2.181741	-2.528461						
234		Z	134	Q	1	14	54	57	8								
		Z'	94	P	1	0	-14	-8	40	16	-35	-4	4				
		Sz	1321	S	1	0	-70	-364	-700	-448	117	144	0				
		W	42	p	14	14	0										
C_1		X	3.607587			1.000000	0.322240	-0.401186	-1.315799	-2.000000	-2.510851						
235		Z	134	Q	1	14	54	58	7								
		Z'	64	P	1	0	-14	-10	38	32	-10	-6	1				
		Sz	1657	S	1	0	-80	-410	-735	-432	0	0	0				
		W	44	p	14	12	2										
C_5		X	3.645347			0.414214	0.150207	-0.496758	-1.000000	-2.072609	-2.414214						
236		Z	140	Q	1	14	55	60	10								
		Z'	84	P	1	0	-14	-8	41	24	-28	-16	0				
		Sz	1576	S	1	0	-80	-408	-704	-384	0	0	0				
		W	44	p	14	12	2										
D_{2h}		X	3.561553			1.000000	0.000000	-0.561553	-1.000000	-2.000000	-2.561553						
237		Z	137	Q	1	14	55	58	9								
		Z'	105	P	1	0	-14	-8	43	24	-38	-8	9				
		Sz	1376	S	1	0	-70	-360	-685	-456	50	120	25				
		W	42	p	14	14	0										
D_{2d}		X	3.541381			0.618034	0.618034	-0.618034	-1.618034	-1.618034	-2.541381						
238		Z	141	Q	1	14	55	61	10								
		Z'	109	P	1	0	-14	-8	41	20	-41	-12	12				
		Sz	1492	S	1	0	-75	-384	-695	-416	9	60	9				
		W	43	p	14	13	1										
C_2		X	3.588015			1.074036	0.515722	-0.867704	-1.182644	-1.794348	-2.596155						
239		Z	138	Q	1	14	55	60	8								
		Z'	96	P	1	0	-14	-8	41	22	-32	-10	8				
		Sz	1395	S	1	0	-75	-384	-701	-410	76	90	9				
		W	43	p	14	13	1										
C_1		X	3.571015			0.718866	0.485659	-0.820580	-1.000000	-1.954960	-2.561553						
240		Z	138	Q	1	14	55	60	8								
		Z'	120	P	1	0	-14	-8	43	20	-46	-12	16				
		Sz	1329	S	1	0	-70	-360	-677	-424	82	120	0				
		W	42	p	14	14	0										
C_5		X	3.566348			1.000000	0.648797	-1.000000	-1.079576	-2.000000	-2.445280						

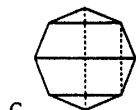
241		Z	137	Q	1	14	55	59	8				
		Z'	105	P	1	0	-14	-8	43	20	-39	-6	8
		Sz	1436	S	1	0	-70	-360	-681	-440	53	74	-12
		W	42	p	14	14	0						
C _s		X	3.557704		1.515749	0.801938	0.497994	-0.554958	-1.327666	-2.243781	-2.246980		
242		Z	136	Q	1	14	55	59	7				
		Z'	108	P	1	0	-14	-8	43	22	-41	-10	9
		Sz	1331	S	1	0	-70	-360	-681	-438	75	126	17
		W	42	p	14	14	0						
C _i		X	3.553265		1.491363	0.928537	0.436112	-0.639185	-1.407038	-1.872224	-2.490830		
243		Z	138	Q	1	14	55	60	8				
		Z'	60	P	1	0	-14	-8	37	32	-8	-8	0
		Sz	1072	S	1	0	-80	-408	-712	-320	256	192	0
		W	44	p	14	12	2						
C ₂		X	3.561553		1.842236	0.506942	0.000000	-0.561553	-1.000000	-1.506942	-2.842236		
244		Z	138	Q	1	14	55	60	8				
		Z'	132	P	1	0	-14	-8	45	16	-56	0	16
		Sz	1537	S	1	0	-70	-360	-675	-432	0	0	0
		W	42	p	14	14	0						
D _{2d}		X	3.561553		1.000000	1.000000	1.000000	-0.561553	-2.000000	-2.000000	-2.000000		
245		Z	114	Q	1	13	47	47	6				
		Z'	72	P	1	0	-13	-8	39	32	-23	-24	-4
		Sz	1891	S	1	0	-83	-436	-816	-560	-44	48	0
		W	45	p	13	13	2						
C _s		X	3.366592		1.767231	1.000000	-0.227465	-0.657017	-1.000000	-2.000000	-2.249342		
246		Z	118	Q	1	13	48	49	7				
		Z'	68	P	1	0	-13	-8	40	40	-21	-32	-7
		Sz	1756	S	1	0	-88	-456	-780	-432	0	0	0
		W	46	p	13	12	3						
C _{2v}		X	3.302776		1.935432	1.000000	-0.302776	-1.000000	-1.000000	-1.462598	-2.472834		
247		Z	117	Q	1	13	48	49	6				
		Z'	95	P	1	0	-13	-8	42	34	-35	-26	4
		Sz	2147	S	1	0	-78	-408	-791	-634	-212	-24	0
		W	44	p	13	14	1						
C _i		X	3.319414		1.799440	1.015364	0.133471	-0.905058	-1.433581	-1.738997	-2.190053		
248		Z	117	Q	1	13	48	48	7				
		Z'	89	P	1	0	-13	-8	42	36	-28	-20	5
		Sz	2025	S	1	0	-78	-408	-797	-628	-147	24	9
		W	44	p	13	14	1						
C ₂		X	3.290749		1.956295	0.782286	0.209057	-0.889513	-1.338261	-1.827091	-2.183522		
249		Z	116	Q	1	13	47	48	7				
		Z'	100	P	1	0	-13	-6	39	12	-38	-2	9
		Sz	1779	S	1	0	-73	-390	-785	-588	-18	82	-7
		W	43	p	13	15	0						
C _s		X	3.364140		1.383620	0.801938	0.694795	-0.554958	-1.297116	-2.145438	-2.246980		
250		Z	119	Q	1	13	48	50	7				
		Z'	101	P	1	0	-13	-6	40	20	-38	-14	9
		Sz	1795	S	1	0	-78	-410	-779	-534	-51	48	9
		W	44	p	13	14	1						
C _i		X	3.309819		1.557758	1.032220	0.381427	-0.856271	-1.212545	-1.698860	-2.513549		

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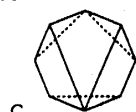
Z	118	Q	1	13	48	50	6					
Z'	80	P	1	0	-13	-6	38	22	-24	-10	4	
Sz	1635	S	1	0	-83	-434	-783	-432	49	48	0	
W	45	p	13	13	2							
X	3.310754		1.763874	0.724836	0.281205	-0.743301	-1.000000	-1.741884	-2.595483			

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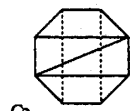
Z	118	Q	1	13	48	50	6					
Z'	120	P	1	0	-13	-6	42	16	-48	-8	16	
Sz	1793	S	1	0	-73	-386	-762	-564	-56	48	0	
W	43	p	13	15	0							
X	3.307926		1.414214	1.000000	0.697970	-0.777429	-1.414214	-2.000000	-2.228467			

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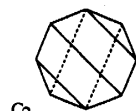
Z	117	Q	1	13	48	49	6					
Z'	103	P	1	0	-13	-6	42	18	-43	-10	4	
Sz	1808	S	1	0	-73	-386	-766	-578	-59	46	8	
W	43	p	13	15	0							
X	3.290777		1.446608	1.246980	0.220174	-0.445042	-1.663737	-1.801938	-2.293821			

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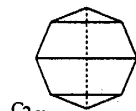
Z	122	Q	1	13	48	51	9					
Z'	92	P	1	0	-13	-4	36	8	-33	-4	9	
Sz	1526	S	1	0	-83	-436	-767	-364	76	48	0	
W	45	p	13	13	2							
X	3.314679		1.256701	1.000000	0.618034	-0.771730	-1.000000	-1.618034	-2.799650			

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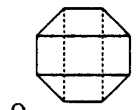
Z	119	Q	1	13	48	50	7					
Z'	85	P	1	0	-13	-4	38	4	-28	0	5	
Sz	1497	S	1	0	-78	-412	-773	-432	145	68	-15	
W	44	p	13	14	1							
X	3.290749		1.441291	0.782286	0.566889	-0.485084	-0.889513	-2.183522	-2.523096			

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Z	102	Q	1	12	42	42	5					
Z'	96	P	1	0	-12	-4	38	16	-36	-12	9	
Sz	2049	S	1	0	-86	-460	-855	-540	-108	0	0	
W	46	p	12	14	2							
X	3.000000		1.732051	1.000000	0.414214	-1.000000	-1.000000	-1.732051	-2.414214			

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Z	108	Q	1	12	42	44	9					
Z'	80	P	1	0	-12	0	30	0	-28	0	9	
Sz	1376	S	1	0	-96	-512	-768	0	0	0	0	
W	48	p	12	12	4							
X	3.000000		1.000000	1.000000	1.000000	-1.000000	-1.000000	-1.000000	-3.000000			

Table 2. Groups of graphs with seven and eight vertices with the same Z and W indices.

$N= V =7$		Refer to Table 1c for graph No.		
(8, 10)	(17, 18)	(15, 19, 20, 21)	(27, 30, 31, 32)	
$N= V =8$		Refer to Table 1d for graph No.		
(15, 18)	(136, 141)	(207, 218)	(58, 86, 92)	(55, 71, 72, 74)
(25, 26)	(138, 161)	(211, 235)	(61, 105, 106)	(62, 108, 110, 111)
(54, 65)	(139, 163)	(212, 232)	(98, 100, 104)	(143, 166, 167, 172)
(67, 68)	(144, 169)	(214, 217)	(130, 159, 160)	(149, 185, 188, 189)
(81, 87)	(145, 176)	(220, 233)	(146, 178, 179)	
(90, 93)	(148, 184)	(227, 241)	(150, 151, 190)	(64, 118, 119, 121, 122)
(59, 103)	(152, 192)	(230, 234)	(153, 154, 196)	(142, 168, 170, 171, 173)
(60, 101)	(157, 158)	(250, 255)	(208, 224, 225)	
(113, 117)	(174, 175)		(222, 240, 244)	