

# Tables of Hecke algebras

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## Abstract

These tables contain data computed with the MAGMA package `HeckeAlgebra.mg` by the second author. Each row corresponds to a local factor of a Hecke algebra over a finite field of characteristic  $p$  belonging to a Hecke eigenform of weight  $p$ . The data were chosen so that all the associated mod  $p$  Galois representations are completely split at  $p$ .

The tables show that in all these cases the Gorenstein defect is equal to 2.

## Characteristic $p = 2$ , prime levels, dihedral

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
431 <sup>1</sup>	2	1	4	3	1	2	6	20	$D_3$
503 <sup>2</sup>	2	1	4	3	1	2	3	23	$D_3$
1319	2	2	4	3	1	2	6	47	$D_5$
1439	2	1	4	3	1	2	4	52	$D_3$
1559	2	1	4	3	1	2	7	55	$D_3$
1607	2	1	4	3	1	2	3	56	$D_3$
1759	2	1	4	3	1	2	5	62	$D_3$
1823	2	2	4	3	1	2	3	62	$D_5$
1879	2	1	16	4	5	2	6	65	$D_3$
1951	2	1	4	3	1	2	4	66	$D_3$
1999	2	1	4	3	1	2	5	67	$D_3$
2039	2	2	6	3	2	2	4	68	$D_5$
2089 <sup>3</sup>	2	1	18	4	7	2	5	70	$D_3$
2351	2	1	6	3	2	2	6	77	$D_3$
3407	2	1	16	4	5	2	7	103	$D_3$
3527	2	2	4	3	1	2	3	107	$D_5$

<sup>1</sup>See L. J. P. Kilford, *Some non-Gorenstein Hecke algebras attached to spaces of modular forms*, J. Number Theory, **97**(1), 2002, 157–164

<sup>2</sup>See Kilford, loc. cit.

<sup>3</sup>See Kilford, loc. cit.

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
3623	2	1	6	3	2	2	3	110	$D_3$
3967	2	1	14	4	4	2	4	121	$D_3$
4231	2	1	4	3	1	2	10	126	$D_3$
4481	2	1	8	4	2	2	7	132	$D_3$
4799	2	1	12	4	3	2	5	139	$D_3$
4943	2	2	6	3	2	2	4	143	$D_5$
5167	2	1	6	3	2	2	5	149	$D_3$
5591	2	1	12	4	3	2	8	158	$D_3$
5591	2	3	4	3	1	2	5	158	$D_9$
5791	2	1	8	3	3	2	8	162	$D_3$
6199	2	1	16	4	5	2	7	174	$D_3$
6287	2	1	6	3	2	2	4	175	$D_3$
6343	2	1	12	4	3	2	5	177	$D_3$
6551	2	1	6	3	2	2	7	182	$D_3$
6823	2	1	4	3	1	2	4	189	$D_3$
6911	2	1	4	3	1	2	4	190	$D_3$
6967	2	1	12	4	3	2	8	191	$D_3$
7057	2	1	16	4	4	2	6	193	$D_3$
7103	2	3	4	3	1	2	3	194	$D_7$
7151	2	2	4	3	1	2	4	195	$D_5$
7351	2	1	12	4	3	2	9	200	$D_3$
7487	2	2	6	3	2	2	3	203	$D_5$
7583	2	1	4	3	1	2	6	205	$D_3$
7951	2	1	4	3	1	2	6	216	$D_3$
8111	2	5	4	3	1	2	5	217	$D_{11}$
8167	2	1	6	3	2	2	4	218	$D_3$
8191	2	2	6	3	2	2	5	218	$D_5$
8623	2	1	4	3	1	2	8	227	$D_3$
8713	2	1	16	4	4	2	4	231	$D_3$
9127	2	1	16	4	5	2	4	240	$D_3$
9281	2	1	12	4	3	2	8	243	$D_3$
9439	2	1	8	3	3	2	4	248	$D_3$
9623	2	2	6	3	2	2	5	252	$D_5$
9967	2	1	6	3	2	2	4	260	$D_3$
10079	2	1	12	4	3	2	8	263	$D_3$
10103	2	1	4	3	1	2	4	263	$D_3$
10391	2	1	6	3	2	2	9	269	$D_3$
10391	2	3	4	3	1	2	8	269	$D_9$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
10487	2	1	10	3	4	2	3	272	$D_3$
10567	2	1	12	3	5	2	5	274	$D_3$
10639	2	1	4	3	1	2	4	274	$D_3$
10663	2	1	6	3	2	2	9	275	$D_3$
10687	2	1	6	3	2	2	4	275	$D_3$
10799	2	1	14	3	6	2	8	278	$D_3$
11159	2	3	4	3	1	2	4	283	$D_7$
11321	2	1	8	4	2	2	9	289	$D_3$
11743	2	1	4	3	1	2	5	297	$D_3$
13063	2	1	6	3	2	2	5	326	$D_3$
13487	2	1	8	3	3	2	6	334	$D_3$
13999	2	3	4	3	1	2	4	345	$D_7$
14303	2	1	4	3	1	2	5	354	$D_3$
14543	2	3	4	3	1	2	3	360	$D_7$
14639	2	2	4	3	1	2	5	361	$D_5$
15121	2	2	8	4	2	2	6	369	$D_5$
15193	2	1	16	4	6	2	4	370	$D_3$
15271	2	1	6	3	2	2	8	372	$D_3$
15383	2	2	6	3	2	2	3	375	$D_5$
15391	2	1	6	3	2	2	7	375	$D_3$
15551	2	1	4	3	1	2	11	377	$D_3$
15607	2	1	6	3	2	2	8	378	$D_3$
15641	2	1	32	4	7	2	8	378	$D_3$
15919	2	1	26	4	7	2	6	383	$D_3$
15991	2	1	12	4	3	2	9	386	$D_3$
16127	2	3	4	3	1	2	3	390	$D_7$
16369	2	1	24	4	6	2	6	398	$D_3$
16487	2	1	6	3	2	2	4	400	$D_3$
16649	2	1	16	4	4	2	8	403	$D_3$
17471	2	1	6	3	2	2	11	421	$D_3$
18047	2	1	30	4	6	2	4	431	$D_3$
18097	2	1	36	5	6	2	9	432	$D_3$
18127	2	1	12	4	3	2	5	433	$D_3$
18257	2	1	12	4	4	2	4	436	$D_3$
19079	2	1	4	3	1	2	4	449	$D_3$
19079	2	3	4	3	1	2	4	449	$D_9$
19441	2	1	16	4	4	2	7	457	$D_3$
19543	2	2	4	3	1	2	4	460	$D_5$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
19583	2	1	4	3	1	2	7	461	$D_3$
19751	2	1	4	3	1	2	4	462	$D_3$
19919	2	1	16	4	5	2	7	467	$D_3$
19927	2	1	6	3	2	2	4	467	$D_3$
20183	2	2	4	3	1	2	7	474	$D_5$
20599	2	1	6	3	2	2	6	481	$D_3$
20759	2	1	18	4	6	2	9	483	$D_3$
20887	2	2	6	3	2	2	4	487	$D_5$
21319	2	3	4	3	1	2	9	497	$D_7$
21647	2	1	6	3	2	2	6	504	$D_3$
21737	2	1	24	5	4	2	7	507	$D_3$
21839	2	2	4	3	1	2	7	509	$D_5$
22159	2	2	4	3	1	2	9	515	$D_5$
22511	2	1	4	3	1	2	6	522	$D_3$
22567	2	3	4	3	1	2	4	523	$D_7$
22751	2	3	4	3	1	2	4	526	$D_7$
23159	2	1	20	4	6	2	6	535	$D_3$
23159	2	3	6	3	2	2	5	535	$D_9$
23279	2	1	8	3	3	2	4	537	$D_3$
23321	2	1	12	4	4	2	7	538	$D_3$
23417	2	1	26	4	7	2	10	539	$D_3$
23567	2	1	4	3	1	2	3	544	$D_3$
23687	2	3	4	3	1	2	3	548	$D_7$
23743	2	2	4	3	1	2	4	548	$D_5$
24151	2	2	4	3	1	2	5	556	$D_5$
24281	2	1	16	4	4	2	5	557	$D_3$
24439	2	2	6	3	2	2	7	561	$D_5$
24847	2	2	4	3	1	2	8	570	$D_5$
25031	2	1	8	3	3	2	7	573	$D_3$
25111	2	1	6	3	2	2	8	574	$D_3$
25247	2	1	6	3	2	2	10	575	$D_3$
25409	2	1	8	4	2	2	8	580	$D_3$
25439	2	1	4	3	1	2	6	580	$D_3$
25447	2	1	6	3	2	2	11	581	$D_3$
25793	2	1	16	4	4	2	5	590	$D_3$
26431	2	2	6	3	2	2	4	599	$D_5$
26839	2	3	4	3	1	2	5	607	$D_7$
26959	2	1	6	3	2	2	23	610	$D_3$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
27143	2	1	4	3	1	2	4	615	$D_3$
27143	2	3	4	3	1	2	3	615	$D_9$
27647	2	1	26	4	10	2	7	623	$D_3$
27673	2	1	8	4	2	2	7	623	$D_3$
27743	2	3	4	3	1	2	3	624	$D_7$
28031	2	2	6	3	2	2	5	631	$D_5$
28031	2	1	8	3	3	2	5	631	$D_3$
28031	2	4	4	3	1	2	7	631	$D_{15}$
28279	2	1	8	3	3	2	4	635	$D_3$
28279	2	1	26	4	8	2	14	635	$D_3$
28279	2	1	4	3	1	2	11	635	$D_3$
28279	2	1	6	3	2	2	6	635	$D_3$
28703	2	1	20	4	5	2	5	642	$D_3$
28759	2	1	8	3	3	2	5	645	$D_3$
29023	2	1	4	3	1	2	8	650	$D_3$
29287	2	2	8	3	3	2	4	653	$D_5$
29311	2	3	6	3	2	2	5	653	$D_7$
29399	2	1	6	3	2	2	7	654	$D_3$
29567	2	1	6	3	2	2	6	657	$D_3$
29879	2	2	4	3	1	2	5	666	$D_5$
29959	2	1	6	3	2	2	4	668	$D_3$
29959	2	3	4	3	1	2	4	668	$D_9$
30223	2	1	8	3	3	2	5	674	$D_3$
30367	2	2	6	3	2	2	5	677	$D_5$
30431	2	2	4	3	1	2	4	677	$D_5$
30559	2	3	4	3	1	2	9	680	$D_7$
30727	2	1	6	3	2	2	9	685	$D_3$
30911	2	2	4	3	1	2	5	686	$D_5$
31079	2	2	4	3	1	2	5	690	$D_5$
31159	2	1	16	4	5	2	6	691	$D_3$
31247	2	6	4	3	1	2	3	692	$D_{13}$
31271	2	1	6	3	2	2	9	693	$D_3$
31321	2	3	8	4	2	2	7	693	$D_7$
31513	2	1	16	4	4	2	4	697	$D_3$
31543	2	2	4	3	1	2	5	697	$D_5$
31847	2	5	4	3	1	2	3	703	$D_{11}$
32009	2	1	12	4	3	2	9	706	$D_3$
32143	2	3	4	3	1	2	4	708	$D_7$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
32183	2	3	4	3	1	2	3	708	$D_7$
32327	2	1	16	4	5	2	5	710	$D_3$
32327	2	3	4	3	1	2	3	710	$D_9$
32353	2	1	20	4	6	2	5	711	$D_3$
32401	2	1	20	4	6	2	6	712	$D_3$
32479	2	5	4	3	1	2	4	714	$D_{11}$
32647	2	3	4	3	1	2	4	719	$D_7$
32687	2	5	4	3	1	2	3	720	$D_{11}$
32719	2	2	4	3	1	2	14	721	$D_5$
32887	2	2	6	3	2	2	6	724	$D_5$
32983	2	1	4	3	1	2	4	725	$D_3$
33223	2	1	4	3	1	2	9	732	$D_3$
33343	2	1	4	3	1	2	5	733	$D_3$
33679	2	1	4	3	1	2	5	738	$D_3$
33767	2	3	4	3	1	2	3	739	$D_7$
34351	2	2	4	3	1	2	8	753	$D_5$
34471	2	2	12	4	3	2	6	756	$D_5$
34487	2	1	14	4	4	2	7	756	$D_3$
34591	2	2	4	3	1	2	5	757	$D_5$
34679	2	1	6	3	2	2	4	758	$D_3$
34679	2	3	4	3	1	2	4	758	$D_9$
34721	2	1	12	4	4	2	9	759	$D_3$
34847	2	1	16	4	5	2	6	762	$D_3$
35401	2	1	56	5	8	2	10	776	$D_3$
35591	2	9	4	3	1	2	7	779	$D_{19}$
35759	2	3	6	3	2	2	5	781	$D_7$
35839	2	2	4	3	1	2	5	781	$D_5$
35977	2	2	8	4	2	2	5	783	$D_5$
36191	2	1	46	5	7	2	11	786	$D_3$
36791	2	1	12	4	3	2	8	799	$D_3$
36871	2	2	6	3	2	2	5	801	$D_5$
37087	2	1	32	4	11	2	5	804	$D_3$
37199	2	1	18	4	4	2	8	806	$D_3$
37607	2	1	4	3	1	2	3	814	$D_3$
37831	2	2	4	3	1	2	5	820	$D_5$
37879	2	3	4	3	1	2	5	821	$D_7$
37993	2	2	8	4	2	2	5	824	$D_5$
38047	2	2	4	3	1	2	9	825	$D_5$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
38167	2	1	14	4	4	2	10	829	$D_3$
38231	2	1	4	3	1	2	4	830	$D_3$
38287	2	1	4	3	1	2	5	832	$D_3$
38303	2	1	4	3	1	2	3	832	$D_3$
38593	2	1	20	4	6	2	9	836	$D_3$
38959	2	1	10	3	4	2	9	842	$D_3$
38977	2	1	20	4	6	2	13	842	$D_3$
39023	2	1	40	5	7	2	10	842	$D_3$
39199	2	2	4	3	1	2	7	844	$D_5$
39631	2	1	16	4	5	2	11	853	$D_3$
39679	2	1	6	3	2	2	12	854	$D_3$
39679	2	3	4	3	1	2	4	854	$D_9$

### Characteristic $p = 2$ and non-prime square-free levels, dihedral

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
1055	2	1	24	4	9	2	5	47	$D_3$
1727	2	1	16	4	5	2	6	65	$D_3$
2071 <sup>4</sup>	2	1	8	4	2	2	5	73	$D_3$
2631	2	1	40	4	17	2	6	106	$D_3$
2991	2	1	40	4	17	2	4	121	$D_3$
3095	2	1	40	4	17	2	4	114	$D_3$
3431	2	1	24	5	4	2	6	107	$D_3$
3471	2	1	16	5	3	2	5	146	$D_3$
3639	2	1	28	4	11	2	5	140	$D_3$
4031	2	1	16	4	4	2	6	125	$D_3$
4087	2	1	8	4	2	2	6	126	$D_3$
4119	2	1	12	4	3	2	4	156	$D_3$
4415	2	1	8	4	2	2	6	153	$D_3$

### Characteristic $p = 2$ , icosahedral

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
89491	2	2	12	4	3	2	4	1746	$A_5$

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<sup>4</sup>First found by W. Stein.

**Characteristic  $p = 3$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
1031	3	2	4	3	1	2	4	55	$D_5$
1511	3	3	4	3	1	2	9	74	$D_7$
2087	3	2	4	3	1	2	3	98	$D_5$
4259	3	2	4	3	1	2	3	179	$D_5$
4799	3	3	22	4	9	2	9	196	$D_7$
5939	3	2	4	3	1	2	4	235	$D_5$
6899	3	2	4	3	1	2	3	269	$D_5$
6959	3	2	4	3	1	2	4	270	$D_5$
7523	3	2	4	3	1	2	4	289	$D_5$
7559	3	2	4	3	1	2	6	290	$D_5$
7583	3	3	20	3	9	2	6	290	$D_7$
8219	3	2	4	3	1	2	6	310	$D_5$
8447	3	5	20	3	9	2	3	318	$D_{11}$
8699	3	2	6	3	2	2	9	326	$D_5$
9431	3	3	4	3	1	2	4	350	$D_7$
9743	3	2	8	3	3	2	3	360	$D_5$
9887	3	2	8	3	3	2	3	365	$D_5$
10079	3	2	60	3	29	2	5	368	$D_5$
10247	3	2	10	4	3	2	5	375	$D_5$
10847	3	3	22	4	9	2	9	395	$D_7$
12011	3	2	4	3	1	2	3	431	$D_5$
12119	3	2	56	3	27	2	8	434	$D_5$
12263	3	2	8	3	3	2	3	438	$D_5$
12959	3	5	20	3	9	2	4	457	$D_{11}$
13907	3	2	22	4	9	2	8	487	$D_5$
14699	3	2	4	3	1	2	6	513	$D_5$
14783	3	3	20	3	9	2	3	515	$D_{13}$
14783	3	3	20	3	9	2	3	515	$D_{13}$

**Characteristic  $p = 5$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
419	5	1	4	3	1	2	3	40	$D_3$
439	5	1	14	4	5	2	10	42	$D_3$
491	5	1	4	3	1	2	3	46	$D_3$



Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
751	5	1	12	3	5	2	3	65	$D_3$
839	5	1	6	3	2	2	6	70	$D_3$
1231	5	1	4	3	1	2	3	97	$D_3$
2579	5	1	4	3	1	2	3	180	$D_3$
2699	5	1	14	4	5	2	8	188	$D_3$
3299	5	1	4	3	1	2	6	220	$D_3$
3359	5	1	4	3	1	2	6	222	$D_3$
4111	5	1	4	3	1	2	3	267	$D_3$
4219	5	1	20	3	6	2	5	274	$D_3$
4931	5	3	12	3	5	2	3	310	$D_7$
5011	5	1	4	3	1	2	5	316	$D_3$
5639	5	1	6	3	2	2	5	348	$D_3$
5939	5	3	12	3	5	2	5	366	$D_7$
6079	5	1	6	3	2	2	5	370	$D_3$
6271	5	1	4	3	1	2	3	379	$D_3$
6571	5	1	12	3	5	2	5	399	$D_3$
6691	5	1	4	3	1	2	5	405	$D_3$
6779	5	1	6	3	2	2	6	410	$D_3$
7459	5	1	12	3	5	2	7	443	$D_3$
7759	5	3	4	3	1	2	3	457	$D_7$
8779	5	1	12	3	5	2	12	511	$D_3$
8819	5	3	4	3	1	2	3	513	$D_7$
9011	5	1	4	3	1	2	6	522	$D_3$

**Characteristic  $p = 7$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
199	7	1	4	3	1	2	3	30	$D_3$
839	7	1	4	3	1	2	6	93	$D_3$
1259	7	1	4	3	1	2	3	130	$D_3$
1291	7	1	4	3	1	2	4	133	$D_3$
1319	7	1	4	3	1	2	6	136	$D_3$
1399	7	1	4	3	1	2	3	141	$D_3$
1559	7	1	4	3	1	2	7	155	$D_3$
1567	7	1	8	3	4	2	3	156	$D_3$
1823	7	1	6	3	2	2	4	179	$D_3$
1823	7	3	4	3	1	2	4	179	$D_9$

**Characteristic  $p = 11$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
431	11	3	4	3	1	2	5	77	$D_7$
563	11	1	4	3	1	2	3	97	$D_3$
1187	11	1	6	3	2	2	6	181	$D_3$
1223	11	3	4	3	1	2	4	187	$D_7$
1231	11	1	4	3	1	2	3	189	$D_3$
1231	11	3	4	3	1	2	3	189	$D_9$
1327	11	1	4	3	1	2	3	199	$D_5$
1327	11	1	4	3	1	2	4	199	$D_5$
1583	11	1	24	3	11	2	4	230	$D_3$
1619	11	1	4	3	1	2	3	235	$D_3$
1823	11	1	4	3	1	2	4	263	$D_3$
2243	11	1	4	3	1	2	3	310	$D_3$
2351	11	1	4	3	1	2	6	325	$D_3$
2351	11	3	4	3	1	2	6	325	$D_9$
2503	11	1	4	3	1	2	3	341	$D_3$
2591	11	1	4	3	1	2	5	351	$D_3$
2647	11	1	4	3	1	2	3	360	$D_3$
2767	11	1	4	3	1	2	3	370	$D_3$
2791	11	1	4	3	1	2	3	375	$D_3$
3011	11	1	4	3	1	2	5	402	$D_3$
3119	11	1	4	3	1	2	5	415	$D_3$
3299	11	1	4	3	1	2	4	434	$D_3$
3299	11	3	4	3	1	2	4	434	$D_9$
3571	11	1	4	3	1	2	4	462	$D_3$

**Characteristic  $p = 13$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
367	13	1	4	3	1	2	3	78	$D_3$
439	13	2	4	3	1	2	4	91	$D_5$
563	13	1	4	3	1	2	3	111	$D_3$
971	13	2	4	3	1	2	4	177	$D_5$
1223	13	2	4	3	1	2	4	216	$D_5$
1427	13	1	4	3	1	2	5	243	$D_3$
1439	13	1	28	3	13	2	5	246	$D_3$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
1823	13	1	4	3	1	2	4	298	$D_3$

**Characteristic  $p = 17$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
59	17	1	6	3	2	2	3	23	$D_3$
239	17	2	4	3	1	2	5	68	$D_5$
1327	17	1	4	3	1	2	3	289	$D_3$
1427	17	2	4	3	1	2	3	306	$D_5$
1951	17	1	4	3	1	2	4	402	$D_3$
2503	17	1	4	3	1	2	3	497	$D_3$
2687	17	1	36	3	17	2	4	529	$D_3$

**Characteristic  $p = 19$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
439	19	1	6	3	2	2	3	125	$D_3$
751	19	1	4	3	1	2	5	195	$D_5$
751	19	1	4	3	1	2	5	195	$D_5$
1427	19	1	6	3	2	2	3	335	$D_3$

**Characteristic  $p = 23$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
83	23	1	4	3	1	2	3	37	$D_3$
503	23	3	4	3	1	2	4	162	$D_7$
971	23	2	4	3	1	2	4	284	$D_5$
1259	23	1	4	3	1	2	3	358	$D_3$

**Characteristic  $p = 29$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
107	29	1	4	3	1	2	3	55	$D_3$
199	29	1	4	3	1	2	3	92	$D_3$

**Characteristic  $p = 31$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
367	31	1	4	3	1	2	3	161	$D_3$
743	31	3	4	3	1	2	4	293	$D_7$

**Characteristic  $p = 37$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
139	37	1	4	3	1	2	4	83	$D_3$

**Characteristic  $p = 41$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
83	41	1	4	3	1	2	3	61	$D_3$
139	41	1	4	3	1	2	4	92	$D_3$
431	41	1	4	3	1	2	5	233	$D_3$

**Characteristic  $p = 43$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
419	43	1	4	3	1	2	3	239	$D_3$

**Characteristic  $p = 47$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
31	47	1	4	3	1	2	3	30	$D_3$
107	47	1	4	3	1	2	3	82	$D_3$
139	47	1	4	3	1	2	4	101	$D_3$
179	47	2	4	3	1	2	3	126	$D_5$

**Characteristic  $p = 53$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
131	53	2	4	3	1	2	3	106	$D_5$

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
211	53	1	4	3	1	2	4	159	$D_3$

**Characteristic  $p = 59$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
23 <sup>5</sup>	59	1	4	3	1	2	4	30	$D_3$
211	59	1	4	3	1	2	4	175	$D_3$
227	59	1	4	3	1	2	3	187	$D_5$
227	59	1	4	3	1	2	3	187	$D_5$
367	59	1	4	3	1	2	3	279	$D_3$

**Characteristic  $p = 61$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
239	61	1	4	3	1	2	4	199	$D_5$
239	61	1	4	3	1	2	4	199	$D_5$
431	61	1	4	3	1	2	5	327	$D_3$

**Characteristic  $p = 67$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
31	67	1	4	3	1	2	6	41	$D_3$
239	67	2	4	3	1	2	5	217	$D_5$

**Characteristic  $p = 71$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
59	71	1	4	3	1	2	3	71	$D_3$
239	71	1	4	3	1	2	5	223	$D_3$
283	71	1	4	3	1	2	5	263	$D_3$

**Characteristic  $p = 73$ , prime levels, dihedral**

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<sup>5</sup>First found by K. Buzzard, unpublished.

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
211	73	1	4	3	1	2	4	209	$D_3$
283	73	1	4	3	1	2	5	269	$D_3$

**Characteristic  $p = 79$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
307	79	1	4	3	1	2	5	307	$D_3$

**Characteristic  $p = 83$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
47	83	2	4	3	1	2	4	67	$D_5$
79	83	2	4	3	1	2	3	101	$D_5$
107	83	1	6	3	2	2	3	132	$D_3$
211	83	1	4	3	1	2	4	232	$D_3$
251	83	1	4	3	1	2	3	271	$D_7$
251	83	1	4	3	1	2	3	271	$D_7$
251	83	1	4	3	1	2	3	271	$D_7$

**Characteristic  $p = 89$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
131	89	1	4	3	1	2	3	165	$D_5$
131	89	1	4	3	1	2	3	165	$D_5$

**Characteristic  $p = 97$ , prime levels, dihedral**

Level	Wt	ResD	Dim	EmbDim	NilO	GorDef	#Ops	#(p<HB)	Gp
307	97	1	4	3	1	2	5	367	$D_3$