

Tables of the Class Number for Negative Prime Discriminants

UMT [29]

by

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Herewith are two tables of the class number $h(-p)$ for primes p , $p = 4n-1$, which were computed in August 1968 on the Univac 1108 computer of the National Bureau of Standards.

The first table gives p and $h(-p)$ where p is a prime of the form $8n+3$, in the range $3 \leq p \leq 102059$. They are printed five to a line in 491 numbered lines; the first prime on line k is the $(5k-4)$ th prime of this form. Thus the first 2455 primes of this form are given.

The second table gives p and $h(-p)$ where p is a prime of form $8n+7$. The 2445 primes in the range $7 \leq p \leq 102103$ are given.

The tables were computed by counting solutions of the system

$$\begin{cases} 4ac - b^2 = 8n + 3(\text{resp } 7) \\ -a < b \leq a < c \text{ or } 0 \leq b \leq a = c \end{cases} .$$

The computations were checked against smaller tables computed earlier at NBS by Kenneth Kloss, Morris Newman, and the present author, and other smaller tables available to us. The odd parity provides another check. In addition, Daniel Shanks has checked certain $p = 8n+3$ for which $h(-p) = 25$.

The attention of users of these tables is called to the tables of prime p and $h(p)$, $p = 4n+1$, $5 \leq p < 105,000$ and certain other ranges, computed earlier at NBS by Kloss, Newman, and Ordman. We also have limited tables for p

not primes. The present tables and the tables for $p = 4n+1$ are being retained on punched cards in the hope that they will simplify certain related calculations in the future (e.g., a table of all p for which $h(-p) = k$ where k is given). Further information may be obtained from

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TABLE OF H(-P), P PRIME = 8N+3, P FROM 3 TO

Line Number	P	h(-p)	P	h(-p)	P	h(-p)	P	h(-p)	P	h(-p)	#
1	3	1	11	1	19	1	43	1	59	3	
2	67	1	83	3	107	3	131	5	139	3	2143
3	163	1	179	5	211	3	227	5	251	7	
4	283	3	307	3	331	3	347	5	379	3	
5	419	9	443	5	467	7	491	9	499	3	
6	523	5	547	3	563	9	571	5	587	7	
7	619	5	643	3	659	11	683	5	691	5	
8	739	5	787	5	811	7	827	7	859	7	
9	883	3	907	3	947	5	971	15	1019	13	
10	1051	5	1091	17	1123	5	1163	7	1171	7	
11	1187	9	1259	15	1283	11	1291	9	1307	11	
12	1427	15	1451	13	1459	11	1483	7	1499	13	
13	1523	7	1531	11	1571	17	1579	9	1619	15	
14	1627	7	1667	13	1699	11	1723	5	1747	5	
15	1787	7	1811	23	1867	5	1907	13	1931	21	
16	1979	23	1987	7	2003	9	2011	7	2027	11	
17	2083	7	2099	19	2131	13	2179	7	2203	5	
18	2243	15	2251	7	2267	11	2339	19	2347	5	
19	2371	13	2411	23	2459	19	2467	7	2531	17	
20	2539	11	2579	21	2659	13	2683	5	2699	15	
21	2707	7	2731	11	2803	9	2819	21	2843	15	
22	2851	11	2939	29	2963	13	2971	11	3011	21	
23	3019	7	3067	7	3083	13	3163	9	3187	7	
24	3203	11	3251	31	3259	9	3299	27	3307	9	
25	3323	17	3331	15	3347	11	3371	21	3467	19	
26	3491	23	3499	11	3539	23	3547	9	3571	15	
27	3643	9	3659	29	3691	13	3739	11	3779	31	
28	3803	15	3851	25	3907	7	3923	23	3931	11	
29	3947	17	4003	13	4019	19	4027	9	4051	11	
30	4091	33	4099	15	4139	19	4211	23	4219	15	
31	4243	9	4259	35	4283	21	4339	17	4363	9	
32	4451	29	4483	9	4507	13	4523	21	4547	17	
33	4603	7	4643	13	4651	17	4691	21	4723	9	
34	4787	25	4931	35	4987	9	5003	15	5011	21	
35	5051	29	5059	19	5099	39	5107	7	5147	19	
36	5171	35	5179	11	5227	15	5323	15	5347	13	
37	5387	23	5419	13	5443	9	5483	17	5507	23	
38	5531	23	5563	15	5651	31	5659	19	5683	11	
39	5779	13	5827	15	5843	25	5851	21	5867	21	
40	5923	7	5939	35	5987	15	6011	27	6043	9	
41	6067	15	6091	15	6131	31	6163	11	6203	17	
42	6211	15	6299	43	6323	21	6379	17	6427	9	
43	6451	17	6491	31	6547	11	6563	23	6571	15	
44	6619	13	6659	23	6691	21	6763	9	6779	39	
45	6803	19	6827	17	6883	9	6899	35	6907	17	
46	6947	29	6971	45	7019	43	7027	11	7043	23	
47	7187	25	7211	35	7219	15	7243	13	7283	25	
48	7307	25	7331	33	7411	25	7451	35	7459	15	
49	7499	33	7507	11	7523	35	7547	15	7603	11	
50	7643	29	7691	43	7699	27	7723	9	7867	11	
51	7883	17	7907	21	7963	13	8011	25	8059	21	
52	8123	21	8147	37	8171	21	8179	25	8219	35	
53	8243	21	8291	47	8363	35	8387	21	8419	19	
54	8443	11	8467	15	8539	17	8563	9	8627	21	
55	8699	35	8707	15	8731	17	8747	21	8779	15	
56	8803	9	8819	49	8867	27	8923	19	8963	29	
57	8971	19	9011	33	9043	15	9059	39	9067	9	
58	9091	21	9187	21	9203	31	9227	25	9283	11	
59	9323	29	9371	49	9403	11	9419	35	9467	41	

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A TABLE OF $h(-p)$, p PRIME $=8N+7$, p FROM

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line number	p	$h(-p)$	p	$h(-p)$	p	$h(-p)$	p	$h(-p)$	p	$h(-p)$
1	7	1	23	3	31	3	47	5	71	7
2	79	5	103	5	127	5	151	7	167	11
3	191	13	199	9	223	7	239	15	263	13
4	271	11	311	19	359	19	367	9	383	17
5	431	21	439	15	463	7	479	25	487	7
6	503	21	599	25	607	13	631	13	647	23
7	719	31	727	13	743	21	751	15	823	9
8	839	33	863	21	887	29	911	31	919	19
9	967	11	983	27	991	17	1031	35	1039	23
10	1063	19	1087	9	1103	23	1151	41	1223	35
11	1231	27	1279	23	1303	11	1319	45	1327	15
12	1367	25	1399	27	1423	9	1439	39	1447	23
13	1471	23	1487	37	1511	49	1543	19	1559	51
14	1567	15	1583	33	1607	27	1663	17	1759	27
15	1783	17	1823	45	1831	19	1847	43	1871	45
16	1879	27	1951	33	1999	27	2039	45	2063	45
17	2087	35	2111	49	2143	13	2207	39	2239	35
18	2287	29	2311	29	2351	63	2383	29	2399	59
19	2423	33	2447	37	2503	21	2543	35	2551	41
20	2591	57	2647	15	2663	43	2671	23	2687	51
21	2711	53	2719	41	2767	21	2791	39	2879	57
22	2887	25	2903	59	2927	31	2999	73	3023	47
23	3079	41	3119	69	3167	53	3191	69	3271	27
24	3319	41	3343	19	3359	69	3391	37	3407	57
25	3463	19	3511	41	3527	65	3559	45	3583	29
26	3607	19	3623	45	3631	43	3671	81	3719	67
27	3727	31	3767	39	3823	29	3847	23	3863	61
28	3911	83	3919	39	3943	27	3967	33	4007	57
29	4079	85	4111	39	4127	49	4159	31	4231	51
30	4271	65	4327	19	4391	79	4423	33	4447	17
31	4463	55	4519	29	4567	33	4583	61	4591	49
32	4639	51	4663	33	4679	91	4703	75	4751	91
33	4759	53	4783	23	4799	63	4831	33	4871	91
34	4903	27	4919	91	4943	55	4951	31	4967	59
35	4999	33	5023	25	5039	83	5087	69	5119	39
36	5167	33	5231	75	5279	87	5303	55	5351	93
37	5399	79	5407	43	5431	57	5471	71	5479	43
38	5503	25	5519	97	5527	19	5591	99	5623	33
39	5639	87	5647	21	5711	109	5743	29	5783	53
40	5791	33	5807	65	5839	37	5879	101	5903	73
41	5927	71	6007	27	6047	71	6079	57	6143	41
42	6151	59	6199	39	6247	43	6263	77	6271	51
43	6287	51	6311	89	6343	33	6359	101	6367	37
44	6551	117	6599	109	6607	45	6679	55	6703	23
45	6719	105	6791	81	6823	33	6863	81	6871	45
46	6911	87	6959	95	6967	33	6983	57	6991	71
47	7039	43	7079	85	7103	77	7127	79	7151	85
48	7159	65	7207	29	7247	47	7351	33	7487	65
49	7559	115	7583	63	7591	65	7607	89	7639	31
50	7687	29	7703	81	7727	81	7759	49	7823	75
51	7879	49	7919	97	7927	47	7951	51	8039	113
52	8087	81	8111	121	8167	33	8191	55	8231	107
53	8263	43	8287	45	8311	61	8423	83	8431	59
54	8447	99	8527	43	8543	97	8599	63	8623	51
55	8647	31	8663	67	8719	53	8783	73	8807	81
56	8831	109	8839	77	8863	29	8887	43	8951	135
57	8999	99	9007	35	9103	57	9127	57	9151	67
58	9199	51	9239	139	9311	97	9319	41	9343	51
59	9391	55	9431	91	9439	75	9463	45	9479	101

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	L	R			L	R			L	R				
1	3	3	1		227	5			563	9				
2		7		1		239	15		571	5				
3	11		1		251	7			587	7				
4	19		1			263	13			599		25		
5		23		3	283	271	11			607		13		
6		31		3	307	3			619		5			
7	43		1			311	19			631		13		
8		47		5	331	3			643		3			
9	59		3		347	5				647		23		
10	67		1			359	19		659		11			
11		71		7		367	9		683		5			
12		79		5	379	3			691		5			
13	83		3			383	17			719		31		
14		103		5	419	9				727		13		
15	107		3			431	21		739		5			
16		127		5		439	15			743		21		
17	131		5		443	5				751		15		
18	139		3			463	7		787		5			
19		151		7	467	7			811		7			
20	163		1			479	25			823		9		
21		167		11		487	7		827		7			
22	179		5		491	9			●	839		33		
23		191		13	499	3			859		7			
24		199		9		503	21			863		21		
25	211		3		523	5			883		3			
26		223		7	547	3				887		29		