

The Theorems of Wilson and Fermat

The tables below list the remainders of $(n-1)!$ and 2^{n-1} modulo n . The boxed entries in the first column are those with prime values of n ; the boxed entries in the second and third columns are those with values -1 and 1 , respectively.

n	$(n-1)! \bmod n$	$2^{n-1} \bmod n$
3	-1	1
4	2	0
5	-1	1
6	0	2
7	-1	1
8	0	0
9	0	4
10	0	2
11	-1	1
12	0	8
13	-1	1
14	0	2
15	0	4
16	0	0
17	-1	1
18	0	14
19	-1	1
20	0	8
21	0	4
22	0	2
23	-1	1
24	0	8
25	0	16
26	0	2
27	0	13
28	0	8
29	-1	1
30	0	2
31	-1	1
32	0	0
33	0	4
34	0	2
35	0	9
36	0	32
37	-1	1
38	0	2
39	0	4
40	0	8
41	-1	1
42	0	32
43	-1	1
44	0	8
45	0	31
46	0	2
47	-1	1
48	0	32
49	0	15
50	0	12
51	0	4
52	0	8
53	-1	1
54	0	14
55	0	49
56	0	16
57	0	4
58	0	2
59	-1	1
60	0	8

n	$(n-1)! \bmod n$	$2^{n-1} \bmod n$
61	-1	1
62	0	2
63	0	4
64	0	0
65	0	16
66	0	32
67	-1	1
68	0	8
69	0	4
70	0	22
71	-1	1
72	0	32
73	-1	1
74	0	2
75	0	34
76	0	8
77	0	9
78	0	32
79	-1	1
80	0	48
81	0	40
82	0	2
83	-1	1
84	0	32
85	0	16
86	0	2
87	0	4
88	0	40
89	-1	1
90	0	32
91	0	64
92	0	8
93	0	4
94	0	2
95	0	54
96	0	32
97	-1	1
98	0	58
99	0	58
100	0	88
101	-1	1
102	0	32
103	-1	1
104	0	24
105	0	46
106	0	2
107	-1	1
108	0	68
109	-1	1
110	0	72
111	0	4
112	0	64
113	-1	1
114	0	32
115	0	39
116	0	8
117	0	22
118	0	2
119	0	30
120	0	8

n	$(n-1)! \bmod n$	$2^{n-1} \bmod n$
121	0	56
122	0	2
123	0	4
124	0	8
125	0	91
126	0	32
127	-1	1
128	0	0
129	0	4
130	0	122
131	-1	1
132	0	68
133	0	64
134	0	2
135	0	94
136	0	128
137	-1	1
138	0	32
139	-1	1
140	0	128
141	0	4
142	0	2
143	0	114
144	0	32
145	0	16
146	0	2
147	0	25
148	0	8
149	-1	1
150	0	62
151	-1	1
152	0	128
153	0	103
154	0	8
155	0	109
156	0	20
157	-1	1
158	0	2
159	0	4
160	0	128
161	0	156
162	0	122
163	-1	1
164	0	8
165	0	16
166	0	2
167	-1	1
168	0	32
169	0	40
170	0	2
171	0	85
172	0	8
173	-1	1
174	0	32
175	0	134
176	0	32
177	0	4
178	0	2
179	-1	1
180	0	68

n	$(n-1)! \bmod n$	$2^{n-1} \bmod n$
541	-1	1
542	0	2
543	0	4
544	0	128
545	0	16
546	0	32
547	-1	1
548	0	8
549	0	256
550	0	512
551	0	245
552	0	416
553	0	64
554	0	2
555	0	289
556	0	8
557	-1	1
558	0	500
559	0	441
560	0	128
561	0	1
562	0	2
563	-1	1
564	0	356
565	0	16
566	0	2
567	0	445
568	0	128
569	-1	1
570	0	452
571	-1	1
572	0	24
573	0	4
574	0	484
575	0	234
576	0	320
577	-1	1
578	0	308
579	0	4
580	0	548
581	0	562
582	0	32
583	0	70
584	0	128
585	0	256
586	0	2
587	-1	1
588	0	368
589	0	163
590	0	512
591	0	4
592	0	208
593	-1	1
594	0	338
595	0	344
596	0	8
597	0	4
598	0	330
599	-1	1
600	0	488