Polynomials Generating Twin Prime Numbers

Yukihiro Sano

Abstract

In the Ulam spiral, there are places where prime numbers appear continuously on line. Integers are arranged in a square spiral in the Ulam spiral. I thought that if integers are arranged differently, other continuous prime numbers would appear. Therefore, I arrange integers in the angles of 45, 90, 135, 180, 225, 270, 315 degrees, etc. Then, prime numbers appeared continuously on line. And usually, integers are arranged, but I wonder what would happen if I arranged odd numbers. I arrange odd numbers in the angles of 45, 90, 135, 180, 225, 270, 315, 360 degrees, etc. Then, twin prime numbers appeared continuously on line etc.. I found many polynomials generating 14 to 4 consecutive twin prime numbers.

Contents

1 Introduction

I was interested in prime numbers looking at the Ulam spiral, I analyzed it myself. And I learned that Euler's polynomial generating prime numbers is simple and great. I thought that other polynomials generating prime numbers may be found in other arrangements, I investigate. In addition, I thought that polynomials generating twin prime numbers may be found by arranging add numbers. I found many polynomials generating 14 to 4 consecutive twin prime numbers, and I collect the results.

These algebraic polynomials have the property that for n = 0, 1, ..., m-1 value of the polynomial, eventually in module, are m primes.

2 Polynomials generating prime numbers

2.1 The Ulam spiral

In the Ulam spiral, there are places where prime numbers appear continuously on line. I noticed that there are places where prime numbers appear continuously in a certain pattern in the Ulam spiral, although they do not appear continuously on line. They are two polynomials, $P(n) = 4n^2 + 2n + 41$ and $P(n) = 4n^2 + 6n + 43$, generates 20 primes, see Figure 2.1. Each value is a value obtained by skipping one of Euler prime numbers. When the values of the two polynomials are inserted alternately, the values are the same as values of Euler prime numbers, see Figure 2.1.

2.2 Polynomial generating prime numbers 1

Integers are arranged in a square spiral in the Ulam spiral, but I thought that if integers are arranged differently, other continuous prime numbers would appear. Therefore, I arrange integers in the angles of 45, 90, 135, 180, 225, 270, 315 degrees, etc., using a computer. Then, prime numbers appeared continuously on line. In 180 degrees arrangement, see Figure 2.2, 29 prime numbers appear continuously. It was prime numbers of Legendre polynomial [1798], $P(n) = 2n^2 + 29$, generates 29 primes.

2.3 Polynomial generating prime numbers 2

In 135 degrees arrangement, see Figure 2.3, 29 prime numbers appear continuously. It was prime numbers of Brox polynomial [2006], $P(n) = 6n^2 - 342n + 4903$ (or $6n^2 + 6n + 31$), generates 29 primes. Also, in Figure 2.3, prime numbers of polynomials, $P(n) = 6n^2 + 6n + p$, p are lucky numbers p = 5, 7, 11, 17, 31, are clearly appeared. In addition, prime numbers of polynomials, $P(n) = 6n^2 + 12n + p$, p are lucky numbers p = 11, 13, 19, 23, are clearly appeared.

2.4 Polynomial generating prime numbers 3

In 270 degrees arrangement, see Figure 2.4, 22 prime numbers appear continuously. It was prime numbers of Frame polynomial [2018], $P(n) = 3n^2 + 3n + 23$, generates 22 primes.

2.5 Euler's polynomial generating prime numbers

In 90 degrees arrangement, see Figure 2.5 and the hexagonal 90 degrees arrangement, see Figure 2.6 (illustrated as a rectangle for simplification in Figure 2.6), 40 prime numbers appear continuously. It was prime numbers of Euler's polynomial, $P(n) = n^2 + n + 41$, generates 40 primes. Also, prime numbers of polynomial, $P(n) = n^2 + n + p$, p are Euler's lucky numbers p = 3, 5, 11, 17, 41, are clearly appeared.

2.6 Other polynomials generating prime numbers

I found polynomials generating prime numbers with small continuous numbers, and I will collect them in the future.

3 Polynomials generating twin prime numbers

Integers are arranged in the Ulam spiral, but I wonder what would happen if I arranged odd numbers. I arrange odd numbers in the angles of 45, 90, 135, 180, 225, 270, 315, 360 degrees, etc., using a computer. I mark the twin prime numbers. (In the figure of 360 degrees, I mark the prime numbers and twin prime numbers.) Then, twin prime numbers appeared continuously on line etc.. I found many polynomials generating twin prime numbers. The generating appearance of prime numbers are diagonal, vertical, and horizontal lines and evenly spaced, but the generating appearance of twin prime numbers are diagonal, vertical, horizontal, and curved lines and evenly spaced or not-evenly spaced.

3.1 Polynomial generating twin prime numbers 1

When odd numbers are arranged in 45 degrees arrangement, see Figure 3.1, continuous twin prime numbers appear.
The produce of polynomial is as follows. (Since the method of obtaining the polynomial in Section 3.1 is difficult to understand, so I recommend to refer to the method of obtaining the polynomial in Section 3.2.) The central values of the twin prime numbers are 12, 42, 102, 192, 312, 462, 642.

12			12	n=0
	30			
42		30	42=(12+30)	n=1
	60		=12+30x1	
102		30	102=(12+30)+(30+30)	n=2
	90		=12+30x2+30x1	
192		30	192=(12+30)+(30+30)+(30+30+30)	n=3
	120		=12+30x3+30x3	
312		30	312=(12+30)+(30+30)+(30+30+30)+(30+30+30+30)	n=4
	150		=12+30x4+30x6	
462		30	462=(12+30)+(30+30)+(30+30+30)+(30+30+30+30)	n=5
	180		+(30+30+30+30+30)=12+30x5+30x10	
642			642= · · · · ·	

$f(n)=12+30n+30\mathrm{x}n(n-1)/2=12+30n+15n^2-15n=15n^2+15n+12$

This polynomial is twin prime numbers even if n = -1 to -7, so I insert n=n-7,
$f(n)=15(n-7)^2+15(n-7)+12=15n^2-15\mathrm{x}2\mathrm{x}7n+15\mathrm{x}7\mathrm{x}7+15n-15\mathrm{x}7+12=15n^2-210n+735+15n-105+12$
$=15n^2-195n+642$

This is polynomial generating 14 twin prime numbers.
$P(n) = 15n^2 - 195n + 642 \pm 1$, generates 14 twin primes: 641/643, 461/463, 311/313, 191/193, 101/103, 41/43, 11/13, 11/13, 41/43, 101/103, 191/193, 311/313, 461/463, 641/643.
But since the same twin prime numbers take twice each, so it is polynomial that 7 succession appear twice.

3.2 Polynomial generating twin prime numbers 2

When odd numbers are arranged in 180 degrees arrangement, see Figure 3.2, continuous twin prime numbers appear.

The produce of polynomial is as follows. The central values of the twin prime numbers are 60, 150, 270, 420, 600, 810, 1050, 1320, 1620, 1950, 2310.

60			60	n=0
	90			
150		30	150=(60+90)	n=1
	120		=60+90x1	
270		30	270=(60+90)+(90+30)	n=2
	150		=60+90x2+30x1	
420		30	420=(60+90)+(90+30)+(90+30+30)	n=3
	180		=60+90x3+30x3	
600		30	600=(60+90)+(90+30)+(90+30+30)+(90+30+30+30)	n=4
	210		=60+90x4+30x6	
810		30	810=(60+90)+(90+30)+(90+30+30)+(90+30+30+30)	n=5
	240		+(90+30+30+30+30)=60+90x5+30x10	
1050			1050=・・・・・	
			$f(n)=60+90n+30\mathrm{x}n(n-1)/2=60+90n+15n^2-15n=15n^2+75n+60$	

This is polynomial generating 11 twin prime numbers.

$P(n) = 15n^2 + 75n + 60 \pm 1$, generates 11 twin primes: 59/61, 149/151, 269/271, 419/421, 599/601, 809/811, 1049/1051, 1319/1321, 1619/1621, 1949/1951, 2309/2311.

3.3 Polynomial generating twin prime numbers 3

When odd numbers are arranged in 270 degrees arrangement, see Figure 3.3, continuous twin prime numbers appear.

The produce of polynomial is as follows. The central values of the twin prime numbers are 6, 12, 30, 60, 102.

6			6	n=0
	6			
12		12	12=(6+6)	n=1

	18		=6+6x1	
30		12	30=(6+6)+(6+12)	n=2
	30		=6+6x2+12x1	
60		12	60=(6+6)+(6+12)+(6+12+12)	n=3
	42		=6+6x3+12x3	
102			102=(6+6)+(6+12)+(6+12+12)+(6+12+12+12)	n=4
			=6+6x4+12x6	

$f(n)=6+6n+12xn(n-1)/2=6+6n+6n^2-6n=6n^2+6$

This polynomial is twin prime numbers even if n = -1 to -4, so I insert n=n-4
$f(n)=6(n-4)^2+6=6n^2-6x2x4n+6x4x4+6=6n^2-48n+96+6=6n^2-48n+102$

This is polynomial generating 9 twin prime numbers.
$P(n) = 6n^2 - 48n + 102 \pm 1$, generates 9 twin primes: 101/103, 59/61, 29/31, 11/13, 5/7, 11/13, 29/31, 59/61, 101/103.
But since the same twin prime numbers take twice each, so it is polynomial that 5 succession appear twice.

3.4 Polynomial generating twin prime numbers 4

When odd numbers are arranged in 360 degrees arrangement, see Figure 3.4, continuous twin prime numbers appear.
The produce of polynomial is as follows. The central values of the twin prime numbers are 18, 12, 150, 432, 858, 1428, 2142, 3000, 4002.

18			18	n=0
	−6			
12		144	12=(18−6)	n=1
	138		=18−6x1	
150		144	150=(18−6)+(−6+144)	n=2
	282		=18−6x2+144x1	
432		144	432=(18−6)+(−6+144)+(−6+144+144)	n=3
	426		=18−6x3+144x3	
858		144	858=(18−6)+(−6+144)+(−6+144+144)+(−6+144+144+144)	n=4
	570		=18−6x4+144x6	
1428		144	1428=(18−6)+(−6+144)+(−6+144+144)+(−6+144+144+144)	n=5
	714		+(−6+144+144+144+144)= 18−6x5+144x10	

2142 1050= · · · · · ·

$f(n)=18-6n+144n(n-1)/2=18-6n+72n^2-72n=72n^2-78n+18$

This is polynomial generating 9 twin prime numbers.

$P(n) = 72n^2 - 78n + 18 \pm 1$, generates 9 twin primes: 17/19, 11/13, 149/151, 431/433, 857/859, 1427/1429, 2141/2143, 2999/3001, 4001/4003.

3.5 Polynomial generating twin prime numbers 5

When odd numbers are arranged in 60 degrees arrangement, see Figure 3.5, continuous twin prime numbers appear.

Since the method of obtaining the polynomial is the same as the method described above, so it will be omitted below.

This is polynomial generating 7 twin prime numbers.

$P(n) = 75n^2 - 345n + 420 \pm 1$, generates 7 twin primes: 419/421, 149/151, 29/31, 59/61, 239/241, 569/571, 1049/1051.

3.6 Polynomial generating twin prime numbers 6

When odd numbers are arranged in 180 degrees arrangement, see Figure 3.6, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 3n^2 + 21n + 18 \pm 1$, generates 6 twin primes: 17/19, 41/43, 71/73, 107/109, 149/151, 197/199.

3.7 Polynomial generating twin prime numbers 7

When odd numbers are arranged in 135 degrees arrangement, see Figure 3.7, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 3n^2 + 27n + 72 \pm 1$, generates 6 twin primes: 71/73, 101/103, 137/139, 179/181, 227/229, 281/283.

3.8 Polynomial generating twin prime numbers 8

When odd numbers are arranged in 180 degrees arrangement, see Figure 3.8, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 3n^2 + 69n + 198 \pm 1$, generates 6 twin primes: 197/199, 269/271, 347/349, 431/433, 521/523, 617/619.

3.9 Polynomial generating twin prime numbers 9

When odd numbers are arranged in 160 degrees arrangement, see Figure 3.9, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 6n^2 - 30n + 42 \pm 1$, generates 6 twin primes: 41/43, 17/19, 5/7, 5/7, 17/19, 41/43.

But since the same twin prime numbers take twice each, so it is polynomial that 3 succession appear twice.

3.10 Polynomial generating twin prime numbers 10

When odd numbers are arranged in 60 degrees arrangement, see Figure 3.10, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 75n^2 - 165n + 102 \pm 1$, generates 6 twin primes: 101/103, 11/13, 71/73, 281/283, 641/643, 1151/1153.

3.11 Polynomial generating twin prime numbers 11

When odd numbers are arranged in 225 degrees arrangement, see Figure 3.11, continuous twin prime numbers appear.

This is polynomial generating 6 twin prime numbers.

$P(n) = 153n^2 - 135n + 180 \pm 1$, generates 6 twin primes: 179/181, 197/199, 521/523, 1151/1153, 2087/2089, 3329/3331.

3.12 Polynomial generating twin prime numbers 12

When odd numbers are arranged in 360 degrees arrangement, see Figure 3.12, continuous twin prime numbers appear.

This is polynomial generating 5 twin prime numbers.

$P(n) = 288n^2 - 180n + 30 \pm 1$, generates 5 twin primes: 29/31, 137/139, 821/823, 2081/2083, 3917/3919.

3.13 Other polynomials generating twin prime numbers

I found many polynomials generating 4 twin prime numbers. The details of diagrams are omitted. The polynomials found in Figure 3.1 to Figure 3.12 are shown in the figures. The figures of polynomials found in the figures other than Figure 3.1 to Figure 3.12 are omitted.

3.13.1 $P(n) = 3n^2 + 69n + 1878 \pm 1$, generates 4 twin primes:
1877/1879, 1949/1951, 2027/2029, 2111/2113.

3.13.2 $P(n) = 3n^2 + 141n + 1788 \pm 1$, generates 4 twin primes:
1787/1789, 1931/1933, 2081/2083, 2237/2239.

3.13.3 $P(n) = 6n^2 + 222n + 2082 \pm 1$, generates 4 twin primes:
2081/2083, 2309/2311, 2549/2551, 2801/2803.

3.13.4 $P(n) = 9n^2 + 3n + 18 \pm 1$, generates 4 twin primes:
17/19, 29/31, 59/61, 107/109.

3.13.5 $P(n) = 12n^2 + 54n + 42 \pm 1$, generates 4 twin primes:
41/43, 107/109, 197/199, 311/313.

3.13.6 $P(n) = 12n^2 + 174n + 1092 \pm 1$, generates 4 twin primes:
1091/1093, 1277/1279, 1487/1489, 1721/1723.

3.13.7 $P(n) = 18n^2 + 240n + 600 \pm 1$, generates 4 twin primes:
599/601, 857/859, 1151/1153, 1481/1483.

3.13.8 $P(n) = 18n^2 + 252n + 1032 \pm 1$, generates 4 twin primes:
1031/1033, 1301/1303, 1607/1609, 1949/1951.

3.13.9 $P(n) = 27n^2 + 453n + 1788 \pm 1$, generates 4 twin primes:
1787/1789, 2267/2269, 2801/2803, 3389/3391.

3.13.10 $P(n) = 33n^2 + 519n + 1998 \pm 1$, generates 4 twin primes:
1997/1999, 2549/2551, 3167/3169, 3851/3853.

3.13.11 $P(n) = 48n^2 + 150n + 150 \pm 1$, generates 4 twin primes:
149/151, 347/349, 641/643, 1031/1033.

3.13.12 $P(n) = 51n^2 + 657n + 570 \pm 1$, generates 4 twin primes:
569/571, 1277/1279, 2087/2089, 2999/3001.

3.13.13 $P(n) = 78n^2 + 228n + 42 \pm 1$, generates 4 twin primes:
41/43, 347/349, 809/811, 1427/1429.

3.13.14 $P(n) = 90n^2 + 150n + 822 \pm 1$, generates 4 twin primes:
821/823, 1061/1063, 1481/1483, 2081/2083.

3.13.15 $P(n) = 99n^2 + 363n + 108 \pm 1$, generates 4 twin primes:
107/109, 569/571, 1229/1231, 2087/2089.

3.13.16 $P(n) = 102n^2 + 72n + 18 \pm 1$, generates 4 twin primes:
17/19, 191/193, 569/571, 1151/1153.

3.13.17 $P(n) = 150n^2 - 90n + 12 \pm 1$, generates 4 twin primes:
11/13, 71/73, 431/433, 1091/1093.

3.13.18 $P(n) = 201n^2 + 57n + 570 \pm 1$, generates 4 twin primes:
569/571, 827/829, 1487/1489, 2549/2551.

3.13.19 $P(n) = 255n^2 - 75n + 12 \pm 1$, generates 4 twin primes:
11/13, 191/193, 881/883, 2081/2083.

3.13.20 $P(n) = 294n^2 - 462n + 348 \pm 1$, generates 4 twin primes:
347/349, 179/181, 599/601, 1607/1609.

3.13.21 $P(n) = 375n^2 - 555n + 420 \pm 1$, generates 4 twin primes:
419/421, 239/241, 809/811, 2129/2131.

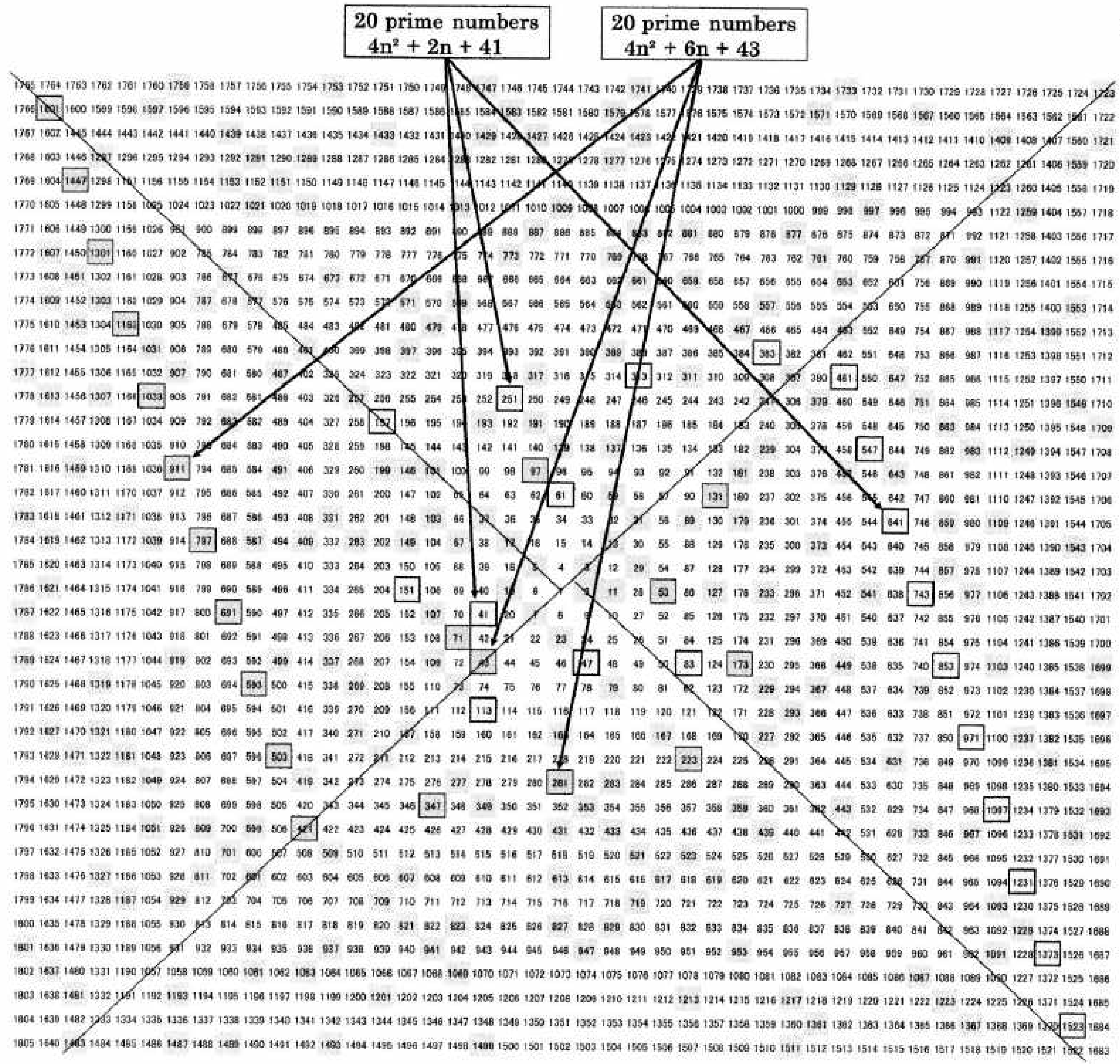
3.13.22 $P(n) = 390n^2 + 90n + 138 \pm 1$, generates 4 twin primes: 137/139, 617/619, 1877/1879, 3917/3919.

3.13.23 $P(n) = -12n^2 + 582n + 312 \pm 1$, generates 4 twin primes: 311/313, 881/883, 1427/1429, 1949/1951.

3.13.24 $P(n) = -45n^2 + 555n + 348 \pm 1$, generates 4 twin primes: 347/349, 857/859, 1277/1279, 1607/1609.

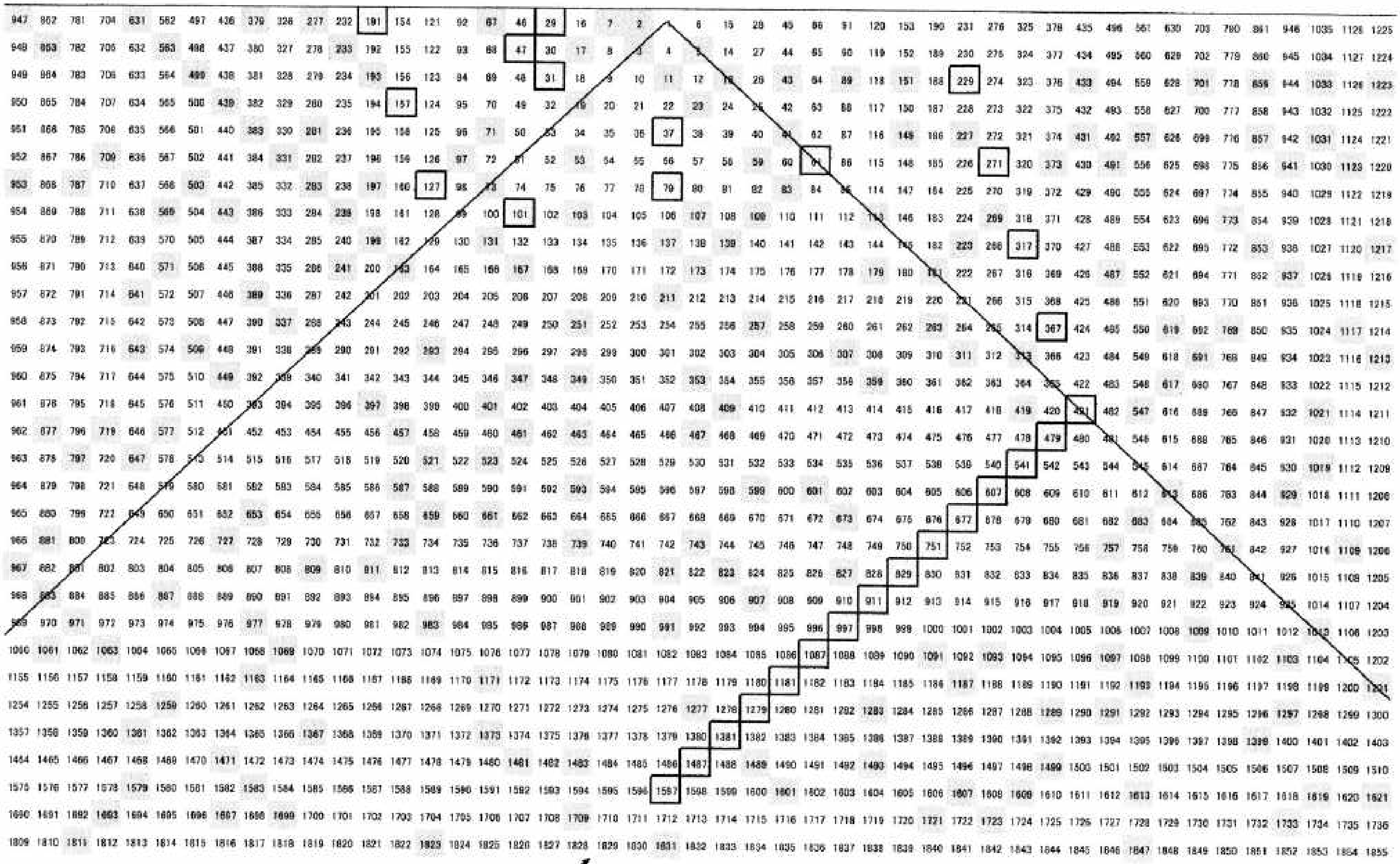
3.13.25 $P(n) = 90n + 1608 \pm 1$, generates 4 twin primes: 1607/1609, 1697/1699, 1787/1789, 1877/1879.

Figure 2.1: The Ulam Spiral



$4n^2 + 2n + 41$	$4n^2 + 6n + 43$	Euler's prime numbers $n^2 + n + 41$
41		41
	43	43
47		47
	53	53
61		61
	71	71
83		83
	97	97
113		113
	131	131
151		151
	173	173
197		197
	223	223
251		251
	281	281
313		313
	347	347
383		383
	421	421
461		461
	503	503
547		547
	593	593
641		641
	691	691
743		743
	797	797
853		853
	911	911
971		971
	1033	1033
1097		1097
	1163	1163
1231		1231
	1301	1301
1373		1373
	1447	1447
1523		1523
	1601	1601

Figure 2.2: 180 degrees Arrangement   Legendre Polynomial



Legendre polynomial $2n^2 + 29$

Figure 2.3: 135 degrees Arrangement Brox Polynomial

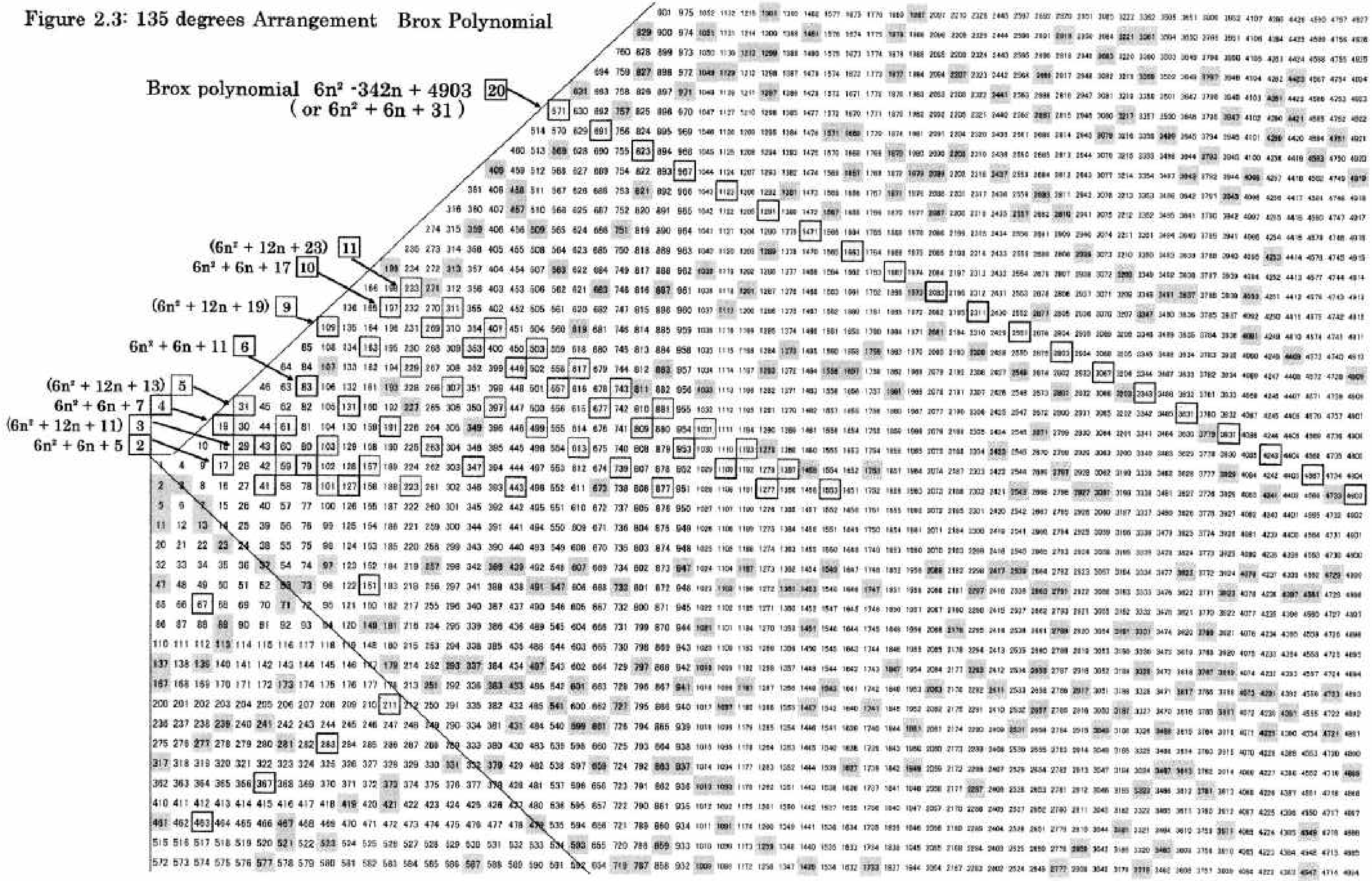


Figure 2.4: 270 degrees Arrangement   Frame Polynomial

Frame polynomial $3n^2 + 3n + 23$

																								280	279	278	277	276	275	274	273	272	271
																								225	224	223	222	221	220	219	218	217	270
																								176	175	174	173	172	171	170	169	216	269
																								133	132	131	130	129	128	127	168	215	268
																								96	95	94	93	92	91	126	167	214	267
																								65	64	63	62	61	90	125	166	213	266
																								40	39	38	37	60	89	124	165	212	265
																								21	20	19	36	59	88	123	164	211	264
																								8	7	18	35	58	87	122	163	210	263
1681	1542	1409	1282	1161	1046	937	834	737	646	561	482	409	342	281	226	177	134	97	66	41	22	9	2	1	6	17	34	57	86	121	162	209	262
1682	1543	1410	1283	1162	1047	938	835	738	647	562	483	410	343	282	227	178	135	98	67	42	23	10	3	4	5	16	33	56	85	120	161	208	261
1683	1544	1411	1284	1163	1048	939	836	739	648	563	484	411	344	283	228	179	136	99	68	43	24	11	12	13	14	15	32	55	84	119	160	207	260
1684	1545	1412	1285	1164	1049	940	837	740	649	564	485	412	345	284	229	180	137	100	69	44	25	26	27	28	29	30	31	54	83	118	159	206	259
1685	1546	1413	1286	1165	1050	941	838	741	650	565	486	413	346	285	230	181	138	101	70	45	46	47	48	49	50	51	52	53	82	117	158	205	258
1686	1547	1414	1287	1166	1051	942	839	742	651	566	487	414	347	286	231	182	139	102	71	72	73	74	75	76	77	78	79	80	81	116	157	204	257
1687	1548	1415	1288	1167	1052	943	840	743	652	567	488	415	348	287	232	183	140	103	104	105	106	107	108	109	110	111	112	113	114	115	156	203	256
1688	1549	1416	1289	1168	1053	944	841	744	653	568	489	416	349	288	233	184	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	202	255
1689	1550	1417	1290	1169	1054	945	842	745	654	569	490	417	350	289	234	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	254
1690	1551	1418	1291	1170	1055	946	843	746	655	570	491	418	351	290	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253
1691	1552	1419	1292	1171	1056	947	844	747	656	571	492	419	352	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310
1692	1553	1420	1293	1172	1057	948	845	748	657	572	493	420	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373
1693	1554	1421	1294	1173	1058	949	846	749	658	573	494	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442
1694	1555	1422	1295	1174	1059	950	847	750	659	574	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517
1695	1556	1423	1296	1175	1060	951	848	751	660	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598

Figure 2.5: 90 degrees Arrangement Euler's Polynomial

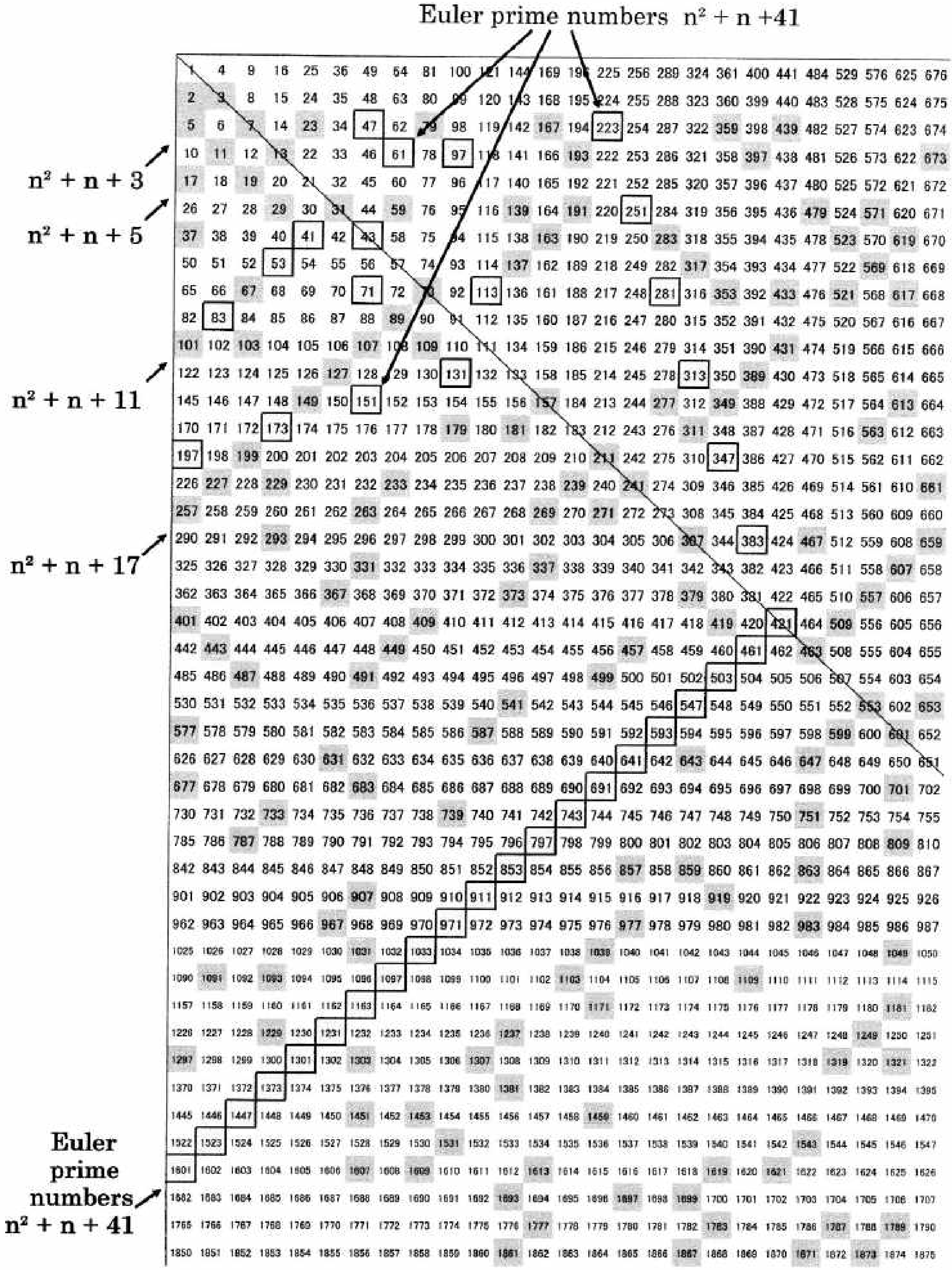


Figure 2.6: Hexagonal 90 degrees Arrangement   Euler's Polynomial

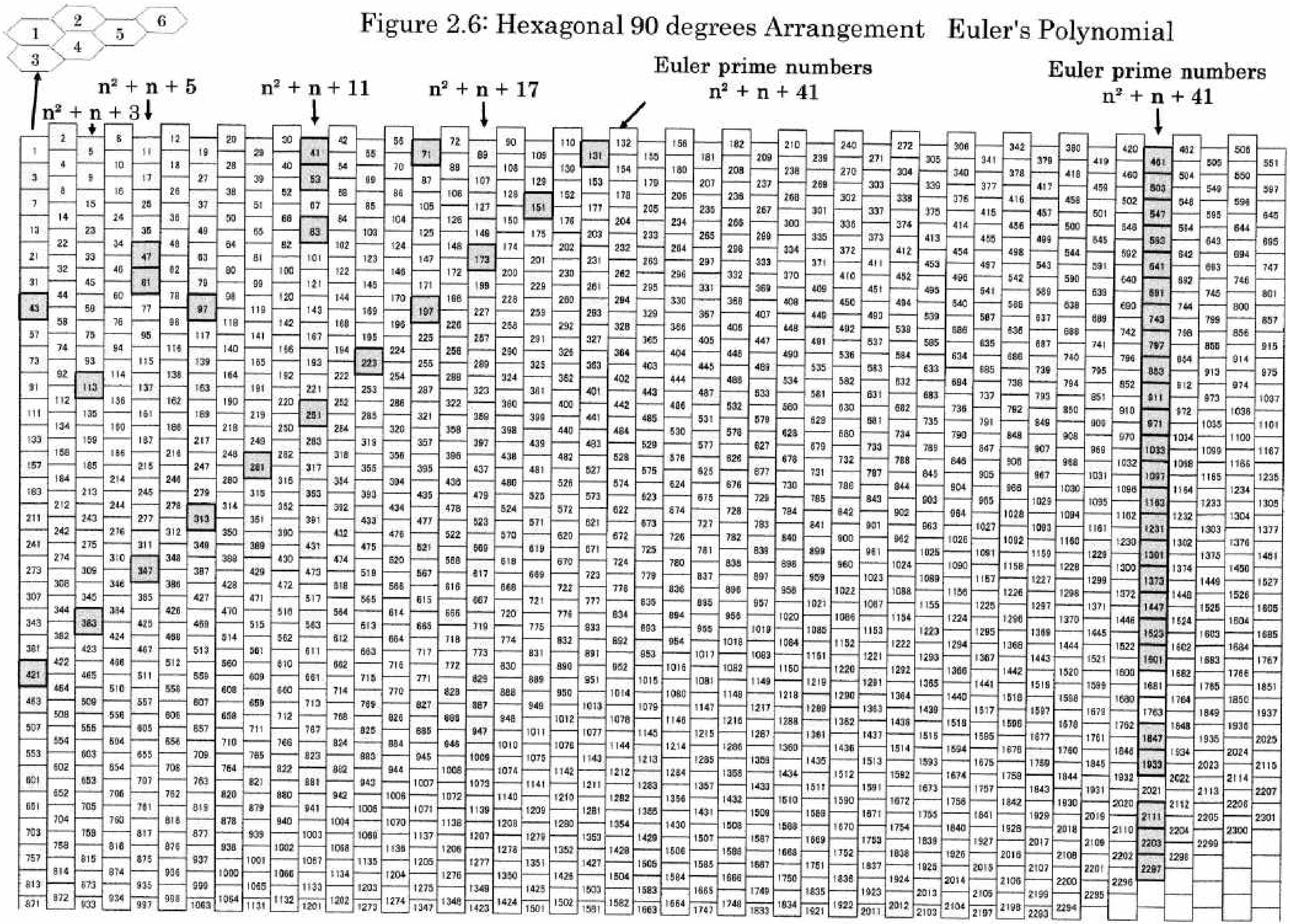


Figure 3.1: 45 degrees Arrangement

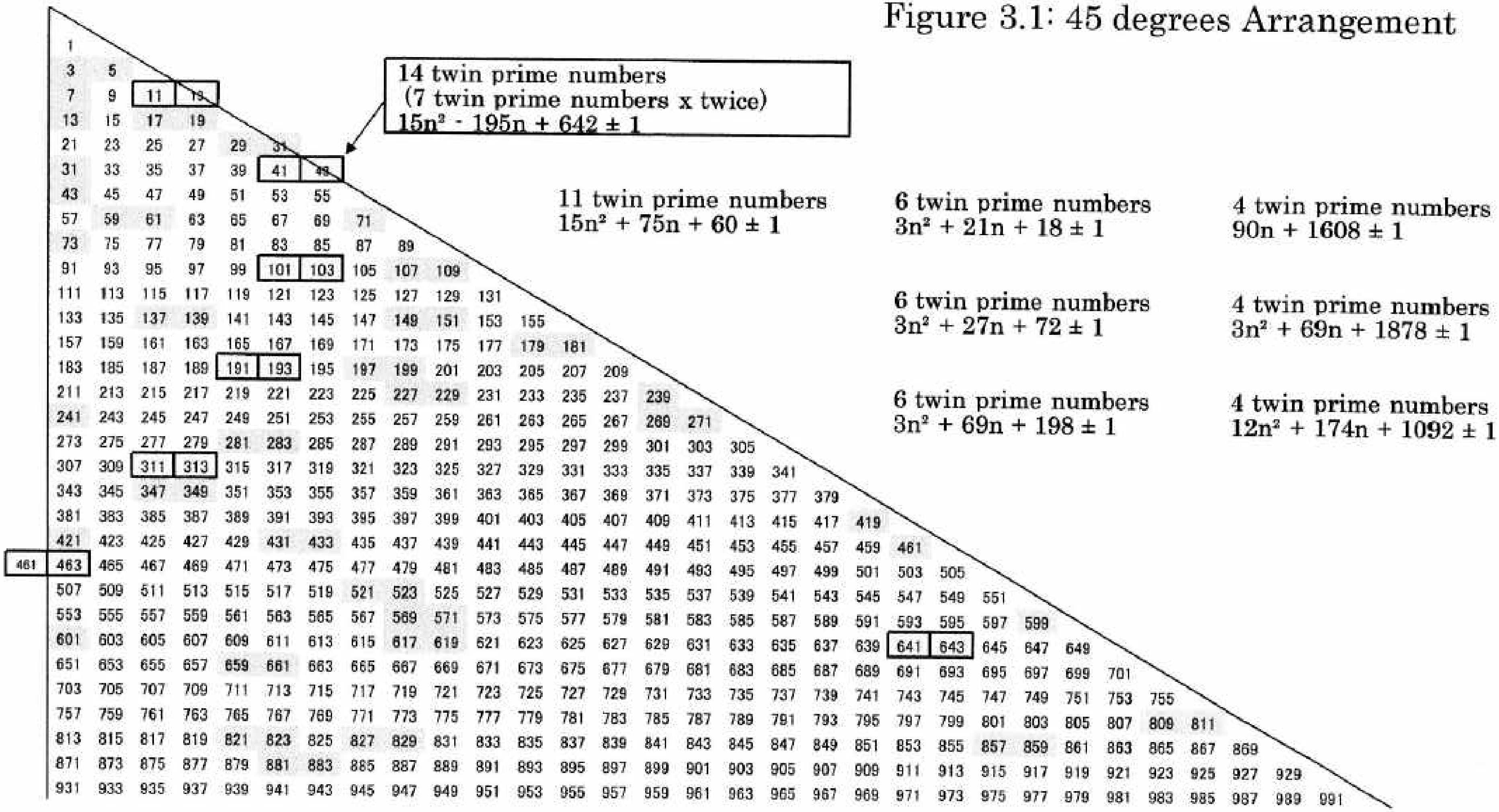


Figure 3.2: 180 degrees Arrangement

11 twin prime numbers
$15n^2 + 75n + 60 \pm 1$

2451	2257	2071	1893	1723	1561	1407	1261	1123	993	871	757	651	553	463	381	307	241	183	133	91	57	31	13	3	1	11	29	55	89	131	181	239
2453	2259	2073	1895	1725	1563	1409	1263	1125	995	873	759	653	555	465	383	309	243	185	135	93	59	33	15	5	7	9	27	53	87	129	179	237
2455	2261	2075	1897	1727	1565	1411	1265	1127	997	875	761	655	557	467	385	311	245	187	137	95	61	35	17	19	21	23	25	51	85	127	177	235
2457	2263	2077	1899	1729	1567	1413	1267	1129	999	877	763	657	559	469	387	313	247	189	139	97	63	37	39	41	43	45	47	49	83	125	175	233
2459	2265	2079	1901	1731	1569	1415	1269	1131	1001	879	765	659	561	471	389	315	249	191	141	99	65	67	69	71	73	75	77	79	81	123	173	231
2461	2267	2081	1903	1733	1571	1417	1271	1133	1003	881	767	661	563	473	391	317	251	193	143	101	103	105	107	109	111	113	115	117	119	121	171	229
2463	2269	2083	1905	1735	1573	1419	1273	1135	1005	883	769	663	565	475	393	319	253	195	145	147	149	151	153	155	157	159	161	163	165	167	169	227
2465	2271	2085	1907	1737	1575	1421	1275	1137	1007	885	771	665	567	477	395	321	255	197	199	201	203	205	207	209	211	213	215	217	219	221	223	225
2467	2273	2087	1909	1739	1577	1423	1277	1139	1009	887	773	667	569	479	397	323	257	259	261	263	265	267	269	271	273	275	277	279	281	283	285	287
2469	2275	2089	1911	1741	1579	1425	1279	1141	1011	889	775	669	571	481	399	325	327	329	331	333	335	337	339	341	343	345	347	349	351	353	355	357
2471	2277	2091	1913	1743	1581	1427	1281	1143	1013	891	777	671	573	483	401	403	405	407	409	411	413	415	417	419	421	423	425	427	429	431	433	435
2473	2279	2093	1915	1745	1583	1429	1283	1145	1015	893	779	673	575	485	487	489	491	493	495	497	499	501	503	505	507	509	511	513	515	517	519	521
2475	2281	2095	1917	1747	1585	1431	1285	1147	1017	895	781	675	577	579	581	583	585	587	589	591	593	595	597	599	601	603	605	607	609	611	613	615
2477	2283	2097	1919	1749	1587	1433	1287	1149	1019	897	783	677	679	681	683	685	687	689	691	693	695	697	699	701	703	705	707	709	711	713	715	717
2479	2285	2099	1921	1751	1589	1435	1289	1151	1021	899	785	787	789	791	793	795	797	799	801	803	805	807	809	811	813	815	817	819	821	823	825	827
2481	2287	2101	1923	1753	1591	1437	1291	1153	1023	901	903	905	907	909	911	913	915	917	919	921	923	925	927	929	931	933	935	937	939	941	943	945
2483	2289	2103	1925	1755	1593	1439	1293	1155	1025	1027	1029	1031	1033	1035	1037	1039	1041	1043	1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1065	1067	1069	1071
2485	2291	2105	1927	1757	1595	1441	1295	1157	1159	1161	1163	1165	1167	1169	1171	1173	1175	1177	1179	1181	1183	1185	1187	1189	1191	1193	1195	1197	1199	1201	1203	1205
2487	2293	2107	1929	1759	1597	1443	1297	1299	1301	1303	1305	1307	1309	1311	1313	1315	1317	1319	1321	1323	1325	1327	1329	1331	1333	1335	1337	1339	1341	1343	1345	1347
2489	2295	2109	1931	1761	1599	1445	1447	1449	1451	1453	1455	1457	1459	1461	1463	1465	1467	1469	1471	1473	1475	1477	1479	1481	1483	1485	1487	1489	1491	1493	1495	1497
2491	2297	2111	1933	1763	1601	1603	1605	1607	1609	1611	1613	1615	1617	1619	1621	1623	1625	1627	1629	1631	1633	1635	1637	1639	1641	1643	1645	1647	1649	1651	1653	1655
2493	2299	2113	1935	1765	1767	1769	1771	1773	1775	1777	1779	1781	1783	1785	1787	1789	1791	1793	1795	1797	1799	1801	1803	1805	1807	1809	1811	1813	1815	1817	1819	1821
2495	2301	2115	1937	1939	1941	1943	1945	1947	1949	1951	1953	1955	1957	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995
2497	2303	2117	2119	2121	2123	2125	2127	2129	2131	2133	2135	2137	2139	2141	2143	2145	2147	2149	2151	2153	2155	2157	2159	2161	2163	2165	2167	2169	2171	2173	2175	2177
2499	2305	2307	2309	2311	2313	2315	2317	2319	2321	2323	2325	2327	2329	2331	2333	2335	2337	2339	2341	2343	2345	2347	2349	2351	2353	2355	2357	2359	2361	2363	2365	2367
2501	2503	2505	2507	2509	2511	2513	2515	2517	2519	2521	2523	2525	2527	2529	2531	2533	2535	2537	2539	2541	2543	2545	2547	2549	2551	2553	2555	2557	2559	2561	2563	2565

6 twin prime numbers
$3n^2 + 21n + 18 \pm 1$

4 twin prime numbers
$18n^2 + 252n + 1032 \pm 1$

4 twin prime numbers
$90n^2 + 150n + 822 \pm 1$

6 twin prime numbers
$3n^2 + 69n + 198 \pm 1$

Figure 3.3: 270 degrees Arrangement

9 twin prime numbers
(5 twin prime numbers x twice)
$6n^2 - 48n + 102 \pm 1$

													887	885	883	881	879	877	875	873	871	869	867	865
													747	745	743	741	739	737	735	733	731	729	727	863
													619	617	615	613	611	609	607	605	603	601	725	861
													503	501	499	497	495	493	491	489	487	599	723	859
													399	397	395	393	391	389	387	385	485	597	721	857
													307	305	303	301	299	297	295	383	483	595	719	855
													227	225	223	221	219	217	293	381	481	593	717	853
													159	157	155	153	151	215	291	379	479	591	715	851
													103	101	99	97	149	213	289	377	477	589	713	849
													59	57	55	95	147	211	287	375	475	587	711	847
									59				27	25	53	93	145	209	285	373	473	585	709	845
889	749	621	505	401	309	229	161	105	61	29	9	1	7	23	51	91	143	207	283	371	471	583	707	843
891	751	623	507	403	311	231	163	107	63	31	11	3	5	21	49	89	141	205	281	369	469	581	705	841
893	753	625	509	405	313	233	165	109	65	33	13	15	17	19	47	87	139	203	279	367	467	579	703	839
895	755	627	511	407	315	235	167	111	67	35	37	39	41	43	45	85	137	201	277	365	465	577	701	837
897	757	629	513	409	317	237	169	113	69	71	73	75	77	79	81	83	135	199	275	363	463	575	699	835
899	759	631	515	411	319	239	171	115	117	119	121	123	125	127	129	131	133	197	273	361	461	573	697	833
901	761	633	517	413	321	241	173	175	177	179	181	183	185	187	189	191	193	195	271	359	459	571	695	831
903	763	635	519	415	323	243	245	247	249	251	253	255	257	259	261	263	265	267	269	357	457	569	693	829
905	765	637	521	417	325	327	329	331	333	335	337	339	341	343	345	347	349	351	353	355	455	567	691	827

4 twin prime numbers
$6n^2 + 222n + 2082 \pm 1$

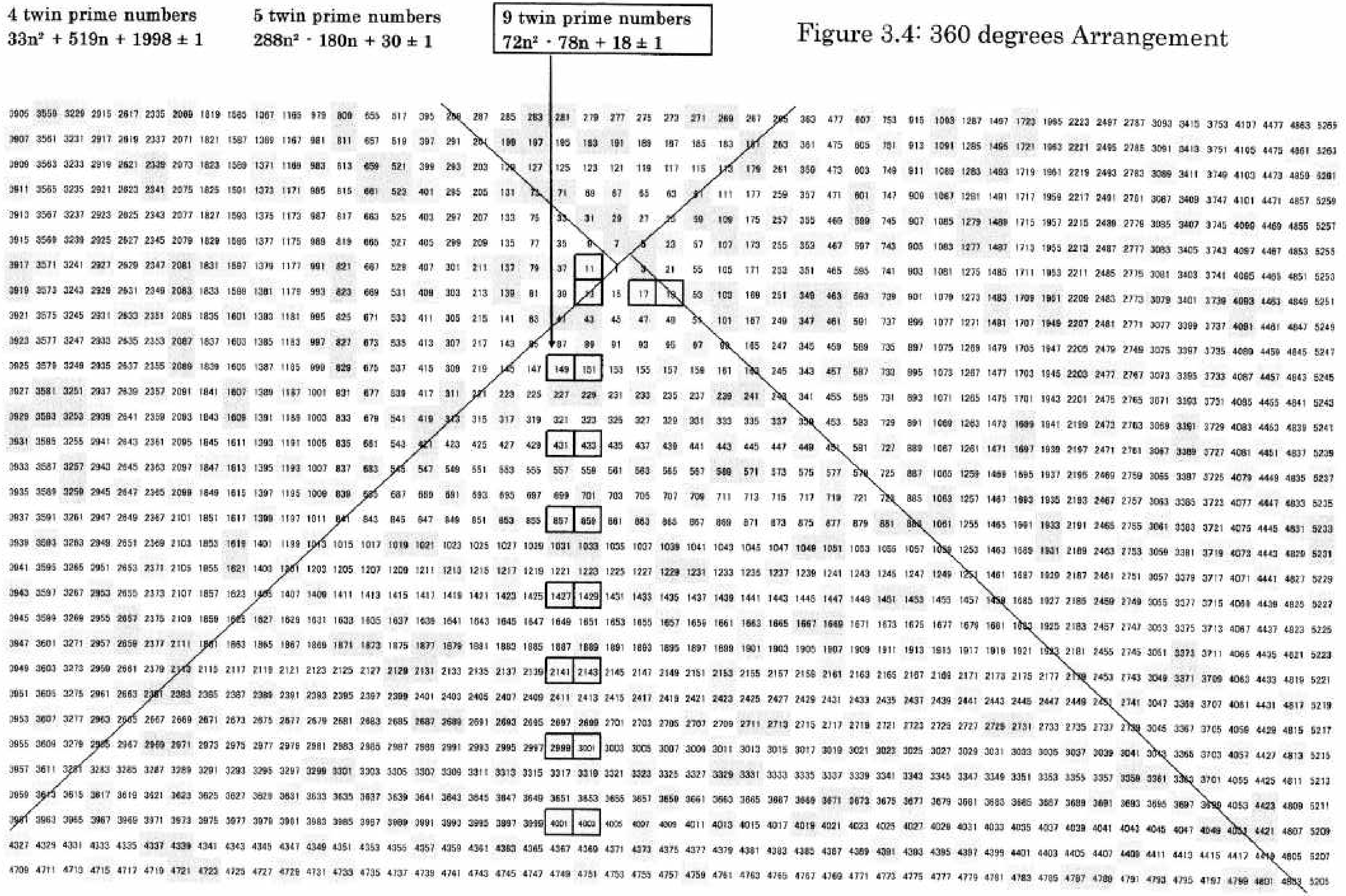


Figure 3.4: 360 degrees Arrangement

Figure 3.5: 60 degrees Arrangement

6 twin prime numbers
$3n^2 + 27n + 72 \pm 1$

7 twin prime numbers
$75n^2 - 345n + 420 \pm 1$

4 twin prime numbers
$3n^2 + 141n + 1788 \pm 1$

6 twin prime numbers
$3n^2 + 21n + 18 \pm 1$

6 twin prime numbers
$75n^2 - 165n + 102 \pm 1$

1																																						
3	5	7																																				
9	11	13	15	17	19																																	
21	23	25	27	29	31	33	35	37																														
39	41	43	45	47	49	51	53	55	57	59	61																											
63	65	67	69	71	73	75	77	79	81	83	85	87	89	91																								
93	95	97	99	101	103	105	107	109	111	113	115	117	119	121	123	125	127																					
129	131	133	135	137	139	141	143	145	147	149	151	153	155	157	159	161	163	165	167	169																		
171	173	175	177	179	181	183	185	187	189	191	193	195	197	199	201	203	205	207	209	211	213	215	217															
219	221	223	225	227	229	231	233	235	237	239	241	243	245	247	249	251	253	255	257	259	261	263	265	267	269	271												
273	275	277	279	281	283	285	287	289	291	293	295	297	299	301	303	305	307	309	311	313	315	317	319	321	323	325	327	329	331									
333	335	337	339	341	343	345	347	349	351	353	355	357	359	361	363	365	367	369	371	373	375	377	379	381	383	385	387	389	391	393	395	397						
399	401	403	405	407	409	411	413	415	417	419	421	423	425	427	429	431	433	435	437	439	441	443	445	447	449	451	453	455	457	459	461	463	465	467	469			
471	473	475	477	479	481	483	485	487	489	491	493	495	497	499	501	503	505	507	509	511	513	515	517	519	521	523	525	527	529	531	533	535	537	539	541	543	545	547
549	551	553	555	557	559	561	563	565	567	569	571	573	575	577	579	581	583	585	587	589	591	593	595	597	599	601	603	605	607	609	611	613	615	617	619	621	623	625
633	635	637	639	641	643	645	647	649	651	653	655	657	659	661	663	665	667	669	671	673	675	677	679	681	683	685	687	689	691	693	695	697	699	701	703	705	707	709
723	725	727	729	731	733	735	737	739	741	743	745	747	749	751	753	755	757	759	761	763	765	767	769	771	773	775	777	779	781	783	785	787	789	791	793	795	797	799
819	821	823	825	827	829	831	833	835	837	839	841	843	845	847	849	851	853	855	857	859	861	863	865	867	869	871	873	875	877	879	881	883	885	887	889	891	893	895
921	923	925	927	929	931	933	935	937	939	941	943	945	947	949	951	953	955	957	959	961	963	965	967	969	971	973	975	977	979	981	983	985	987	989	991	993	995	997
1029	1031	1033	1035	1037	1039	1041	1043	1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1065	1067	1069	1071	1073	1075	1077	1079	1081	1083	1085	1087	1089	1091	1093	1095	1097	1099	1101	1103	1105
1143	1145	1147	1149	1151	1153	1155	1157	1159	1161	1163	1165	1167	1169	1171	1173	1175	1177	1179	1181	1183	1185	1187	1189	1191	1193	1195	1197	1199	1201	1203	1205	1207	1209	1211	1213	1215	1217	1219
1263	1265	1267	1269	1271	1273	1275	1277	1279	1281	1283	1285	1287	1289	1291	1293	1295	1297	1299	1301	1303	1305	1307	1309	1311	1313	1315	1317	1319	1321	1323	1325	1327	1329	1331	1333	1335	1337	1339
1389	1391	1393	1395	1397	1399	1401	1403	1405	1407	1409	1411	1413	1415	1417	1419	1421	1423	1425	1427	1429	1431	1433	1435	1437	1439	1441	1443	1445	1447	1449	1451	1453	1455	1457	1459	1461	1463	1465
1521	1523	1525	1527	1529	1531	1533	1535	1537	1539	1541	1543	1545	1547	1549	1551	1553	1555	1557	1559	1561	1563	1565	1567	1569	1571	1573	1575	1577	1579	1581	1583	1585	1587	1589	1591	1593	1595	1597
1659	1661	1663	1665	1667	1669	1671	1673	1675	1677	1679	1681	1683	1685	1687	1689	1691	1693	1695	1697	1699	1701	1703	1705	1707	1709	1711	1713	1715	1717	1719	1721	1723	1725	1727	1729	1731	1733	1735
1803	1805	1807	1809	1811	1813	1815	1817	1819	1821	1823	1825	1827	1829	1831	1833	1835	1837	1839	1841	1843	1845	1847	1849	1851	1853	1855	1857	1859	1861	1863	1865	1867	1869	1871	1873	1875	1877	1879
1953	1955	1957	1959	1961	1963	1965	1967	1969	1971	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1993	1995	1997	1999	2001	2003	2005	2007	2009	2011	2013	2015	2017	2019	2021	2023	2025	2027	2029
2109	2111	2113	2115	2117	2119	2121	2123	2125	2127	2129	2131	2133	2135	2137	2139	2141	2143	2145	2147	2149	2151	2153	2155	2157	2159	2161	2163	2165	2167	2169	2171	2173	2175	2177	2179	2181	2183	2185
2271	2273	2275	2277	2279	2281	2283	2285	2287	2289	2291	2293	2295	2297	2299	2301	2303	2305	2307	2309	2311	2313	2315	2317	2319	2321	2323	2325	2327	2329	2331	2333	2335	2337	2339	2341	2343	2345	2347

Figure 3.6: 180 degrees Arrangement

6 twin prime numbers
$3n^2 + 21n + 18 \pm 1$

1261	1123	993	871	757	651	553	463	381	307	241	183	133	91	57	31	13	3	1	11	29	55	89	131	181	239	305
1263	1125	995	873	759	653	555	465	383	309	243	185	135	93	59	33	15	5	7	9	27	53	87	129	179	237	303
1265	1127	997	875	761	655	557	467	385	311	245	187	137	95	61	35	17	19	21	23	25	51	85	127	177	235	301
1267	1129	999	877	763	657	559	469	387	313	247	189	139	97	63	37	39	41	43	45	47	49	83	125	175	233	299
1269	1131	1001	879	765	659	561	471	389	315	249	191	141	99	65	67	69	71	73	75	77	79	81	123	173	231	297
1271	1133	1003	881	767	661	563	473	391	317	251	193	143	101	103	105	107	109	111	113	115	117	119	121	171	229	295
1273	1135	1005	883	769	663	565	475	393	319	253	195	145	147	149	151	153	155	157	159	161	163	165	167	169	227	293
1275	1137	1007	885	771	665	567	477	395	321	255	197	199	201	203	205	207	209	211	213	215	217	219	221	223	225	291
1277	1139	1009	887	773	667	569	479	397	323	257	259	261	263	265	267	269	271	273	275	277	279	281	283	285	287	289
1279	1141	1011	889	775	669	571	481	399	325	327	329	331	333	335	337	339	341	343	345	347	349	351	353	355	357	359
1281	1143	1013	891	777	671	573	483	401	403	405	407	409	411	413	415	417	419	421	423	425	427	429	431	433	435	437
1283	1145	1015	893	779	673	575	485	487	489	491	493	495	497	499	501	503	505	507	509	511	513	515	517	519	521	523
1285	1147	1017	895	781	675	577	579	581	583	585	587	589	591	593	595	597	599	601	603	605	607	609	611	613	615	617
1287	1149	1019	897	783	677	679	681	683	685	687	689	691	693	695	697	699	701	703	705	707	709	711	713	715	717	719
1289	1151	1021	899	785	787	789	791	793	795	797	799	801	803	805	807	809	811	813	815	817	819	821	823	825	827	829
1291	1153	1023	901	903	905	907	909	911	913	915	917	919	921	923	925	927	929	931	933	935	937	939	941	943	945	947
1293	1155	1025	1027	1029	1031	1033	1035	1037	1039	1041	1043	1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1065	1067	1069	1071	1073
1295	1157	1159	1161	1163	1165	1167	1169	1171	1173	1175	1177	1179	1181	1183	1185	1187	1189	1191	1193	1195	1197	1199	1201	1203	1205	1207
1297	1299	1301	1303	1305	1307	1309	1311	1313	1315	1317	1319	1321	1323	1325	1327	1329	1331	1333	1335	1337	1339	1341	1343	1345	1347	1349

4 twin prime numbers
$18n^2 + 252n + 1032 \pm 1$

4 twin prime numbers
$90n^2 + 150n + 822 \pm 1$

6 twin prime numbers
$3n^2 + 69n + 198 \pm 1$

Figure 3.7: 135 degrees Arrangement

4 twin prime numbers
$12n^2 + 54n + 42 \pm 1$

9 twin prime numbers
(4.5 twin prime numbers x twice)
$6n^2 - 48n + 102 \pm 1$

6 twin prime numbers
$3n^2 + 27n + 72 \pm 1$

6 twin prime numbers
$6n^2 + 21n + 18 \pm 1$

												469
											397	467
										331	395	465
									271	329	393	463
								217	269	327	391	461
							169	215	267	325	389	459
						127	167	213	265	323	387	457
					91	125	165	211	263	321	385	455
				61	89	123	163	209	261	319	383	453
			37	59	87	121	161	207	259	317	381	451
		19	35	57	85	119	159	205	257	315	379	449
1	7	17	33	55	83	117	157	203	255	313	377	447
3	5	15	31	53	81	115	155	201	253	311	375	445
9	11	13	29	51	79	113	153	199	251	309	373	443
21	23	25	27	49	77	111	151	197	249	307	371	441
39	41	43	45	47	75	109	149	195	247	305	369	439
63	65	67	69	71	73	107	147	193	245	303	367	437
93	95	97	99	101	103	105	145	191	243	301	365	435
129	131	133	135	137	139	141	143	189	241	299	363	433
171	173	175	177	179	181	183	185	187	239	297	361	431
219	221	223	225	227	229	231	233	235	237	295	359	429
273	275	277	279	281	283	285	287	289	291	293	357	427
333	335	337	339	341	343	345	347	349	351	353	355	425
399	401	403	405	407	409	411	413	415	417	419	421	423
471	473	475	477	479	481	483	485	487	489	491	493	495
549	551	553	555	557	559	561	563	565	567	569	571	573
633	635	637	639	641	643	645	647	649	651	653	655	657

Figure 3.8: 180 degrees Arrangement

6 twin prime numbers
$3n^2 + 69n + 198 \pm 1$

757	651	553	463	381	307	241	183	133	91	57	31	13	3	1	11	29	55	89	131	181	239	305	379	461	551	649
759	653	555	465	383	309	243	185	135	93	59	33	15	5	7	9	27	53	87	129	179	237	303	377	459	549	647
761	655	557	467	385	311	245	187	137	95	61	35	17	19	21	23	25	51	85	127	177	235	301	375	457	547	645
763	657	559	469	387	313	247	189	139	97	63	37	39	41	43	45	47	49	83	125	175	233	299	373	455	545	643
765	659	561	471	389	315	249	191	141	99	65	67	69	71	73	75	77	79	81	123	173	231	297	371	453	543	641
767	661	563	473	391	317	251	193	143	101	103	105	107	109	111	113	115	117	119	121	171	229	295	369	451	541	639
769	663	565	475	393	319	253	195	145	147	149	151	153	155	157	159	161	163	165	167	169	227	293	367	449	539	637
771	665	567	477	395	321	255	197	199	201	203	205	207	209	211	213	215	217	219	221	223	225	291	365	447	537	635
773	667	569	479	397	323	257	259	261	263	265	267	269	271	273	275	277	279	281	283	285	287	289	363	445	535	633
775	669	571	481	399	325	327	329	331	333	335	337	339	341	343	345	347	349	351	353	355	357	359	361	443	533	631
777	671	573	483	401	403	405	407	409	411	413	415	417	419	421	423	425	427	429	431	433	435	437	439	441	531	629
779	673	575	485	487	489	491	493	495	497	499	501	503	505	507	509	511	513	515	517	519	521	523	525	527	529	627
781	675	577	579	581	583	585	587	589	591	593	595	597	599	601	603	605	607	609	611	613	615	617	619	621	623	625
783	677	679	681	683	685	687	689	691	693	695	697	699	701	703	705	707	709	711	713	715	717	719	721	723	725	727
785	787	789	791	793	795	797	799	801	803	805	807	809	811	813	815	817	819	821	823	825	827	829	831	833	835	837
903	905	907	909	911	913	915	917	919	921	923	925	927	929	931	933	935	937	939	941	943	945	947	949	951	953	955
1029	1031	1033	1035	1037	1039	1041	1043	1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1065	1067	1069	1071	1073	1075	1077	1079	1081
1163	1165	1167	1169	1171	1173	1175	1177	1179	1181	1183	1185	1187	1189	1191	1193	1195	1197	1199	1201	1203	1205	1207	1209	1211	1213	1215
1305	1307	1309	1311	1313	1315	1317	1319	1321	1323	1325	1327	1329	1331	1333	1335	1337	1339	1341	1343	1345	1347	1349	1351	1353	1355	1357

4 twin prime numbers
$18n^2 + 252n + 1032 \pm 1$

4 twin prime numbers
$90n^2 + 150n + 822 \pm 1$

Figure 3.9: 160 degrees Arrangement

4 twin prime numbers
$-45n^2 + 555n + 348 \pm 1$

4 twin prime numbers
$375n^2 - 555n + 420 \pm 1$

6 twin prime numbers
(3 twin prime numbers x twice)
$6n^2 - 30n + 42 \pm 1$

6 twin prime numbers
$3n^2 + 69n + 198 \pm 1$

									413	503	603
									411	501	601
								329	409	499	599
								327	407	497	597
								325	405	495	595
							253	323	403	493	593
							251	321	401	491	591
							249	319	399	489	589
						187	247	317	397	487	587
						185	245	315	395	485	585
						183	243	313	393	483	583
					131	181	241	311	391	481	581
					129	179	239	309	389	479	579
					127	177	237	307	387	477	577
				85	125	175	235	305	385	475	575
				83	123	173	233	303	383	473	573
				81	121	171	231	301	381	471	571
			49	79	119	169	229	299	379	469	569
			47	77	117	167	227	297	377	467	567
			45	75	115	165	225	295	375	465	565
		23	43	73	113	163	223	293	373	463	563
		21	41	71	111	161	221	291	371	461	561
		19	39	69	109	159	219	289	369	459	559
1	7	17	37	67	107	157	217	287	367	457	557
3	5	15	35	65	105	155	215	285	365	455	555
9	11	13	33	63	103	153	213	283	363	453	553
25	27	29	31	61	101	151	211	281	361	451	551
51	53	55	57	59	99	149	209	279	359	449	549
87	89	91	93	95	97	147	207	277	357	447	547
133	135	137	139	141	143	145	205	275	355	445	545
189	191	193	195	197	199	201	203	273	353	443	543
255	257	259	261	263	265	267	269	271	351	441	541
331	333	335	337	339	341	343	345	347	349	439	539
417	419	421	423	425	427	429	431	433	435	437	537

Figure 3.10: 60 degrees Arrangement

6 twin prime numbers
$3n^2 + 27n + 72 \pm 1$

7 twin prime numbers
$75n^2 - 345n + 420 \pm 1$

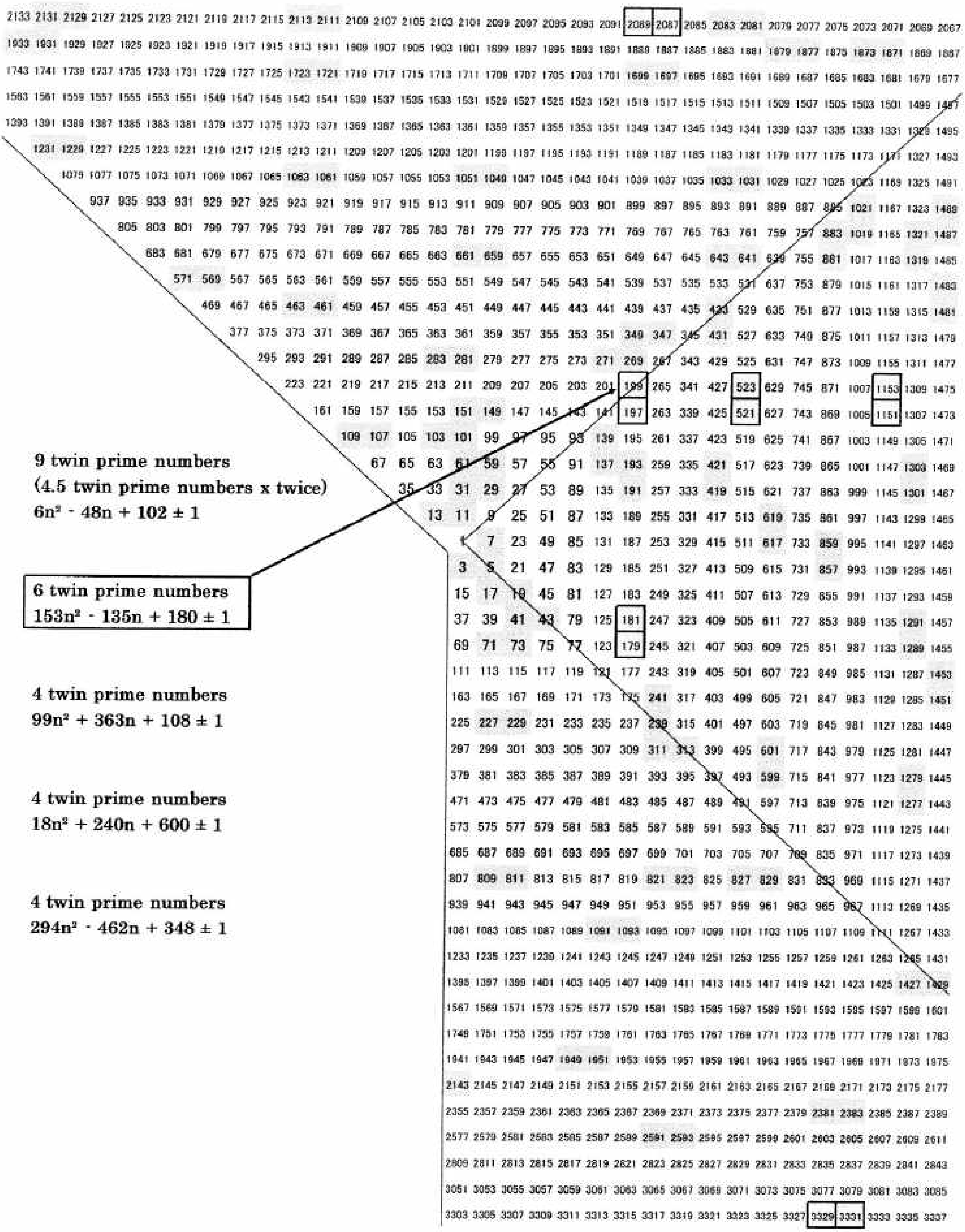
4 twin prime numbers
$3n^2 + 141n + 1788 \pm 1$

6 twin prime numbers
$75n^2 - 165n + 102 \pm 1$

6 twin prime numbers
$3n^2 + 21n + 18 \pm 1$

1																					
3	5	7																			
9	11	13	15	17	19																
21	23	25	27	29	31	33	35	37													
39	41	43	45	47	49	51	53	55	57	59	61										
63	65	67	69	71	73	75	77	79	81	83	85	87	89	91							
93	95	97	99	101	103	105	107	109	111	113	115	117	119	121	123	125	127				
129	131	133	135	137	139	141	143	145	147	149	151	153	155	157	159	161	163	165	167	169	
171	173	175	177	179	181	183	185	187	189	191	193	195	197	199	201	203	205	207	209	211	213
219	221	223	225	227	229	231	233	235	237	239	241	243	245	247	249	251	253	255	257	259	261
273	275	277	279	281	283	285	287	289	291	293	295	297	299	301	303	305	307	309	311	313	315
333	335	337	339	341	343	345	347	349	351	353	355	357	359	361	363	365	367	369	371	373	375
399	401	403	405	407	409	411	413	415	417	419	421	423	425	427	429	431	433	435	437	439	441
471	473	475	477	479	481	483	485	487	489	491	493	495	497	499	501	503	505	507	509	511	513
549	551	553	555	557	559	561	563	565	567	569	571	573	575	577	579	581	583	585	587	589	591
633	635	637	639	641	643	645	647	649	651	653	655	657	659	661	663	665	667	669	671	673	675
723	725	727	729	731	733	735	737	739	741	743	745	747	749	751	753	755	757	759	761	763	765
819	821	823	825	827	829	831	833	835	837	839	841	843	845	847	849	851	853	855	857	859	861
921	923	925	927	929	931	933	935	937	939	941	943	945	947	949	951	953	955	957	959	961	963
1029	1031	1033	1035	1037	1039	1041	1043	1045	1047	1049	1051	1053	1055	1057	1059	1061	1063	1065	1067	1069	1071
1143	1145	1147	1149	1151	1153	1155	1157	1159	1161	1163	1165	1167	1169	1171	1173	1175	1177	1179	1181	1183	1185
1263	1265	1267	1269	1271	1273	1275	1277	1279	1281	1283	1285	1287	1289	1291	1293	1295	1297	1299	1301	1303	1305
1389	1391	1393	1395	1397	1399	1401	1403	1405	1407	1409	1411	1413	1415	1417	1419	1421	1423	1425	1427	1429	1431
1521	1523	1525	1527	1529	1531	1533	1535	1537	1539	1541	1543	1545	1547	1549	1551	1553	1555	1557	1559	1561	1563
1659	1661	1663	1665	1667	1669	1671	1673	1675	1677	1679	1681	1683	1685	1687	1689	1691	1693	1695	1697	1699	1701

Figure 3.11: 225 degrees Arrangement



4 twin prime numbers

$33n^2 + 519n + 1998 \pm 1$

5 twin prime numbers

$288n^2 - 180n + 30 \pm 1$

Figure 3.12: 360 degrees Arrangement

5869	5443	5033	4639	4261	3899	3553	3223	2909	2611	2329	2063	1813	1579	1361	1159	973	803	649	647	645	643	641	639	637	635	633	631	629	627	625	623	621
5871	5445	5035	4641	4263	3901	3555	3225	2911	2613	2331	2065	1815	1581	1363	1161	975	805	651	513	511	509	507	505	503	501	499	497	495	493	491	489	487
5873	5447	5037	4643	4265	3903	3557	3227	2913	2615	2333	2067	1817	1583	1365	1163	977	807	653	515	393	391	389	387	385	383	381	379	377	375	373	371	369
5875	5449	5039	4645	4267	3905	3559	3229	2915	2617	2335	2069	1819	1585	1367	1165	979	809	655	517	395	289	287	285	283	281	279	277	275	273	271	269	267
5877	5451	5041	4647	4269	3907	3561	3231	2917	2619	2337	2071	1821	1587	1369	1167	981	811	657	519	397	291	201	199	197	195	193	191	189	187	185	183	181
5879	5453	5043	4649	4271	3909	3563	3233	2919	2621	2339	2073	1823	1589	1371	1169	983	813	659	521	399	293	203	129	127	125	123	121	119	117	115	113	179
5881	5455	5045	4651	4273	3911	3565	3235	2921	2623	2341	2075	1825	1591	1373	1171	985	815	661	523	401	295	205	131	73	71	69	67	65	63	61	111	177
5883	5457	5047	4653	4275	3913	3567	3237	2923	2625	2343	2077	1827	1593	1375	1173	987	817	663	525	403	297	207	133	75	33	31	29	27	25	59	109	175
5885	5459	5049	4655	4277	3915	3569	3239	2925	2627	2345	2079	1829	1595	1377	1175	989	819	665	527	405	299	209	135	77	35	9	7	5	23	57	107	173
5887	5461	5051	4657	4279	3917	3571	3241	2927	2629	2347	2081	1831	1597	1379	1177	991	821	667	529	407	301	211	137	79	37	11	1	3	21	55	105	171
5889	5463	5053	4659	4281	3919	3573	3243	2929	2631	2349	2083	1833	1599	1381	1179	993	823	669	531	409	303	213	139	81	39	13	15	17	19	53	103	169
5891	5465	5055	4661	4283	3921	3575	3245	2931	2633	2351	2085	1835	1601	1383	1181	995	825	671	533	411	305	215	141	83	41	43	45	47	49	51	101	167
5893	5467	5057	4663	4285	3923	3577	3247	2933	2635	2353	2087	1837	1603	1385	1183	997	827	673	535	413	307	217	143	85	87	89	91	93	95	97	99	165
5895	5469	5059	4665	4287	3925	3579	3249	2935	2637	2355	2089	1839	1605	1387	1185	999	829	675	537	415	309	219	145	147	149	151	153	155	157	159	161	163
5897	5471	5061	4667	4289	3927	3581	3251	2937	2639	2357	2091	1841	1607	1389	1187	1001	831	677	539	417	311	221	223	225	227	229	231	233	235	237	239	241
5899	5473	5063	4669	4291	3929	3583	3253	2939	2641	2359	2093	1843	1609	1391	1189	1003	833	679	541	419	313	315	317	319	321	323	325	327	329	331	333	335
5901	5475	5065	4671	4293	3931	3585	3255	2941	2643	2361	2095	1845	1611	1393	1191	1005	835	681	543	421	423	425	427	429	431	433	435	437	439	441	443	445
5903	5477	5067	4673	4295	3933	3587	3257	2943	2645	2363	2097	1847	1613	1395	1193	1007	837	683	545	547	549	551	553	555	557	559	561	563	565	567	569	571

5 Consideration

It is expected that polynomials generating twin prime numbers may be found by devising other arrangements or by arranging up to large odd numbers by the method described in this research work.

6. Acknowledgment

The author would like to thank the Darkside Communication Group of the mathematics circle in japan and the people involved in research and teaching in this research work.

References

[1] Graphic Science MAGAZINE Newton (Japan) 2013.4

[2] Various Arithmetic Functions and their Applications
Octavian Cira and Florentin Smarandache March 29,2016
arXiv:1603.08456v1 [math.GM] 28 Mar 2016

[3] PRIME NUMBERS The Most Mysterious Figures in Math: David Wells

[4] Prime-Generating Polynomial Wolfram MathWorld