Goldbach's conjecture

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Abstract

I proved the Goldbach's conjecture.
All even numbers are expressed in 6n, 6n+2, 6n+4=6n -2 (n is positive integer).
And, all primes are expressed 6n -1 or 6n+1 (except 2, 3. n is positive integer).

In hexagonal circulation (n is positive integer),
6n -1 + 6n+1=6n, 0th-angle (even number).
6n+1 + 6n+1=6n+2, 2th-angle (even number).
6n -1 + 6n -1 =6n -2=6n+4, 4th-angle (even number).

key words
Hexagonal circulation, Even number, Goldbach's conjecture

Introduction

Considering a hexagon, the prime number is composed of (6n -1) series, (6n+1) series, and 3.

(6n -1) series primes+ [(6n -1) series primes]
(6n+1) series primes+ [(6n -1) series primes]
(6n+1) series primes+ [(6n+1) series primes]
(6n -1) series primes+3
(6n+1) series primes+3

Proof of Goldbach' conjecture is complete once I prove that all even numbers can be expressed in the 5 ways above.

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The odd number is subtracted by 2 from the even intermediate value (50 if 100), and the other is incremented by 2.
In case of 100, 49 + 51. That is, if the odd numbers are not the same, the number at the front is initially reduced.

In the case of 102, 51 + 51.
This is repeated until (prime number) + (prime number) is reached.
You can see how to do it by referring to the following actually made.

And, you can see that all even numbers are (prime number) + (prime number), see below.
I Up to 470.

As the even number increases, the number of possible enforcements increases until it reaches (prime number) + (prime number).
You can see from the following enforcement that even numbers that cannot be reached until (prime number) + (prime number) are impossible.

(6m-1)+(6n-1)=6(m+n)-2=4th-angle

(6m-1)+(6n+1)=6(m+n)+0=0th-angle

(6m+1)+(6n+1)=6(m+n)+2=2th-angle

All even numbers are included in 0th-angle, 2th-angle, and 4th-angle, but only 5th-angle and 1th-angle satisfy all even numbers.
Examples are given below.

4=4th-angle=2+2
6=0th-angle=3+3
8=2th-angle=3+5

10=4th-angle=(5th-angle + 5th-angle) =5+5
12=0th-angle=(5th-angle + 1th-angle) =5+7
14=2th-angle=(1th-angle + 1th-angle) =7+7

16=4th-angle=(5th-angle + 5th-angle) =5+11
18=0th-angle=(5th-angle + 1th-angle) =7+11
20=2th-angle=(1th-angle + 1th-angle) =7+13

22=4th-angle=(5th-angle + 5th-angle) =5+17
24=0th-angle=(5th-angle + 1th-angle) =5+19
26=2th-angle=(1th-angle + 1th-angle) =7+19

28=4th-angle=(5th-angle + 5th-angle) =11+17
30=0th-angle=(5th-angle + 1th-angle) =17+13

32=2th-angle=(1th-angle + 1th-angle) =19+13

34=4th-angle=(5th-angle + 5th-angle) =17+17
36=0th-angle=(5th-angle + 1th-angle) =17+19
38=2th-angle=(1th-angle + 1th-angle) =19+19

40=4th-angle=(5th-angle + 5th-angle) =17+23
42=0th-angle=(5th-angle + 1th-angle) =23+19
44=2th-angle=(1th-angle + 1th-angle) =13+31

46=4th-angle=(5th-angle + 5th-angle) =23+23
48=0th-angle=(5th-angle + 1th-angle) =29+19
50=2th-angle=(1th-angle + 1th-angle) =19+31

52=4th-angle=(5th-angle + 5th-angle) =11+41
54=0th-angle=(5th-angle + 1th-angle) =11+43
56=2th-angle=(1th-angle + 1th-angle) =13+43

58=4th-angle=(5th-angle + 5th-angle) =17+41
60=0th-angle=(5th-angle + 1th-angle) =17+43
62=2th-angle=(1th-angle + 1th-angle) =19+43

64=4th-angle=(5th-angle + 5th-angle) =53+11
66=0th-angle=(5th-angle + 1th-angle) =53+13
68=2th-angle=(1th-angle + 1th-angle) =31+37

70=4th-angle=(5th-angle + 5th-angle) =53+17
72=0th-angle=(5th-angle + 1th-angle) =53+19
74=2th-angle=(1th-angle + 1th-angle) =37+37

76=4th-angle=(5th-angle + 5th-angle) =59+17
78=0th-angle=(5th-angle + 1th-angle) =59+19
80=2th-angle=(1th-angle + 1th-angle) =37+43

82=4th-angle=(5th-angle + 5th-angle) =71+11
84=0th-angle=(5th-angle + 1th-angle) =71+13
86=2th-angle=(1th-angle + 1th-angle) =67+19

88=4th-angle=(5th-angle + 5th-angle) =17+71
90=0th-angle=(5th-angle + 1th-angle) =19+71
92=2th-angle=(1th-angle + 1th-angle) =79+13

94=4th-angle=(5th-angle + 5th-angle) =83+11
96=0th-angle=(5th-angle + 1th-angle) =83+13
98=2th-angle=(1th-angle + 1th-angle) =61+37

100=4th-angle=(5th-angle + 5th-angle) =89+11

102=0th-angle=(5th-angle + 1th-angle) =89+13
104=2th-angle=(1th-angle + 1th-angle) =7+97

106=4th-angle=(5th-angle + 5th-angle) =101+5
108=0th-angle=(5th-angle + 1th-angle) =101+7
110=2th-angle=(1th-angle + 1th-angle) =103+7

112=4th-angle=(5th-angle + 5th-angle) =107+5
114=0th-angle=(5th-angle + 1th-angle) =107+7
116=2th-angle=(1th-angle + 1th-angle) =109+7

118=4th-angle=(5th-angle + 5th-angle) =113+5
120=0th-angle=(5th-angle + 1th-angle) =113+7
122=2th-angle=(1th-angle + 1th-angle) =109+13

124=4th-angle=(5th-angle + 5th-angle) =107+17
126=0th-angle=(5th-angle + 1th-angle) =107+19
128=2th-angle=(1th-angle + 1th-angle) =109+19

130=4th-angle=(5th-angle + 5th-angle) =113+17
132=0th-angle=(5th-angle + 1th-angle) =113+19
134=2th-angle=(1th-angle + 1th-angle) =127+7

136=4th-angle=(5th-angle + 5th-angle) =131+5
138=0th-angle=(5th-angle + 1th-angle) =131+7
140=2th-angle=(1th-angle + 1th-angle) =127+13

142=4th-angle=(5th-angle + 5th-angle) =137+5
144=0th-angle=(5th-angle + 1th-angle) =137+7
146=2th-angle=(1th-angle + 1th-angle) =139+7

148=4th-angle=(5th-angle + 5th-angle) =137+11
150=0th-angle=(5th-angle + 1th-angle) =137+13
152=2th-angle=(1th-angle + 1th-angle) =139+13

154=4th-angle=(5th-angle + 5th-angle) =149+5
156=0th-angle=(5th-angle + 1th-angle) =149+7
158=2th-angle=(1th-angle + 1th-angle) =151+7

160=4th-angle=(5th-angle + 5th-angle) =149+11
162=0th-angle=(5th-angle + 1th-angle) =149+13
164=2th-angle=(1th-angle + 1th-angle) =151+13

166=4th-angle=(5th-angle + 5th-angle) =137+29
168=0th-angle=(5th-angle + 1th-angle) =137+31
170=2th-angle=(1th-angle + 1th-angle) =139+31

172=4th-angle=(5th-angle + 5th-angle) =167+5
174=0th-angle=(5th-angle + 1th-angle) =167+7
176=2th-angle=(1th-angle + 1th-angle) =163+13

178=4th-angle=(5th-angle + 5th-angle) =173+5
180=0th-angle=(5th-angle + 1th-angle) =173+7
182=2th-angle=(1th-angle + 1th-angle) =163+19

184=4th-angle=(5th-angle + 5th-angle) =179+5
186=0th-angle=(5th-angle + 1th-angle) =179+7
188=2th-angle=(1th-angle + 1th-angle) =181+7

190=4th-angle=(5th-angle + 5th-angle) =179+11
192=0th-angle=(5th-angle + 1th-angle) =179+13
194=2th-angle=(1th-angle + 1th-angle) =181+13

196=4th-angle=(5th-angle + 5th-angle) =191+5
198=0th-angle=(5th-angle + 1th-angle) =191+7
200=2th-angle=(1th-angle + 1th-angle) =193+7

202=4th-angle=(5th-angle + 5th-angle) =191+11
204=0th-angle=(5th-angle + 1th-angle) =191+13
206=2th-angle=(1th-angle + 1th-angle) =193+13

208=4th-angle=(5th-angle + 5th-angle) =197+11
210=0th-angle=(5th-angle + 1th-angle) =197+13
212=2th-angle=(1th-angle + 1th-angle) =199+13

214=4th-angle=(5th-angle + 5th-angle) =197+17
216=0th-angle=(5th-angle + 1th-angle) =197+19
218=2th-angle=(1th-angle + 1th-angle) =199+19

220=4th-angle=(5th-angle + 5th-angle) =191+29
222=0th-angle=(5th-angle + 1th-angle) =191+31
224=2th-angle=(1th-angle + 1th-angle) =193+31

226=4th-angle=(5th-angle + 5th-angle) =197+29
228=0th-angle=(5th-angle + 1th-angle) =197+31
230=2th-angle=(1th-angle + 1th-angle) =199+31

232=4th-angle=(5th-angle + 5th-angle) =227+5
234=0th-angle=(5th-angle + 1th-angle) =227+7
236=2th-angle=(1th-angle + 1th-angle) =229+7

238=4th-angle=(5th-angle + 5th-angle) =227+11
240=0th-angle=(5th-angle + 1th-angle) =227+13
242=2th-angle=(1th-angle + 1th-angle) =229+13

244=4th-angle=(5th-angle + 5th-angle) =239+5
246=0th-angle=(5th-angle + 1th-angle) =239+7
248=2th-angle=(1th-angle + 1th-angle) =241+7

250=4th-angle=(5th-angle + 5th-angle) =239+11
252=0th-angle=(5th-angle + 1th-angle) =239+13
254=2th-angle=(1th-angle + 1th-angle) =241+13

256=4th-angle=(5th-angle + 5th-angle) =251+5
258=0th-angle=(5th-angle + 1th-angle) =251+7
260=2th-angle=(1th-angle + 1th-angle) =241+19

262=4th-angle=(5th-angle + 5th-angle) =257+5
264=0th-angle=(5th-angle + 1th-angle) =257+7
266=2th-angle=(1th-angle + 1th-angle) =229+37

268=4th-angle=(5th-angle + 5th-angle) =263+5
270=0th-angle=(5th-angle + 1th-angle) =263+7
272=2th-angle=(1th-angle + 1th-angle) =229+43

274=4th-angle=(5th-angle + 5th-angle) =263+5
276=0th-angle=(5th-angle + 1th-angle) =263+7
278=2th-angle=(1th-angle + 1th-angle) =229+43

280=4th-angle=(5th-angle + 5th-angle) =269+11
282=0th-angle=(5th-angle + 1th-angle) =269+13
284=2th-angle=(1th-angle + 1th-angle) =271+13

286=4th-angle=(5th-angle + 5th-angle) =281+5
288=0th-angle=(5th-angle + 1th-angle) =281+7
290=2th-angle=(1th-angle + 1th-angle) =283+7

292=4th-angle=(5th-angle + 5th-angle) =281+11
294=0th-angle=(5th-angle + 1th-angle) =281+13
296=2th-angle=(1th-angle + 1th-angle) =283+13

298=4th-angle=(5th-angle + 5th-angle) =281+17
300=0th-angle=(5th-angle + 1th-angle) =281+19
302=2th-angle=(1th-angle + 1th-angle) =283+19

304=4th-angle=(5th-angle + 5th-angle) =293+11
306=0th-angle=(5th-angle + 1th-angle) =293+13
308=2th-angle=(1th-angle + 1th-angle) =271+37

310=4th-angle=(5th-angle + 5th-angle) =293+17
312=0th-angle=(5th-angle + 1th-angle) =293+19

314=2th-angle=(1th-angle + 1th-angle) =271+43

316=4th-angle=(5th-angle + 5th-angle) =293+17
318=0th-angle=(5th-angle + 1th-angle) =293+19
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322=4th-angle=(5th-angle + 5th-angle) =311+11
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326=2th-angle=(1th-angle + 1th-angle) =313+13

328=4th-angle=(5th-angle + 5th-angle) =311+17
330=0th-angle=(5th-angle + 1th-angle) =311+19
332=2th-angle=(1th-angle + 1th-angle) =313+19

334=4th-angle=(5th-angle + 5th-angle) =317+17
336=0th-angle=(5th-angle + 1th-angle) =317+19
338=2th-angle=(1th-angle + 1th-angle) =331+7

340=4th-angle=(5th-angle + 5th-angle) =317+23
342=0th-angle=(5th-angle + 1th-angle) =311+31
344=2th-angle=(1th-angle + 1th-angle) =331+13

346=4th-angle=(5th-angle + 5th-angle) =317+29
348=0th-angle=(5th-angle + 1th-angle) =317+31
350=2th-angle=(1th-angle + 1th-angle) =331+19

352=4th-angle=(5th-angle + 5th-angle) =347+5
354=0th-angle=(5th-angle + 1th-angle) =347+7
356=2th-angle=(1th-angle + 1th-angle) =349+7

358=4th-angle=(5th-angle + 5th-angle) =347+11
360=0th-angle=(5th-angle + 1th-angle) =347+13
362=2th-angle=(1th-angle + 1th-angle) =349+13

364=4th-angle=(5th-angle + 5th-angle) =347+17
366=0th-angle=(5th-angle + 1th-angle) =347+19
368=2th-angle=(1th-angle + 1th-angle) =349+19

370=4th-angle=(5th-angle + 5th-angle) =359+11
372=0th-angle=(5th-angle + 1th-angle) =359+13
374=2th-angle=(1th-angle + 1th-angle) =367+7

376=4th-angle=(5th-angle + 5th-angle) =359+17
378=0th-angle=(5th-angle + 1th-angle) =359+19
380=2th-angle=(1th-angle + 1th-angle) =367+13

382=4th-angle=(5th-angle + 5th-angle) =311+71

384=0th-angle=(5th-angle + 1th-angle) =311+73
386=2th-angle=(1th-angle + 1th-angle) =367+19

388=4th-angle=(5th-angle + 5th-angle) =347+41
390=0th-angle=(5th-angle + 1th-angle) =347+43
392=2th-angle=(1th-angle + 1th-angle) =379+13

394=4th-angle=(5th-angle + 5th-angle) =347+47
396=0th-angle=(5th-angle + 1th-angle) =353+43
398=2th-angle=(1th-angle + 1th-angle) =379+19

400=4th-angle=(5th-angle + 5th-angle) =347+53
402=0th-angle=(5th-angle + 1th-angle) =359+43
404=2th-angle=(1th-angle + 1th-angle) =397+7

406=4th-angle=(5th-angle + 5th-angle) =347+59
408=0th-angle=(5th-angle + 1th-angle) =347+61
410=2th-angle=(1th-angle + 1th-angle) =349+61

412=4th-angle=(5th-angle + 5th-angle) =401+11
414=0th-angle=(5th-angle + 1th-angle) =401+13
416=2th-angle=(1th-angle + 1th-angle) =409+7

418=4th-angle=(5th-angle + 5th-angle) =401+17
420=0th-angle=(5th-angle + 1th-angle) =401+19
422=2th-angle=(1th-angle + 1th-angle) =409+13

424=4th-angle=(5th-angle + 5th-angle) =419+5
426=0th-angle=(5th-angle + 1th-angle) =419+7
428=2th-angle=(1th-angle + 1th-angle) =421+7

430=4th-angle=(5th-angle + 5th-angle) =419+11
432=0th-angle=(5th-angle + 1th-angle) =419+13
434=2th-angle=(1th-angle + 1th-angle) =421+13

436=4th-angle=(5th-angle + 5th-angle) =419+17
438=0th-angle=(5th-angle + 1th-angle) =419+19
440=2th-angle=(1th-angle + 1th-angle) =421+19

442=4th-angle=(5th-angle + 5th-angle) =431+11
444=0th-angle=(5th-angle + 1th-angle) =431+13
446=2th-angle=(1th-angle + 1th-angle) =433+13

448=4th-angle=(5th-angle + 5th-angle) =431+17
450=0th-angle=(5th-angle + 1th-angle) =431+19
452=2th-angle=(1th-angle + 1th-angle) =433+19

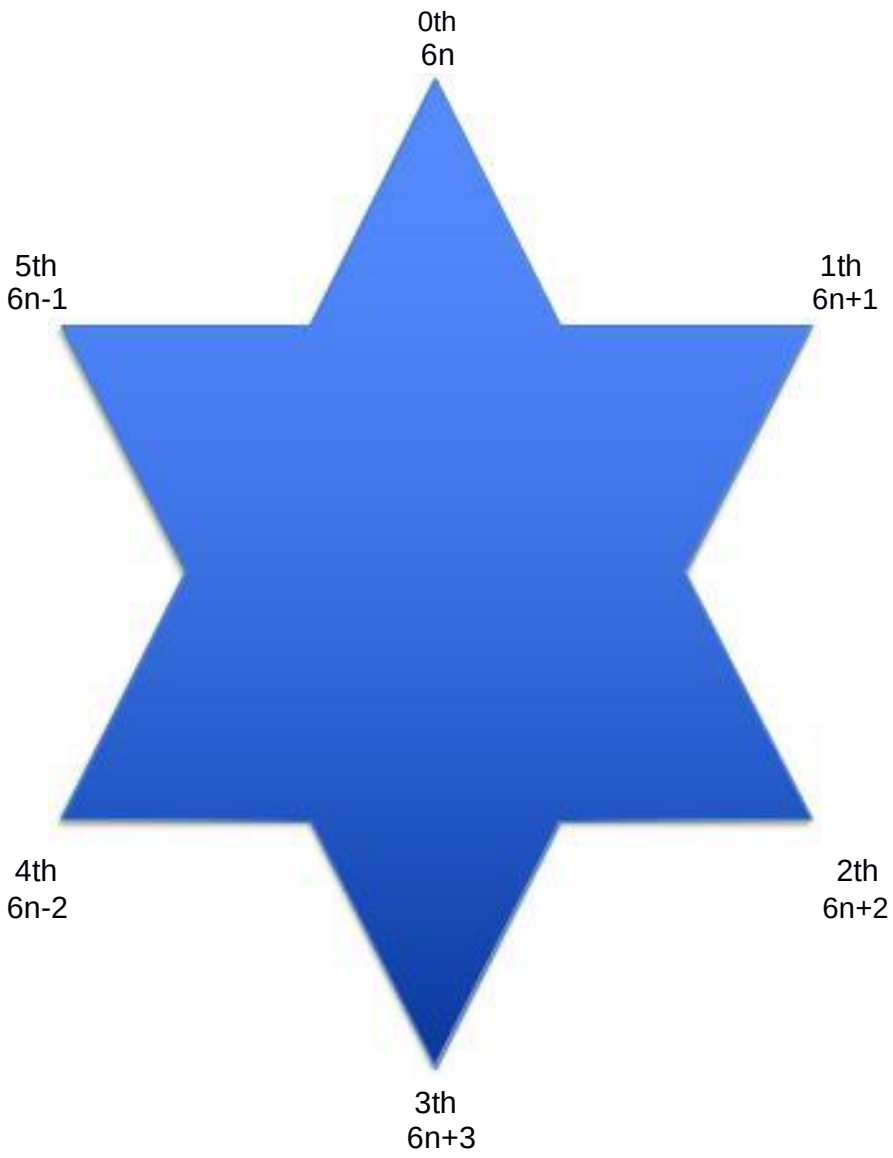
454=4th-angle=(5th-angle + 5th-angle) =431+23
456=0th-angle=(5th-angle + 1th-angle) =419+37
458=2th-angle=(1th-angle + 1th-angle) =421+37

460=4th-angle=(5th-angle + 5th-angle) =431+29
462=0th-angle=(5th-angle + 1th-angle) =419+43
464=2th-angle=(1th-angle + 1th-angle) =421+43

466=4th-angle=(5th-angle + 5th-angle) =461+5, 449+17, 443+23, 419+47, 413+53, 407+59, 383+83, 377+89, 359+107, 353+113, 347+107, 317+149, 293+173, 287+179, 269+197, 239+227, 233+233, 227+239, 209+257, 203+263, 197+269, 191+263, 179+287, 173+293, 149+317, 119+347, 113+353, 107+359, 89+377, 83+383, 59+407, 53+413, 47+419, 23+443, 17+449, 5+461

468=0th-angle=(5th-angle + 1th-angle) =461+7, 449+19, 437+31, 431+37, 407+61, 401+67, 389+79, 359+109, 317+151, 311+157, 269+199, 257+211, 239+229, 227+241, 209+259, 197+271, 191+277, 179+289, 167+301, 137+331, 107+353, 101+347, 89+379, 71+397, 59+409, 47+421, 29+439, 11+457

470=2th-angle=(1th-angle + 1th-angle) =463+7, 457+13, 439+31, 433+37, 409+61, 397+73, 379+91, 373+97, 367+103, 331+139, 313+157, 307+163, 277+193, 271+199, 247+223, 241+229, 229+241, 223+247, 199+271, 193+277, 163+307, 157+313, 139+331, 103+367, 97+373, 91+379, 73+397, 61+409, 37+433, 31+439, 13+457, 7+463


0th
6n
1th
6n+1
2th
6n+2
3th
6n+3
4th
6n-2
5th
6n-1

Discussion

4th-angle=5th-angle + 5th-angle
0th-angle=5th-angle + 1th-angle
2th-angle=1th-angle + 1th-angle

The rest is this repetition.

For example, only example is given 466, 468, 470.

but there are many other combinations.

This was made under the strict conditions of not using 3 and arranging 1th and 5th in this way.

Although the number of examples is often only one, the number of examples is actually quite large.

I believe there are many ways to prove.
I only showed one example.

Proof end.

References

[1] John Derbyshire.: Prime Obsession: Bernhard Riemann and The Greatest Unsolved Problem in Mathematics, Joseph Henry Press, 2003

[2] Marcus du Sautoy.: The Music of The Primes, Zahar Press, 2007