Representation of integers by +/– sequences of consecutive odd primes

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Abstract: +/– choice sequences of consecutive odd primes, whose length is equal or exceeds 6, show strict regularities as integer representatives. This leads to conclusion that all even natural numbers above 118 can be written as sums of two different odd primes. Mentioned results are based exclusively on Bertrand's postulate.

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1 Introduction

In 1833 two empirical theorems (today we say "conjectures") were stated by H.F. Scherk: "Every prime of odd rank can be composed by addition and subtraction of all the smaller primes, each taken once. Every prime of even rank can be composed similarly, except that the next earlier prime is doubled" [1]. At that times number 1 was treated as prime, so the corresponding formulae can be written in today's notation as:

$$p_{2n} = 1 \pm p_1 \pm p_2 \pm ... \pm p_{2n-2} \pm p_{2n-1},$$

$$p_{2n+1} = 1 \pm p_1 \pm p_2 \pm ... \pm p_{2n-1} \pm 2p_{2n}.$$

These formulae are valid for all natural numbers n by suitable choice of + and – signs.

H.F. Scherk's conjecture was proved only 95 years later by S.S. Pillai [2]. Since this, several new proofs were published [3, 4, 5].

Mentioned publications (see also [6, 7]) suggested the following question – which integers can be represented by Scherk-type sequences, constructed exclusively from odd primes. As the result one important theorem was obtained *(Theorem 2.7)* – for longer sequences all integers in a definite limits can be represented in this way. These +/– choice sequences of consecutive odd primes provide an excellent modelling system for prime addition, whose investigation resulted in proof of binary Goldbach conjecture.

2   Integer representations – up to main theorem

Throughout in this article we use the following numeration of prime sequence: $p_1 = 2$, $p_2 = 3$, $p_3 = 5$, $p_4 = 7$, $p_5 = 11$, $p_6 = 13$, $p_7 = 17$, $p_8 = 19$, $p_9 = 23$, etc.

Bertrand's postulate, in it's classical form [8], tells us that for all natural numbers $n > 3$ there is at least one prime number between n and $2n - 2$. For our purposes more useful is it's stronger derivative – for all natural numbers $n > 5$ there are at least two different primes between n and $2n$. This gives following important inequalities for primes:

$$p_{k+2} < 2p_k, \tag{1}$$

valid for all natural $k > 3$, and

$$p_{k+2} < p_k + p_{k+1}, \tag{2}$$

valid for all natural $k > 1$.

Proof. (1) For natural $k > 3$ we get $p_k > p_3 = 5$ and between p_k and $2p_k$ there must be at least two different primes. As least two primes $> p_k$ are p_{k+1} and p_{k+2}, we get $p_{k+2} < 2p_k$.   □

Proof. (2) From (1) we get $p_{k+2} < 2p_k < p_k + p_{k+1}$, so inequality (2) is valid for all natural $k > 3$. For $k = 2$ and $k = 3$ we get $p_4 = 7 < 8 = p_2 + p_3$ and $p_5 = 11 < 12 = p_3 + p_4$.   □

Lemma 2.1. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 5$ the following expression*

$$p_{2n} + p_{2n+1} < S_n - 18 \tag{3}$$

holds, here

$$S_n = \sum_{i=2}^{2n-1} p_i \qquad (n = 2, 3, ...).$$

Proof. For $n = 4$ we get $S_4 = p_2 + ... + p_7 = 56$; $S_4 - 18 = 38$; $p_8 + p_9 = 42$, so inequality (3) failed. For $n = 5$ we get $S_5 = S_4 + p_8 + p_9 = 98$; $S_5 - 18 = 80$; $p_{10} + p_{11} = 60$, now inequality (3) holds for at least one natural n: $p_{2n} + p_{2n+1} < S_n - 18$. We add $p_{2n} + p_{2n+1}$ and get:

$$2p_{2n} + 2p_{2n+1} < S_n + p_{2n} + p_{2n+1} - 18 = S_{n+1} - 18.$$

In view of (1), $p_{2n+2} < 2p_{2n}$ and $p_{2n+3} < 2p_{2n+1}$, so $p_{2n+2} + p_{2n+3} < S_{n+1} - 18$. This inductively proves *Lemma 2.1* for all natural $n > 5$.   □

Lemma 2.2. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 4$, by suitable choice of + and – signs each even natural number*

$$2k \leq S_n = \sum_{i=2}^{2n-1} p_i \qquad (n = 2, 3, ...)$$

and $2k = 0$ can be written as

$$2k = \pm p_2 \pm p_3 \pm ... \pm p_{2n-1}. \tag{4}$$

For each fixed $n \geq 4$ value there are 5 exceptions – even numbers $2k = S_n - 2$, $S_n - 4$, $S_n - 8$, $S_n - 12$ and $2k = S_n - 18$ cannot be written in form (4).

Lower limit. Lemma 2.2 holds for $n = 4$ and $n = 5$, see *Table 1* in an *Appendix* to the article. *Lemma 2.2* fails for $n = 3$, because sequence $\pm 3 \pm 5 \pm 7 \pm 11$ does not give 0.

Proof. We assume that *Lemma 2.2* is valid for one given natural $n \geq 5$, thus, by suitable choice of + and – signs, for all even $0 \leq 2a \leq S_n$ equality

$$2a = \pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$$

holds, of course, by mentioned 5 exceptions. We choose even $2b$ in limits $0 \leq 2b \leq S_{n+1} = S_n + p_{2n} + p_{2n+1}$. Two cases.

1. $0 \leq 2b \leq S_n$, that is, $2b$ corresponds to any of $2a \in [0, S_n]$ values, but it must be written with sequence

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-1} \pm p_{2n} \pm p_{2n+1}.$$

Beginning from $n = 5$, the length of consecutive segment of even natural numbers and 0, generated by sequence

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$$

overruns the sum of additional two primes $p_{2n} + p_{2n+1}$ in sequence growing procedure $n \to n+1$ *(see Lemma 2.1)*. Thus we always have the choice for initial $2a$ value to obtain necessary

$$0 \leq 2b = \pm 2a \pm p_{2n} \pm p_{2n+1} \leq S_n,$$

so filling also all previous gaps $S_n - 2$, $S_n - 4$, $S_n - 8$, $S_n - 12$, $S_n - 18$.
To do this, all $2b \in [p_{2n} + p_{2n+1}, S_n]$ expressions can be obtained from expressions for $2a \in [0, S_n - p_{2n} - p_{2n+1}]$ by addition of $p_{2n} + p_{2n+1}$ fragment. All $2b \in [0, p_{2n} + p_{2n+1} - 2]$ expressions can be obtained from inverted expressions for $2a \in [2, p_{2n} + p_{2n+1}]$ by addition of $p_{2n} + p_{2n+1}$ fragment. As

$$-(p_{2n} + p_{2n+1}) \leq \pm p_{2n} \pm p_{2n+1} \leq p_{2n} + p_{2n+1},$$

method works also for $n = 4$. So we have

$$2b = \pm p_2 \pm p_3 \pm ... \pm p_{2n+1}$$

for all $0 \leq 2b \leq S_n$, here $n \geq 4$.

2. $S_n < 2b \leq S_{n+1} = S_n + p_{2n} + p_{2n+1}$. Then

$$0 < 2b - S_n \leq p_{2n} + p_{2n+1} < 2p_{2n+1}.$$

By subtracting p_{2n+1} we get

$$-p_{2n+1} < (2b - S_n) - p_{2n+1} < p_{2n+1}.$$

The middle term $(2b - S_n) - p_{2n+1}$ is an odd integer, whose absolute value is less than p_{2n+1}, therefore, by suitable choice of + or – signs, we can get

$$0 < \pm((2b - S_n) - p_{2n+1}) < p_{2n+1} < 2p_{2n}$$

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(the last from (1)). By subtracting p_{2n} we get

$$-p_{2n} < \pm((2b - S_n) - p_{2n+1}) - p_{2n} < p_{2n}.$$

The middle term $\pm((2b - S_n) - p_{2n+1}) - p_{2n}$ is an even integer, whose absolute value is less than p_{2n}, therefore, by suitable choice of + or − signs, we can get

$$0 \leq \pm(\pm((2b - S_n) - p_{2n+1}) - p_{2n}) < p_{2n} < S_n - 18$$

(the last from *Lemma 2.1*). So the middle term $\pm(\pm((2b - S_n) - p_{2n+1}) - p_{2n})$ is an even natural number or zero, and, according to our initial assumption, it's value hits into continuous segment of $2a$ values 0, 2, 4, ..., $S_n - 20$. Therefore

$$\pm(\pm((2b - S_n) - p_{2n+1}) - p_{2n}) = \pm p_2 \pm p_3 \pm ... \pm p_{2n-1},$$

and we get

$$2b = \pm S_n \pm p_2 \pm p_3 \pm ... \pm p_{2n-1} \pm p_{2n} \pm p_{2n+1} \leq S_n + p_{2n} + p_{2n+1}$$

(the last from our initial choice for $2b$). As by suitable choice of + and − signs sequence $\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$ generates all even natural numbers $\leq S_n$, but $\pm p_{2n} \pm p_{2n+1}$ always can give $p_{2n} + p_{2n+1}$, then for all even $S_n < 2b \leq S_{n+1}$ by suitable choice of + and − signs we can get

$$2b = \pm p_2 \pm p_3 \pm ... \pm p_{2n-1} \pm p_{2n} \pm p_{2n+1}.$$

In both cases we get

$$2b = \pm p_2 \pm p_3 \pm ... \pm p_{2n+1},$$

and this inductively proves *Lemma 2.2* for $n \to n + 1$ and for all greater natural n values.
Mentioned 5 exceptions remain, because they reflect the structure of sequences. Thus, $S_{n+1} = +p_2 + p_3 + ... + p_{2n+1}$ and the next less $2b$ value will be $2b = -p_2 + p_3 + ... + p_{2n+1} = S_{n+1} - 2p_2 = S_{n+1} - 6$, so $2b$ values $2b = S_{n+1} - 2$ and $2b = S_{n+1} - 4$ fall out. All other exceptions are formed analogously, this also determines maintaining of upper limit of continuous segment for $2b$ as $S_{n+1} - 20$.   □

Now take any arbitrary sequence, corresponding to *Lemma 2.2* conditions, which sums up to natural number $2a$:

$$+p_2 - p_3 - ... + p_i - ... + p_{2n-1} = 2a.$$

Multiplying it by –1 we get

$$-p_2 + p_3 + ... - p_i + ... - p_{2n-1} = -2a.$$

This proves

Lemma 2.3. *For prime number sequence* p_2, p_3, ... *and for all natural* $n \geq 4$, *by suitable choice of + and – signs each even integer* $2k$, *for which*

$$|2k| \leq S_n = \sum_{i=2}^{2n-1} p_i,$$

can be written as

$$2k = \pm p_2 \pm p_3 \pm ... \pm p_{2n-1}. \tag{5}$$

For each fixed $n \geq 4$ *value there are 10 exceptions – even integers* $2k = \pm(S_n - 2)$, $\pm(S_n - 4)$, $\pm(S_n - 8)$, $\pm(S_n - 12)$ *and* $2k = \pm(S_n - 18)$ *cannot be written in form (5).*

Lemma 2.4. *For prime number sequence* p_2, p_3, ... *and for all natural* $n \geq 5$, *by suitable choice of + and – signs each odd natural number*

$$2k + 1 \leq S_n = \sum_{i=2}^{2n-2} p_i$$

can be written as

$$2k + 1 = \pm p_2 \pm p_3 \pm ... \pm p_{2n-2}. \tag{6}$$

For each fixed $n \geq 5$ *value there are 5 exceptions – odd numbers* $2k+1 = S_n - 2$, $S_n - 4$, $S_n - 8$, $S_n - 12$ *and* $2k + 1 = S_n - 18$ *cannot be written in form (6).*

   Lower limit. Lemma 2.4 holds for $n = 5$ *and* $p_{2n-2} = p_8 = 19$, *which gives* $S_5 = 75$. *Results are presented in Table 2 – see Appendix.*
Lemma 2.4 fails for $n = 4$, *because sequence* $\pm 3 \pm 5 \pm 7 \pm 11 \pm 13$ *does not give 5.*

Proof. In analogy with proof for *Lemma 2.2.* □

Corollary 2.5. *For prime number sequence* p_2, p_3, ... *and for all natural* $n \geq 5$, *by suitable choice of + and – signs each odd prime* $3 \leq q \leq S_n - 20$, *where*

$$S_n = \sum_{i=2}^{2n-2} p_i,$$

can be represented as $q = \pm p_2 \pm p_3 \pm ... \pm p_{2n-2}.$

   In analogy with *Lemma 2.3* we can prove

Lemma 2.6. *For prime number sequence* p_2, p_3, ... *and for all natural* $n \geq 5$, *by suitable choice of + and – signs each odd integer* $2k + 1$, *for which*

$$|2k + 1| \leq S_n = \sum_{i=2}^{2n-2} p_i,$$

can be written as

$$2k + 1 = \pm p_2 \pm p_3 \pm ... \pm p_{2n-2}. \tag{7}$$

For each fixed $n \geq 5$ *value there are 10 exceptions – odd integers* $2k+1 = \pm(S_n - 2)$, $\pm(S_n - 4)$, $\pm(S_n - 8)$, $\pm(S_n - 12)$ *and* $2k + 1 = \pm(S_n - 18)$ *cannot be written in form (7).*

Lemmas 2.3 and *2.6* can be combined in one

Theorem 2.7. *If we take a sequence of six or more consecutive odd primes* $3, 5, 7, ..., p$, *which sums up to the natural number* S, *then all odd integers for odd length of this sequence and all even integers for even length of this sequence, both in limits from* $-S$ *to* $+S$, *can be written as* $\pm 3 \pm 5 \pm 7 \pm ... \pm p$ *by suitable choice of* $+$ *and* $-$ *signs. For each case 10 exceptions exist – integers* $\pm(S-2)$, $\pm(S-4)$, $\pm(S-8)$, $\pm(S-12)$ *and* $\pm(S-18)$ *cannot be written in this form.*

3 More detailed analysis

These $+/-$ choice sequences have many interesting applications and we will show their usefulness in proof of binary Goldbach conjecture. (Ternary Goldbach conjecture was recently proved by H.A. Helfgott, see [9].)

Prime 11 has three representations by sequence $\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19$ and they are:

$$+3 + 5 + 7 + 11 - 13 + 17 - 19 = 11;$$

$$-3 - 5 + 7 - 11 - 13 + 17 + 19 = 11;$$

$$-3 - 5 - 7 + 11 + 13 - 17 + 19 = 11.$$

With the exception of summand 11, left parts of the first and the last of these representations are mirrors, this can be confirmed by subtracting of 11:

$$+3 + 5 + 7 - 13 + 17 - 19 = 0;$$

$$-3 - 5 - 7 + 13 - 17 + 19 = 0.$$

So we have a choice to take one or another of these two *zero-sequences* and can declare a *Statement*. If prime p_i has a plus sign in it's representation by odd length sequence of consecutive odd primes $\pm 3 \pm 5 \pm ... \pm p_i \pm ...$, then it has also another such representation with all signs inverted, excepting the one at p_i.

In *Table 2 from Appendix* we can see that prime 7 has not such representations by sequence

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19.$$

So what will be with longer sequences? In *Lemma 2.4* we discussed odd length sequences of consecutive odd primes

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}, \tag{8}$$

where $n \geq 5$, and proved that these sequences can represent all odd natural numbers in limits 1, 3, ..., $S_n - 20$, here

$$S_n = \sum_{i=2}^{2n-2} p_i.$$

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Now we introduce the conception of *cropped(1)sequence* as any arbitrary sequence of even length, which can be obtained from sequence (8) by omitting one of the primes p_2, p_3, ... , p_{2n-2}. For example, from odd length sequence

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19$$

we can obtain 7 different cropped(1)sequences

$$\pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19$$

$$\pm 3 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19$$

$$\pm 3 \pm 5 \pm 11 \pm 13 \pm 17 \pm 19$$

$$\pm 3 \pm 5 \pm 7 \pm 13 \pm 17 \pm 19$$

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 17 \pm 19$$

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 19$$

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17$$

and expression $[\pm 3 \pm 5 \pm ... \pm 19]_{-1}$ implies any of them. All these cropped(1)sequences have even length and they can represent even integers.

Theorem 3.1. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 6$, by suitable choice of + and – signs each even natural number $2k < p_{2n-1}$ and $2k = 0$ can be represented by each of cropped(1)sequences*

$$[\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}]_{-1},$$

where one of the consecutive primes p_2, ... , p_{2n-2} is missing.

Lower limit. Numerically we can ascertain that each of cropped(1)sequences, obtained from sequence

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29,$$

can represent all even integers 0, 2, 4, ... , $30 < p_{11} = 31$ *(see Table 3 in an Appendix).* Cropped(1)sequence $\pm 3 \pm 5 \pm 11 \pm 13 \pm 17 \pm 19$ does not give 0.

Proof. We assume that *Theorem 3.1* holds for one given natural $n \geq 6$, thus, by suitable choice of + or – signs, for all even $0 \leq 2a < p_{2n-1}$ we can always find a complete set of corresponding cropped(1)sequences

$$2a = [\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}]_{-1},$$

where one of the consecutive primes p_2, ... , p_{2n-2} is missing.
We choose even $0 \leq 2b < p_{2n+1} < 2p_{2n}$ (this from (1)).
Then $-p_{2n} \leq 2b - p_{2n} < p_{2n}$. The middle term $2b - p_{2n}$ is an odd integer, whose absolute value is less than p_{2n}, therefore, by suitable choice of + or – sign we can get

$$0 < \pm(2b - p_{2n}) \leq p_{2n} < 2p_{2n-1}$$

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(the last from (1)). By subtracting p_{2n-1} we get

$$-p_{2n-1} < \pm(2b - p_{2n}) - p_{2n-1} < p_{2n-1}.$$

The middle term $\pm(2b - p_{2n}) - p_{2n-1}$ is an even integer, whose absolute value is less than p_{2n-1}, therefore, by suitable choice of + or − sign we can get

$$0 \le \pm(\pm(2b - p_{2n}) - p_{2n-1}) < p_{2n-1}.$$

So the middle term $\pm(\pm(2b - p_{2n}) - p_{2n-1})$ is an even natural number or zero and, according to our initial assumption, it's value can be represented by cropped(1)sequences for $2a$:

$$\pm(\pm(2b - p_{2n}) - p_{2n-1}) = 2a = [\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}]_{-1}.$$

This gives

$$2b = \pm[\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}]_{-1} \pm p_{2n-1} \pm p_{2n}. \tag{9}$$

Obtained expression (9) for number $2b$ does not fully correspond to our introduced conception of cropped(1)sequences, because missing primes in (9) can be p_2 ... p_{2n-2}, but we need limits p_2 ... p_{2n}. Situation can be corrected by *Lemma 2.4*, because complete odd length sequence $\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}$ can generate all odd natural numbers up to it's $S_n - 20$, so possible limits for even numbers $S_n - 20 + p_{2n-1}$ and $S_n - 20 + p_{2n}$ each exceeds p_{2n+1}.

Thus $2b$ can be represented by cropped(1)sequences

$$2b = [\pm p_2 \pm p_3 \pm ... \pm p_{2n-2} \pm p_{2n-1} \pm p_{2n}]_{-1} \tag{10}$$

and this inductively proves *Theorem 3.1* for $n \to n + 1$ and for all greater natural n values. $\qquad \square$

Corollary 3.2. *For prime number sequence p_2, p_3, ... and for all natural $n \ge 6$, by suitable choice of + and − signs each odd prime in limits $p_2...p_{2n-2}$ can be represented by at least one odd length sequence of consecutive primes*

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-2},$$

where this prime has + sign.

Proof. We take corresponding cropped(1)sequence, which sums to $2k = 0$ and where this prime is missing (see *Theorem 3.1*). Then, by adding this prime to both sides, we get it's representation by our complete standard sequence (8). $\qquad \square$

In view of our previous statement, for all natural $n \ge 6$ each prime in limits $p_2, ..., p_{2n-2}$ can be written as at least one pair of mirrored representations by an odd length sequence (8); these representations are mirrors, excepting the given prime, which has + sign in both representations of this pair.

For example, prime 17 has three pairs of such representations by sequence

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29,$$

and they are

$$17 = +3 + 5 + 7 + 11 - 13 + 17 - 19 - 23 + 29;$$

$$17 = -3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 - 29;$$

$$17 = +3 + 5 - 7 + 11 + 13 + 17 - 19 + 23 - 29; \tag{11}$$

$$17 = -3 - 5 + 7 - 11 - 13 + 17 + 19 - 23 + 29;$$

$$17 = +3 - 5 - 7 - 11 - 13 + 17 - 19 + 23 + 29;$$

$$17 = -3 + 5 + 7 + 11 + 13 + 17 + 19 - 23 - 29.$$

Now we take one such pair of representations of prime p_i, where p_i has + sign in both of them ($p_i \in [p_2, p_{2n-2}]$). By adding p_{2n-1} we get two representations of even number $2a = p_i + p_{2n-1}$, which are created by even length sequence $\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$. Both of these representations are mirrors, excluding primes p_i and p_{2n-1}, but we have the choice to select one or another of these. This gives

Corollary 3.3. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 6$, by suitable choice of + and − signs every even length sequence of consecutive odd primes*

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$$

creates at least one pair of mentioned mirrored representations (with + signs at primes p_i and p_{2n-1} in both representations) for all even numbers $2a = p_i + p_{2n-1}$, here $p_i \in [p_2, p_{2n-2}]$.

Henceforward we will call such expressions for even numbers $2a = p_i + p_{2n-1}$, defined by *Corollary 3.3*, as *B-partitions* or BP. One given specific even length sequence of consecutive odd primes $\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}$ generates $p_2 + p_{2n-1}$ as it's minimal BP and $p_{2n-2} + p_{2n-1}$ as it's maximal BP. Each BP means at least one pair of mirrored representations, defined by *Corollary 3.3*.

For example, if we add prime 31 to each of sequences (11), we will get three different BP representations for even number $48 = 17 + 31$; in each pair primes 17 and 31 have + signs, but remaining segments are mirrors:

$$48 = +3 + 5 + 7 + 11 - 13 + 17 - 19 - 23 + 29 + 31;$$

$$48 = -3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 - 29 + 31;$$

$$48 = +3 + 5 - 7 + 11 + 13 + 17 - 19 + 23 - 29 + 31;$$

$$48 = -3 - 5 + 7 - 11 - 13 + 17 + 19 - 23 + 29 + 31;$$

$$48 = +3 - 5 - 7 - 11 - 13 + 17 - 19 + 23 + 29 + 31;$$

$$48 = -3 + 5 + 7 + 11 + 13 + 17 + 19 - 23 - 29 + 31.$$

All these BP representations we can get by suitable choice of – or + signs in an equation

$$48 = \pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31.$$

Theorem 3.1 is an absolute minimum to introduce the conception of B-partitions. For longer generating choice sequences we can get broader limits of available consecutive even number segments, as shown by the following theorem.

Theorem 3.4. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 7$, by suitable choice of + or – signs each even natural number $2k \leq p_{2n-1} + p_{2n}$ can be represented by each of cropped(1)sequences*

$$[\pm p_2 \pm p_3 \pm ... \pm p_{2n-2}]_{-1},$$

where one of the consecutive primes p_2, ..., p_{2n-2} is missing.

Lower limit can be ascertained numerically (not shown in Tables). For $n = 7$ each of cropped(1)sequences

$$[\pm 3 \pm ... \pm 37]_{-1}$$

can represent all even natural numbers $2k \leq p_{2n-1} + p_{2n} = 41 + 43 = 84$ and $2a = 0$. For $n = 6$ cropped(1)sequence

$$\pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29$$

does not give 48, which is less than theorem's necessary limit $p_{2n-1} + p_{2n} = 31 + 37 = 68$.

Proof. In analogy with *Theorem 3.1*. □

But we can get much more. All *Table 3 (Appendix)* entries can be multiplied by –1, and each entry sums to zero with it's inverse. Now we can add $2a = p_i + p_{2n-1}$ to each p_i-deficit entry $2d \in [2, p_{2n-1} - 1]$ and it's inverse $-2d$, so getting two even integers $2a + 2d$ and $2a - 2d$, whose halfsum again is $2a$. Therefore each pair of so obtained integers $2a \pm 2d$ also can be considered as two mirrored representations for B-partition $2a = p_i + p_{2n-1}$. Such operation can also be done with cropped(1)sequences from *Theorem 3.4*.

In total each even length sequence of consecutive odd primes

$$\pm p_2 \pm p_3 \pm ... \pm p_{2n-1}, \tag{12}$$

where $n \geq 6$, generates precisely $2n - 3$ B-partitions from $2a = p_2 + p_{2n-1}$ to $2a = p_{2n-2} + p_{2n-1}$ in the form of their mirrored representations. The overall number of such representations for one particular sequence length is 2^{2n-5} mirrored pairs

$$2a \pm 2d = \pm \boldsymbol{p_2} \pm ... \pm \boldsymbol{p_{i-1}} + p_i \pm \boldsymbol{p_{i+1}} \pm ... \pm \boldsymbol{p_{2n-2}} + p_{2n-1}$$

for each $p_i + p_{2n-1}$ combination (or B-partition, as we defined them). Here $i = 2, ..., 2n - 2$, but bolded summands – all primes with $\pm$ signs – are mirrors. On basis of *Theorems 3.1* and *3.4* we can foresee existence of long consecutive segments of even integers, each of which is a sum of

one or another member of any mirrored pair for one specified BP, and this is valid for all $2n - 3$ BP, formed by sequence (12). For example, even numbers

$$2a \pm 2d = +3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 + 31,$$

representing B-partition $3 + 31 = 34$ and paired with their mirrors (where + signs at 3 and 31 are plus-fixed), build consecutive segment from –12 to 80 (see *Table 7* in Supplement; *Theorem 3.1* guarantees limits from 4 to 64).

Corollary 3.5. *(From* Theorem 3.4.) *For all natural $n \geq 7$ and for all B-partitions, formed by sequence of consecutive odd primes $\pm p_2 \pm ... \pm p_{2n-1}$, the sums of these B-partition representations cover all even integers from $-(p_{2n-1} + p_{2n}) + p_i + p_{2n-1}$ up to $p_{2n-1} + p_{2n} + p_i + p_{2n-1}$; here $i = 2, 3, ..., 2n - 2$.*

Such consecutive segments of even integers as representation sums for different BP, formed by one specified even length sequence (12), partially overlaps. To study overlapping of segments, formed by sequences (12) of different length, we introduce the conception of *B-partition equivalents* or BPE: they are sums $p_i + p_{2m-1}$, represented by pairs of even length sequences of consecutive odd primes

$$2a \pm 2d = \pm p_2 \pm ... + p_{2m-1} \pm ... \pm p_{2n-1},$$

where p_i is one of primes $p_2, ..., p_{2m-2}$, but $6 \leq m < n$; in each pair primes p_i and p_{2m-1} are plus-fixed, while remaining ones have opposite signs, thus sum of two such paired representations is $4a = 2p_i + 2p_{2m-1}$. Two examples of BPE representation pairs for $48 = 17 + 31$, formed by sequence $\pm 3 \pm ... \pm 47$, are the following:

$$48 = 3 + 5 - 7 + 11 + 13 + 17 + 19 - 23 - 29 + 31 - 37 + 41 - 43 + 47$$

$$48 = -3 - 5 + 7 - 11 - 13 + 17 - 19 + 23 + 29 + 31 + 37 - 41 + 43 - 47$$

(here $2d = 0$), and

$$52 = 3 - 5 + 7 - 11 - 13 + 17 - 19 - 23 - 29 + 31 - 37 + 41 + 43 + 47$$

$$44 = -3 + 5 - 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 - 41 - 43 - 47$$

(here $2d = 4$).

So BPE are the extension of B-partitions conception.

4 Overlapping and entanglement

Here we are especially interested in simultaneous representations of a pair BPE + BP or $\text{BPE}_a + \text{BPE}_b$ ($a \neq b$) by one given even length sequence of consecutive odd primes

$$\pm p_2 \pm ... \pm p_i \pm ... \pm p_{2m-1} \pm ... \pm p_j \pm ... \pm p_{2n-1} \pm ... \pm p_{2s-1}. \tag{13}$$

Some other limitations will follow.

Property under consideration occurs for $s \geq 9$; if + signs are at p_i and p_{2m-1} ($i < 2m - 1$), as well as at p_j and p_{2n-1} ($j < 2n - 1$; $i \neq j \neq 2m - 1$), we have a simultaneous representation of two different BPE (for $n < s$) by one sequence, but $n = s$ means pair BPE + BP. Of course, each such representation is paired with it's mirror, where primes p_i, p_j, p_{2m-1} and p_{2n-1} (or p_{2s-1}) have the same + signs, but all other primes are mirrored. We are not speaking on a sharp limit, but about fully formed regularity (sequence with $s = 8$ shows some divergences in total number of holes before/after consecutive segment, not displayed in Tables).

Numerical analysis indicates (*Table 4, column 3, see Appendix*) existence of long consecutive segments of even integers, each of which is the sum of one or another representation for one specified p_i, p_j, p_{2m-1} and p_{2n-1} (or p_{2s-1}) combination. The sum of the other member of one specified pair (it's mirrored representation) may be located in this mentioned consecutive segment as well as outside it, but anyway this representation exists.

Additional limitation is the following: as the least BP, formed by sequence (13) is $p_2 + p_{2s-1}$, we will study situations with $p_{2m-2} + p_{2m-1} \geq p_2 + p_{2s-1}$, because this is an absolute minimum for m to show any effects on s. One more restriction, $m \geq 6$, comes from BP and BPE definitions.

So for $s = 9$ we have $p_2 + p_{2s-1} = 62$, which gives minimal $m = 7$ and three possible greatest counterparts of BP/BPE – 41, 47 and 59. Accordingly *Table 4 (Appendix)* consists from 3 sections, each marked by two plus-fixed greatest BP/BPE counterparts. Two more primes from remaining 14 also are plus-fixed, while signs of all other can be varied. Thus the first row of *Table 4* first section (*Plus-fixed 41 and 47*) shows that sequence

$$+3 + 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31 \pm 37 + 41 \pm 43 + 47 \pm 53 \pm 59 \qquad (14)$$

by suitable choice of + and – signs can give all consecutive even integers from -154 to 346, and first holes in this line occur at -156 and 348. Sequence (14) gives simultaneous representations for B-partition equivalents $3 + 41$ and $5 + 47$, as well as for $3 + 47$ and $5 + 41$, made by non-restricted sequence $\pm 3 \pm ... \pm 59$.

Data-set of *Table 4* from Appendix (compare with $s = 8$ and $s = 10$, see *Table 8* and *Table 9* in Supplement) shows all combinations for two plus-fixed primes from 14 remaining ones (91 row for each section), including all possible BP/BPE pairs, but not all entries are BP or BPE; for example, such is the sequence with plus-fixed 41, 43, 47 and 53.

When we exclude plus-fixed primes from sequence (14), the remnant

$$\pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31 \pm 37 \pm 43 \pm 53 \pm 59,$$

in analogy with previously analysed cropped(1)sequences, can be named *cropped(4)sequence*, which, in this particular case, can give all consecutive even numbers in 0 ± 250 limits. These experimentally calculated limits for each plus-fixed prime combination compose the 4-th column of *Table 4*.

Sequence (13) with $s = 9$ is the first, where all these +/– values for cropped(4)sequence limits, obtained experimentally, exceed maximum sum of plus-fixed primes for all possible combinations (all rows in *Table 4*) – here 202 – last entry of second section.

This creates interconnection between all BP/BPE of *Table 4* in the following sense. In *Table 4* we can find all possible $\text{BPE}_a + \text{BPE}_b$ (or BP + BPE) combinations, whose greatest counterparts are 41, 47 or 59. We take one such particular combination, for example, row with plus-fixed 3, 41, 43 and 47 corresponds to $\text{BPE}_a + \text{BPE}_b$ combination $3 + 41 = 44$ and $43 + 47 = 90$. So corresponding cropped(4)sequence

$$\pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31 \pm 37 \pm 53 \pm 59$$

can sum to all consecutive even numbers in limits 0 ± 248 (see *Table 4, column 4*). We add $\text{BPE}_a = 3 + 41 = 44$ and obtain *cropped(2)sequence*

$$+3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31 \pm 37 + 41 \pm 53 \pm 59,$$

which can sum to all consecutive even numbers from -204 to +292. [Keep in mind – situation is restricted, because primes 3 and 41 are plus-fixed.] So all consecutive even numbers in limits 0 ± 292 are sums of these [restricted] fully-mirrored cropped(2)sequences. Now we add $\text{BPE}_b = 43 + 47 = 90$, which guarantees that all consecutive even numbers from -202 to +382 are the sums

$$\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31 \pm 37 \pm 41 + 43 + 47 \pm 53 \pm 59$$

with following properties – primes 43 and 47 have + signs, while remnants definitely have their mirrors [with the same signs at 3 and 41 – a restriction].

Again we can get much more. As $p_k + p_{k+1} + p_{k+2} + p_{k+3} > p_{k+4} + p_{k+5}$ (easily obtained from (2)), our maximum sum of plus-fixed primes (= 202) exceeds the sum of next two primes $61 + 67 = 112$, which, at the same time, is the maximum BP, generated by sequence $\pm 3 \pm ... \pm 67$. Therefore all new BPE/BP, obtained from generating sequence elongation by next consecutive prime pair, become interconnected with all parent-ones (from *Table 4*) by simple arithmetic procedures. Henceforward we will call this new combinatorial property of prime number sequence as an *entanglement*.

Now about mentioned arithmetic procedures and generating sequence elongation. *Table 4* is self-reproducing in the following manner. Holes after consecutive sequence (column 3) have 16 different numerical values, repeating in some order in all three sections of *Table 4*. They all are caused by sign restrictions (4 primes must be plus-fixed) – in these cases simply do not exist necessary +/– choice combinations. Similar situation was in *Lemma 2.2*, where 5 exceptions were caused by structural reasons. Now we have additional sign restrictions and more exceptions.

So odd prime sequence $3 + ... + 59$ sums to $S_n = 438$ (see *Lemma 2.2*), and exception $S_n - 18 = 420$ is the first such limit. In *Table 5 (Appendix)* all these exceptions are characterized by their $S_n - x$ values and all corresponding sequences, which sum to these $S_n - x$ values.

As example, $S_n - 26 = 412$, the only representation of which has minus-signed 13, is limiting many combinations with plus-fixed 13. All other cases can be explained similarly.

By generating sequence elongation simply one new $p_{2s} + p_{2s+1}$ pair will be added to sequence (13) and to all sequences in *Table 5* with corresponding corrections of sums. No more $S_n - x$ values are expected. The same $p_{2s} + p_{2s+1}$ values are added to 4-th column entries in *Table 4*, with deleting of unnecessary sections and construction of new ones.

All previous deductions in this chapter can be summarized in one

Theorem 4.1. *For prime number sequence p_2, p_3, ... and for all natural $s \geq 9$ all BP/BPE, formed by even-length sequence (13) and restricted by previously shown conditions ($i < 2m - 1$, $j < 2n - 1$, $i \neq j \neq 2m - 1$, primes p_i, p_j, p_{2m-1} and p_{2n-1} (or p_{2s-1}) are plus-fixed, $m \geq 6$, $p_{2m-2} + p_{2m-1} \geq p_2 + p_{2s-1}$), are interconnected in predictable limits via entanglement of their representations. In the same way they are interconnected with all BP/BPE, formed by next longer even-length sequence and same type restrictions.*

Theorem 4.1 defines ascending parent-child relationships between restricted family of initial BP/BPE and similar BP/BPE family, formed by initial generating sequence plus two next primes. Now we will explore the descending ones.

Theorem 4.2. *For prime number sequence p_2, p_3, ... and for all natural $n \geq 16$, by suitable choice of + or – signs for all even natural numbers $2a \leq p_{2n-2} + p_{2n-1}$ there exist B-partitions or their equivalents, formed by even length sequences of odd primes*

$$\pm p_2 \pm p_3 \pm ... \pm p_{2m-1},$$

where $m \geq 6$, but $p_{2m} < p_{2n-2} + p_{2n-1} < p_{2m+2}$.
For each fixed $n \geq 16$ value there exist following exceptions:
1) as B-partitions are defined only for $m \geq 6$, their minimal value is limited by sequence $\pm 3 \pm 5 \pm ... \pm 31$ and it is $2a = 34$;
2) B-partitions do not exist for even naturals $2a = 40, 56, 68$ and 118.

Lower limit. There exist BP for all even $34 \leq 2a \leq 240$ *(see Table 6 (Appendix))*, here $p_{2n-2} + p_{2n-1} = p_{30} + p_{31} = 113 + 127 = 240$ ($n = 16$). Of course, mentioned exceptions for 40, 56, 68 and 118 remain. There exists continuous segment of even numbers $120 \leq 2a \leq 240$, all of which have BP or BPE.

Proof. We assume that for one given natural $n \geq 16$ we can find BP/BPE for all even natural numbers $2a \leq p_{2n-2} + p_{2n-1}$. (If $n = 16$, all even naturals in limits from $p_2 + p_{2n-1} = 130$ to $p_{2n-2} + p_{2n-1} = 240$ have BP/BPE – we have a *complete entanglement group*.) It means that for all even natural $2a$ in mentioned limits we can find at least one pair of representations of BP or their equivalents

$$2a \pm 2d = \pm \boldsymbol{p_2} \pm \boldsymbol{p_3} \pm ... \pm \boldsymbol{p_{i-1}} + p_i \pm \boldsymbol{p_{i+1}} \pm ... \pm \boldsymbol{p_{2k-2}} +$$
$$+ p_{2k-1} \pm \boldsymbol{p_{2k}} \pm \boldsymbol{p_{2k+1}} \pm ... \pm \boldsymbol{p_{2m-1}},$$

where bolded summands are mirrors, $p_i < p_{2k-1}$, $i = 2, 3, ..., 2k - 2$; $k = 6, 7, ..., m$; $p_{2m} < p_{2n-2} + p_{2n-1} < p_{2m+2}$; but $2a = p_i + p_{2k-1}$. ($k = m$ means B-partitions

$$2a = \pm \boldsymbol{p_2} \pm \boldsymbol{p_3} \pm ... \pm \boldsymbol{p_{i-1}} + p_i \pm \boldsymbol{p_{i+1}} \pm ... \pm \boldsymbol{p_{2k-2}} + p_{2k-1},$$

not BPE.)

Now we start chain-elongation procedure. We choose even natural $0 < 2b < p_{2m+2}$. Two cases.

1. $2b$ is equal to any of $2a$ values, but the generating sequence must be

$$\pm p_2 \pm p_3 \pm ... \pm p_{2m-1} \pm p_{2m} \pm p_{2m+1}.$$

BPE for $2b = 2a = p_i + p_{2k-1}$ corresponds to requirements, because we always can get additional segment $\pm p_{2m} \pm p_{2m+1}$ mirrored.

The situation $p_{2n-2} + p_{2n-1} + 1 = p_{2m+2}$ also belongs to this case. All exceptions remain.

2. $0 < p_{2m} < 2b < p_{2m+2} < 2p_{2m+1}$.

By subtracting p_{2m+1} we get

$$-p_{2m+1} < 2b - p_{2m+1} < p_{2m+1}.$$

The middle term $2b - p_{2m+1}$ is an odd integer, whose absolute value is less than p_{2m+1}, and by suitable choice of + or − sign it can be made positive

$$0 < \pm(2b - p_{2m+1}) < p_{2m+1} < 2p_{2m}$$

(the last from (1)). By subtracting p_{2m} we get

$$-p_{2m} < \pm(2b - p_{2m+1}) - p_{2m} < p_{2m}.$$

The middle term $\pm(2b - p_{2m+1}) - p_{2m}$ is an even integer and, analogously, by suitable choice of + or − sign we can get

$$0 \leq \pm(\pm(2b - p_{2m+1}) - p_{2m}) < p_{2m}.$$

Now the middle term $\pm(\pm(2b - p_{2m+1}) - p_{2m})$ hits in the segment of even numbers $2a$, having BP or BPE, so number

$$2b = \pm(2a \pm 2d) \pm p_{2m} \pm p_{2m+1},$$

in correspondence with *Theorem 4.1,* also have BP or BPE.

As in case 1, all exceptions remain.

By repeating this chain-elongation procedure $m \to m + 1$ we can reach necessary limit for $n \to n + 1$. This inductively proves *Theorem 4.2* for $n \to n + 1$ and for all greater natural n values. $\qquad\qquad\square$

Corollary 4.3. *There exist B-partitions for all even natural numbers* $2a \geq 120$.

Table 10 from Supplement shows BP/BPE subset among asymmetric binary Goldbach partitions for even numbers 8–1000.

Corollary 4.4. *All even natural numbers* $2a \geq 120$ *are sums of two different odd primes.*

Thus binary Goldbach conjecture is true and Bertrand's postulate rules the winds.

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IMPORTANT REMARK

Presented text was available in HAL/science archive under HAL Id: hal-01936230 (submitted 27. Nov. 2018). It was kicked out due to nonexistence of academic affiliation for the author. There were lots of downloads and readings, so do not confuse at copies with earlier priority date.

Appendix

Tables 1–6

Table 1. Sets of even natural number and 0, generated by sequences $\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17$ and $\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23$.

$0 = + 3 + 5 + 7 - 11 + 13 - 17$
$0 = - 3 - 5 - 7 + 11 - 13 + 17$
$2 = - 3 + 5 + 7 - 11 - 13 + 17$
$2 = - 3 + 5 - 7 + 11 + 13 - 17$
$4 = - 3 - 5 - 7 - 11 + 13 + 17$
$6 = + 3 - 5 - 7 + 11 - 13 + 17$
$6 = - 3 - 5 + 7 + 11 + 13 - 17$
$8 = + 3 + 5 + 7 - 11 - 13 + 17$
$8 = + 3 + 5 - 7 + 11 + 13 - 17$
$10 = + 3 - 5 - 7 - 11 + 13 + 17$
$10 = - 3 + 5 - 7 - 11 - 13 + 17$
$12 = + 3 - 5 + 7 + 11 + 13 - 17$
$14 = - 3 + 5 - 7 - 11 + 13 + 17$
$14 = - 3 - 5 + 7 + 11 - 13 + 17$
$16 = + 3 + 5 - 7 + 11 - 13 + 17$
$16 = - 3 + 5 + 7 + 11 + 13 - 17$
$18 = - 3 - 5 + 7 - 11 + 13 + 17$
$20 = + 3 + 5 - 7 - 11 + 13 + 17$
$20 = + 3 - 5 + 7 + 11 - 13 + 17$
$22 = + 3 + 5 + 7 + 11 + 13 - 17$
$24 = + 3 - 5 + 7 - 11 + 13 + 17$
$24 = - 3 + 5 + 7 + 11 - 13 + 17$
$26 = - 3 - 5 - 7 + 11 + 13 + 17$
$28 = - 3 + 5 + 7 - 11 + 13 + 17$
$30 = + 3 + 5 + 7 + 11 - 13 + 17$
$32 = + 3 - 5 - 7 + 11 + 13 + 17$
$34 = + 3 + 5 + 7 - 11 + 13 + 17$
$36 = - 3 + 5 - 7 + 11 + 13 + 17$
Exception $S_n - 18$
$40 = - 3 - 5 + 7 + 11 + 13 + 17$
$42 = + 3 + 5 - 7 + 11 + 13 + 17$
Exception $S_n - 12$
$46 = + 3 - 5 + 7 + 11 + 13 + 17$
Exception $S_n - 8$
$50 = - 3 + 5 + 7 + 11 + 13 + 17$
Exception $S_n - 4$
Exception $S_n - 2$
$56 = + 3 + 5 + 7 + 11 + 13 + 17$

$0 = + 3 + 5 + 7 + 11 - 13 - 17 - 19 + 23$
$0 = + 3 + 5 - 7 + 11 + 13 + 17 - 19 - 23$
$0 = - 3 - 5 + 7 - 11 - 13 - 17 + 19 + 23$
$0 = - 3 - 5 - 7 - 11 + 13 + 17 + 19 - 23$
$2 = + 3 + 5 - 7 - 11 - 13 - 17 + 19 + 23$
$2 = + 3 - 5 + 7 - 11 - 13 + 17 - 19 + 23$
$2 = + 3 - 5 - 7 + 11 + 13 - 17 - 19 + 23$
$2 = + 3 - 5 - 7 + 11 - 13 + 17 + 19 - 23$
$2 = - 3 - 5 + 7 + 11 + 13 - 17 + 19 - 23$
$4 = + 3 + 5 + 7 - 11 + 13 - 17 - 19 + 23$
$4 = + 3 + 5 + 7 - 11 - 13 + 17 + 19 - 23$
$4 = + 3 + 5 - 7 + 11 + 13 - 17 + 19 - 23$
$4 = + 3 - 5 + 7 + 11 + 13 + 17 - 19 - 23$
$4 = - 3 - 5 - 7 + 11 - 13 + 17 - 19 + 23$

$6 = + 3 - 5 + 7 - 11 - 13 - 17 + 19 + 23$
$6 = + 3 - 5 - 7 - 11 + 13 + 17 + 19 - 23$
$6 = - 3 + 5 + 7 - 11 - 13 + 17 - 19 + 23$
$6 = - 3 + 5 - 7 + 11 + 13 - 17 - 19 + 23$
$6 = - 3 + 5 - 7 + 11 - 13 + 17 + 19 - 23$
$8 = + 3 - 5 + 7 + 11 + 13 - 17 + 19 - 23$
$8 = - 3 + 5 + 7 + 11 + 13 + 17 - 19 - 23$
$8 = - 3 - 5 - 7 + 11 - 13 - 17 + 19 + 23$
$8 = - 3 - 5 - 7 - 11 + 13 + 17 - 19 + 23$
$10 = + 3 - 5 - 7 + 11 - 13 + 17 - 19 + 23$
$10 = - 3 + 5 + 7 - 11 - 13 - 17 + 19 + 23$
$10 = - 3 + 5 - 7 - 11 + 13 + 17 + 19 - 23$
$10 = - 3 - 5 + 7 + 11 + 13 - 17 - 19 + 23$
$10 = - 3 - 5 + 7 + 11 - 13 + 17 + 19 - 23$
$12 = + 3 + 5 + 7 - 11 - 13 + 17 - 19 + 23$
$12 = + 3 + 5 - 7 + 11 + 13 - 17 - 19 + 23$
$12 = + 3 + 5 - 7 + 11 - 13 + 17 + 19 - 23$
$12 = - 3 + 5 + 7 + 11 + 13 - 17 + 19 - 23$
$12 = - 3 - 5 - 7 - 11 + 13 - 17 + 19 + 23$
$14 = + 3 + 5 + 7 + 11 + 13 + 17 - 19 - 23$
$14 = + 3 - 5 - 7 + 11 - 13 - 17 + 19 + 23$
$14 = + 3 - 5 - 7 - 11 + 13 + 17 - 19 + 23$
$14 = - 3 + 5 - 7 + 11 - 13 + 17 - 19 + 23$
$14 = - 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23$
$16 = + 3 + 5 + 7 - 11 - 13 - 17 + 19 + 23$
$16 = + 3 + 5 - 7 - 11 + 13 + 17 + 19 - 23$
$16 = + 3 - 5 + 7 + 11 + 13 - 17 - 19 + 23$
$16 = + 3 - 5 + 7 + 11 - 13 + 17 + 19 - 23$
$18 = + 3 + 5 + 7 + 11 + 13 - 17 - 19 - 23$
$18 = + 3 - 5 - 7 - 11 + 13 - 17 + 19 + 23$
$18 = - 3 + 5 - 7 - 11 + 13 + 17 - 19 + 23$
$18 = - 3 + 5 - 7 + 11 - 13 + 17 - 19 + 23$
$18 = - 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23$
$20 = + 3 + 5 - 7 + 11 - 13 - 17 + 19 + 23$
$20 = + 3 - 5 + 7 - 11 + 13 + 17 + 19 - 23$
$20 = - 3 + 5 + 7 + 11 + 13 - 17 - 19 + 23$
$20 = - 3 + 5 + 7 + 11 - 13 + 17 + 19 - 23$
$20 = - 3 - 5 - 7 - 11 - 13 + 17 + 19 + 23$
$22 = - 3 + 5 - 7 - 11 + 13 - 17 + 19 + 23$
$22 = - 3 - 5 + 7 + 11 - 13 - 17 + 19 + 23$
$22 = - 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23$
$22 = - 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23$
$24 = + 3 + 5 - 7 + 11 - 13 - 17 + 19 + 23$
$24 = + 3 + 5 - 7 - 11 + 13 + 17 - 19 + 23$
$24 = + 3 - 5 + 7 + 11 - 13 + 17 - 19 + 23$
$24 = - 3 + 5 + 7 + 11 - 13 + 17 + 19 - 23$
$26 = + 3 + 5 + 7 + 11 + 13 - 17 - 19 + 23$
$26 = + 3 + 5 + 7 + 11 - 13 + 17 - 19 + 23$
$26 = + 3 - 5 - 7 - 11 - 13 + 17 + 19 + 23$
$26 = - 3 - 5 + 7 - 11 + 13 - 17 + 19 + 23$
$28 = + 3 + 5 - 7 - 11 + 13 - 17 + 19 + 23$
$28 = + 3 - 5 + 7 + 11 - 13 - 17 + 19 + 23$
$28 = + 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23$
$28 = + 3 - 5 - 7 + 11 + 13 + 17 + 19 - 23$

$28 = -3 + 5 + 7 + 11 - 13 + 17 - 19 + 23$
$30 = +3 + 5 + 7 - 11 + 13 + 17 + 19 - 23$
$30 = -3 + 5 - 7 - 11 - 13 + 17 + 19 + 23$
$30 = -3 - 5 - 7 + 11 + 13 + 17 - 19 + 23$
$32 = +3 - 5 + 7 - 11 + 13 - 17 + 19 + 23$
$32 = -3 + 5 + 7 + 11 - 13 - 17 + 19 + 23$
$32 = -3 + 5 + 7 - 11 + 13 + 17 - 19 + 23$
$32 = -3 + 5 - 7 + 11 + 13 + 17 + 19 - 23$
$34 = +3 + 5 + 7 + 11 - 13 + 17 - 19 + 23$
$34 = -3 - 5 + 7 - 11 - 13 + 17 + 19 + 23$
$34 = -3 - 5 - 7 + 11 + 13 - 17 + 19 + 23$
$36 = +3 + 5 - 7 - 11 - 13 + 17 + 19 + 23$
$36 = +3 - 5 - 7 + 11 + 13 + 17 - 19 + 23$
$36 = -3 + 5 + 7 - 11 + 13 - 17 + 19 + 23$
$36 = -3 - 5 + 7 + 11 + 13 + 17 + 19 - 23$
$38 = +3 + 5 + 7 + 11 - 13 - 17 + 19 + 23$
$38 = +3 + 5 + 7 - 11 + 13 + 17 - 19 + 23$
$38 = +3 + 5 - 7 + 11 + 13 + 17 + 19 - 23$
$40 = +3 - 5 + 7 - 11 - 13 + 17 + 19 + 23$
$40 = +3 - 5 + 7 + 11 + 13 - 17 + 19 + 23$
$40 = -3 + 5 - 7 + 11 + 13 + 17 - 19 + 23$
$42 = +3 + 5 + 7 - 11 + 13 - 17 + 19 + 23$
$42 = +3 - 5 + 7 + 11 + 13 + 17 + 19 - 23$
$42 = -3 - 5 - 7 + 11 - 13 + 17 + 19 + 23$
$44 = -3 + 5 + 7 - 11 - 13 + 17 + 19 + 23$
$44 = -3 + 5 - 7 + 11 + 13 - 17 + 19 + 23$
$44 = -3 - 5 + 7 + 11 + 13 + 17 - 19 + 23$
$46 = +3 + 5 - 7 + 11 + 13 + 17 - 19 + 23$
$46 = -3 + 5 + 7 + 11 + 13 + 17 + 19 - 23$
$46 = -3 - 5 - 7 - 11 + 13 + 17 + 19 + 23$
$48 = +3 - 5 - 7 + 11 - 13 + 17 + 19 + 23$
$48 = -3 - 5 + 7 + 11 + 13 - 17 + 19 + 23$
$50 = +3 + 5 + 7 - 11 - 13 + 17 + 19 + 23$
$50 = +3 + 5 - 7 + 11 + 13 - 17 + 19 + 23$

$50 = +3 - 5 + 7 + 11 + 13 + 17 - 19 + 23$
$52 = +3 + 5 + 7 + 11 + 13 + 17 + 19 - 23$
$52 = +3 - 5 - 7 - 11 + 13 + 17 + 19 + 23$
$52 = -3 + 5 - 7 + 11 - 13 + 17 + 19 + 23$
$54 = +3 - 5 + 7 + 11 + 13 - 17 + 19 + 23$
$54 = -3 + 5 + 7 + 11 + 13 + 17 - 19 + 23$
$56 = -3 + 5 - 7 - 11 + 13 + 17 + 19 + 23$
$56 = -3 - 5 + 7 + 11 - 13 + 17 + 19 + 23$
$58 = +3 + 5 - 7 - 11 - 13 + 17 + 19 + 23$
$58 = -3 + 5 + 7 + 11 + 13 - 17 + 19 + 23$
$60 = +3 + 5 + 7 + 11 + 13 + 17 - 19 + 23$
$60 = -3 - 5 + 7 - 11 + 13 + 17 + 19 + 23$
$62 = +3 + 5 - 7 - 11 + 13 + 17 + 19 + 23$
$62 = +3 - 5 + 7 + 11 - 13 + 17 + 19 + 23$
$64 = +3 + 5 + 7 + 11 + 13 - 17 + 19 + 23$
$66 = +3 - 5 + 7 - 11 + 13 + 17 + 19 + 23$
$66 = -3 + 5 + 7 + 11 - 13 + 17 + 19 + 23$
$68 = -3 - 5 - 7 + 11 + 13 + 17 + 19 + 23$
$70 = -3 + 5 + 7 - 11 + 13 + 17 + 19 + 23$
$72 = +3 + 5 + 7 + 11 - 13 + 17 + 19 + 23$
$74 = +3 - 5 - 7 + 11 + 13 + 17 + 19 + 23$
$76 = +3 + 5 + 7 - 11 + 13 + 17 + 19 + 23$
$78 = -3 + 5 - 7 + 11 + 13 + 17 + 19 + 23$
Exception $S_n - 18$
$82 = -3 - 5 + 7 + 11 + 13 + 17 + 19 + 23$
$84 = +3 + 5 - 7 + 11 + 13 + 17 + 19 + 23$
Exception $S_n - 12$
$88 = +3 - 5 + 7 + 11 + 13 + 17 + 19 + 23$
Exception $S_n - 8$
$92 = -3 + 5 + 7 + 11 + 13 + 17 + 19 + 23$
Exception $S_n - 4$
Exception $S_n - 2$
$98 = +3 + 5 + 7 + 11 + 13 + 17 + 19 + 23$

Table 2. Set of odd natural number and 0, generated by sequence $\pm 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19$.

$1 = + 3 + 5 - 7 + 11 - 13 - 17 + 19$
$1 = + 3 + 5 - 7 - 11 + 13 + 17 - 19$
$1 = + 3 - 5 + 7 + 11 - 13 + 17 - 19$
$3 = + 3 + 5 + 7 + 11 + 13 - 17 - 19$
$3 = + 3 - 5 - 7 - 11 - 13 + 17 + 19$
$3 = - 3 - 5 + 7 - 11 + 13 - 17 + 19$
$5 = + 3 + 5 - 7 - 11 + 13 - 17 + 19$
$5 = + 3 - 5 + 7 + 11 - 13 - 17 + 19$
$5 = + 3 - 5 + 7 - 11 + 13 + 17 - 19$
$5 = - 3 + 5 + 7 + 11 - 13 + 17 - 19$
$7 = - 3 + 5 - 7 - 11 - 13 + 17 + 19$
$7 = - 3 - 5 - 7 + 11 + 13 + 17 - 19$
$9 = + 3 - 5 + 7 - 11 + 13 - 17 + 19$
$9 = - 3 + 5 + 7 + 11 - 13 - 17 + 19$
$9 = - 3 + 5 + 7 - 11 + 13 + 17 - 19$
$11 = + 3 + 5 + 7 + 11 - 13 + 17 - 19$
$11 = - 3 - 5 + 7 - 11 - 13 + 17 + 19$
$11 = - 3 - 5 - 7 + 11 + 13 - 17 + 19$
$13 = + 3 + 5 - 7 - 11 - 13 + 17 + 19$
$13 = + 3 - 5 - 7 + 11 + 13 + 17 - 19$
$13 = - 3 + 5 + 7 - 11 + 13 - 17 + 19$
$15 = + 3 + 5 + 7 + 11 - 13 - 17 + 19$
$15 = + 3 + 5 + 7 - 11 + 13 + 17 - 19$
$17 = + 3 - 5 + 7 - 11 - 13 + 17 + 19$
$17 = + 3 - 5 - 7 + 11 + 13 - 17 + 19$
$17 = - 3 + 5 - 7 + 11 + 13 + 17 - 19$
$19 = + 3 + 5 + 7 - 11 + 13 - 17 + 19$
$19 = - 3 - 5 - 7 + 11 - 13 + 17 + 19$
$21 = - 3 + 5 + 7 - 11 - 13 + 17 + 19$
$21 = - 3 + 5 - 7 + 11 + 13 - 17 + 19$
$21 = - 3 - 5 + 7 + 11 + 13 + 17 - 19$
$23 = + 3 + 5 - 7 + 11 + 13 + 17 - 19$
$23 = - 3 - 5 - 7 - 11 + 13 + 17 + 19$
$25 = + 3 - 5 - 7 + 11 - 13 + 17 + 19$
$25 = - 3 - 5 + 7 + 11 + 13 - 17 + 19$

$27 = + 3 + 5 + 7 - 11 - 13 + 17 + 19$
$27 = + 3 + 5 - 7 + 11 + 13 - 17 + 19$
$27 = + 3 - 5 + 7 + 11 + 13 + 17 - 19$
$29 = + 3 - 5 - 7 - 11 + 13 + 17 + 19$
$29 = - 3 + 5 - 7 + 11 - 13 + 17 + 19$
$31 = + 3 - 5 + 7 + 11 + 13 - 17 + 19$
$31 = - 3 + 5 + 7 + 11 + 13 + 17 - 19$
$33 = - 3 + 5 - 7 - 11 + 13 + 17 + 19$
$33 = - 3 - 5 + 7 + 11 - 13 + 17 + 19$
$35 = + 3 + 5 - 7 + 11 - 13 + 17 + 19$
$35 = - 3 + 5 + 7 + 11 + 13 - 17 + 19$
$37 = + 3 + 5 + 7 + 11 + 13 + 17 - 19$
$37 = - 3 - 5 + 7 - 11 + 13 + 17 + 19$
$39 = + 3 + 5 - 7 - 11 + 13 + 17 + 19$
$39 = + 3 - 5 + 7 + 11 - 13 + 17 + 19$
$41 = + 3 + 5 + 7 + 11 + 13 - 17 + 19$
$43 = + 3 - 5 + 7 - 11 + 13 + 17 + 19$
$43 = - 3 + 5 + 7 + 11 - 13 + 17 + 19$
$45 = - 3 - 5 - 7 + 11 + 13 + 17 + 19$
$47 = - 3 + 5 + 7 - 11 + 13 + 17 + 19$
$49 = + 3 + 5 + 7 + 11 - 13 + 17 + 19$
$51 = + 3 - 5 - 7 + 11 + 13 + 17 + 19$
$53 = + 3 + 5 + 7 - 11 + 13 + 17 + 19$
$55 = - 3 + 5 - 7 + 11 + 13 + 17 + 19$
Exception $S_n - 18$
$59 = - 3 - 5 + 7 + 11 + 13 + 17 + 19$
$61 = + 3 + 5 - 7 + 11 + 13 + 17 + 19$
Exception $S_n - 12$
$65 = + 3 - 5 + 7 + 11 + 13 + 17 + 19$
Exception $S_n - 8$
$69 = - 3 + 5 + 7 + 11 + 13 + 17 + 19$
Exception $S_n - 4$
Exception $S_n - 2$
$75 = + 3 + 5 + 7 + 11 + 13 + 17 + 19$}

Table 3. Samples from sets of even natural numbers and 0, generated by specified cropped(1)sequences.

±5±7±11±13±17±19±23±29 gives

0 = +5–7+11–13+17–19–23+29
2 = +5+7+11–13+17–19+23–29
4 = +5+7–11–13–17–19+23+29
6 = +5+7+11+13–17–19–23+29
8 = +5–7–11+13+17+19–23+29
10 = +5+7–11+13–17+19+23–29
12 = +5–7+11–13–17–19+23+29
14 = +5+7+11–13+17–19–23+29
16 = +5–7–11+13–17–19+23+29
18 = +5+7+11–13–17+19+23–29
20 = +5+7+11+13+17+19–23–29
22 = +5+7–11+13+17+19–23+29
24 = +5–7–11–13+17–19+23+29
26 = +5+7+11–13–17–19+23+29
28 = +5+7+11+13+17–19–23–29
30 = +5+7–11+13–17–19–23+29

±3±5±7±13±17±19±23±29 gives

0 = +3–5+7–13–17+19–23+29
2 = +3–5+7+13+17+19–23–29
4 = +3+5–7–13–17–19+23+29
6 = +3+5+7–13+17–19–23+29
8 = +3–5+7–13–17–19+23+29
10 = +3+5+7–13–17+19–23+29
12 = +3+5+7+13+17+19–23–29
14 = +3–5+7+13–17+19+23–29
16 = –3+5–7+13–17+19–23+29
18 = +3+5+7–13–17–19+23+29
20 = +3+5+7+13+17–19–23+29
22 = +3+5–7–13–17+19+23+29
24 = +3+5+7–13+17+19–23+29
26 = +3–5+7+13–17+19–23+29
28 = +3–5–7–13+17–19+23+29
30 = +3+5–7–13–17+19+23+29

±3±5±7±11±13±17±23±29 gives

0 = +3+5–7–11–13+17–23+29
2 = +3+5+7+11–13–17–23+29
4 = +3+5+7+11+13+17–23–29
6 = +3+5+7–11+13–17–23+29
8 = –3+5+7+11–13+17–23+29
10 = +3+5–7+11–13+17+23–29
12 = +3+5–7–11–13–17+23+29
14 = +3+5+7–11–13+17–23+29
16 = +3+5+7+11+13–17+23–29
18 = +3–5+7+11+13–17–23+29
20 = –3+5+7–11–13–17+23+29
22 = +3+5–7+11–13+17–23+29
24 = +3+5+7+11–13+17–23+29
26 = +3+5+7–11–13–17+23+29
28 = +3+5+7+11+13–17–23+29
30 = +3–5+7–11+13+17–23+29

±3±7±11±13±17±19±23±29 gives

0 = +3+7+11–13+17–19+23–29
2 = +3+7–11–13–17–19+23+29
4 = +3+7+11+13–17–19–23+29
6 = +3–7–11+13–17+19–23+29
8 = +3+7–11+13–17+19+23–29
10 = +3–7+11–13–17–19+23+29
12 = +3+7+11–13+17–19–23+29
14 = +3–7–11+13–17–19+23+29
16 = +3+7+11–13–17+19–23+29
18 = +3+7+11+13+17+19–23–29
20 = +3+7–11+13–17+19+23–29
22 = +3–7–11–13+17–19+23+29
24 = +3+7+11–13–17–19+23+29
26 = +3+7+11+13+17–19–23+29
28 = +3+7+11–13–17–19+23+29
30 = +3+7+11+13–17+19+23–29

±3±5±7±11±17±19±23±29 gives

0 = +3+5+7–11–17+19+23–29
2 = +3–5+7–11–17+19–23+29
4 = +3+5–7+11+17–19+23–29
6 = +3+5–7–11–17–19+23+29
8 = +3+5+7–11+17–19–23+29
10 = +3+5+7+11+17+19–23–29
12 = +3+5+7–11–17+19–23+29
14 = –3+5+7–11–17–19+23+29
16 = +3+5–7+11+17–19–23+29
18 = +3+5+7+11+17–19–23+29
20 = +3+5+7–11–17+19+23–29
22 = +3+5+7+11–17+19+23–29
24 = +3–5+7–11–17+19+23+29
26 = –3+5–7–11+17+19+23–29
28 = +3+5–7+11–17–19+23+29
30 = +3+5+7+11+17–19–23+29

±3±5±7±11±13±17±19±29 gives

0 = +3–5+7–11+13–17–19+29
2 = +3–5+7+11+13–17+19–29
4 = +3+5–7–11–13+17–19+29
6 = +3+5+7+11–13–17–19+29
8 = +3+5+7+11+13+17–19–29
10 = +3+5+7–11–13–17+19+29
12 = +3+5+7+11–13+17+19–29
14 = +3–5+7–11+13+17+19–29
16 = +3–5–7+11–13+17–19+29
18 = +3+5+7–11–13+17–19+29
20 = +3+5+7+11–13+17+19–29
22 = +3+5+7–11–13+17+19–29
24 = +3+5+7–11+13+17+19–29
26 = +3+5–7+11–13+17–19+29
28 = –3+5–7–11+13–17+19+29
30 = +3+5–7+11–13+17+19+29

±3±5±11±13±17±19±23±29 gives

0 = +3+5–11–13–17–19+23+29
2 = +3+5+11+13–17–19–23+29
4 = +3–5+11–13–17+19–23+29
6 = +3+5–11+13+13–17+19+23+29
8 = +3–5–11+13–17+19–23+29
10 = +3+5+11–13+17–19–23+29
12 = +3–5+11–13–17–19+23+29
14 = +3+5+11–13–17+19–23+29
16 = +3+5+11+13+17+19–23–29
18 = +3+5–11+13–17+19–23+29
20 = –3+5–11+13–17–19+23+29
22 = +3+5+11–13–17–19+23+29
24 = +3+5+11+13+17–19–23+29
26 = +3+5–11+13–17–19+23+29
28 = +3+5+11+13–17+19+23–29
30 = +3–5+11+13–17+19–23+29

±3±5±7±11±13±19±23±29 gives

0 = +3+5+7+11–13–19–23+29
2 = +3+5–7–11–13+19–23+29
4 = +3+5+7–11+13–19–23+29
6 = +3+5+7+11+13+19–23–29
8 = –3+5+7+11+13–19+23+29
10 = +3+5–7–11–13–19+23+29
12 = +3+5–7+11+13–19+23–29
14 = +3+5+7+11+13–19+23–29
16 = +3+5+7–11–13+19–23+29
18 = +3–5–7–11+13+19+23–29
20 = +3–5+7–11+13+19+23–29
22 = +3–5–7+11–13–19+23+29
24 = +3+5+7–11–13+19+23–29
26 = +3+5+7+11+13–19–23+29
28 = +3+5–7–11+13+19+23–29
30 = +3+5+7–11+13+19+23–29

±3±5±7±11±13±17±19±23 gives

0 = +3+5+7+11–13–17–19+23
2 = +3+5–7–11–13–17+19+23
4 = +3+5+7+11+13–17–19+23
6 = +3–5+7–11–13–17+19+23
8 = +3–5+7+11+13–17+19–23
10 = +3–5–7+11–13+17–19+23
12 = +3+5+7–11–13+17–19+23
14 = +3+5+7+11+13+17–19–23
16 = +3+5+7–11–13–17+19+23
18 = +3+5+7+11+13–17+19–23
20 = +3+5–7+11–13+17–19+23
22 = –3+5–7–11+13+17+19+23
24 = +3+5–7+11–13–17+19+23
26 = +3+5+7+11+13–17–19+23
28 = +3+5–7–11+13–17+19+23
30 = +3+5+7–11+13+17+19–23

Table 4. Entanglement of BP/BPE representations (found by full search), made by sequence (13) with $s = 9$.

Plus-fixed primes	and their sum	Holes before/after consecutive segment	+/– values for cropped(4) sequence limits	Plus-fixed primes	and their sum	Holes before/after consecutive segment	+/– values for cropped(4) sequence limits
Plus-fixed 41 and 47				13, 41, 43, 47	144	-124, 412	266
				13, 41, 47, 53	154	-104, 412	256
3, 5, 41, 47	96	-156, 348	250	13, 41, 47, 59	160	-92, 412	250
3, 7, 41, 47	98	-166, 362	262	17, 19, 41, 47	124	-146, 394	268
3, 11, 41, 47	102	-168, 372	268	17, 23, 41, 47	128	-148, 404	274
3, 13, 41, 47	104	-166, 374	268	17, 29, 41, 47	134	-136, 404	268
3, 17, 41, 47	108	-156, 372	262	17, 31, 41, 47	136	-132, 404	266
3, 19, 41, 47	110	-154, 374	262	17, 37, 41, 47	142	-120, 404	260
3, 23, 41, 47	114	-156, 384	268	17, 41, 43, 47	148	-108, 404	254
3, 29, 41, 47	120	-144, 384	262	17, 41, 47, 53	158	-88, 404	244
3, 31, 41, 47	122	-118, 362	238	17, 41, 47, 59	164	-76, 404	238
3, 37, 41, 47	128	-128, 384	254	19, 23, 41, 47	130	-160, 420	288
3, 41, 43, 47	134	-116, 384	248	19, 29, 41, 47	136	-148, 420	282
3, 41, 47, 53	144	-96, 384	238	19, 31, 41, 47	138	-144, 420	280
3, 41, 47, 59	150	-84, 384	232	19, 37, 41, 47	144	-132, 420	274
5, 7, 41, 47	100	-162, 362	260	19, 41, 43, 47	150	-120, 420	268
5, 11, 41, 47	104	-174, 382	276	19, 41, 47, 53	160	-100, 420	258
5, 13, 41, 47	106	-176, 388	280	19, 41, 47, 59	166	-88, 420	252
5, 17, 41, 47	110	-162, 382	270	23, 29, 41, 47	140	-140, 420	278
5, 19, 41, 47	112	-164, 388	274	23, 31, 41, 47	142	-136, 420	276
5, 23, 41, 47	116	-156, 388	270	23, 37, 41, 47	148	-124, 420	270
5, 29, 41, 47	122	-144, 388	264	23, 41, 43, 47	154	-112, 420	264
5, 31, 41, 47	124	-140, 388	262	23, 41, 47, 53	164	-92, 420	254
5, 37, 41, 47	130	-128, 388	256	23, 41, 47, 59	170	-80, 420	248
5, 41, 43, 47	136	-116, 388	250	29, 31, 41, 47	148	-124, 420	270
5, 41, 47, 53	146	-96, 388	240	29, 37, 41, 47	154	-112, 420	264
5, 41, 47, 59	152	-84, 388	234	29, 41, 43, 47	160	-100, 420	258
7, 11, 41, 47	106	-196, 408	300	29, 41, 47, 53	170	-80, 420	248
7, 13, 41, 47	108	-180, 396	286	29, 41, 47, 59	176	-68, 420	242
7, 17, 41, 47	112	-164, 388	274	31, 37, 41, 47	156	-108, 420	262
7, 19, 41, 47	114	-180, 408	292	31, 41, 43, 47	162	-96, 420	256
7, 23, 41, 47	118	-150, 386	266	31, 41, 47, 53	172	-76, 420	246
7, 29, 41, 47	124	-160, 408	282	31, 41, 47, 59	178	-64, 420	240
7, 31, 41, 47	126	-156, 408	280	37, 41, 43, 47	168	-84, 420	250
7, 37, 41, 47	132	-144, 408	274	37, 41, 47, 53	178	-64, 420	240
7, 41, 43, 47	138	-132, 408	268	37, 41, 47, 59	184	-52, 420	234
7, 41, 47, 53	148	-112, 408	258	41, 43, 47, 53	184	-52, 420	234
7, 41, 47, 59	154	-100, 408	252	41, 43, 47, 59	190	-40, 420	228
11, 13, 41, 47	112	-172, 396	282	41, 47, 53, 59	200	-20, 420	218
11, 17, 41, 47	116	-172, 404	286				
11, 19, 41, 47	118	-164, 400	280	**Plus-fixed 47 and 59**			
11, 23, 41, 47	122	-166, 410	286				
11, 29, 41, 47	128	-154, 410	280	3, 5, 47, 59	114	-120, 348	232
11, 31, 41, 47	130	-150, 410	278	3, 7, 47, 59	116	-130, 362	244
11, 37, 41, 47	136	-138, 410	272	3, 11, 47, 59	120	-132, 372	250
11, 41, 43, 47	142	-126, 410	266	3, 13, 47, 59	122	-130, 374	250
11, 41, 47, 53	152	-106, 410	256	3, 17, 47, 59	126	-120, 372	244
11, 41, 47, 59	158	-94, 410	250	3, 19, 47, 59	128	-118, 374	244
13, 17, 41, 47	118	-152, 388	268	3, 23, 47, 59	132	-120, 384	250
13, 19, 41, 47	120	-172, 412	290	3, 29, 47, 59	138	-108, 384	244
13, 23, 41, 47	124	-164, 412	286	3, 31, 47, 59	140	-82, 362	220
13, 29, 41, 47	130	-152, 412	280	3, 37, 47, 59	146	-92, 384	236
13, 31, 41, 47	132	-148, 412	278	3, 41, 47, 59	150	-84, 384	232
13, 37, 41, 47	138	-136, 412	272	3, 43, 47, 59	152	-80, 384	230

3, 47, 53, 59	162	-60, 384	220	23, 47, 53, 59	182	-56, 420	236
5, 7, 47, 59	118	-126, 362	242	29, 31, 47, 59	166	-88, 420	252
5, 11, 47, 59	122	-138, 382	258	29, 37, 47, 59	172	-76, 420	246
5, 13, 47, 59	124	-140, 388	262	29, 41, 47, 59	176	-68, 420	242
5, 17, 47, 59	128	-126, 382	252	29, 43, 47, 59	178	-64, 420	240
5, 19, 47, 59	130	-128, 388	256	29, 47, 53, 59	188	-44, 420	230
5, 23, 47, 59	134	-120, 388	252	31, 37, 47, 59	174	-72, 420	244
5, 29, 47, 59	140	-108, 388	246	31, 41, 47, 59	178	-64, 420	240
5, 31, 47, 59	142	-104, 388	244	31, 43, 47, 59	180	-60, 420	238
5, 37, 47, 59	148	-92, 388	238	31, 47, 53, 59	190	-40, 420	228
5, 41, 47, 59	152	-84, 388	234	37, 41, 47, 59	184	-52, 420	234
5, 43, 47, 59	154	-80, 388	232	37, 43, 47, 59	186	-48, 420	232
5, 47, 53, 59	164	-60, 388	222	37, 47, 53, 59	196	-28, 420	222
7, 11, 47, 59	124	-160, 408	282	41, 43, 47, 59	190	-40, 420	228
7, 13, 47, 59	126	-144, 396	268	41, 47, 53, 59	200	-20, 420	218
7, 17, 47, 59	130	-128, 388	256	43, 47, 53, 59	202	-16, 420	216
7, 19, 47, 59	132	-144, 408	274				
7, 23, 47, 59	136	-114, 386	248	**Plus-fixed 41 and 59**			
7, 29, 47, 59	142	-124, 408	264				
7, 31, 47, 59	144	-120, 408	262	3, 5, 41, 59	108	-132, 348	238
7, 37, 47, 59	150	-108, 408	256	3, 7, 41, 59	110	-142, 362	250
7, 41, 47, 59	154	-100, 408	252	3, 11, 41, 59	114	-144, 372	256
7, 43, 47, 59	156	-96, 408	250	3, 13, 41, 59	116	-142, 374	256
7, 47, 53, 59	166	-76, 408	240	3, 17, 41, 59	120	-132, 372	250
11, 13, 47, 59	130	-136, 396	264	3, 19, 41, 59	122	-130, 374	250
11, 17, 47, 59	134	-136, 404	268	3, 23, 41, 59	126	-132, 384	256
11, 19, 47, 59	136	-128, 400	262	3, 29, 41, 59	132	-120, 384	250
11, 23, 47, 59	140	-130, 410	268	3, 31, 41, 59	134	-94, 362	226
11, 29, 47, 59	146	-118, 410	262	3, 37, 41, 59	140	-104, 384	242
11, 31, 47, 59	148	-114, 410	260	3, 41, 43, 59	146	-92, 384	236
11, 37, 47, 59	154	-102, 410	254	3, 41, 47, 59	150	-84, 384	232
11, 41, 47, 59	158	-94, 410	250	3, 41, 53, 59	156	-72, 384	226
11, 43, 47, 59	160	-90, 410	248	5, 7, 41, 59	112	-138, 362	248
11, 47, 53, 59	170	-70, 410	238	5, 11, 41, 59	116	-150, 382	264
13, 17, 47, 59	136	-116, 388	250	5, 13, 41, 59	118	-152, 388	268
13, 19, 47, 59	138	-136, 412	272	5, 17, 41, 59	122	-138, 382	258
13, 23, 47, 59	142	-128, 412	268	5, 19, 41, 59	124	-140, 388	262
13, 29, 47, 59	148	-116, 412	262	5, 23, 41, 59	128	-132, 388	258
13, 31, 47, 59	150	-112, 412	260	5, 29, 41, 59	134	-120, 388	252
13, 37, 47, 59	156	-100, 412	254	5, 31, 41, 59	136	-116, 388	250
13, 41, 47, 59	160	-92, 412	250	5, 37, 41, 59	142	-104, 388	244
13, 43, 47, 59	162	-88, 412	248	5, 41, 43, 59	148	-92, 388	238
13, 47, 53, 59	172	-68, 412	238	5, 41, 47, 59	152	-84, 388	234
17, 19, 47, 59	142	-110, 394	250	5, 41, 53, 59	158	-72, 388	228
17, 23, 47, 59	146	-112, 404	256	7, 11, 41, 59	118	-172, 408	288
17, 29, 47, 59	152	-100, 404	250	7, 13, 41, 59	120	-156, 396	274
17, 31, 47, 59	154	-96, 404	248	7, 17, 41, 59	124	-140, 388	262
17, 37, 47, 59	160	-84, 404	242	7, 19, 41, 59	126	-156, 408	280
17, 41, 47, 59	164	-76, 404	238	7, 23, 41, 59	130	-126, 386	254
17, 43, 47, 59	166	-72, 404	236	7, 29, 41, 59	136	-136, 408	270
17, 47, 53, 59	176	-52, 404	226	7, 31, 41, 59	138	-132, 408	268
19, 23, 47, 59	148	-124, 420	270	7, 37, 41, 59	144	-120, 408	262
19, 29, 47, 59	154	-112, 420	264	7, 41, 43, 59	150	-108, 408	256
19, 31, 47, 59	156	-108, 420	262	7, 41, 47, 59	154	-100, 408	252
19, 37, 47, 59	162	-96, 420	256	7, 41, 53, 59	160	-88, 408	246
19, 41, 47, 59	166	-88, 420	252	11, 13, 41, 59	124	-148, 396	270
19, 43, 47, 59	168	-84, 420	250	11, 17, 41, 59	128	-148, 404	274
19, 47, 53, 59	178	-64, 420	240	11, 19, 41, 59	130	-140, 400	268
23, 29, 47, 59	158	-104, 420	260	11, 23, 41, 59	134	-142, 410	274
23, 31, 47, 59	160	-100, 420	258	11, 29, 41, 59	140	-130, 410	268
23, 37, 47, 59	166	-88, 420	252	11, 31, 41, 59	142	-126, 410	266
23, 41, 47, 59	170	-80, 420	248	11, 37, 41, 59	148	-114, 410	260
23, 43, 47, 59	172	-76, 420	246	11, 41, 43, 59	154	-102, 410	254

11, 41, 47, 59	158	-94, 410	250
11, 41, 53, 59	164	-82, 410	244
13, 17, 41, 59	130	-128, 388	256
13, 19, 41, 59	132	-148, 412	278
13, 23, 41, 59	136	-140, 412	274
13, 29, 41, 59	142	-128, 412	268
13, 31, 41, 59	144	-124, 412	266
13, 37, 41, 59	150	-112, 412	260
13, 41, 43, 59	156	-100, 412	254
13, 41, 47, 59	160	-92, 412	250
13, 41, 53, 59	166	-80, 412	244
17, 19, 41, 59	136	-122, 394	256
17, 23, 41, 59	140	-124, 404	262
17, 29, 41, 59	146	-112, 404	256
17, 31, 41, 59	148	-108, 404	254
17, 37, 41, 59	154	-96, 404	248
17, 41, 43, 59	160	-84, 404	242
17, 41, 47, 59	164	-76, 404	238
17, 41, 53, 59	170	-64, 404	232
19, 23, 41, 59	142	-136, 420	276
19, 29, 41, 59	148	-124, 420	270
19, 31, 41, 59	150	-120, 420	268
19, 37, 41, 59	156	-108, 420	262
19, 41, 43, 59	162	-96, 420	256
19, 41, 47, 59	166	-88, 420	252
19, 41, 53, 59	172	-76, 420	246
23, 29, 41, 59	152	-116, 420	266
23, 31, 41, 59	154	-112, 420	264
23, 37, 41, 59	160	-100, 420	258
23, 41, 43, 59	166	-88, 420	252
23, 41, 47, 59	170	-80, 420	248
23, 41, 53, 59	176	-68, 420	242
29, 31, 41, 59	160	-100, 420	258
29, 37, 41, 59	166	-88, 420	252
29, 41, 43, 59	172	-76, 420	246
29, 41, 47, 59	176	-68, 420	242
29, 41, 53, 59	182	-56, 420	236
31, 37, 41, 59	168	-84, 420	250
31, 41, 43, 59	174	-72, 420	244
31, 41, 47, 59	178	-64, 420	240
31, 41, 53, 59	184	-52, 420	234
37, 41, 43, 59	180	-60, 420	238
37, 41, 47, 59	184	-52, 420	234
37, 41, 53, 59	190	-40, 420	228
41, 43, 47, 59	190	-40, 420	228
41, 43, 53, 59	196	-28, 420	222
41, 47, 53, 59	200	-20, 420	218

Table 5. Limiting exceptions for *Table 4.*

Sequence $+ 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$ sums to $S_n = 438$, so $S_n - 18 = 420$ is it's first exception, see *Lemma 2.2.*

$S_n - 26 = 412$
$+ 3 + 5 + 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 28 = 410$
$- 3 + 5 + 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 30 = 408$
$- 3 - 5 - 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 34 = 404$
$+ 3 + 5 + 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 38 = 400$
$+ 3 + 5 + 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 + 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 42 = 396$
$- 3 + 5 - 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 + 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 44 = 394$
$+ 3 - 5 + 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 + 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 50 = 388$
$+ 3 - 5 - 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 + 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 52 = 386$
$+ 3 + 5 - 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 + 7 + 11 + 13 + 17 + 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 54 = 384$
$- 3 + 5 + 7 - 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 - 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 + 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 56 = 382$
$+ 3 + 5 + 7 - 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$+ 3 - 5 + 7 + 11 + 13 + 17 + 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 - 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 64 = 374$
$+ 3 + 5 + 7 + 11 - 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 - 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 + 7 - 11 - 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 - 5 - 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 66 = 372$
$+ 3 - 5 + 7 - 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 + 7 + 11 - 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 + 7 - 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$- 3 + 5 - 7 + 11 + 13 + 17 + 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 76 = 362$

$+\ 3 + 5 - 7 + 11 + 13 + 17 + 19 + 23 + 29 - 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 + 5 - 7 - 11 + 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 + 7 + 11 - 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 - 7 + 11 + 13 + 17 + 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

$S_n - 90 = 348$

$+\ 3 - 5 + 7 + 11 + 13 - 17 + 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$+\ 3 - 5 + 7 - 11 + 13 + 17 + 19 + 23 - 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 + 5 + 7 + 11 + 13 + 17 - 19 - 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 + 5 + 7 + 11 - 13 + 17 + 19 + 23 - 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 + 5 + 7 - 11 + 13 + 17 + 19 + 23 + 29 - 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 - 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 - 7 + 11 - 13 - 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$
$-\ 3 - 5 - 7 - 11 + 13 + 17 - 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59$

Table 6. Samples of B-partitions $p_i + p_{2k-1}$ for even numbers $34 \leq 2a \leq 240$.

34 = 3 + 31	36 = 5 + 31	38 = 7 + 31	40 = exception
42 = 11 + 31	44 = 13 + 31	46 = 5 + 41	48 = 7 + 41
50 = 19 + 31	52 = 11 + 41	54 = 13 + 41	56 = exception
58 = 17 + 41	60 = 29 + 31	62 = 3 + 59	64 = 5 + 59
66 = 7 + 59	68 = exception	70 = 11 + 59	72 = 13 + 59
74 = 7 + 67	76 = 17 + 59	78 = 19 + 59	80 = 7 + 73
82 = 23 + 59	84 = 11 + 73	86 = 3 + 83	88 = 5 + 83
90 = 7 + 83	92 = 19 + 73	94 = 11 + 83	96 = 13 + 83
98 = 31 + 67	100 = 3 + 97	102 = 5 + 97	104 = 7 + 97
106 = 3 + 103	108 = 5 + 103	110 = 7 + 103	112 = 29 + 83
114 = 11 + 103	116 = 7 + 109	118 = exception	120 = 17 + 103
122 = 19 + 103	124 = 41 + 83	126 = 17 + 109	128 = 31 + 97
130 = 3 + 127	132 = 5 + 127	134 = 7 + 127	136 = 53 + 83
138 = 11 + 127	140 = 13 + 127	142 = 59 + 83	144 = 17 + 127
146 = 19 + 127	148 = 11 + 137	150 = 13 + 137	152 = 3 + 149
154 = 5 + 149	156 = 7 + 149	158 = 31 + 127	160 = 11 + 149
162 = 13 + 149	164 = 37 + 127	166 = 17 + 149	168 = 19 + 149
170 = 3 + 167	172 = 5 + 167	174 = 7 + 167	176 = 79 + 97
178 = 11 + 167	180 = 13 + 167	182 = 3 + 179	184 = 5 + 179
186 = 7 + 179	188 = 61 + 127	190 = 11 + 179	192 = 13 + 179
194 = 67 + 127	196 = 5 + 191	198 = 7 + 191	200 = 3 + 197
202 = 5 + 197	204 = 7 + 197	206 = 79 + 127	208 = 11 + 197
210 = 13 + 197	212 = 103 + 109	214 = 17 + 197	216 = 19 + 197
218 = 7 + 211	220 = 23 + 197	222 = 11 + 211	224 = 13 + 211
226 = 29 + 197	228 = 17 + 211	230 = 3 + 227	232 = 5 + 227
234 = 7 + 227	236 = 109 + 127	238 = 41 + 197	240 = 43 + 197

"**Representation of integers by +/– sequences of consecutive odd primes**"

Table 7. Full set of mirrored representation pairs for B-partition 3 + 31 = 34, created by sequence
$$\pm\, 3 \pm 5 \pm 7 \pm 11 \pm 13 \pm 17 \pm 19 \pm 23 \pm 29 \pm 31.$$

In both components of each pair primes 3 and 31 have + signs, while all other primes are mirrored.

№	1-st component	2-nd component
1.	158 = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31	−90 = 3 − 5 − 7 − 11 − 13 − 17 − 19 − 23 − 29 + 31
2.	144 = 3 + 5 − 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31	−76 = 3 − 5 + 7 − 11 − 13 − 17 − 19 − 23 − 29 + 31
3.	136 = 3 + 5 + 7 − 11 + 13 + 17 + 19 + 23 + 29 + 31	−68 = 3 − 5 − 7 + 11 − 13 − 17 − 19 − 23 − 29 + 31
4.	132 = 3 + 5 + 7 + 11 − 13 + 17 + 19 + 23 + 29 + 31	−64 = 3 − 5 − 7 − 11 + 13 − 17 − 19 − 23 − 29 + 31
5.	124 = 3 + 5 + 7 + 11 + 13 − 17 + 19 + 23 + 29 + 31	−56 = 3 − 5 − 7 − 11 − 13 + 17 − 19 − 23 − 29 + 31
6.	122 = 3 + 5 − 7 − 11 + 13 + 17 + 19 + 23 + 29 + 31	−54 = 3 − 5 + 7 + 11 − 13 − 17 − 19 − 23 − 29 + 31
7.	120 = 3 + 5 + 7 + 11 + 13 + 17 − 19 + 23 + 29 + 31	−52 = 3 − 5 − 7 − 11 − 13 − 17 + 19 − 23 − 29 + 31
8.	118 = 3 + 5 − 7 + 11 − 13 + 17 + 19 + 23 + 29 + 31	−50 = 3 − 5 + 7 − 11 + 13 − 17 − 19 − 23 − 29 + 31
9.	112 = 3 + 5 + 7 + 11 + 13 + 17 + 19 − 23 + 29 + 31	−44 = 3 − 5 − 7 − 11 − 13 − 17 − 19 + 23 − 29 + 31
10.	110 = 3 + 5 + 7 − 11 − 13 + 17 + 19 + 23 + 29 + 31	−42 = 3 − 5 − 7 + 11 + 13 − 17 − 19 − 23 − 29 + 31
11.	110 = 3 + 5 − 7 + 11 + 13 − 17 + 19 + 23 + 29 + 31	−42 = 3 − 5 + 7 − 11 − 13 + 17 − 19 − 23 − 29 + 31
12.	106 = 3 + 5 − 7 + 11 + 13 + 17 − 19 + 23 + 29 + 31	−38 = 3 − 5 + 7 − 11 − 13 − 17 + 19 − 23 − 29 + 31
13.	102 = 3 + 5 + 7 − 11 + 13 − 17 + 19 + 23 + 29 + 31	−34 = 3 − 5 − 7 + 11 − 13 + 17 − 19 − 23 − 29 + 31
14.	100 = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 − 29 + 31	−32 = 3 − 5 − 7 − 11 − 13 − 17 − 19 − 23 + 29 + 31
15.	98 = 3 + 5 + 7 + 11 − 13 − 17 + 19 + 23 + 29 + 31	−30 = 3 − 5 − 7 − 11 + 13 + 17 − 19 − 23 − 29 + 31
16.	98 = 3 + 5 + 7 − 11 + 13 + 17 − 19 + 23 + 29 + 31	−30 = 3 − 5 − 7 + 11 − 13 − 17 + 19 − 23 − 29 + 31
17.	98 = 3 + 5 − 7 + 11 + 13 + 17 + 19 − 23 + 29 + 31	−30 = 3 − 5 + 7 − 11 − 13 − 17 − 19 + 23 − 29 + 31
18.	96 = 3 + 5 − 7 − 11 − 13 + 17 + 19 + 23 + 29 + 31	−28 = 3 − 5 + 7 + 11 + 13 − 17 − 19 − 23 − 29 + 31
19.	94 = 3 + 5 + 7 + 11 − 13 + 17 − 19 + 23 + 29 + 31	−26 = 3 − 5 − 7 − 11 + 13 − 17 + 19 − 23 − 29 + 31
20.	90 = 3 + 5 + 7 − 11 + 13 + 17 + 19 − 23 + 29 + 31	−22 = 3 − 5 − 7 + 11 − 13 − 17 − 19 + 23 − 29 + 31
21.	88 = 3 + 5 − 7 − 11 + 13 − 17 + 19 + 23 + 29 + 31	−20 = 3 − 5 + 7 + 11 − 13 + 17 − 19 − 23 − 29 + 31
22.	86 = 3 + 5 + 7 + 11 + 13 − 17 − 19 + 23 + 29 + 31	−18 = 3 − 5 − 7 − 11 − 13 + 17 + 19 − 23 − 29 + 31
23.	86 = 3 + 5 + 7 + 11 − 13 + 17 + 19 − 23 + 29 + 31	−18 = 3 − 5 − 7 − 11 + 13 − 17 − 19 + 23 − 29 + 31
24.	86 = 3 + 5 − 7 + 11 + 13 + 17 + 19 + 23 − 29 + 31	−18 = 3 − 5 + 7 − 11 − 13 − 17 − 19 − 23 + 29 + 31
25.	84 = 3 + 5 − 7 + 11 − 13 − 17 + 19 + 23 + 29 + 31	−16 = 3 − 5 + 7 − 11 + 13 + 17 − 19 − 23 − 29 + 31
26.	84 = 3 + 5 − 7 − 11 + 13 + 17 − 19 + 23 + 29 + 31	−16 = 3 − 5 + 7 + 11 − 13 − 17 + 19 − 23 − 29 + 31
27.	80 = 3 + 5 − 7 + 11 − 13 + 17 − 19 + 23 + 29 + 31	−12 = 3 − 5 + 7 − 11 + 13 − 17 + 19 − 23 − 29 + 31
28.	78 = 3 + 5 + 7 + 11 + 13 − 17 + 19 − 23 + 29 + 31	−10 = 3 − 5 − 7 − 11 − 13 + 17 − 19 + 23 − 29 + 31
29.	78 = 3 + 5 + 7 − 11 + 13 + 17 + 19 + 23 − 29 + 31	−10 = 3 − 5 − 7 + 11 − 13 − 17 − 19 − 23 + 29 + 31
30.	76 = 3 + 5 + 7 − 11 − 13 − 17 + 19 + 23 + 29 + 31	−8 = 3 − 5 − 7 + 11 + 13 + 17 − 19 − 23 − 29 + 31
31.	76 = 3 + 5 − 7 − 11 + 13 + 17 + 19 − 23 + 29 + 31	−8 = 3 − 5 + 7 + 11 − 13 − 17 − 19 + 23 − 29 + 31
32.	74 = 3 + 5 + 7 + 11 + 13 + 17 − 19 − 23 + 29 + 31	−6 = 3 − 5 − 7 − 11 − 13 − 17 + 19 + 23 − 29 + 31
33.	74 = 3 + 5 + 7 + 11 − 13 + 17 + 19 + 23 − 29 + 31	−6 = 3 − 5 − 7 − 11 + 13 − 17 − 19 − 23 + 29 + 31
34.	72 = 3 + 5 + 7 − 11 − 13 + 17 − 19 + 23 + 29 + 31	−4 = 3 − 5 − 7 + 11 + 13 − 17 + 19 − 23 − 29 + 31
35.	72 = 3 + 5 − 7 + 11 + 13 − 17 − 19 + 23 + 29 + 31	−4 = 3 − 5 + 7 − 11 − 13 + 17 + 19 − 23 − 29 + 31
36.	72 = 3 + 5 − 7 − 11 − 13 + 17 + 19 − 23 + 29 + 31	−4 = 3 − 5 + 7 + 11 + 13 − 17 − 19 + 23 − 29 + 31
37.	66 = 3 + 5 + 7 + 11 + 13 − 17 + 19 + 23 − 29 + 31	2 = 3 − 5 − 7 − 11 − 13 + 17 − 19 − 23 + 29 + 31
38.	64 = 3 + 5 + 7 − 11 + 13 − 17 − 19 + 23 + 29 + 31	4 = 3 − 5 − 7 + 11 − 13 + 17 + 19 − 23 − 29 + 31
39.	64 = 3 + 5 + 7 − 11 − 13 + 17 + 19 − 23 + 29 + 31	4 = 3 − 5 − 7 + 11 + 13 − 17 − 19 + 23 − 29 + 31
40.	64 = 3 + 5 − 7 + 11 + 13 − 17 + 19 − 23 + 29 + 31	4 = 3 − 5 + 7 − 11 − 13 + 17 − 19 + 23 − 29 + 31
41.	64 = 3 + 5 − 7 − 11 + 13 + 17 + 19 + 23 − 29 + 31	4 = 3 − 5 + 7 + 11 − 13 − 17 − 19 − 23 + 29 + 31
42.	62 = 3 + 5 + 7 + 11 + 13 + 17 − 19 + 23 − 29 + 31	6 = 3 − 5 − 7 − 11 − 13 − 17 + 19 − 23 + 29 + 31
43.	62 = 3 + 5 − 7 − 11 − 13 − 17 + 19 + 23 + 29 + 31	6 = 3 − 5 + 7 + 11 + 13 + 17 − 19 − 23 − 29 + 31
44.	60 = 3 + 5 + 7 + 11 − 13 − 17 − 19 + 23 + 29 + 31	8 = 3 − 5 − 7 − 11 + 13 + 17 + 19 − 23 − 29 + 31
45.	60 = 3 + 5 − 7 + 11 + 13 + 17 − 19 − 23 + 29 + 31	8 = 3 − 5 + 7 − 11 − 13 − 17 + 19 + 23 − 29 + 31
46.	60 = 3 + 5 − 7 + 11 − 13 + 17 + 19 + 23 − 29 + 31	8 = 3 − 5 + 7 − 11 + 13 − 17 − 19 − 23 + 29 + 31
47.	58 = 3 + 5 − 7 − 11 − 13 + 17 − 19 + 23 + 29 + 31	10 = 3 − 5 + 7 + 11 + 13 − 17 + 19 − 23 − 29 + 31
48.	56 = 3 + 5 + 7 − 11 + 13 − 17 + 19 − 23 + 29 + 31	12 = 3 − 5 − 7 + 11 − 13 + 17 − 19 + 23 − 29 + 31
49.	54 = 3 + 5 + 7 + 11 + 13 + 17 + 19 − 23 − 29 + 31	14 = 3 − 5 − 7 − 11 − 13 − 17 − 19 + 23 + 29 + 31
50.	52 = 3 + 5 + 7 + 11 − 13 − 17 + 19 − 23 + 29 + 31	16 = 3 − 5 − 7 − 11 + 13 + 17 − 19 + 23 − 29 + 31

51.	$52 = 3 + 5 + 7 - 11 + 13 + 17 - 19 - 23 + 29 + 31$	$16 = 3 - 5 - 7 + 11 - 13 - 17 + 19 + 23 - 29 + 31$
52.	$52 = 3 + 5 + 7 - 11 - 13 + 17 + 19 + 23 - 29 + 31$	$16 = 3 - 5 - 7 + 11 + 13 - 17 - 19 - 23 + 29 + 31$
53.	$52 = 3 + 5 - 7 + 11 + 13 - 17 + 19 + 23 - 29 + 31$	$16 = 3 - 5 + 7 - 11 - 13 + 17 - 19 - 23 + 29 + 31$
54.	$50 = 3 + 5 - 7 - 11 + 13 - 17 - 19 + 23 + 29 + 31$	$18 = 3 - 5 + 7 + 11 - 13 + 17 + 19 - 23 - 29 + 31$
55.	$50 = 3 + 5 - 7 - 11 - 13 + 17 + 19 - 23 + 29 + 31$	$18 = 3 - 5 + 7 + 11 + 13 - 17 - 19 + 23 - 29 + 31$
56.	$48 = 3 + 5 + 7 + 11 - 13 + 17 - 19 - 23 + 29 + 31$	$20 = 3 - 5 - 7 - 11 + 13 - 17 + 19 + 23 - 29 + 31$
57.	$48 = 3 + 5 + 7 + 11 + 13 + 17 - 19 + 23 - 29 + 31$	$20 = 3 - 5 + 7 - 11 - 13 - 17 + 19 + 23 - 29 + 31$
58.	$46 = 3 + 5 + 7 - 11 - 13 - 17 - 19 + 23 + 29 + 31$	$22 = 3 - 5 + 7 - 11 + 13 + 17 + 19 - 23 - 29 + 31$
59.	$44 = 3 + 5 + 7 - 11 + 13 - 17 + 19 + 23 - 29 + 31$	$24 = 3 - 5 - 7 + 11 - 13 + 17 - 19 - 23 + 29 + 31$
60.	$42 = 3 + 5 + 7 - 11 + 13 - 17 + 19 - 23 + 29 + 31$	$26 = 3 - 5 + 7 + 11 - 13 + 17 - 19 + 23 - 29 + 31$
61.	$40 = 3 + 5 + 7 + 11 + 13 - 17 - 19 - 23 + 29 + 31$	$28 = 3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 - 29 + 31$
62.	$40 = 3 + 5 + 7 + 11 - 13 - 17 + 19 + 23 - 29 + 31$	$28 = 3 - 5 - 7 - 11 + 13 + 17 - 19 - 23 + 29 + 31$
63.	$40 = 3 + 5 + 7 - 11 + 13 + 17 - 19 + 23 - 29 + 31$	$28 = 3 - 5 - 7 + 11 - 13 - 17 + 19 - 23 + 29 + 31$
64.	$40 = 3 + 5 - 7 + 11 + 13 + 17 + 19 - 23 - 29 + 31$	$28 = 3 - 5 + 7 - 11 - 13 - 17 - 19 + 23 + 29 + 31$
65.	$38 = 3 + 5 + 7 - 11 - 13 - 17 - 19 + 23 + 29 + 31$	$30 = 3 - 5 - 7 + 11 + 13 + 17 + 19 - 23 - 29 + 31$
66.	$38 = 3 + 5 + 7 - 11 - 13 - 17 + 19 - 23 + 29 + 31$	$30 = 3 - 5 + 7 + 11 + 13 + 17 - 19 - 23 - 29 + 31$
67.	$38 = 3 + 5 - 7 - 11 + 13 + 17 - 19 - 23 + 29 + 31$	$30 = 3 - 5 + 7 + 11 - 13 - 17 + 19 + 23 - 29 + 31$
68.	$38 = 3 + 5 - 7 - 11 - 13 + 17 + 19 + 23 - 29 + 31$	$30 = 3 - 5 + 7 + 11 + 13 - 17 - 19 - 23 + 29 + 31$
69.	$36 = 3 + 5 + 7 + 11 - 13 + 17 - 19 + 23 - 29 + 31$	$32 = 3 - 5 - 7 - 11 + 13 - 17 + 19 - 23 + 29 + 31$
70.	$34 = 3 + 5 - 7 + 11 - 13 + 17 - 19 - 23 + 29 + 31$	$34 = 3 - 5 + 7 - 11 + 13 - 17 + 19 + 23 - 29 + 31$
71.	$32 = 3 + 5 + 7 - 11 + 13 + 17 + 19 - 23 - 29 + 31$	$36 = 3 - 5 - 7 + 11 - 13 - 17 - 19 + 23 + 29 + 31$
72.	$30 = 3 + 5 + 7 - 11 - 13 - 17 + 19 - 23 + 29 + 31$	$38 = 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23 - 29 + 31$
73.	$30 = 3 + 5 - 7 - 11 + 13 - 17 + 19 + 23 - 29 + 31$	$38 = 3 - 5 + 7 + 11 - 13 + 17 - 19 - 23 + 29 + 31$
74.	$28 = 3 + 5 + 7 + 11 + 13 - 17 - 19 + 23 - 29 + 31$	$40 = 3 - 5 - 7 - 11 - 13 + 17 + 19 - 23 + 29 + 31$
75.	$28 = 3 + 5 + 7 + 11 - 13 + 17 + 19 - 23 - 29 + 31$	$40 = 3 - 5 - 7 - 11 + 13 - 17 - 19 + 23 + 29 + 31$
76.	$26 = 3 + 5 + 7 - 11 - 13 + 17 - 19 - 23 + 29 + 31$	$42 = 3 - 5 - 7 + 11 + 13 - 17 + 19 + 23 - 29 + 31$
77.	$26 = 3 + 5 - 7 + 11 + 13 - 17 - 19 - 23 + 29 + 31$	$42 = 3 - 5 + 7 - 11 + 13 + 17 + 19 + 23 - 29 + 31$
78.	$26 = 3 + 5 - 7 + 11 - 13 - 17 + 19 - 23 + 29 + 31$	$42 = 3 - 5 + 7 + 11 + 13 + 17 - 19 - 23 - 29 + 31$
79.	$26 = 3 + 5 - 7 - 11 + 13 + 17 - 19 - 23 + 29 + 31$	$42 = 3 - 5 + 7 + 11 - 13 - 17 + 19 - 23 - 29 + 31$
80.	$24 = 3 + 5 - 7 - 11 - 13 - 17 - 19 + 23 + 29 + 31$	$44 = 3 - 5 + 7 + 11 + 13 + 17 + 19 - 23 - 29 + 31$
81.	$22 = 3 + 5 - 7 + 11 - 13 + 17 - 19 + 23 - 29 + 31$	$46 = 3 - 5 + 7 - 11 + 13 - 17 + 19 - 23 + 29 + 31$
82.	$20 = 3 + 5 + 7 + 11 + 13 - 17 + 19 - 23 - 29 + 31$	$48 = 3 - 5 - 7 - 11 - 13 + 17 - 19 + 23 + 29 + 31$
83.	$18 = 3 + 5 + 7 - 11 + 13 - 17 - 19 - 23 + 29 + 31$	$50 = 3 - 5 - 7 + 11 - 13 + 17 + 19 + 23 - 29 + 31$
84.	$18 = 3 + 5 + 7 - 11 - 13 - 17 + 19 + 23 - 29 + 31$	$50 = 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23 - 29 + 31$
85.	$18 = 3 + 5 - 7 - 11 + 13 + 17 + 19 - 23 - 29 + 31$	$50 = 3 - 5 + 7 + 11 - 13 - 17 - 19 + 23 + 29 + 31$
86.	$16 = 3 + 5 + 7 + 11 + 13 + 17 - 19 - 23 - 29 - 31$	$52 = 3 - 5 - 7 - 11 - 13 - 17 + 19 + 23 + 29 + 31$
87.	$16 = 3 + 5 - 7 - 11 - 13 - 17 + 19 - 23 + 29 + 31$	$52 = 3 - 5 + 7 + 11 + 13 + 17 - 19 + 23 - 29 + 31$
88.	$14 = 3 + 5 + 7 + 11 - 13 - 17 - 19 - 23 + 29 + 31$	$54 = 3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 - 29 + 31$
89.	$14 = 3 + 5 + 7 - 11 - 13 + 17 - 19 + 23 - 29 + 31$	$54 = 3 - 5 - 7 + 11 - 13 + 17 + 19 - 23 + 29 + 31$
90.	$14 = 3 + 5 - 7 + 11 + 13 - 17 - 19 + 23 - 29 + 31$	$54 = 3 - 5 + 7 - 11 - 13 + 17 + 19 + 23 - 29 + 31$
91.	$14 = 3 + 5 - 7 - 11 - 13 + 17 + 19 - 23 - 29 + 31$	$54 = 3 - 5 + 7 + 11 + 13 - 17 + 19 + 23 - 29 + 31$
92.	$12 = 3 + 5 - 7 - 11 - 13 + 17 - 19 - 23 + 29 + 31$	$56 = 3 - 5 + 7 + 11 + 13 - 17 + 19 + 23 - 29 + 31$
93.	$6 = 3 + 5 + 7 - 11 + 13 - 17 - 19 + 23 - 29 + 31$	$62 = 3 - 5 - 7 + 11 - 13 + 17 + 19 + 23 - 29 + 31$
94.	$6 = 3 + 5 + 7 - 11 - 13 + 17 + 19 - 23 - 29 + 31$	$62 = 3 - 5 - 7 + 11 + 13 - 17 + 19 + 23 - 29 + 31$
95.	$6 = 3 + 5 - 7 + 11 + 13 - 17 + 19 - 23 - 29 + 31$	$62 = 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23 - 29 + 31$
96.	$4 = 3 + 5 - 7 - 11 + 13 - 17 - 19 - 23 + 29 + 31$	$64 = 3 - 5 + 7 + 11 - 13 + 17 + 19 + 23 - 29 + 31$
97.	$4 = 3 + 5 - 7 - 11 - 13 - 17 + 19 + 23 - 29 + 31$	$64 = 3 - 5 + 7 + 11 + 13 + 17 - 19 - 23 + 29 + 31$
98.	$2 = 3 + 5 + 7 + 11 - 13 - 17 - 19 + 23 - 29 + 31$	$66 = 3 - 5 - 7 - 11 + 13 + 17 + 19 - 23 + 29 + 31$
99.	$2 = 3 + 5 - 7 + 11 + 13 + 17 - 19 - 23 - 29 + 31$	$66 = 3 - 5 + 7 - 11 - 13 + 17 + 19 + 23 + 29 + 31$
100.	$0 = 3 + 5 - 7 + 11 - 13 - 17 - 19 - 23 + 29 + 31$	$68 = 3 - 5 + 7 + 11 - 13 + 17 + 19 + 23 - 29 + 31$
101.	$0 = 3 + 5 - 7 - 11 - 13 + 17 - 19 + 23 - 29 + 31$	$68 = 3 - 5 + 7 + 11 + 13 - 17 + 19 - 23 + 29 + 31$
102.	$-2 = 3 + 5 + 7 - 11 + 13 - 17 + 19 - 23 - 29 + 31$	$70 = 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31$
103.	$-6 = 3 + 5 + 7 + 11 - 13 - 17 + 19 - 23 - 29 + 31$	$74 = 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31$
104.	$-6 = 3 + 5 + 7 - 11 + 13 + 17 - 19 - 23 - 29 + 31$	$74 = 3 - 5 - 7 + 11 - 13 - 17 + 19 + 23 + 29 + 31$
105.	$-8 = 3 + 5 + 7 - 11 - 13 - 17 - 19 - 23 + 29 + 31$	$76 = 3 - 5 - 7 + 11 + 13 + 17 + 19 + 23 - 29 + 31$
106.	$-8 = 3 + 5 - 7 - 11 + 13 - 17 - 19 + 23 - 29 + 31$	$76 = 3 - 5 + 7 + 11 - 13 + 17 + 19 - 23 + 29 + 31$
107.	$-8 = 3 + 5 - 7 - 11 - 13 + 17 + 19 - 23 - 29 + 31$	$76 = 3 - 5 + 7 + 11 + 13 - 17 - 19 + 23 + 29 + 31$
108.	$-10 = 3 + 5 + 7 + 11 - 13 + 17 - 19 - 23 - 29 + 31$	$78 = 3 - 5 - 7 - 11 + 13 - 17 + 19 + 23 + 29 + 31$
109.	$-12 = 3 + 5 - 7 + 11 - 13 - 17 + 19 + 23 - 29 + 31$	$80 = 3 - 5 + 7 - 11 + 13 + 17 + 19 - 23 + 29 + 31$
110.	$-16 = 3 + 5 - 7 - 11 + 13 - 17 + 19 - 23 - 29 + 31$	$84 = 3 - 5 + 7 + 11 - 13 + 17 - 19 + 23 + 29 + 31$
111.	$-18 = 3 + 5 + 7 + 11 + 13 - 17 - 19 - 23 - 29 + 31$	$86 = 3 - 5 - 7 - 11 - 13 + 17 + 19 + 23 + 29 + 31$
112.	$-20 = 3 + 5 + 7 - 11 - 13 - 17 - 19 + 23 - 29 + 31$	$88 = 3 - 5 - 7 + 11 + 13 + 17 + 19 + 23 - 29 + 31$
113.	$-20 = 3 + 5 - 7 + 11 - 13 - 17 + 19 - 23 - 29 + 31$	$88 = 3 - 5 + 7 - 11 + 13 + 17 - 19 + 23 + 29 + 31$

114.	$-20 = 3 + 5 - 7 - 11 + 13 + 17 - 19 - 23 - 29 + 31$	$88 = 3 - 5 + 7 + 11 - 13 - 17 + 19 + 23 + 29 + 31$
115.	$-22 = 3 + 5 - 7 - 11 - 13 - 17 - 19 - 23 + 29 + 31$	$90 = 3 - 5 + 7 + 11 + 13 + 17 + 19 + 23 - 29 + 31$
116.	$-24 = 3 + 5 - 7 + 11 - 13 + 17 - 19 - 23 - 29 + 31$	$92 = 3 - 5 + 7 - 11 + 13 - 17 + 19 + 23 + 29 + 31$
117.	$-28 = 3 + 5 + 7 - 11 - 13 - 17 + 19 - 23 - 29 + 31$	$96 = 3 - 5 - 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31$
118.	$-32 = 3 + 5 + 7 - 11 - 13 + 17 - 19 - 23 - 29 + 31$	$100 = 3 - 5 - 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31$
119.	$-32 = 3 + 5 - 7 + 11 + 13 - 17 - 19 - 23 - 29 + 31$	$100 = 3 - 5 + 7 - 11 - 13 + 17 + 19 + 23 + 29 + 31$
120.	$-34 = 3 + 5 - 7 - 11 - 13 - 17 - 19 + 23 - 29 + 31$	$102 = 3 - 5 + 7 + 11 + 13 + 17 + 19 - 23 + 29 + 31$
121.	$-40 = 3 + 5 + 7 - 11 + 13 - 17 - 19 - 23 - 29 + 31$	$108 = 3 - 5 - 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31$
122.	$-42 = 3 + 5 - 7 - 11 - 13 - 17 + 19 - 23 - 29 + 31$	$110 = 3 - 5 + 7 + 11 + 13 + 17 - 19 + 23 + 29 + 31$
123.	$-44 = 3 + 5 + 7 + 11 - 13 - 17 - 19 - 23 - 29 + 31$	$112 = 3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31$
124.	$-46 = 3 + 5 - 7 - 11 - 13 + 17 - 19 - 23 - 29 + 31$	$114 = 3 - 5 + 7 + 11 + 13 - 17 + 19 + 23 + 29 + 31$
125.	$-54 = 3 + 5 - 7 - 11 + 13 - 17 - 19 - 23 - 29 + 31$	$122 = 3 - 5 + 7 + 11 - 13 + 17 + 19 + 23 + 29 + 31$
126.	$-58 = 3 + 5 - 7 + 11 - 13 - 17 - 19 - 23 - 29 + 31$	$126 = 3 - 5 - 7 - 11 + 13 + 17 + 19 + 23 + 29 + 31$
127.	$-66 = 3 + 5 + 7 - 11 - 13 - 17 - 19 - 23 - 29 + 31$	$134 = 3 - 5 - 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31$
128.	$-80 = 3 + 5 - 7 - 11 - 13 - 17 - 19 - 23 - 29 + 31$	$148 = 3 - 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31$

Table 8. Entanglement of BP/BPE representations (found by full search), made by sequence (13) with $s = 8$.

Plus-fixed primes	and their sum	Holes before/after consecutive segment	+/– values for cropped(4) sequence limits
Plus-fixed 41 and 47			
3, 5, 41, 47	96	-44, 236	138
3, 7, 41, 47	98	-54, 250	150
3, 11, 41, 47	102	-56, 260	156
3, 13, 41, 47	104	-54, 262	156
3, 17, 41, 47	108	-44, 260	150
3, 19, 41, 47	110	-42, 262	150
3, 23, 41, 47	114	-44, 272	156
3, 29, 41, 47	120	-32, 272	150
3, 31, 41, 47	122	-6, 250	126
3, 37, 41, 47	128	-16, 272	142
3, 41, 43, 47	134	-4, 272	136
5, 7, 41, 47	100	-50, 250	148
5, 11, 41, 47	104	-62, 270	164
5, 13, 41, 47	106	-64, 276	168
5, 17, 41, 47	110	-50, 270	158
5, 19, 41, 47	112	-52, 276	162
5, 23, 41, 47	116	-44, 276	158
5, 29, 41, 47	122	-32, 276	152
5, 31, 41, 47	124	-28, 276	150
5, 37, 41, 47	130	-16, 276	144
5, 41, 43, 47	136	-4, 276	138
7, 11, 41, 47	106	-84, 296	188
7, 13, 41, 47	108	-68, 284	174
7, 17, 41, 47	112	-52, 276	162
7, 19, 41, 47	114	-68, 296	180
7, 23, 41, 47	118	-38, 274	154
7, 29, 41, 47	124	-48, 296	170
7, 31, 41, 47	126	-44, 296	168
7, 37, 41, 47	132	-32, 296	162
7, 41, 43, 47	138	-20, 296	156
11, 13, 41, 47	112	-60, 284	170
11, 17, 41, 47	116	-60, 292	174
11, 19, 41, 47	118	-52, 288	168
11, 23, 41, 47	122	-54, 298	174
11, 29, 41, 47	128	-42, 298	168
11, 31, 41, 47	130	-38, 298	166
11, 37, 41, 47	136	-26, 298	160
11, 41, 43, 47	142	-14, 298	154
13, 17, 41, 47	118	-40, 276	156
13, 19, 41, 47	120	-60, 300	178
13, 23, 41, 47	124	-52, 300	174
13, 29, 41, 47	130	-40, 300	168
13, 31, 41, 47	132	-36, 300	166
13, 37, 41, 47	138	-24, 300	160
13, 41, 43, 47	144	-12, 300	154
17, 19, 41, 47	124	-34, 282	156
17, 23, 41, 47	128	-36, 292	162
17, 29, 41, 47	134	-24, 292	156
17, 31, 41, 47	136	-20, 292	154
17, 37, 41, 47	142	-8, 292	148
17, 41, 43, 47	148	4, 292	142
19, 23, 41, 47	130	-48, 308	176
19, 29, 41, 47	136	-36, 308	170
19, 31, 41, 47	138	-32, 308	168
19, 37, 41, 47	144	-20, 308	162
19, 41, 43, 47	150	-8, 308	156
23, 29, 41, 47	140	-28, 308	166
23, 31, 41, 47	142	-24, 308	164
23, 37, 41, 47	148	-12, 308	158
23, 41, 43, 47	154	0, 308	152
29, 31, 41, 47	148	-12, 308	158
29, 37, 41, 47	154	0, 308	152
29, 41, 43, 47	160	12, 308	146
31, 37, 41, 47	156	4, 308	150
31, 41, 43, 47	162	16, 308	144
37, 41, 43, 47	168	28, 308	138
Plus-fixed 31 and 47			
3, 5, 31, 47	86	-64, 236	148
3, 7, 31, 47	88	-62, 238	148
3, 11, 31, 47	92	-66, 250	156
3, 13, 31, 47	94	-62, 250	154
3, 17, 31, 47	98	-28, 224	124
3, 19, 31, 47	100	-50, 250	148
3, 23, 31, 47	104	-42, 250	144
3, 29, 31, 47	110	-30, 250	138
3, 31, 37, 47	118	-14, 250	130
3, 31, 41, 47	122	-6, 250	126
3, 31, 43, 47	124	-2, 250	124
5, 7, 31, 47	90	-70, 250	158
5, 11, 31, 47	94	-62, 250	154
5, 13, 31, 47	96	-84, 276	178
5, 17, 31, 47	100	-50, 250	148
5, 19, 31, 47	102	-72, 276	172
5, 23, 31, 47	106	-64, 276	168
5, 29, 31, 47	112	-52, 276	162
5, 31, 37, 47	120	-36, 276	154
5, 31, 41, 47	124	-28, 276	150
5, 31, 43, 47	126	-24, 276	148
7, 11, 31, 47	96	-104, 296	198
7, 13, 31, 47	98	-88, 284	184
7, 17, 31, 47	102	-72, 276	172
7, 19, 31, 47	104	-88, 296	190
7, 23, 31, 47	108	-58, 274	164
7, 29, 31, 47	114	-68, 296	180
7, 31, 37, 47	122	-52, 296	172
7, 31, 41, 47	126	-44, 296	168
7, 31, 43, 47	128	-40, 296	166
11, 13, 31, 47	102	-80, 284	180
11, 17, 31, 47	106	-80, 292	184
11, 19, 31, 47	108	-72, 288	178
11, 23, 31, 47	112	-74, 298	184
11, 29, 31, 47	118	-62, 298	178
11, 31, 37, 47	126	-46, 298	170
11, 31, 41, 47	130	-38, 298	166

Set			
11, 31, 43, 47	132	-34, 298	164
13, 17, 31, 47	108	-60, 276	166
13, 19, 31, 47	110	-80, 300	188
13, 23, 31, 47	114	-72, 300	184
13, 29, 31, 47	120	-60, 300	178
13, 31, 37, 47	128	-44, 300	170
13, 31, 41, 47	132	-36, 300	166
13, 31, 43, 47	134	-32, 300	164
17, 19, 31, 47	114	-54, 282	166
17, 23, 31, 47	118	-56, 292	172
17, 29, 31, 47	124	-44, 292	166
17, 31, 37, 47	132	-28, 292	158
17, 31, 41, 47	136	-20, 292	154
17, 31, 43, 47	138	-16, 292	152
19, 23, 31, 47	120	-68, 308	186
19, 29, 31, 47	126	-56, 308	180
19, 31, 37, 47	134	-40, 308	172
19, 31, 41, 47	138	-32, 308	168
19, 31, 43, 47	140	-28, 308	166
23, 29, 31, 47	130	-48, 308	176
23, 31, 37, 47	138	-32, 308	168
23, 31, 41, 47	142	-24, 308	164
23, 31, 43, 47	144	-20, 308	162
29, 31, 37, 47	144	-20, 308	162
29, 31, 41, 47	148	-12, 308	158
29, 31, 43, 47	150	-8, 308	156
31, 37, 41, 47	156	4, 308	150
31, 37, 43, 47	158	8, 308	148
31, 41, 43, 47	162	16, 308	144

Plus-fixed 31 and 41

Set			
3, 5, 31, 41	80	-76, 236	154
3, 7, 31, 41	82	-74, 238	154
3, 11, 31, 41	86	-78, 250	162
3, 13, 31, 41	88	-74, 250	160
3, 17, 31, 41	92	-40, 224	130
3, 19, 31, 41	94	-62, 250	154
3, 23, 31, 41	98	-54, 250	150
3, 29, 31, 41	104	-42, 250	144
3, 31, 37, 41	112	-26, 250	136
3, 31, 41, 43	118	-14, 250	130
3, 31, 41, 47	122	-6, 250	126
5, 7, 31, 41	84	-82, 250	164
5, 11, 31, 41	88	-68, 244	154
5, 13, 31, 41	90	-96, 276	184
5, 17, 31, 41	94	-62, 250	154
5, 19, 31, 41	96	-84, 276	178
5, 23, 31, 41	100	-76, 276	174
5, 29, 31, 41	106	-64, 276	168
5, 31, 37, 41	114	-48, 276	160
5, 31, 41, 43	120	-36, 276	154
5, 31, 41, 47	124	-28, 276	150
7, 11, 31, 41	90	-116, 296	204
7, 13, 31, 41	92	-100, 284	190
7, 17, 31, 41	96	-36, 228	130
7, 19, 31, 41	98	-100, 296	196
7, 23, 31, 41	102	-70, 274	170
7, 29, 31, 41	108	-80, 296	186
7, 31, 37, 41	116	-64, 296	178
7, 31, 41, 43	122	-52, 296	172
7, 31, 41, 47	126	-44, 296	168
11, 13, 31, 41	96	-92, 284	186
11, 17, 31, 41	100	-92, 292	190
11, 19, 31, 41	102	-84, 288	184
11, 23, 31, 41	106	-86, 298	190
11, 29, 31, 41	112	-74, 298	184
11, 31, 37, 41	120	-58, 298	176
11, 31, 41, 43	126	-46, 298	170
11, 31, 41, 47	130	-38, 298	166
13, 17, 31, 41	102	-72, 276	172
13, 19, 31, 41	104	-92, 300	194
13, 23, 31, 41	108	-84, 300	190
13, 29, 31, 41	114	-72, 300	184
13, 31, 37, 41	122	-56, 300	176
13, 31, 41, 43	128	-44, 300	170
13, 31, 41, 47	132	-36, 300	166
17, 19, 31, 41	108	-66, 282	172
17, 23, 31, 41	112	-68, 292	178
17, 29, 31, 41	118	-56, 292	172
17, 31, 37, 41	126	-40, 292	164
17, 31, 41, 43	132	-28, 292	158
17, 31, 41, 47	136	-20, 292	154
19, 23, 31, 41	114	-80, 308	192
19, 29, 31, 41	120	-68, 308	186
19, 31, 37, 41	128	-52, 308	178
19, 31, 41, 43	134	-40, 308	172
19, 31, 41, 47	138	-32, 308	168
23, 29, 31, 41	124	-60, 308	182
23, 31, 37, 41	132	-44, 308	174
23, 31, 41, 43	138	-32, 308	168
23, 31, 41, 47	142	-24, 308	164
29, 31, 37, 41	138	-32, 308	168
29, 31, 41, 43	144	-20, 308	162
29, 31, 41, 47	148	-12, 308	158
31, 37, 41, 43	152	-4, 308	154
31, 37, 41, 47	156	4, 308	150
31, 41, 43, 47	162	16, 308	144

Table 9. Entanglement of BP/BPE representations (found by full search), made by sequence (13) with $s = 10$.

Plus-fixed primes	and their sum	Holes before/after consecutive segment	+/– values for cropped(4) sequence limits
Plus-fixed 41 and 59			
3, 5, 41, 59	108	-260, 476	366
3, 7, 41, 59	110	-270, 490	378
3, 11, 41, 59	114	-272, 500	384
3, 13, 41, 59	116	-270, 502	384
3, 17, 41, 59	120	-260, 500	378
3, 19, 41, 59	122	-258, 502	378
3, 23, 41, 59	126	-260, 512	384
3, 29, 41, 59	132	-248, 512	378
3, 31, 41, 59	134	-222, 490	354
3, 37, 41, 59	140	-232, 512	370
3, 41, 43, 59	146	-220, 512	364
3, 41, 47, 59	150	-212, 512	360
3, 41, 53, 59	156	-200, 512	354
3, 41, 59, 61	164	-184, 512	346
3, 41, 59, 67	170	-172, 512	340
5, 7, 41, 59	112	-266, 490	376
5, 11, 41, 59	116	-278, 510	392
5, 13, 41, 59	118	-280, 516	396
5, 17, 41, 59	122	-266, 510	386
5, 19, 41, 59	124	-268, 516	390
5, 23, 41, 59	128	-260, 516	386
5, 29, 41, 59	134	-248, 516	380
5, 31, 41, 59	136	-244, 516	378
5, 37, 41, 59	142	-232, 516	372
5, 41, 43, 59	148	-220, 516	366
5, 41, 47, 59	152	-212, 516	362
5, 41, 53, 59	158	-200, 516	356
5, 41, 59, 61	166	-184, 516	348
5, 41, 59, 67	172	-172, 516	342
7, 11, 41, 59	118	-300, 536	416
7, 13, 41, 59	120	-284, 524	402
7, 17, 41, 59	124	-268, 516	390
7, 19, 41, 59	126	-284, 536	408
7, 23, 41, 59	130	-254, 514	382
7, 29, 41, 59	136	-264, 536	398
7, 31, 41, 59	138	-260, 536	396
7, 37, 41, 59	144	-248, 536	390
7, 41, 43, 59	150	-236, 536	384
7, 41, 47, 59	154	-228, 536	380
7, 41, 53, 59	160	-216, 536	374
7, 41, 59, 61	168	-200, 536	366
7, 41, 59, 67	174	-188, 536	360
11, 13, 41, 59	124	-276, 524	398
11, 17, 41, 59	128	-276, 532	402
11, 19, 41, 59	130	-268, 528	396
11, 23, 41, 59	134	-270, 538	402
11, 29, 41, 59	140	-258, 538	396
11, 31, 41, 59	142	-254, 538	394
11, 37, 41, 59	148	-242, 538	388
11, 41, 43, 59	154	-230, 538	382
11, 41, 47, 59	158	-222, 538	378
11, 41, 53, 59	164	-210, 538	372
11, 41, 59, 61	172	-194, 538	364
11, 41, 59, 67	178	-182, 538	358
13, 17, 41, 59	130	-256, 516	384
13, 19, 41, 59	132	-276, 540	406
13, 23, 41, 59	136	-268, 540	402
13, 29, 41, 59	142	-256, 540	396
13, 31, 41, 59	144	-252, 540	394
13, 37, 41, 59	150	-240, 540	388
13, 41, 43, 59	156	-228, 540	382
13, 41, 47, 59	160	-220, 540	378
13, 41, 53, 59	166	-208, 540	372
13, 41, 59, 61	174	-192, 540	364
13, 41, 59, 67	180	-180, 540	358
17, 19, 41, 59	136	-250, 522	384
17, 23, 41, 59	140	-252, 532	390
17, 29, 41, 59	146	-240, 532	384
17, 31, 41, 59	148	-236, 532	382
17, 37, 41, 59	154	-224, 532	376
17, 41, 43, 59	160	-212, 532	370
17, 41, 47, 59	164	-204, 532	366
17, 41, 53, 59	170	-192, 532	360
17, 41, 59, 61	178	-176, 532	352
17, 41, 59, 67	184	-164, 532	346
19, 23, 41, 59	142	-264, 548	404
19, 29, 41, 59	148	-252, 548	398
19, 31, 41, 59	150	-248, 548	396
19, 37, 41, 59	156	-236, 548	390
19, 41, 43, 59	162	-224, 548	384
19, 41, 47, 59	166	-216, 548	380
19, 41, 53, 59	172	-204, 548	374
19, 41, 59, 61	180	-188, 548	366
19, 41, 59, 67	186	-176, 548	360
23, 29, 41, 59	152	-244, 548	394
23, 31, 41, 59	154	-240, 548	392
23, 37, 41, 59	160	-228, 548	386
23, 41, 43, 59	166	-216, 548	380
23, 41, 47, 59	170	-208, 548	376
23, 41, 53, 59	176	-196, 548	370
23, 41, 59, 61	184	-180, 548	362
23, 41, 59, 67	190	-168, 548	356
29, 31, 41, 59	160	-228, 548	386
29, 37, 41, 59	166	-216, 548	380
29, 41, 43, 59	172	-204, 548	374
29, 41, 47, 59	176	-196, 548	370
29, 41, 53, 59	182	-184, 548	364
29, 41, 59, 61	190	-168, 548	356
29, 41, 59, 67	196	-156, 548	350
31, 37, 41, 59	168	-212, 548	378
31, 41, 43, 59	174	-200, 548	372
31, 41, 47, 59	178	-192, 548	368
31, 41, 53, 59	184	-180, 548	362
31, 41, 59, 61	192	-164, 548	354
31, 41, 59, 67	198	-152, 548	348
37, 41, 43, 59	180	-188, 548	366

37, 41, 47, 59	184	-180, 548	362
37, 41, 53, 59	190	-168, 548	356
37, 41, 59, 61	198	-152, 548	348
37, 41, 59, 67	204	-140, 548	342
41, 43, 47, 59	190	-168, 548	356
41, 43, 53, 59	196	-156, 548	350
41, 43, 59, 61	204	-140, 548	342
41, 43, 59, 67	210	-128, 548	336
41, 47, 53, 59	200	-148, 548	346
41, 47, 59, 61	208	-132, 548	338
41, 47, 59, 67	214	-120, 548	332
41, 53, 59, 61	214	-120, 548	332
41, 53, 59, 67	220	-108, 548	326
41, 59, 61, 67	228	-92, 548	318

Plus-fixed 41 and 47

3, 5, 41, 47	96	-284, 476	378
3, 7, 41, 47	98	-294, 490	390
3, 11, 41, 47	102	-296, 500	396
3, 13, 41, 47	104	-294, 502	396
3, 17, 41, 47	108	-284, 500	390
3, 19, 41, 47	110	-282, 502	390
3, 23, 41, 47	114	-284, 512	396
3, 29, 41, 47	120	-272, 512	390
3, 31, 41, 47	122	-246, 490	366
3, 37, 41, 47	128	-256, 512	382
3, 41, 43, 47	134	-244, 512	376
3, 41, 47, 53	144	-224, 512	366
3, 41, 47, 59	150	-212, 512	360
3, 41, 47, 61	152	-208, 512	358
3, 41, 47, 67	158	-196, 512	352
5, 7, 41, 47	100	-290, 490	388
5, 11, 41, 47	104	-302, 510	404
5, 13, 41, 47	106	-304, 516	408
5, 17, 41, 47	110	-290, 510	398
5, 19, 41, 47	112	-292, 516	402
5, 23, 41, 47	116	-284, 516	398
5, 29, 41, 47	122	-272, 516	392
5, 31, 41, 47	124	-268, 516	390
5, 37, 41, 47	130	-256, 516	384
5, 41, 43, 47	136	-244, 516	378
5, 41, 47, 53	146	-224, 516	368
5, 41, 47, 59	152	-212, 516	362
5, 41, 47, 61	154	-208, 516	360
5, 41, 47, 67	160	-196, 516	354
7, 11, 41, 47	106	-324, 536	428
7, 13, 41, 47	108	-308, 524	414
7, 17, 41, 47	112	-292, 516	402
7, 19, 41, 47	114	-308, 536	420
7, 23, 41, 47	118	-278, 514	394
7, 29, 41, 47	124	-288, 536	410
7, 31, 41, 47	126	-284, 536	408
7, 37, 41, 47	132	-272, 536	402
7, 41, 43, 47	138	-260, 536	396
7, 41, 47, 53	148	-240, 536	386
7, 41, 47, 59	154	-228, 536	380
7, 41, 47, 61	156	-224, 536	378
7, 41, 47, 67	162	-212, 536	372
11, 13, 41, 47	112	-300, 524	410
11, 17, 41, 47	116	-300, 532	414
11, 19, 41, 47	118	-292, 528	408
11, 23, 41, 47	122	-294, 538	414
11, 29, 41, 47	128	-282, 538	408
11, 31, 41, 47	130	-278, 538	406
11, 37, 41, 47	136	-266, 538	400
11, 41, 43, 47	142	-254, 538	394
11, 41, 47, 53	152	-234, 538	384
11, 41, 47, 59	158	-222, 538	378
11, 41, 47, 61	160	-218, 538	376
11, 41, 47, 67	166	-206, 538	370
13, 17, 41, 47	118	-280, 516	396
13, 19, 41, 47	120	-300, 540	418
13, 23, 41, 47	124	-292, 540	414
13, 29, 41, 47	130	-280, 540	408
13, 31, 41, 47	132	-276, 540	406
13, 37, 41, 47	138	-264, 540	400
13, 41, 43, 47	144	-252, 540	394
13, 41, 47, 53	154	-232, 540	384
13, 41, 47, 59	160	-220, 540	378
13, 41, 47, 61	162	-216, 540	376
13, 41, 47, 67	168	-204, 540	370
17, 19, 41, 47	124	-274, 522	396
17, 23, 41, 47	128	-276, 532	402
17, 29, 41, 47	134	-264, 532	396
17, 31, 41, 47	136	-260, 532	394
17, 37, 41, 47	142	-248, 532	388
17, 41, 43, 47	148	-236, 532	382
17, 41, 47, 53	158	-216, 532	372
17, 41, 47, 59	164	-204, 532	366
17, 41, 47, 61	166	-200, 532	364
17, 41, 47, 67	172	-188, 532	358
19, 23, 41, 47	130	-288, 548	416
19, 29, 41, 47	136	-276, 548	410
19, 31, 41, 47	138	-272, 548	408
19, 37, 41, 47	144	-260, 548	402
19, 41, 43, 47	150	-248, 548	396
19, 41, 47, 53	160	-228, 548	386
19, 41, 47, 59	166	-216, 548	380
19, 41, 47, 61	168	-212, 548	378
19, 41, 47, 67	174	-200, 548	372
23, 29, 41, 47	140	-268, 548	406
23, 31, 41, 47	142	-264, 548	404
23, 37, 41, 47	148	-252, 548	398
23, 41, 43, 47	154	-240, 548	392
23, 41, 47, 53	164	-220, 548	382
23, 41, 47, 59	170	-208, 548	376
23, 41, 47, 61	172	-204, 548	374
23, 41, 47, 67	178	-192, 548	368
29, 31, 41, 47	148	-252, 548	398
29, 37, 41, 47	154	-240, 548	392
29, 41, 43, 47	160	-228, 548	386
29, 41, 47, 53	170	-208, 548	376
29, 41, 47, 59	176	-196, 548	370
29, 41, 47, 61	178	-192, 548	368
29, 41, 47, 67	184	-180, 548	362
31, 37, 41, 47	156	-236, 548	390
31, 41, 43, 47	162	-224, 548	384
31, 41, 47, 53	172	-204, 548	374
31, 41, 47, 59	178	-192, 548	368
31, 41, 47, 61	180	-188, 548	366
31, 41, 47, 67	186	-176, 548	360
37, 41, 43, 47	168	-212, 548	378
37, 41, 47, 53	178	-192, 548	368
37, 41, 47, 59	184	-180, 548	362
37, 41, 47, 61	186	-176, 548	360

37, 41, 47, 67	192	-164, 548	354
41, 43, 47, 53	184	-180, 548	362
41, 43, 47, 59	190	-168, 548	356
41, 43, 47, 61	192	-164, 548	354
41, 43, 47, 67	198	-152, 548	348
41, 47, 53, 59	200	-148, 548	346
41, 47, 53, 61	202	-144, 548	344
41, 47, 53, 67	208	-132, 548	338
41, 47, 59, 61	208	-132, 548	338
41, 47, 59, 67	214	-120, 548	332
41, 47, 61, 67	216	-116, 548	330

Plus-fixed 41 and 67

3, 5, 41, 67	116	-244, 476	358
3, 7, 41, 67	118	-254, 490	370
3, 11, 41, 67	122	-256, 500	376
3, 13, 41, 67	124	-254, 502	376
3, 17, 41, 67	128	-244, 500	370
3, 19, 41, 67	130	-242, 502	370
3, 23, 41, 67	134	-244, 512	376
3, 29, 41, 67	140	-232, 512	370
3, 31, 41, 67	142	-206, 490	346
3, 37, 41, 67	148	-216, 512	362
3, 41, 43, 67	154	-204, 512	356
3, 41, 47, 67	158	-196, 512	352
3, 41, 53, 67	164	-184, 512	346
3, 41, 59, 67	170	-172, 512	340
3, 41, 61, 67	172	-168, 512	338
5, 7, 41, 67	120	-250, 490	368
5, 11, 41, 67	124	-262, 510	384
5, 13, 41, 67	126	-264, 516	388
5, 17, 41, 67	130	-250, 510	378
5, 19, 41, 67	132	-252, 516	382
5, 23, 41, 67	136	-244, 516	378
5, 29, 41, 67	142	-232, 516	372
5, 31, 41, 67	144	-228, 516	370
5, 37, 41, 67	150	-216, 516	364
5, 41, 43, 67	156	-204, 516	358
5, 41, 47, 67	160	-196, 516	354
5, 41, 53, 67	166	-184, 516	348
5, 41, 59, 67	172	-172, 516	342
5, 41, 61, 67	174	-168, 516	340
7, 11, 41, 67	126	-284, 536	408
7, 13, 41, 67	128	-268, 524	394
7, 17, 41, 67	132	-252, 516	382
7, 19, 41, 67	134	-268, 536	400
7, 23, 41, 67	138	-238, 514	374
7, 29, 41, 67	144	-248, 536	390
7, 31, 41, 67	146	-244, 536	388
7, 37, 41, 67	152	-232, 536	382
7, 41, 43, 67	158	-220, 536	376
7, 41, 47, 67	162	-212, 536	372
7, 41, 53, 67	168	-200, 536	366
7, 41, 59, 67	174	-188, 536	360
7, 41, 61, 67	176	-184, 536	358
11, 13, 41, 67	132	-260, 524	390
11, 17, 41, 67	136	-260, 532	394
11, 19, 41, 67	138	-252, 528	388
11, 23, 41, 67	142	-254, 538	394
11, 29, 41, 67	148	-242, 538	388
11, 31, 41, 67	150	-238, 538	386
11, 37, 41, 67	156	-226, 538	380
11, 41, 43, 67	162	-214, 538	374
11, 41, 47, 67	166	-206, 538	370
11, 41, 53, 67	172	-194, 538	364
11, 41, 59, 67	178	-182, 538	358
11, 41, 61, 67	180	-178, 538	356
13, 17, 41, 67	138	-240, 516	376
13, 19, 41, 67	140	-260, 540	398
13, 23, 41, 67	144	-252, 540	394
13, 29, 41, 67	150	-240, 540	388
13, 31, 41, 67	152	-236, 540	386
13, 37, 41, 67	158	-224, 540	380
13, 41, 43, 67	164	-212, 540	374
13, 41, 47, 67	168	-204, 540	370
13, 41, 53, 67	174	-192, 540	364
13, 41, 59, 67	180	-180, 540	358
13, 41, 61, 67	182	-176, 540	356
17, 19, 41, 67	144	-234, 522	376
17, 23, 41, 67	148	-236, 532	382
17, 29, 41, 67	154	-224, 532	376
17, 31, 41, 67	156	-220, 532	374
17, 37, 41, 67	162	-208, 532	368
17, 41, 43, 67	168	-196, 532	362
17, 41, 47, 67	172	-188, 532	358
17, 41, 53, 67	178	-176, 532	352
17, 41, 59, 67	184	-164, 532	346
17, 41, 61, 67	186	-160, 532	344
19, 23, 41, 67	150	-248, 548	396
19, 29, 41, 67	156	-236, 548	390
19, 31, 41, 67	158	-232, 548	388
19, 37, 41, 67	164	-220, 548	382
19, 41, 43, 67	170	-208, 548	376
19, 41, 47, 67	174	-200, 548	372
19, 41, 53, 67	180	-188, 548	366
19, 41, 59, 67	186	-176, 548	360
19, 41, 61, 67	188	-172, 548	358
23, 29, 41, 67	160	-228, 548	386
23, 31, 41, 67	162	-224, 548	384
23, 37, 41, 67	168	-212, 548	378
23, 41, 43, 67	174	-200, 548	372
23, 41, 47, 67	178	-192, 548	368
23, 41, 53, 67	184	-180, 548	362
23, 41, 59, 67	190	-168, 548	356
23, 41, 61, 67	192	-164, 548	354
29, 31, 41, 67	168	-212, 548	378
29, 37, 41, 67	174	-200, 548	372
29, 41, 43, 67	180	-188, 548	366
29, 41, 47, 67	184	-180, 548	362
29, 41, 53, 67	190	-168, 548	356
29, 41, 59, 67	196	-156, 548	350
29, 41, 61, 67	198	-152, 548	348
31, 37, 41, 67	176	-196, 548	370
31, 41, 43, 67	182	-184, 548	364
31, 41, 47, 67	186	-176, 548	360
31, 41, 53, 67	192	-164, 548	354
31, 41, 59, 67	198	-152, 548	348
31, 41, 61, 67	200	-148, 548	346
37, 41, 43, 67	188	-172, 548	358
37, 41, 47, 67	192	-164, 548	354
37, 41, 53, 67	198	-152, 548	348
37, 41, 59, 67	204	-140, 548	342
37, 41, 61, 67	206	-136, 548	340
41, 43, 47, 67	198	-152, 548	348
41, 43, 53, 67	204	-140, 548	342

41, 43, 59, 67	210	-128, 548	336	11, 47, 59, 67	184	-170, 538	352

Set	A	B	C
41, 43, 59, 67	210	-128, 548	336
41, 43, 61, 67	212	-124, 548	334
41, 47, 53, 67	208	-132, 548	338
41, 47, 59, 67	214	-120, 548	332
41, 47, 61, 67	216	-116, 548	330
41, 53, 59, 67	220	-108, 548	326
41, 53, 61, 67	222	-104, 548	324
41, 59, 61, 67	228	-92, 548	318

Plus-fixed 47 and 67

Set	A	B	C
3, 5, 47, 67	122	-232, 476	352
3, 7, 47, 67	124	-242, 490	364
3, 11, 47, 67	128	-244, 500	370
3, 13, 47, 67	130	-242, 502	370
3, 17, 47, 67	134	-232, 500	364
3, 19, 47, 67	136	-230, 502	364
3, 23, 47, 67	140	-232, 512	370
3, 29, 47, 67	146	-220, 512	364
3, 31, 47, 67	148	-194, 490	340
3, 37, 47, 67	154	-204, 512	356
3, 41, 47, 67	158	-196, 512	352
3, 43, 47, 67	160	-192, 512	350
3, 47, 53, 67	170	-172, 512	340
3, 47, 59, 67	176	-160, 512	334
3, 47, 61, 67	178	-156, 512	332
5, 7, 47, 67	126	-238, 490	362
5, 11, 47, 67	130	-250, 510	378
5, 13, 47, 67	132	-252, 516	382
5, 17, 47, 67	136	-238, 510	372
5, 19, 47, 67	138	-240, 516	376
5, 23, 47, 67	142	-232, 516	372
5, 29, 47, 67	148	-220, 516	366
5, 31, 47, 67	150	-216, 516	364
5, 37, 47, 67	156	-204, 516	358
5, 41, 47, 67	160	-196, 516	354
5, 43, 47, 67	162	-192, 516	352
5, 47, 53, 67	172	-172, 516	342
5, 47, 59, 67	178	-160, 516	336
5, 47, 61, 67	180	-156, 516	334
7, 11, 47, 67	132	-272, 536	402
7, 13, 47, 67	134	-256, 524	388
7, 17, 47, 67	138	-240, 516	376
7, 19, 47, 67	140	-256, 536	394
7, 23, 47, 67	144	-226, 514	368
7, 29, 47, 67	150	-236, 536	384
7, 31, 47, 67	152	-232, 536	382
7, 37, 47, 67	158	-220, 536	376
7, 41, 47, 67	162	-212, 536	372
7, 43, 47, 67	164	-208, 536	370
7, 47, 53, 67	174	-188, 536	360
7, 47, 59, 67	180	-176, 536	354
7, 47, 61, 67	182	-172, 536	352
11, 13, 47, 67	138	-248, 524	384
11, 17, 47, 67	142	-248, 532	388
11, 19, 47, 67	144	-240, 528	382
11, 23, 47, 67	148	-242, 538	388
11, 29, 47, 67	154	-230, 538	382
11, 31, 47, 67	156	-226, 538	380
11, 37, 47, 67	162	-214, 538	374
11, 41, 47, 67	166	-206, 538	370
11, 43, 47, 67	168	-202, 538	368
11, 47, 53, 67	178	-182, 538	358

Set	A	B	C
11, 47, 59, 67	184	-170, 538	352
11, 47, 61, 67	186	-166, 538	350
13, 17, 47, 67	144	-228, 516	370
13, 19, 47, 67	146	-248, 540	392
13, 23, 47, 67	150	-240, 540	388
13, 29, 47, 67	156	-228, 540	382
13, 31, 47, 67	158	-224, 540	380
13, 37, 47, 67	164	-212, 540	374
13, 41, 47, 67	168	-204, 540	370
13, 43, 47, 67	170	-200, 540	368
13, 47, 53, 67	180	-180, 540	358
13, 47, 59, 67	186	-168, 540	352
13, 47, 61, 67	188	-164, 540	350
17, 19, 47, 67	150	-222, 522	370
17, 23, 47, 67	154	-224, 532	376
17, 29, 47, 67	160	-212, 532	370
17, 31, 47, 67	162	-208, 532	368
17, 37, 47, 67	168	-196, 532	362
17, 41, 47, 67	172	-188, 532	358
17, 43, 47, 67	174	-184, 532	356
17, 47, 53, 67	184	-164, 532	346
17, 47, 59, 67	190	-152, 532	340
17, 47, 61, 67	192	-148, 532	338
19, 23, 47, 67	156	-236, 548	390
19, 29, 47, 67	162	-224, 548	384
19, 31, 47, 67	164	-220, 548	382
19, 37, 47, 67	170	-208, 548	376
19, 41, 47, 67	174	-200, 548	372
19, 43, 47, 67	176	-196, 548	370
19, 47, 53, 67	186	-176, 548	360
19, 47, 59, 67	192	-164, 548	354
19, 47, 61, 67	194	-160, 548	352
23, 29, 47, 67	166	-216, 548	380
23, 31, 47, 67	168	-212, 548	378
23, 37, 47, 67	174	-200, 548	372
23, 41, 47, 67	178	-192, 548	368
23, 43, 47, 67	180	-188, 548	366
23, 47, 53, 67	190	-168, 548	356
23, 47, 59, 67	196	-156, 548	350
23, 47, 61, 67	198	-152, 548	348
29, 31, 47, 67	174	-200, 548	372
29, 37, 47, 67	180	-188, 548	366
29, 41, 47, 67	184	-180, 548	362
29, 43, 47, 67	186	-176, 548	360
29, 47, 53, 67	196	-156, 548	350
29, 47, 59, 67	202	-144, 548	344
29, 47, 61, 67	204	-140, 548	342
31, 37, 47, 67	182	-184, 548	364
31, 41, 47, 67	186	-176, 548	360
31, 43, 47, 67	188	-172, 548	358
31, 47, 53, 67	198	-152, 548	348
31, 47, 59, 67	204	-140, 548	342
31, 47, 61, 67	206	-136, 548	340
37, 41, 47, 67	192	-164, 548	354
37, 43, 47, 67	194	-160, 548	352
37, 47, 53, 67	204	-140, 548	342
37, 47, 59, 67	210	-128, 548	336
37, 47, 61, 67	212	-124, 548	334
41, 43, 47, 67	198	-152, 548	348
41, 47, 53, 67	208	-132, 548	338
41, 47, 59, 67	214	-120, 548	332
41, 47, 61, 67	216	-116, 548	330
43, 47, 53, 67	210	-128, 548	336

43, 47, 59, 67	216	-116, 548	330	13, 19, 47, 59	138	-264, 540	400

43, 47, 59, 67	216	-116, 548	330
43, 47, 61, 67	218	-112, 548	328
47, 53, 59, 67	226	-96, 548	320
47, 53, 61, 67	228	-92, 548	318
47, 59, 61, 67	234	-80, 548	312

Plus-fixed 47 and 59

3, 5, 47, 59	114	-248, 476	360
3, 7, 47, 59	116	-258, 490	372
3, 11, 47, 59	120	-260, 500	378
3, 13, 47, 59	122	-258, 502	378
3, 17, 47, 59	126	-248, 500	372
3, 19, 47, 59	128	-246, 502	372
3, 23, 47, 59	132	-248, 512	378
3, 29, 47, 59	138	-236, 512	372
3, 31, 47, 59	140	-210, 490	348
3, 37, 47, 59	146	-220, 512	364
3, 41, 47, 59	150	-212, 512	360
3, 43, 47, 59	152	-208, 512	358
3, 47, 53, 59	162	-188, 512	348
3, 47, 59, 61	170	-172, 512	340
3, 47, 59, 67	176	-160, 512	334
5, 7, 47, 59	118	-254, 490	370
5, 11, 47, 59	122	-266, 510	386
5, 13, 47, 59	124	-268, 516	390
5, 17, 47, 59	128	-254, 510	380
5, 19, 47, 59	130	-256, 516	384
5, 23, 47, 59	134	-248, 516	380
5, 29, 47, 59	140	-236, 516	374
5, 31, 47, 59	142	-232, 516	372
5, 37, 47, 59	148	-220, 516	366
5, 41, 47, 59	152	-212, 516	362
5, 43, 47, 59	154	-208, 516	360
5, 47, 53, 59	164	-188, 516	350
5, 47, 59, 61	172	-172, 516	342
5, 47, 59, 67	178	-160, 516	336
7, 11, 47, 59	124	-288, 536	410
7, 13, 47, 59	126	-272, 524	396
7, 17, 47, 59	130	-256, 516	384
7, 19, 47, 59	132	-272, 536	402
7, 23, 47, 59	136	-242, 514	376
7, 29, 47, 59	142	-252, 536	392
7, 31, 47, 59	144	-248, 536	390
7, 37, 47, 59	150	-236, 536	384
7, 41, 47, 59	154	-228, 536	380
7, 43, 47, 59	156	-224, 536	378
7, 47, 53, 59	166	-204, 536	368
7, 47, 59, 61	174	-188, 536	360
7, 47, 59, 67	180	-176, 536	354
11, 13, 47, 59	130	-264, 524	392
11, 17, 47, 59	134	-264, 532	396
11, 19, 47, 59	136	-256, 528	390
11, 23, 47, 59	140	-258, 538	396
11, 29, 47, 59	146	-246, 538	390
11, 31, 47, 59	148	-242, 538	388
11, 37, 47, 59	154	-230, 538	382
11, 41, 47, 59	158	-222, 538	378
11, 43, 47, 59	160	-218, 538	376
11, 47, 53, 59	170	-198, 538	366
11, 47, 59, 61	178	-182, 538	358
11, 47, 59, 67	184	-170, 538	352
13, 17, 47, 59	136	-244, 516	378

13, 19, 47, 59	138	-264, 540	400
13, 23, 47, 59	142	-256, 540	396
13, 29, 47, 59	148	-244, 540	390
13, 31, 47, 59	150	-240, 540	388
13, 37, 47, 59	156	-228, 540	382
13, 41, 47, 59	160	-220, 540	378
13, 43, 47, 59	162	-216, 540	376
13, 47, 53, 59	172	-196, 540	366
13, 47, 59, 61	180	-180, 540	358
13, 47, 59, 67	186	-168, 540	352
17, 19, 47, 59	142	-238, 522	378
17, 23, 47, 59	146	-240, 532	384
17, 29, 47, 59	152	-228, 532	378
17, 31, 47, 59	154	-224, 532	376
17, 37, 47, 59	160	-212, 532	370
17, 41, 47, 59	164	-204, 532	366
17, 43, 47, 59	166	-200, 532	364
17, 47, 53, 59	176	-180, 532	354
17, 47, 59, 61	184	-164, 532	346
17, 47, 59, 67	190	-152, 532	340
19, 23, 47, 59	148	-252, 548	398
19, 29, 47, 59	154	-240, 548	392
19, 31, 47, 59	156	-236, 548	390
19, 37, 47, 59	162	-224, 548	384
19, 41, 47, 59	166	-216, 548	380
19, 43, 47, 59	168	-212, 548	378
19, 47, 53, 59	178	-192, 548	368
19, 47, 59, 61	186	-176, 548	360
19, 47, 59, 67	192	-164, 548	354
23, 29, 47, 59	158	-232, 548	388
23, 31, 47, 59	160	-228, 548	386
23, 37, 47, 59	166	-216, 548	380
23, 41, 47, 59	170	-208, 548	376
23, 43, 47, 59	172	-204, 548	374
23, 47, 53, 59	182	-184, 548	364
23, 47, 59, 61	190	-168, 548	356
23, 47, 59, 67	196	-156, 548	350
29, 31, 47, 59	166	-216, 548	380
29, 37, 47, 59	172	-204, 548	374
29, 41, 47, 59	176	-196, 548	370
29, 43, 47, 59	178	-192, 548	368
29, 47, 53, 59	188	-172, 548	358
29, 47, 59, 61	196	-156, 548	350
29, 47, 59, 67	202	-144, 548	344
31, 37, 47, 59	174	-200, 548	372
31, 41, 47, 59	178	-192, 548	368
31, 43, 47, 59	180	-188, 548	366
31, 47, 53, 59	190	-168, 548	356
31, 47, 59, 61	198	-152, 548	348
31, 47, 59, 67	204	-140, 548	342
37, 41, 47, 59	184	-180, 548	362
37, 43, 47, 59	186	-176, 548	360
37, 47, 53, 59	196	-156, 548	350
37, 47, 59, 61	204	-140, 548	342
37, 47, 59, 67	210	-128, 548	336
41, 43, 47, 59	190	-168, 548	356
41, 47, 53, 59	200	-148, 548	346
41, 47, 59, 61	208	-132, 548	338
41, 47, 59, 67	214	-120, 548	332
43, 47, 53, 59	202	-144, 548	344
43, 47, 59, 61	210	-128, 548	336
43, 47, 59, 67	216	-116, 548	330
47, 53, 59, 61	220	-108, 548	326

47, 53, 59, 67	226	-96, 548	320
47, 59, 61, 67	234	-80, 548	312

Plus-fixed 59 and 67

3, 5, 59, 67	134	-208, 476	340
3, 7, 59, 67	136	-218, 490	352
3, 11, 59, 67	140	-220, 500	358
3, 13, 59, 67	142	-218, 502	358
3, 17, 59, 67	146	-208, 500	352
3, 19, 59, 67	148	-206, 502	352
3, 23, 59, 67	152	-208, 512	358
3, 29, 59, 67	158	-196, 512	352
3, 31, 59, 67	160	-170, 490	328
3, 37, 59, 67	166	-180, 512	344
3, 41, 59, 67	170	-172, 512	340
3, 43, 59, 67	172	-168, 512	338
3, 47, 59, 67	176	-160, 512	334
3, 53, 59, 67	182	-148, 512	328
3, 59, 61, 67	190	-132, 512	320
5, 7, 59, 67	138	-214, 490	350
5, 11, 59, 67	142	-226, 510	366
5, 13, 59, 67	144	-228, 516	370
5, 17, 59, 67	148	-214, 510	360
5, 19, 59, 67	150	-216, 516	364
5, 23, 59, 67	154	-208, 516	360
5, 29, 59, 67	160	-196, 516	354
5, 31, 59, 67	162	-192, 516	352
5, 37, 59, 67	168	-180, 516	346
5, 41, 59, 67	172	-172, 516	342
5, 43, 59, 67	174	-168, 516	340
5, 47, 59, 67	178	-160, 516	336
5, 53, 59, 67	184	-148, 516	330
5, 59, 61, 67	192	-132, 516	322
7, 11, 59, 67	144	-248, 536	390
7, 13, 59, 67	146	-232, 524	376
7, 17, 59, 67	150	-216, 516	364
7, 19, 59, 67	152	-232, 536	382
7, 23, 59, 67	156	-202, 514	356
7, 29, 59, 67	162	-212, 536	372
7, 31, 59, 67	164	-208, 536	370
7, 37, 59, 67	170	-196, 536	364
7, 41, 59, 67	174	-188, 536	360
7, 43, 59, 67	176	-184, 536	358
7, 47, 59, 67	180	-176, 536	354
7, 53, 59, 67	186	-164, 536	348
7, 59, 61, 67	194	-148, 536	340
11, 13, 59, 67	150	-224, 524	372
11, 17, 59, 67	154	-224, 532	376
11, 19, 59, 67	156	-216, 528	370
11, 23, 59, 67	160	-218, 538	376
11, 29, 59, 67	166	-206, 538	370
11, 31, 59, 67	168	-202, 538	368
11, 37, 59, 67	174	-190, 538	362
11, 41, 59, 67	178	-182, 538	358
11, 43, 59, 67	180	-178, 538	356
11, 47, 59, 67	184	-170, 538	352
11, 53, 59, 67	190	-158, 538	346
11, 59, 61, 67	198	-142, 538	338
13, 17, 59, 67	156	-204, 516	358
13, 19, 59, 67	158	-224, 540	380
13, 23, 59, 67	162	-216, 540	376
13, 29, 59, 67	168	-204, 540	370
13, 31, 59, 67	170	-200, 540	368
13, 37, 59, 67	176	-188, 540	362
13, 41, 59, 67	180	-180, 540	358
13, 43, 59, 67	182	-176, 540	356
13, 47, 59, 67	186	-168, 540	352
13, 53, 59, 67	192	-156, 540	346
13, 59, 61, 67	200	-140, 540	338
17, 19, 59, 67	162	-198, 522	358
17, 23, 59, 67	166	-200, 532	364
17, 29, 59, 67	172	-188, 532	358
17, 31, 59, 67	174	-184, 532	356
17, 37, 59, 67	180	-172, 532	350
17, 41, 59, 67	184	-164, 532	346
17, 43, 59, 67	186	-160, 532	344
17, 47, 59, 67	190	-152, 532	340
17, 53, 59, 67	196	-140, 532	334
17, 59, 61, 67	204	-124, 532	326
19, 23, 59, 67	168	-212, 548	378
19, 29, 59, 67	174	-200, 548	372
19, 31, 59, 67	176	-196, 548	370
19, 37, 59, 67	182	-184, 548	364
19, 41, 59, 67	186	-176, 548	360
19, 43, 59, 67	188	-172, 548	358
19, 47, 59, 67	192	-164, 548	354
19, 53, 59, 67	198	-152, 548	348
19, 59, 61, 67	206	-136, 548	340
23, 29, 59, 67	178	-192, 548	368
23, 31, 59, 67	180	-188, 548	366
23, 37, 59, 67	186	-176, 548	360
23, 41, 59, 67	190	-168, 548	356
23, 43, 59, 67	192	-164, 548	354
23, 47, 59, 67	196	-156, 548	350
23, 53, 59, 67	202	-144, 548	344
23, 59, 61, 67	210	-128, 548	336
29, 31, 59, 67	186	-176, 548	360
29, 37, 59, 67	192	-164, 548	354
29, 41, 59, 67	196	-156, 548	350
29, 43, 59, 67	198	-152, 548	348
29, 47, 59, 67	202	-144, 548	344
29, 53, 59, 67	208	-132, 548	338
29, 59, 61, 67	216	-116, 548	330
31, 37, 59, 67	194	-160, 548	352
31, 41, 59, 67	198	-152, 548	348
31, 43, 59, 67	200	-148, 548	346
31, 47, 59, 67	204	-140, 548	342
31, 53, 59, 67	210	-128, 548	336
31, 59, 61, 67	218	-112, 548	328
37, 41, 59, 67	204	-140, 548	342
37, 43, 59, 67	206	-136, 548	340
37, 47, 59, 67	210	-128, 548	336
37, 53, 59, 67	216	-116, 548	330
37, 59, 61, 67	224	-100, 548	322
41, 43, 59, 67	210	-128, 548	336
41, 47, 59, 67	214	-120, 548	332
41, 53, 59, 67	220	-108, 548	326
41, 59, 61, 67	228	-92, 548	318
43, 47, 59, 67	216	-116, 548	330
43, 53, 59, 67	222	-104, 548	324
43, 59, 61, 67	230	-88, 548	316
47, 53, 59, 67	226	-96, 548	320
47, 59, 61, 67	234	-80, 548	312
53, 59, 61, 67	240	-68, 548	306

Table 10. Goldbach partitions & BP/BPE (whose upper components are marked bold/italic) for even numbers 8–1000.

8 = 5 + 3
10 = 7 + 3
12 = 7 + 5
14 = 11 + 3
16 = 13 + 3 = 11 + 5
18 = 13 + 5 = 11 + 7
20 = 17 + 3 = 13 + 7
22 = 19 + 3 = 17 + 5
24 = 19 + 5 = 17 + 7 = 13 + 11
26 = 23 + 3 = 19 + 7
28 = 23 + 5 = 17 + 11
30 = 23 + 7 = 19 + 11 = 17 + 13
32 = 29 + 3 = 19 + 13
─────────────────────
34 = ***31*** + 3 = 29 + 5 = 23 + 11
36 = ***31*** + 5 = 29 + 7 = 23 + 13 = 19 + 17
38 = ***31*** + 7
40 = 37 + 3 = 29 + 11 = 23 + 17
42 = 37 + 5 = ***31*** + 11 = 29 + 13 = 23 + 19
44 = ***41*** + 3 = 37 + 7 = ***31*** + 13
46 = 43 + 3 = ***41*** + 5 = 29 + 17
48 = 43 + 5 = ***41*** + 7 = 37 + 11 = ***31*** + 17 = 29 + 19
50 = ***47*** + 3 = 43 + 7 = 37 + 13 = ***31*** + 19
52 = ***47*** + 5 = ***41*** + 11 = 29 + 23
54 = ***47*** + 7 = 43 + 11 = ***41*** + 13 = 37 + 17 = ***31*** + 23
56 = 53 + 3 = 43 + 13 = 37 + 19
58 = 53 + 5 = ***47*** + 11 = ***41*** + 17
60 = 53 + 7 = ***47*** + 13 = 43 + 17 = ***41*** + 19 = 37 + 23 = ***31*** + 29
62 = ***59*** + 3 = 43 + 19
64 = 61 + 3 = ***59*** + 5 = 53 + 11 = ***47*** + 17 = ***41*** + 23
66 = 61 + 5 = ***59*** + 7 = 53 + 13 = ***47*** + 19 = 43 + 23 = 37 + 29
68 = 61 + 7 = 37 + 31
70 = ***67*** + 3 = ***59*** + 11 = 53 + 17 = ***47*** + 23 = ***41*** + 29
72 = ***67*** + 5 = 61 + 11 = ***59*** + 13 = 53 + 19 = 43 + 29 = ***41*** + 31
74 = 71 + 3 = ***67*** + 7 = 61 + 13 = 43 + 31
76 = ***73*** + 3 = 71 + 5 = ***59*** + 17 = 53 + 23 = ***47*** + 29
78 = ***73*** + 5 = 71 + 7 = ***67*** + 11 = 61 + 17 = ***59*** + 19 = ***47*** + 31 = ***41*** + 37
80 = ***73*** + 7 = ***67*** + 13 = 61 + 19 = 43 + 37
82 = 79 + 3 = 71 + 11 = ***59*** + 23 = 53 + 29
84 = 79 + 5 = ***73*** + 11 = 71 + 13 = ***67*** + 17 = 61 + 23 = 53 + 31 = ***47*** + 37 = 43 + 41
86 = ***83*** + 3 = 79 + 7 = ***73*** + 13 = ***67*** + 19
88 = ***83*** + 5 = 71 + 17 = ***59*** + 29 = ***47*** + 41
90 = ***83*** + 7 = 79 + 11 = ***73*** + 17 = 71 + 19 = ***67*** + 23 = 61 + 29 = ***59*** + 31 = 53 + 37 = ***47*** + 43
92 = 89 + 3 = 79 + 13 = ***73*** + 19 = 61 + 31
94 = 89 + 5 = ***83*** + 11 = 71 + 23 = 53 + 41
96 = 89 + 7 = ***83*** + 13 = 79 + 17 = ***73*** + 23 = ***67*** + 29 = ***59*** + 37 = 53 + 43
98 = 79 + 19 = ***67*** + 31 = 61 + 37
100 = ***97*** + 3 = 89 + 11 = ***83*** + 17 = 71 + 29 = ***59*** + 41 = 53 + 47
102 = ***97*** + 5 = 89 + 13 = ***83*** + 19 = 79 + 23 = ***73*** + 29 = 71 + 31 = 61 + 41 = ***59*** + 43
104 = 101 + 3 = ***97*** + 7 = ***73*** + 31 = ***67*** + 37 = 61 + 43
106 = ***103*** + 3 = 101 + 5 = 89 + 17 = ***83*** + 23 = ***59*** + 47
108 = ***103*** + 5 = 101 + 7 = ***97*** + 11 = 89 + 19 = 79 + 29 = 71 + 37 = ***67*** + 41 = 61 + 47
110 = 107 + 3 = ***103*** + 7 = ***97*** + 13 = 79 + 31 = ***73*** + 37 = ***67*** + 43
112 = ***109*** + 3 = 107 + 5 = 101 + 11 = 89 + 23 = ***83*** + 29 = 71 + 41 = ***59*** + 53
114 = ***109*** + 5 = 107 + 7 = ***103*** + 11 = 101 + 13 = ***97*** + 17 = ***83*** + 31 = ***73*** + 41 = 71 + 43 = ***67*** + 47 = 61 + 53
116 = 113 + 3 = ***109*** + 7 = ***103*** + 13 = ***97*** + 19 = 79 + 37 = ***73*** + 43
118 = 113 + 5 = 107 + 11 = 101 + 17 = 89 + 29 = 71 + 47
120 = 113 + 7 = ***109*** + 11 = 107 + 13 = ***103*** + 17 = 101 + 19 = ***97*** + 23 = 89 + 31 = ***83*** + 37 = 79 + 41 = ***73*** + 47 = ***67*** + 53 = 61 + 59
122 = ***109*** + 13 = ***103*** + 19 = 79 + 43
124 = 113 + 11 = 107 + 17 = 101 + 23 = ***83*** + 41 = 71 + 53
126 = 113 + 13 = ***109*** + 17 = 107 + 19 = ***103*** + 23 = ***97*** + 29 = 89 + 37 = ***83*** + 43 = 79 + 47 = ***73*** + 53 = ***67*** + 59

B-partitions are not defined for even naturals 8–32

B-partitions do not exist for even naturals 40, 56, 68 and 118

128 = **109** + 19 = **97** + 31 = **67** + 61

130 = **127** + 3 = 113 + 17 = 107 + 23 = 101 + 29 = 89 + 41 = **83** + 47 = 71 + 59

132 = **127** + 5 = 113 + 19 = **109** + 23 = **103** + 29 = 101 + 31 = 89 + 43 = 79 + 53 = **73** + 59 = 71 + 61

134 = 131 + 3 = **127** + 7 = **103** + 31 = **97** + 37 = **73** + 61

136 = 131 + 5 = 113 + 23 = 107 + 29 = 89 + 47 = **83** + 53

138 = 131 + 7 = **127** + 11 = **109** + 29 = 107 + 31 = 101 + 37 = **97** + 41 = 79 + 59 = 71 + 67

140 = **137** + 3 = **127** + 13 = **109** + 31 = **103** + 37 = **97** + 43 = 79 + 61 = **73** + 67

142 = 139 + 3 = **137** + 5 = 131 + 11 = 113 + 29 = 101 + 41 = 89 + 53 = **83** + 59

144 = 139 + 5 = **137** + 7 = 131 + 13 = **127** + 17 = 113 + 31 = 107 + 37 = **103** + 41 = 101 + 43 = **97** + 47 = **83** + 61 = **73** + 71

146 = 139 + 7 = **127** + 19 = **109** + 37 = **103** + 43 = 79 + 67

148 = **137** + 11 = 131 + 17 = 107 + 41 = 101 + 47 = 89 + 59

150 = 139 + 11 = **137** + 13 = 131 + 19 = **127** + 23 = 113 + 37 = **109** + 41 = 107 + 43 = **103** + 47 = **97** + 53 = 89 + 61 = **83** + 67 = 79 + 71

152 = **149** + 3 = 139 + 13 = **109** + 43 = 79 + 73

154 = 151 + 3 = **149** + 5 = **137** + 17 = 131 + 23 = 113 + 41 = 107 + 47 = 101 + 53 = **83** + 71

156 = 151 + 5 = **149** + 7 = 139 + 17 = **137** + 19 = **127** + 29 = 113 + 43 = **109** + 47 = **103** + 53 = **97** + 59 = 89 + 67 = **83** + 73

158 = 151 + 7 = 139 + 19 = **127** + 31 = **97** + 61

160 = **157** + 3 = **149** + 11 = **137** + 23 = 131 + 29 = 113 + 47 = 107 + 53 = 101 + 59 = 89 + 71

162 = **157** + 5 = 151 + 11 = **149** + 13 = 139 + 23 = 131 + 31 = **109** + 53 = **103** + 59 = 101 + 61 = 89 + 73 = **83** + 79

164 = **157** + 7 = 151 + 13 = **127** + 37 = **103** + 61 = **97** + 67

166 = 163 + 3 = **149** + 17 = **137** + 29 = 113 + 53 = 107 + 59

168 = 163 + 5 = **157** + 11 = 151 + 17 = **149** + 19 = 139 + 29 = **137** + 31 = 131 + 37 = **127** + 41 = **109** + 59 = 107 + 61 = 101 + 67 = **97** + 71 = 89 + 79

170 = **167** + 3 = 163 + 7 = **157** + 13 = 151 + 19 = 139 + 31 = **127** + 43 = **109** + 61 = **103** + 67 = **97** + 73

172 = **167** + 5 = **149** + 23 = 131 + 41 = 113 + 59 = 101 + 71 = 89 + 83

174 = **167** + 7 = 163 + 11 = **157** + 17 = 151 + 23 = **137** + 37 = 131 + 43 = **127** + 47 = 113 + 61 = 107 + 67 = **103** + 71 = 101 + 73

176 = 173 + 3 = 163 + 13 = **157** + 19 = 139 + 37 = **109** + 67 = **103** + 73 = **97** + 79

178 = 173 + 5 = **167** + 11 = **149** + 29 = **137** + 41 = 131 + 47 = 107 + 71

180 = 173 + 7 = **167** + 13 = 163 + 17 = **157** + 23 = 151 + 29 = **149** + 31 = 139 + 41 = **137** + 43 = **127** + 53 = 113 + 67 = **109** + 71 = 107 + 73 = 101 + 79 = **97** + 83

182 = **179** + 3 = 163 + 19 = 151 + 31 = 139 + 43 = **109** + 73 = **103** + 79

184 = 181 + 3 = **179** + 5 = 173 + 11 = **167** + 17 = **137** + 47 = 131 + 53 = 113 + 71 = 101 + 83

186 = 181 + 5 = **179** + 7 = 173 + 13 = **167** + 19 = 163 + 23 = **157** + 29 = **149** + 37 = 139 + 47 = **127** + 59 = 113 + 73 = 107 + 79 = **103** + 83 = **97** + 89

188 = 181 + 7 = **157** + 31 = 151 + 37 = **127** + 61 = **109** + 79

190 = **179** + 11 = 173 + 17 = **167** + 23 = **149** + 41 = **137** + 53 = 131 + 59 = 107 + 83 = 101 + 89

192 = 181 + 11 = **179** + 13 = 173 + 19 = 163 + 29 = 151 + 41 = **149** + 43 = 139 + 53 = 131 + 61 = 113 + 79 = **109** + 83 = **103** + 89

194 = **191** + 3 = 181 + 13 = 163 + 31 = **157** + 37 = 151 + 43 = **127** + 67

196 = 193 + 3 = **191** + 5 = **179** + 17 = 173 + 23 = **167** + 29 = **149** + 47 = **137** + 59 = 113 + 83 = 107 + 89

198 = 193 + 5 = **191** + 7 = 181 + 17 = **179** + 19 = **167** + 31 = **157** + 41 = 151 + 47 = 139 + 59 = **137** + 61 = 131 + 67 = **127** + 71 = **109** + 89 = 101 + 97

200 = **197** + 3 = 193 + 7 = 181 + 19 = 163 + 37 = **157** + 43 = 139 + 61 = **127** + 73 = **103** + 97

202 = 199 + 3 = **197** + 5 = **191** + 11 = **179** + 23 = 173 + 29 = **149** + 53 = 131 + 71 = 113 + 89

204 = 199 + 5 = **197** + 7 = 193 + 11 = **191** + 13 = 181 + 23 = 173 + 31 = **167** + 37 = 163 + 41 = **157** + 47 = 151 + 53 = **137** + 67 = 131 + 73 = 107 + 97 = **103** + 101

206 = 199 + 7 = 193 + 13 = 163 + 43 = 139 + 67 = **127** + 79 = **109** + 97

208 = **197** + 11 = **191** + 17 = **179** + 29 = **167** + 41 = **149** + 59 = **137** + 71 = 107 + 101

210 = 199 + 11 = **197** + 13 = 193 + 17 = **191** + 19 = 181 + 29 = **179** + 31 = 173 + 37 = **167** + 43 = 163 + 47 = **157** + 53 = 151 + 59 = **149** + 61 = 139 + 71 = **137** + 73 = 131 + 79 = **127** + 83 = 113 + 97 = **109** + 101 = 107 + 103

212 = 199 + 13 = 193 + 19 = 181 + 31 = 151 + 61 = 139 + 73 = **109** + 103

214 = **211** + 3 = **197** + 17 = **191** + 23 = 173 + 41 = **167** + 47 = 131 + 83 = 113 + 101

216 = **211** + 5 = 199 + 17 = **197** + 19 = 193 + 23 = **179** + 37 = 173 + 43 = 163 + 53 = **157** + 59 = **149** + 67 = **137** + 79 = **127** + 89 = 113 + 103 = **109** + 107

218 = **211** + 7 = 199 + 19 = 181 + 37 = **157** + 61 = 151 + 67 = 139 + 79

220 = **197** + 23 = **191** + 29 = **179** + 41 = 173 + 47 = **167** + 53 = **149** + 71 = **137** + 83 = 131 + 89 = 113 + 107

222 = **211** + 11 = 199 + 23 = 193 + 29 = **191** + 31 = 181 + 41 = **179** + 43 = 163 + 59 = 151 + 71 = **149** + 73 = 139 + 83 = 113 + 109

224 = **211** + 13 = 193 + 31 = 181 + 43 = 163 + 61 = **157** + 67 = 151 + 73 = **127** + 97

226 = 223 + 3 = **197** + 29 = **179** + 47 = 173 + 53 = **167** + 59 = **137** + 89

228 = 223 + 5 = **211** + 17 = 199 + 29 = **197** + 31 = **191** + 37 = 181 + 47 = **167** + 61 = **157** + 71 = **149** + 79 = 139 + 89 = 131 + 97 = **127** + 101

230 = **227** + 3 = 223 + 7 = **211** + 19 = 199 + 31 = 193 + 37 = 163 + 67 = **157** + 73 = 151 + 79 = **127** + 103

232 = 229 + 3 = **227** + 5 = **191** + 41 = **179** + 53 = 173 + 59 = **149** + 83 = 131 + 101

234 = 229 + 5 = **227** + 7 = 223 + 11 = **211** + 23 = **197** + 37 = 193 + 41 = **191** + 43 = 181 + 53 = 173 + 61 = **167** + 67 = 163 + 71 = 151 + 83 = **137** + 97 = 131 + 103 = **127** + 107

236 = **233** + 3 = 229 + 7 = 223 + 13 = 199 + 37 = 193 + 43 = 163 + 73 = **157** + 79 = 139 + 97 = **127** + 109

238 = **233** + 5 = **227** + 11 = **197** + 41 = **191** + 47 = **179** + 59 = **167** + 71 = **149** + 89 = **137** + 101 = 131 + 107

240 = **233** + 7 = 229 + 11 = **227** + 13 = 223 + 17 = **211** + 29 = 199 + 41 = **197** + 43 = 193 + 47 = 181 + 59 = **179** + 61 = 173 + 67 = **167** + 73 = **157** + 83 = 151 + 89 = 139 + 101 = **137** + 103 = 131 + 109 = **127** + 113

242 = 239 + 3 = 229 + 13 = 223 + 19 = **211** + 31 = 199 + 43 = 181 + 61 = 163 + 79 = 139 + 103

244 = **241** + 3 = 239 + 5 = **233** + 11 = **227** + 17 = **197** + 47 = **191** + 53 = 173 + 71 = **137** + 107 = 131 + 113

246 = **241** + 5 = 239 + 7 = **233** + 13 = 229 + 17 = **227** + 19 = 223 + 23 = 199 + 47 = 193 + 53 = **179** + 67 = 173 + 73 = **167** + 79 = 163 + 83 = **157** + 89 = **149** + 97 = 139 + 107 = **137** + 109

248 = **241** + 7 = 229 + 19 = **211** + 37 = 181 + 67 = 151 + 97 = 139 + 109

250 = 239 + 11 = **233** + 17 = **227** + 23 = **197** + 53 = **191** + 59 = **179** + 71 = **167** + 83 = **149** + 101 = **137** + 113

252 = **241** + 11 = 239 + 13 = **233** + 19 = 229 + 23 = 223 + 29 = **211** + 41 = 199 + 53 = 193 + 59 = **191** + 61 = 181 + 71 = **179** + 73 = 173 + 79 = 163 + 89 = 151 + 101 = **149** + 103 = 139 + 113

254 = 251 + 3 = **241** + 13 = 223 + 31 = **211** + 43 = 193 + 61 = 181 + 73 = **157** + 97 = 151 + 103

256 = 251 + 5 = 239 + 17 = **233** + 23 = **227** + 29 = **197** + 59 = 173 + 83 = **167** + 89 = **149** + 107

258 = 251 + 7 = **241** + 17 = 239 + 19 = 229 + 29 = **227** + 31 = **211** + 47 = 199 + 59 = **197** + 61 = **191** + 67 = **179** + 79 = **157** + 101 = 151 + 107 = **149** + 109 = 131 + 127

260 = **257** + 3 = **241** + 19 = 229 + 31 = 223 + 37 = 199 + 61 = 193 + 67 = 181 + 79 = 163 + 97 = **157** + 103 = 151 + 109

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$478 = \mathbf{467} + 11 = \mathbf{461} + 17 = \mathbf{449} + 29 = \mathbf{431} + 47 = \mathbf{419} + 59 = \mathbf{389} + 89 = \mathbf{347} + 131 = 311 + 167 = 281 + 197 = 251 + 227$

$480 = \mathbf{467} + 13 = 463 + 17 = \mathbf{461} + 19 = 457 + 23 = \mathbf{449} + 31 = 443 + 37 = \mathbf{439} + 41 = 433 + 47 = 421 + 59 = \mathbf{419} + 61 = 409 + 71 = \mathbf{401} + 79 = 397 + 83 = 383 + 97 = \mathbf{379} + 101 = 373 + 107 = \mathbf{367} + 113 = \mathbf{353} + 127 = 349 + 131 = \mathbf{331} + 149 = 317 + 163 = \mathbf{313} + 167 = \mathbf{307} + 173 = \mathbf{283} + 197 = 281 + 199 = \mathbf{269} + 211 = \mathbf{257} + 223 = 251 + 229 = \mathbf{241} + 239$

$482 = 479 + 3 = 463 + 19 = \mathbf{439} + 43 = 421 + 61 = 409 + 73 = \mathbf{379} + 103 = 373 + 109 = \mathbf{331} + 151 = \mathbf{283} + 199 = 271 + 211$

$484 = 479 + 5 = \mathbf{467} + 17 = \mathbf{461} + 23 = 443 + 41 = \mathbf{431} + 53 = \mathbf{401} + 83 = 383 + 101 = \mathbf{353} + 131 = \mathbf{347} + 137 = 317 + 167 = 311 + 173 = 293 + 191 = \mathbf{257} + 227 = 251 + 233$

$486 = 479 + 7 = \mathbf{467} + 19 = 463 + 23 = 457 + 29 = \mathbf{449} + 37 = 443 + 43 = \mathbf{439} + 47 = 433 + 53 = \mathbf{419} + 67 = 397 + 89 = \mathbf{389} + 97 = 383 + 103 = \mathbf{379} + 107 = 373 + 113 = 359 + 127 = 349 + 137 = \mathbf{347} + 139 = 337 + 149 = \mathbf{313} + 173 = \mathbf{307} + 179 = 293 + 193 = 263 + 223 = \mathbf{257} + 229$

$488 = 457 + 31 = 421 + 67 = 409 + 79 = \mathbf{379} + 109 = 349 + 139 = 337 + 151 = \mathbf{331} + 157 = \mathbf{307} + 181 = \mathbf{277} + 211$

$490 = \mathbf{487} + 3 = 479 + 11 = \mathbf{467} + 23 = \mathbf{461} + 29 = \mathbf{449} + 41 = 443 + 47 = \mathbf{431} + 59 = \mathbf{419} + 71 = \mathbf{401} + 89 = \mathbf{389} + 101 = 383 + 107 = 359 + 131 = \mathbf{353} + 137 = 317 + 173 = 311 + 179 = 293 + 197 = 263 + 227 = \mathbf{257} + 233 = 251 + 239$

$492 = \mathbf{487} + 5 = 479 + 13 = 463 + 29 = \mathbf{461} + 31 = \mathbf{449} + 43 = \mathbf{439} + 53 = 433 + 59 = \mathbf{431} + 61 = 421 + 71 = \mathbf{419} + 73 = 409 + 83 = \mathbf{389} + 103 = 383 + 109 = \mathbf{379} + 113 = \mathbf{353} + 139 = \mathbf{313} + 179 = 311 + 181 = 293 + 199 = 281 + 211 = \mathbf{269} + 223 = 263 + 229 = 251 + 241$

$494 = 491 + 3 = \mathbf{487} + 7 = 463 + 31 = 457 + 37 = 433 + 61 = 421 + 73 = 397 + 97 = \mathbf{367} + 127 = 337 + 157 = \mathbf{331} + 163 = \mathbf{313} + 181 = \mathbf{283} + 211 = 271 + 223$

$496 = 491 + 5 = 479 + 17 = \mathbf{467} + 29 = \mathbf{449} + 47 = 443 + 53 = \mathbf{389} + 107 = 383 + 113 = 359 + 137 = \mathbf{347} + 149 = 317 + 179 = \mathbf{269} + 227 = 263 + 233 = \mathbf{257} + 239$

$498 = 491 + 7 = \mathbf{487} + 11 = 479 + 19 = \mathbf{467} + 31 = \mathbf{461} + 37 = 457 + 41 = \mathbf{439} + 59 = \mathbf{431} + 67 = \mathbf{419} + 79 = 409 + 89 = \mathbf{401} + 97 = 397 + 101 = \mathbf{389} + 109 = \mathbf{367} + 131 = 359 + 139 = 349 + 149 = \mathbf{347} + 151 = \mathbf{331} + 167 = 317 + 181 = \mathbf{307} + 191 = 271 + 227 = \mathbf{269} + 229 = \mathbf{257} + 241$

$500 = \mathbf{487} + 13 = 463 + 37 = 457 + 43 = \mathbf{439} + 61 = 433 + 67 = 421 + 79 = 397 + 103 = 373 + 127 = 349 + 151 = 337 + 163 = \mathbf{307} + 193 = \mathbf{277} + 223 = 271 + 229$

$502 = \mathbf{499} + 3 = 491 + 11 = 479 + 23 = \mathbf{461} + 41 = \mathbf{449} + 53 = 443 + 59 = \mathbf{431} + 71 = \mathbf{419} + 83 = \mathbf{401} + 101 = \mathbf{389} + 113 = \mathbf{353} + 149 = 311 + 191 = \mathbf{269} + 233 = 263 + 239$

$504 = \mathbf{499} + 5 = 491 + 13 = \mathbf{487} + 17 = \mathbf{467} + 37 = 463 + 41 = \mathbf{461} + 43 = 457 + 47 = 443 + 61 = 433 + 71 = \mathbf{431} + 73 = 421 + 83 = \mathbf{401} + 103 = 397 + 107 = 373 + 131 = \mathbf{367} + 137 = \mathbf{353} + 151 = \mathbf{347} + 157 = 337 + 167 = \mathbf{331} + 173 = \mathbf{313} + 191 = 311 + 193 = \mathbf{307} + 197 = 293 + 211 = 281 + 223 = \mathbf{277} + 227 = 271 + 233 = 263 + 241$

$506 = 503 + 3 = \mathbf{499} + 7 = \mathbf{487} + 19 = 463 + 43 = \mathbf{439} + 67 = 433 + 73 = 409 + 97 = 397 + 109 = \mathbf{379} + 127 = \mathbf{367} + 139 = 349 + 157 = \mathbf{313} + 193 = \mathbf{307} + 199 = \mathbf{283} + 223 = \mathbf{277} + 229$

$508 = 503 + 5 = 491 + 17 = 479 + 29 = \mathbf{467} + 41 = \mathbf{461} + 47 = \mathbf{449} + 59 = \mathbf{419} + 89 = \mathbf{401} + 107 = 359 + 149 = 317 + 191 = 311 + 197 = 281 + 227 = \mathbf{269} + 239 = \mathbf{257} + 251$

$510 = 503 + 7 = \mathbf{499} + 11 = 491 + 19 = \mathbf{487} + 23 = 479 + 31 = \mathbf{467} + 43 = 463 + 47 = 457 + 53 = \mathbf{449} + 61 = 443 + 67 = \mathbf{439} + 71 = \mathbf{431} + 79 = 421 + 89 = 409 + 101 = \mathbf{401} + 109 = 397 + 113 = 383 + 127 = \mathbf{379} + 131 = 373 + 137 = 359 + 151 = \mathbf{353} + 157 = \mathbf{347} + 163 = 337 + 173 = \mathbf{331} + 179 = 317 + 193 = \mathbf{313} + 197 = 311 + 199 = \mathbf{283} + 227 = 281 + 229 = \mathbf{277} + 233 = 271 + 239 = \mathbf{269} + 241$

$512 = \mathbf{509} + 3 = \mathbf{499} + 13 = \mathbf{439} + 73 = 433 + 79 = 409 + 103 = 373 + 139 = 349 + 163 = \mathbf{331} + 181 = \mathbf{313} + 199 = \mathbf{283} + 229 = 271 + 241$

$514 = \mathbf{509} + 5 = 503 + 11 = 491 + 23 = \mathbf{467} + 47 = \mathbf{461} + 53 = 443 + 71 = \mathbf{431} + 83 = \mathbf{401} + 113 = 383 + 131 = \mathbf{347} + 167 = 317 + 197 = 281 + 233 = 263 + 251$

$516 = \mathbf{509} + 7 = 503 + 13 = \mathbf{499} + 17 = \mathbf{487} + 29 = 479 + 37 = 463 + 53 = 457 + 59 = \mathbf{449} + 67 = 443 + 73 = 433 + 83 = \mathbf{419} + 97 = 409 + 107 = \mathbf{389} + 127 = \mathbf{379} + 137 = \mathbf{367} + 149 = 359 + 157 = \mathbf{353} + 163 = 349 + 167 = 337 + 179 = 317 + 199 = 293 + 223 = \mathbf{283} + 233 = \mathbf{277} + 239$

$518 = \mathbf{499} + 19 = \mathbf{487} + 31 = 457 + 61 = \mathbf{439} + 79 = 421 + 97 = 409 + 109 = \mathbf{379} + 139 = \mathbf{367} + 151 = 337 + 181 = \mathbf{307} + 211 = \mathbf{277} + 241$

$520 = \mathbf{509} + 11 = 503 + 17 = 491 + 29 = 479 + 41 = \mathbf{467} + 53 = \mathbf{461} + 59 = \mathbf{449} + 71 = \mathbf{431} + 89 = \mathbf{419} + 101 = \mathbf{389} + 131 = 383 + 137 = \mathbf{353} + 167 = \mathbf{347} + 173 = 293 + 227 = 281 + 239 = \mathbf{269} + 251 = 263 + 257$

522 = **509** + 13 = 503 + 19 = **499** + 23 = 491 + 31 = 479 + 43 = 463 + 59 = **461** + 61 = **449** + 73 = 443 + 79 = **439** + 83 = 433 + 89 = 421 + 101 = **419** + 103 = 409 + 113 = 383 + 139 = 373 + 149 = 359 + 163 = 349 + 173 = **331** + 191 = 311 + 211 = 293 + 229 = **283** + 239 = 281 + 241 = 271 + 251

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526 = **523** + 3 = 521 + 5 = **509** + 17 = 503 + 23 = 479 + 47 = **467** + 59 = 443 + 83 = **419** + 107 = **389** + 137 = 359 + 167 = **353** + 173 = **347** + 179 = 293 + 233 = **269** + 257

528 = **523** + 5 = 521 + 7 = **509** + 19 = **499** + 29 = 491 + 37 = **487** + 41 = **467** + 61 = **461** + 67 = 457 + 71 = **449** + 79 = **439** + 89 = **431** + 97 = 421 + 107 = **419** + 109 = **401** + 127 = 397 + 131 = **389** + 139 = **379** + 149 = 349 + 179 = **347** + 181 = 337 + 191 = **331** + 197 = 317 + 211 = **277** + 251 = 271 + 257

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566 = **563** + 3 = **547** + 19 = **523** + 43 = **499** + 67 = **487** + 79 = 463 + 103 = 457 + 109 = **439** + 127 = 409 + 157 = 373 + 193 = **367** + 199 = 337 + 229

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570 = **563** + 7 = 557 + 13 = **547** + 23 = 541 + 29 = **523** + 47 = **509** + 61 = 503 + 67 = **499** + 71 = 491 + 79 = **487** + 83 = **467** + 103 = 463 + 107 = **461** + 109 = 457 + 113 = 443 + 127 = **439** + 131 = 433 + 137 = **431** + 139 = 421 + 149 = **419** + 151 = 397 + 173 = **389** + 181 = **379** + 191 = 373 + 197 = 359 + 211 = **347** + 223 = 337 + 233 = **331** + 239 = **313** + 257 = **307** + 263 = 293 + 277

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582 = 577 + 5 = **571** + 11 = 569 + 13 = **563** + 19 = 541 + 41 = **523** + 59 = 521 + 61 = **509** + 73 = 503 + 79 = **499** + 83 = 479 + 103 = 443 + 139 = 433 + 149 = **431** + 151 = **419** + 163 = 409 + 173 = **401** + 181 = **389** + 193 = 383 + 199 = 359 + 223 = **353** + 229 = 349 + 233 = **331** + 251 = **313** + 269 = 311 + 271

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602 = **599** + 3 = **571** + 31 = 541 + 61 = **523** + 79 = **499** + 103 = 463 + 139 = **439** + 163 = 421 + 181 = 409 + 193 = **379** + 223 = 373 + 229 = **331** + 271

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622 = 619 + 3 = **617** + 5 = **599** + 23 = 593 + 29 = 569 + 53 = **563** + 59 = 521 + 101 = **509** + 113 = 491 + 131 = **449** + 173 = 443 + 179 = **431** + 191 = **389** + 233 = 383 + 239 = 359 + 263 = **353** + 269

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632 = 619 + 13 = 613 + 19 = 601 + 31 = **571** + 61 = **523** + 109 = **439** + 193 = 433 + 199 = 421 + 211 = 409 + 223 = 349 + 283

634 = **631** + 3 = **617** + 17 = 593 + 41 = **587** + 47 = **563** + 71 = 521 + 113 = 503 + 131 = **467** + 167 = **461** + 173 = 443 + 191 = **401** + 233 = 383 + 251 = **353** + 281

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720 = **709** + 11 = 701 + 19 = **691** + 29 = 683 + 37 = **677** + 43 = 673 + 47 = **661** + 59 = 659 + 61 = **653** + 67 = 647 + 73 = 641 + 79 = **631** + 89 = 619 + 101 = **617** + 103 = 613 + 107 = **607** + 113 = 593 + 127 = **571** + 149 = 569 + 151 = **563** + 157 = 557 + 163 = **547** + 173 = 541 + 179 = **523** + 197 = 521 + 199 = **509** + 211 = 491 + 229 = **487** + 233 = 479 + 241 = 463 + 257 = 457 + 263 = **449** + 271 = 443 + 277 = **439** + 281 = 409 + 311 = **389** + 331 = 383 + 337 = 373 + 347 = **367** + 353

722 = 719 + 3 = **709** + 13 = **691** + 31 = **661** + 61 = **643** + 79 = 619 + 103 = 613 + 109 = **571** + 151 = 541 + 181 = **523** + 199 = **499** + 223 = **439** + 283 = 409 + 313 = 373 + 349

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734 = **727** + 7 = **691** + 43 = 673 + 61 = **661** + 73 = **631** + 103 = **607** + 127 = 577 + 157 = **571** + 163 = 541 + 193 = **523** + 211 = 463 + 271 = 457 + 277 = 421 + 313 = 397 + 337

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746 = 743 + 3 = **739** + 7 = 733 + 13 = **727** + 19 = **709** + 37 = 673 + 73 = **643** + 103 = 619 + 127 = **607** + 139 = **547** + 199 = **523** + 223 = 463 + 283 = **439** + 307 = 433 + 313 = 409 + 337 = 397 + 349 = **379** + 367

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822 = **811** + 11 = 809 + 13 = 769 + 53 = **761** + 61 = **751** + 71 = 743 + 79 = **739** + 83 = 733 + 89 = 719 + 103 = **709** + 113 = **691** + 131 = 683 + 139 = 673 + 149 = 659 + 163 = **643** + 179 = 641 + 181 = **631** + 191 = **599** + 223 = 593 + 229 = **571** + 251 = 541 + 281 = **509** + 313 = 491 + 331 = 463 + 359 = **449** + 373 = 443 + 379 = **439** + 383 = 433 + 389 = 421 + 401

824 = 821 + 3 = **811** + 13 = 787 + 37 = 757 + 67 = **751** + 73 = **727** + 97 = 673 + 151 = **661** + 163 = **643** + 181 = **631** + 193 = 613 + 211 = 601 + 223 = **547** + 277 = 541 + 283 = **487** + 337 = 457 + 367

826 = **823** + 3 = 821 + 5 = 809 + 17 = **797** + 29 = **773** + 53 = 743 + 83 = 719 + 107 = **677** + 149 = 659 + 167 = **653** + 173 = 647 + 179 = **599** + 227 = 593 + 233 = **587** + 239 = 569 + 257 = **563** + 263 = 557 + 269 = **509** + 317 = 479 + 347 = **467** + 359 = 443 + 383

828 = **823** + 5 = 821 + 7 = **811** + 17 = 809 + 19 = **797** + 31 = 787 + 41 = 769 + 59 = **761** + 67 = 757 + 71 = **739** + 89 = **727** + 101 = 719 + 109 = 701 + 127 = **691** + 137 = **677** + 151 = **661** + 167 = 647 + 181 = **631** + 197 = **617** + 211 = 601 + 227 = **599** + 229 = **587** + 241 = 577 + 251 = **571** + 257 = 557 + 271 = **547** + 281 = 521 + 307 = 491 + 337 = 479 + 349 = **461** + 367 = **449** + 379 = **439** + 389 = **431** + 397 = **419** + 409

830 = 827 + 3 = **823** + 7 = **811** + 19 = 787 + 43 = 769 + 61 = 757 + 73 = **751** + 79 = 733 + 97 = **727** + 103 = **691** + 139 = 673 + 157 = **631** + 199 = 619 + 211 = **607** + 223 = 601 + 229 = **547** + 283 = **523** + 307 = **499** + 331 = 463 + 367 = 457 + 373 = 433 + 397 = 421 + 409

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836 = **829** + 7 = **823** + 13 = 769 + 67 = 757 + 79 = **739** + 97 = 733 + 103 = **727** + 109 = **709** + 127 = 673 + 163 = **643** + 193 = 613 + 223 = **607** + 229 = **523** + 313 = **499** + 337 = **487** + 349 = 463 + 373 = 457 + 379 = **439** + 397

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892 = 887 + 5 = 881 + 11 = 863 + 29 = 839 + 53 = 821 + 71 = 809 + 83 = **761** + 131 = 743 + 149 = 719 + 173 = 701 + 191 = 659 + 233 = **653** + 239 = 641 + 251 = **599** + 293 = **509** + 383 = 503 + 389 = 491 + 401 = **461** + 431 = **449** + 443

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896 = **883** + 13 = **877** + 19 = **859** + 37 = **853** + 43 = **829** + 67 = **823** + 73 = 787 + 109 = 769 + 127 = 757 + 139 = **739** + 157 = 733 + 163 = 673 + 223 = 619 + 277 = 613 + 283 = **547** + 349 = **523** + 373 = **499** + 397 = **487** + 409 = 463 + 433 = 457 + 439

898 = 887 + 11 = 881 + 17 = 857 + 41 = 839 + 59 = 827 + 71 = 809 + 89 = **797** + 101 = **761** + 137 = 719 + 179 = 701 + 197 = 659 + 239 = 647 + 251 = 641 + 257 = **617** + 281 = **587** + 311 = **509** + 389 = 479 + 419 = **467** + 431

900 = 887 + 13 = **883** + 17 = 881 + 19 = **877** + 23 = 863 + 37 = **859** + 41 = 857 + 43 = **853** + 47 = 839 + 61 = **829** + 71 = 827 + 73 = 821 + 79 = **811** + 89 = **797** + 103 = 787 + 113 = **773** + 127 = 769 + 131 = **761** + 139 = **751** + 149 = 743 + 157 = 733 + 167 = **727** + 173 = 719 + 181 = **709** + 191 = 701 + 199 = **677** + 223 = 673 + 227 = **661** + 239 = 659 + 241 = **643** + 257 = **631** + 269 = 619 + 281 = **617** + 283 = **607** + 293 = 593 + 307 = **587** + 313 = 569 + 331 = **563** + 337 = **547** + 353 = 541 + 359 = 521 + 379 = 503 + 397 = **499** + 401 = 491 + 409 = 479 + 421 = **467** + 433 = **461** + 439 = 457 + 443

902 = **883** + 19 = **859** + 43 = **829** + 73 = **823** + 79 = **751** + 151 = **739** + 163 = **709** + 193 = **691** + 211 = 673 + 229 = **661** + 241 = **631** + 271 = 619 + 283 = **571** + 331 = **523** + 379 = 463 + 439

904 = 887 + 17 = 881 + 23 = 863 + 41 = 857 + 47 = 821 + 83 = **797** + 107 = **773** + 131 = **677** + 227 = **653** + 251 = 647 + 257 = 641 + 263 = 593 + 311 = **587** + 317 = 557 + 347 = 521 + 383 = 503 + 401 = **461** + 443

906 = 887 + 19 = **883** + 23 = **877** + 29 = 863 + 43 = **859** + 47 = **853** + 53 = 839 + 67 = 827 + 79 = **823** + 83 = 809 + 97 = **797** + 109 = 769 + 137 = 757 + 149 = 743 + 163 = **739** + 167 = 733 + 173 = **727** + 179 = **709** + 197 = 683 + 223 = **677** + 229 = 673 + 233 = **643** + 263 = 613 + 293 = **599** + 307 = 593 + 313 = 569 + 337 = 557 + 349 = **547** + 359 = **523** + 383 = **509** + 397 = **487** + 419 = **467** + 439 = 463 + 443 = 457 + 449

908 = **877** + 31 = **829** + 79 = **811** + 97 = 769 + 139 = 757 + 151 = **751** + 157 = **727** + 181 = **709** + 199 = **631** + 277 = 601 + 307 = 577 + 331 = **571** + 337 = 541 + 367 = **499** + 409 = **487** + 421

910 = **907** + 3 = 887 + 23 = 881 + 29 = 863 + 47 = 857 + 53 = 839 + 71 = 827 + 83 = 821 + 89 = 809 + 101 = **797** + 113 = **773** + 137 = **761** + 149 = 743 + 167 = 719 + 191 = 683 + 227 = **677** + 233 = 659 + 251 = **653** + 257 = 647 + 263 = 641 + 269 = **617** + 293 = **599** + 311 = 593 + 317 = **563** + 347 = 557 + 353 = 521 + 389 = **509** + 401 = 491 + 419 = 479 + 431 = **467** + 443 = **461** + 449

912 = **907** + 5 = **883** + 29 = 881 + 31 = **859** + 53 = **853** + 59 = 839 + 73 = **829** + 83 = **823** + 89 = **811** + 101 = 809 + 103 = **773** + 139 = **761** + 151 = **739** + 173 = 733 + 179 = 719 + 193 = 701 + 211 = 683 + 229 = 673 + 239 = **661** + 251 = **643** + 269 = 641 + 271 = **631** + 281 = 619 + 293 = 601 + 311 = **599** + 313 = **563** + 349 = **523** + 389 = 503 + 409 = 491 + 421 = 479 + 433 = 463 + 449

914 = 911 + 3 = **907** + 7 = **883** + 31 = **877** + 37 = **853** + 61 = **811** + 103 = 787 + 127 = 757 + 157 = **751** + 163 = 733 + 181 = **691** + 223 = 673 + 241 = **643** + 271 = **631** + 283 = **607** + 307 = 601 + 313 = 577 + 337 = **547** + 367 = 541 + 373

916 = 911 + 5 = 887 + 29 = 863 + 53 = 857 + 59 = 827 + 89 = 809 + 107 = 743 + 173 = 719 + 197 = 683 + 233 = **677** + 239 = 659 + 257 = **653** + 263 = 647 + 269 = **599** + 317 = 569 + 347 = **563** + 353 = 557 + 359 = **467** + 449

918 = 911 + 7 = **907** + 11 = 887 + 31 = 881 + 37 = **877** + 41 = **859** + 59 = 857 + 61 = 839 + 79 = **829** + 89 = 821 + 97 = **811** + 107 = 809 + 109 = 787 + 131 = 769 + 149 = **761** + 157 = **751** + 167 = **739** + 179 = **727** + 191 = 719 + 199 = **691** + 227 = **677** + 241 = **661** + 257 = 647 + 271 = 641 + 277 = **607** + 311 = 601 + 317 = **587** + 331 = **571** + 347 = 569 + 349 = 521 + 397 = **509** + 409 = **499** + 419 = **487** + 431 = 479 + 439 = **461** + 457

920 = **907** + 13 = **883** + 37 = **877** + 43 = **859** + 61 = **853** + 67 = **823** + 97 = **811** + 109 = 769 + 151 = 757 + 163 = **739** + 181 = **727** + 193 = **709** + 211 = **691** + 229 = **643** + 277 = 613 + 307 = **607** + 313 = **571** + 349 = **547** + 373 = 541 + 379 = **523** + 397 = **499** + 421 = **487** + 433 = 463 + 457

922 = **919** + 3 = 911 + 11 = 881 + 41 = 863 + 59 = 839 + 83 = 821 + 101 = 809 + 113 = **773** + 149 = 743 + 179 = 683 + 239 = 659 + 263 = **653** + 269 = 641 + 281 = 569 + 353 = **563** + 359 = 521 + 401 = 503 + 419 = 491 + 431 = 479 + 443

924 = **919** + 5 = 911 + 13 = **907** + 17 = 887 + 37 = **883** + 41 = 881 + 43 = **877** + 47 = 863 + 61 = 857 + 67 = **853** + 71 = 827 + 97 = **823** + 101 = 821 + 103 = **811** + 113 = **797** + 127 = 787 + 137 = **773** + 151 = **761** + 163 = 757 + 167 = **751** + 173 = 743 + 181 = 733 + 191 = **727** + 197 = 701 + 223 = **691** + 233 = 683 + 241 = 673 + 251 = **661** + 263 = **653** + 271 = 647 + 277 = **643** + 281 = 641 + 283 = **631** + 293 = **617** + 307 = 613 + 311 = **607** + 317 = 593 + 331 = **587** + 337 = 577 + 347 = **571** + 353 = 557 + 367 = 541 + 383 = **523** + 401 = 503 + 421 = 491 + 433 = **467** + 457 = 463 + 461

926 = **919** + 7 = **907** + 19 = **883** + 43 = **859** + 67 = **853** + 73 = **829** + 97 = **823** + 103 = 787 + 139 = 769 + 157 = 733 + 193 = **727** + 199 = **643** + 283 = 619 + 307 = 613 + 313 = 577 + 349 = **547** + 379 = **487** + 439

928 = 911 + 17 = 887 + 41 = 881 + 47 = 857 + 71 = 839 + 89 = 827 + 101 = 821 + 107 = **797** + 131 = **761** + 167 = 701 + 227 = **677** + 251 = 659 + 269 = 647 + 281 = **617** + 311 = 569 + 359 = **509** + 419 = 479 + 449 = **467** + 461

930 = **919** + 11 = 911 + 19 = **907** + 23 = 887 + 43 = **883** + 47 = **877** + 53 = 863 + 67 = **859** + 71 = 857 + 73 = **829** + 101 = 827 + 103 = **823** + 107 = 821 + 109 = **773** + 157 = 757 + 173 = **751** + 179 = **739** + 191 = 733 + 197 = 719 + 211 = 701 + 229 = **691** + 239 = 673 + 257 = **661** + 269 = 659 + 271 = **653** + 277 = 647 + 283 = 619 + 311 = **617** + 313 = 613 + 317 = **599** + 331 = 593 + 337 = 577 + 353 = **571** + 359 = **563** + 367 = 557 + 373 = **547** + 383 = 541 + 389 = 521 + 409 = **509** + 421 = **499** + 431 = 491 + 439 = **487** + 443 = **467** + 463

932 = 929 + 3 = **919** + 13 = **859** + 73 = **853** + 79 = **829** + 103 = **823** + 109 = 769 + 163 = **751** + 181 = **739** + 193 = 733 + 199 = **709** + 223 = **691** + 241 = **661** + 271 = 619 + 313 = 601 + 331 = **523** + 409 = **499** + 433

934 = 929 + 5 = 911 + 23 = 887 + 47 = 881 + 53 = 863 + 71 = 827 + 107 = 821 + 113 = **797** + 137 = **761** + 173 = 743 + 191 = 701 + 233 = 683 + 251 = **677** + 257 = **653** + 281 = 641 + 293 = **617** + 317 = **587** + 347 = 503 + 431 = 491 + 443

936 = 929 + 7 = **919** + 17 = **907** + 29 = **883** + 53 = **877** + 59 = 863 + 73 = 857 + 79 = **853** + 83 = 839 + 97 = **829** + 107 = 827 + 109 = **823** + 113 = 809 + 127 = **797** + 139 = 787 + 149 = **773** + 163 = 769 + 167 = 757 + 179 = 743 + 193 = **739** + 197 = **709** + 227 = 673 + 263 = 659 + 277 = **653** + 283 = **643** + 293 = 619 + 317 = **599** + 337 = **587** + 349 = 577 + 359 = 569 + 367 = **563** + 373 = 557 + 379 = **547** + 389 = 503 + 433 = **487** + 449 = 479 + 457

938 = **919** + 19 = **907** + 31 = **877** + 61 = **859** + 79 = **829** + 109 = **811** + 127 = 787 + 151 = 757 + 181 = **739** + 199 = **727** + 211 = **709** + 229 = **661** + 277 = **631** + 307 = **607** + 331 = 601 + 337 = **571** + 367 = 541 + 397 = **499** + 439

940 = **937** + 3 = 929 + 11 = 911 + 29 = 887 + 53 = 881 + 59 = 857 + 83 = 839 + 101 = 827 + 113 = 809 + 131 = **773** + 167 = **761** + 179 = 743 + 197 = 701 + 239 = 683 + 257 = **677** + 263 = 659 + 281 = 647 + 293 = 593 + 347 = **587** + 353 = 557 + 383 = 521 + 419 = **509** + 431 = 491 + 449 = 479 + 461

942 = **937** + 5 = 929 + 13 = **919** + 23 = 911 + 31 = **883** + 59 = 881 + 61 = 863 + 79 = **859** + 83 = **853** + 89 = 839 + 103 = **829** + 113 = **811** + 131 = 769 + 173 = **761** + 181 = **751** + 191 = 743 + 199 = 719 + 223 = **709** + 233 = 701 + 241 = **691** + 251 = 673 + 269 = **661** + 281 = 659 + 283 = **631** + 311 = 593 + 349 = 569 + 373 = **563** + 379 = 541 + 401 = **523** + 419 = 521 + 421 = **509** + 433 = 503 + 439 = **499** + 443 = 479 + 463

944 = 941 + 3 = **937** + 7 = **907** + 37 = **883** + 61 = **877** + 67 = 787 + 157 = **751** + 193 = 733 + 211 = 673 + 271 = **661** + 283 = **631** + 313 = 613 + 331 = **607** + 337 = 577 + 367 = **571** + 373 = **547** + 397 = **523** + 421 = **487** + 457

946 = 941 + 5 = 929 + 17 = 887 + 59 = 863 + 83 = 857 + 89 = 839 + 107 = 809 + 137 = **797** + 149 = **773** + 173 = 719 + 227 = 683 + 263 = **677** + 269 = **653** + 293 = **599** + 347 = 593 + 353 = **587** + 359 = **563** + 383 = 557 + 389 = 503 + 443 = 479 + 467

948 = 941 + 7 = **937** + 11 = 929 + 19 = **919** + 29 = 911 + 37 = **907** + 41 = 887 + 61 = 881 + 67 = **877** + 71 = **859** + 89 = 839 + 109 = 821 + 127 = **811** + 137 = 809 + 139 = **797** + 151 = 769 + 179 = 757 + 191 = **751** + 197 = 719 + 229 = **709** + 239 = **691** + 257 = **677** + 271 = 641 + 307 = **631** + 317 = **617** + 331 = 601 + 347 = **599** + 349 = 569 + 379 = **547** + 401 = **509** + 439 = **499** + 449 = 491 + 457 = **487** + 461

950 = **947** + 3 = **937** + 13 = **919** + 31 = **907** + 43 = **883** + 67 = **877** + 73 = **853** + 97 = **823** + 127 = **811** + 139 = 787 + 163 = 769 + 181 = 757 + 193 = **751** + 199 = **739** + 211 = **727** + 223 = **709** + 241 = 673 + 277 = **643** + 307 = 619 + 331 = 613 + 337 = 601 + 349 = 577 + 373 = **571** + 379 = 541 + 409 = **487** + 463

952 = **947** + 5 = 941 + 11 = 929 + 23 = 911 + 41 = 881 + 71 = 863 + 89 = 839 + 113 = 821 + 131 = **773** + 179 = **761** + 191 = 719 + 233 = 701 + 251 = 683 + 269 = 659 + 293 = 641 + 311 = **599** + 353 = 593 + 359 = 569 + 383 = **563** + 389 = 521 + 431 = **509** + 443 = 503 + 449 = 491 + 461

954 = **947** + 7 = 941 + 13 = **937** + 17 = 911 + 43 = **907** + 47 = 887 + 67 = **883** + 71 = 881 + 73 = 857 + 97 = **853** + 101 = 827 + 127 = **823** + 131 = **797** + 157 = 787 + 167 = **773** + 181 = **761** + 193 = 757 + 197 = 743 + 211 = **727** + 227 = **691** + 263 = 683 + 271 = **677** + 277 = 673 + 281 = **661** + 293 = 647 + 307 = **643** + 311 = 641 + 313 = **617** + 337 = **607** + 347 = 601 + 353 = **587** + 367 = **571** + 383 = 557 + 397 = **523** + 431 = 521 + 433 = 491 + 463 = **487** + 467

956 = 953 + 3 = **937** + 19 = **919** + 37 = **883** + 73 = **877** + 79 = **859** + 97 = **853** + 103 = **829** + 127 = 757 + 199 = 733 + 223 = **727** + 229 = 673 + 283 = **643** + 313 = 619 + 337 = **607** + 349 = 577 + 379 = **547** + 409 = **523** + 433 = **499** + 457

958 = 953 + 5 = **947** + 11 = 941 + 17 = 929 + 29 = 911 + 47 = 887 + 71 = 857 + 101 = 827 + 131 = 821 + 137 = 809 + 149 = **761** + 197 = 719 + 239 = 701 + 257 = **677** + 281 = 647 + 311 = 641 + 317 = **599** + 359 = 569 + 389 = 557 + 401 = **509** + 449 = 491 + 467

960 = 953 + 7 = **947** + 13 = 941 + 19 = **937** + 23 = 929 + 31 = **919** + 41 = **907** + 53 = 887 + 73 = 881 + 79 = **877** + 83 = 863 + 97 = **859** + 101 = 857 + 103 = **853** + 107 = **829** + 131 = **823** + 137 = 821 + 139 = **811** + 149 = 809 + 151 = **797** + 163 = 787 + 173 = 769 + 191 = **761** + 199 = 733 + 227 = **727** + 233 = 719 + 241 = **709** + 251 = **691** + 269 = 683 + 277 = **677** + 283 = **653** + 307 = 647 + 313 = **643** + 317 = 613 + 347 = **607** + 353 = 601 + 359 = 593 + 367 = **587** + 373 = 577 + 383 = **571** + 389 = **563** + 397 = 541 + 419 = 521 + 439 = 503 + 457 = **499** + 461

962 = **919** + 43 = **883** + 79 = **859** + 103 = **853** + 109 = **823** + 139 = **811** + 151 = 769 + 193 = **751** + 211 = **739** + 223 = 733 + 229 = **691** + 271 = **631** + 331 = 613 + 349 = 541 + 421 = **523** + 439 = **499** + 463

964 = 953 + 11 = **947** + 17 = 941 + 23 = 911 + 53 = 881 + 83 = 863 + 101 = 857 + 107 = 827 + 137 = **797** + 167 = **773** + 191 = 701 + 263 = 683 + 281 = **653** + 311 = 647 + 317 = **617** + 347 = **563** + 401 = 521 + 443 = 503 + 461

966 = 953 + 13 = **947** + 19 = **937** + 29 = 929 + 37 = **919** + 47 = **907** + 59 = 887 + 79 = **883** + 83 = **877** + 89 = 863 + 103 = **859** + 107 = 857 + 109 = **853** + 113 = 839 + 127 = **829** + 137 = 827 + 139 = 809 + 157 = 787 + 179 = **773** + 193 = 769 + 197 = 743 + 223 = **739** + 227 = 733 + 233 = **727** + 239 = **709** + 257 = 683 + 283 = 673 + 293 = 659 + 307 = **653** + 313 = 619 + 347 = **617** + 349 = 613 + 353 = **607** + 359 = **599** + 367 = 593 + 373 = **587** + 379 = 577 + 389 = 569 + 397 = 557 + 409 = **547** + 419 = **523** + 443 = **509** + 457 = 503 + 463 = **499** + 467 = **487** + 479

968 = **937** + 31 = **907** + 61 = **859** + 109 = **829** + 139 = **811** + 157 = 787 + 181 = 769 + 199 = 757 + 211 = **739** + 229 = **727** + 241 = **691** + 277 = **661** + 307 = **631** + 337 = 619 + 349 = 601 + 367 = **571** + 397 = **547** + 421

970 = **967** + 3 = 953 + 17 = **947** + 23 = 941 + 29 = 929 + 41 = 911 + 59 = 887 + 83 = 881 + 89 = 863 + 107 = 857 + 113 = 839 + 131 = 821 + 149 = **797** + 173 = **773** + 197 = 743 + 227 = 719 + 251 = 701 + 269 = **677** + 293 = 659 + 311 = **653** + 317 = **617** + 353 = **587** + 383 = 569 + 401 = 521 + 449 = **509** + 461 = 503 + 467 = 491 + 479

972 = **967** + 5 = 953 + 19 = 941 + 31 = 929 + 43 = **919** + 53 = 911 + 61 = **883** + 89 = 863 + 109 = **859** + 113 = **823** + 149 = 821 + 151 = 809 + 163 = **773** + 199 = **761** + 211 = 743 + 229 = **739** + 233 = 733 + 239 = **709** + 263 = 701 + 271 = **691** + 281 = **661** + 311 = 659 + 313 = 641 + 331 = 619 + 353 = 613 + 359 = **599** + 373 = 593 + 379 = **571** + 401 = **563** + 409 = 541 + 431 = **523** + 449 = **509** + 463

974 = 971 + 3 = **967** + 7 = **937** + 37 = **907** + 67 = **877** + 97 = **823** + 151 = **811** + 163 = **751** + 223 = 733 + 241 = **691** + 283 = **661** + 313 = **643** + 331 = **607** + 367 = 601 + 373 = 577 + 397 = 541 + 433

976 = 971 + 5 = 953 + 23 = **947** + 29 = 929 + 47 = 887 + 89 = 863 + 113 = 839 + 137 = 827 + 149 = 809 + 167 = **797** + 179 = 743 + 233 = 719 + 257 = 683 + 293 = 659 + 317 = **617** + 359 = 593 + 383 = **587** + 389 = 557 + 419 = **509** + 467

978 = 971 + 7 = **967** + 11 = **947** + 31 = 941 + 37 = **937** + 41 = **919** + 59 = 911 + 67 = **907** + 71 = 881 + 97 = **877** + 101 = 839 + 139 = **829** + 149 = 827 + 151 = 821 + 157 = **811** + 167 = **797** + 181 = 787 + 191 = **751** + 227 = **739** + 239 = **727** + 251 = **709** + 269 = 701 + 277 = **661** + 317 = 647 + 331 = 641 + 337 = **631** + 347 = 619 + 359 = **599** + 379 = 577 + 401 = 569 + 409 = 557 + 421 = **547** + 431 = 521 + 457 = **499** + 479 = 491 + 487

980 = **977** + 3 = **967** + 13 = **937** + 43 = **919** + 61 = **907** + 73 = **883** + 97 = **877** + 103 = **853** + 127 = **829** + 151 = **823** + 157 = 787 + 193 = 769 + 211 = 757 + 223 = **751** + 229 = **739** + 241 = **709** + 271 = 673 + 307 = **643** + 337 = **631** + 349 = 613 + 367 = **607** + 373 = 601 + 379 = **571** + 409 = **547** + 433 = 541 + 439 = **523** + 457

982 = **977** + 5 = 971 + 11 = 953 + 29 = 941 + 41 = 929 + 53 = 911 + 71 = 881 + 101 = 809 + 173 = 743 + 239 = 719 + 263 = 701 + 281 = **599** + 383 = 593 + 389 = **563** + 419 = 521 + 461 = 503 + 479

984 = **977** + 7 = 971 + 13 = **967** + 17 = 953 + 31 = **947** + 37 = 941 + 43 = **937** + 47 = 911 + 73 = 887 + 97 = **883** + 101 = 881 + 103 = **877** + 107 = 857 + 127 = **853** + 131 = 827 + 157 = 821 + 163 = **811** + 173 = 787 + 197 = **773** + 211 = **761** + 223 = 757 + 227 = **751** + 233 = 743 + 241 = 733 + 251 = **727** + 257 = 701 + 283 = **691** + 293 = **677** + 307 = 673 + 311 = **653** + 331 = 647 + 337 = **631** + 353 = **617** + 367 = 601 + 383 = **587** + 397 = **563** + 421 = 541 + 443 = **523** + 461 = 521 + 463

986 = 983 + 3 = **967** + 19 = **919** + 67 = **907** + 79 = **883** + 103 = **877** + 109 = **859** + 127 = **829** + 157 = **823** + 163 = 787 + 199 = 757 + 229 = **709** + 277 = 673 + 313 = 619 + 367 = 613 + 373 = **607** + 379 = 577 + 409 = **547** + 439 = **523** + 463 = **499** + 487

988 = 983 + 5 = **977** + 11 = 971 + 17 = **947** + 41 = 941 + 47 = 929 + 59 = 887 + 101 = 881 + 107 = 857 + 131 = 839 + 149 = 821 + 167 = 809 + 179 = **797** + 191 = **761** + 227 = 719 + 269 = **677** + 311 = 641 + 347 = **599** + 389 = **587** + 401 = 569 + 419 = 557 + 431 = 521 + 467 = **509** + 479

990 = 983 + 7 = **977** + 13 = 971 + 19 = **967** + 23 = 953 + 37 = **947** + 43 = **937** + 53 = 929 + 61 = **919** + 71 = 911 + 79 = **907** + 83 = 887 + 103 = **883** + 107 = 881 + 109 = **877** + 113 = 863 + 127 = **859** + 131 = **853** + 137 = 839 + 151 = 827 + 163 = **823** + 167 = **811** + 179 = 809 + 181 = **797** + 193 = **761** + 229 = 757 + 233 = **751** + 239 = **739** + 251 = 733 + 257 = **727** + 263 = 719 + 271 = **709** + 281 = 683 + 307 = **677** + 313 = 673 + 317 = 659 + 331 = **653** + 337 = **643** + 347 = 641 + 349 = **631** + 359 = **617** + 373 = **607** + 383 = 601 + 389 = 593 + 397 = **571** + 419 = 569 + 421 = 557 + 433 = **547** + 443 = 541 + 449 = **523** + 467 = 503 + 487 = **499** + 491

992 = **919** + 73 = **883** + 109 = **853** + 139 = **829** + 163 = **811** + 181 = 769 + 223 = **751** + 241 = **709** + 283 = **661** + 331 = **643** + 349 = 619 + 373 = 613 + 379 = **571** + 421

994 = **991** + 3 = 983 + 11 = **977** + 17 = 971 + 23 = 953 + 41 = **947** + 47 = 941 + 53 = 911 + 83 = 887 + 107 = 881 + 113 = 863 + 131 = 857 + 137 = 827 + 167 = 821 + 173 = **797** + 197 = **761** + 233 = 743 + 251 = 701 + 293 = 683 + 311 = **677** + 317 = 647 + 347 = 641 + 353 = 593 + 401 = **563** + 431 = 503 + 491

996 = **991** + 5 = 983 + 13 = **977** + 19 = **967** + 29 = 953 + 43 = **937** + 59 = 929 + 67 = **907** + 89 = 887 + 109 = **883** + 113 = **859** + 137 = 857 + 139 = 839 + 157 = **829** + 167 = **823** + 173 = **797** + 199 = **773** + 223 = 769 + 227 = 757 + 239 = **739** + 257 = 733 + 263 = **727** + 269 = 719 + 277 = 683 + 313 = 659 + 337 = 647 + 349 = **643** + 353 = **617** + 379 = 613 + 383 = **607** + 389 = **599** + 397 = **587** + 409 = 577 + 419 = **563** + 433 = 557 + 439 = **547** + 449 = **509** + 487

998 = **991** + 7 = **967** + 31 = **937** + 61 = **919** + 79 = **859** + 139 = 787 + 211 = 769 + 229 = 757 + 241 = **727** + 271 = **691** + 307 = **661** + 337 = **631** + 367 = 619 + 379 = 601 + 397 = 577 + 421 = 541 + 457

1000 = 997 + 3 = 983 + 17 = **977** + 23 = 971 + 29 = 953 + 47 = **947** + 53 = 941 + 59 = 929 + 71 = 911 + 89 = 887 + 113 = 863 + 137 = 827 + 173 = 821 + 179 = 809 + 191 = **773** + 227 = **761** + 239 = 743 + 257 = 719 + 281 = 683 + 317 = **653** + 347 = 647 + 353 = 641 + 359 = **617** + 383 = **599** + 401 = 569 + 431 = 557 + 443 = 521 + 479 = **509** + 491