PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z^6 + z^5 + z^2, z)$

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Abstract. The continued fraction conjecture claims that the continued fraction defined by the (a,b)-Thue-Morse sequence is algebraic over $\mathbb{F}_2(x)$ for all pairs of distinct elements (a,b) in $\mathbb{F}_2[x] \setminus \mathbb{F}_2$. In this paper we prove the conjecture for $(a,b) = (z^6 + z^5 + z^2, z)$.

1. Introduction

Let $\mathbb{F}_2$ be the finite field of cardinality 2. Given a sequence of polynomials $\mathbf{a} = (a_0(z), a_1(z), a_2(z), \ldots)$ of elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$, we define the infinite continued fraction

$$\mathrm{CF}(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{a_2(z) + \cfrac{1}{\ddots}}}} \tag{1.1}$$

as the limit of the finite continued fractions

$$\mathrm{CF}_n(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{\ddots + \cfrac{1}{a_n(z)}}}} \in \mathbb{F}_2((1/z)). \tag{1.2}$$

Conversely, each power series in $\mathbb{F}_2[[1/z]]$ without constant term

$$c_{-1}z^{-1} + c_{-2}z^{-2} + c_{-3}z^{-3} + \cdots \tag{1.3}$$

admits a continued fraction expansion of form (1.1).

Let a and b be two distinct elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$. We consider the continued fraction (1.1) associated with the (a,b)-Thue-Morse sequence

$$\mathbf{t} = (t_0(z), t_1(z), t_2(z), \ldots) = (a, b, b, a, b, a, a, b, \ldots)$$

that we shall denote

$$\mathrm{CF}(a,b) := \mathrm{CF}(\mathbf{t}). \tag{1.4}$$

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Theorem 1.1. *When $(a,b)=(z^6+z^5+z^2,z)$, the two power series* $\mathrm{CF}(a,b)$ *and* $\mathrm{CF}(b,a)$ *are algebraic over $\mathbb{F}_2(z)$, with minimal polynomials of the form*

$$p_4(z)y^4+p_3(z)y^3+p_2(z)y^2+p_1(z)y+p_0(z)=0$$

where, for $\mathrm{CF}(a,b)$*,*

$$\begin{aligned}
p_0(z)&=z^{17}+z^{16}+z^{12}+z^{10}+z^7+z^6+z^4+z^3+z^2+z+1,\\
p_1(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{13}+z^{11}+z^8+z^4+z^3+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{20}+z^{18}+z^{12}+z^{10}+z^8+z^6+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{13}+z^{11}+z^8+z^4+z^3+z^2,\\
p_4(z)&=z^{22}+z^{20}+z^{18}+z^{17}+z^7+z^4+z^3+z^2+z,
\end{aligned}$$

and for $\mathrm{CF}(b,a)$*,*

$$\begin{aligned}
p_0(z)&=z^{20}+z^{17}+z^{12}+z^{10}+z^7+z^6+z^3+z^2+z,\\
p_1(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{13}+z^{11}+z^8+z^4+z^3+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{20}+z^{18}+z^{12}+z^{10}+z^8+z^6+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{19}+z^{18}+z^{13}+z^{11}+z^8+z^4+z^3+z^2,\\
p_4(z)&=z^{22}+z^{18}+z^{17}+z^{16}+z^7+z^3+z^2+z+1.
\end{aligned}$$

2. Proof

Define the sequences of polynomials $(P_n(z))_{n\geq 0}$ and $(Q_n(z))_{n\geq 0}$ by

$$\begin{pmatrix} P_n(z) & Q_n(z)\\ P_{n-1}(z) & Q_{n-1}(z)\end{pmatrix} := \begin{pmatrix} t_n(z) & 1\\ 1 & 0\end{pmatrix}\begin{pmatrix} t_{n-1}(z) & 1\\ 1 & 0\end{pmatrix}\cdots\begin{pmatrix} t_0(z) & 1\\ 1 & 0\end{pmatrix}\begin{pmatrix} 0 & 1\\ 1 & 0\end{pmatrix}.$$

By the basic properties of continued fractions, we have

$$\mathrm{CF}_n(a,b)=\frac{P_n(z)}{Q_n(z)}\in\mathbb{F}_2((1/z)). \tag{2.1}$$

As formula (2.1) is not efficient for calculating $\mathrm{CF}_n(a,b)$, a fast method is to be derived and described as follows. Define

$$\begin{aligned}
M_n(x)&=x^{\deg(t_{2^n-1})}\begin{pmatrix} t_{2^n-1}(1/x) & 1\\ 1 & 0\end{pmatrix}\times x^{\deg(t_{2^n-2})}\begin{pmatrix} t_{2^n-2}(1/x) & 1\\ 1 & 0\end{pmatrix}\times\\
&\qquad\cdots\times x^{\deg(t_0)}\begin{pmatrix} t_0(1/x) & 1\\ 1 & 0\end{pmatrix},\\
W_n(x)&=x^{\deg(\bar t_{2^n-1})}\begin{pmatrix} \bar t_{2^n-1}(1/x) & 1\\ 1 & 0\end{pmatrix}\times x^{\deg(\bar t_{2^n-2})}\begin{pmatrix} \bar t_{2^n-2}(1/x) & 1\\ 1 & 0\end{pmatrix}\times\\
&\qquad\cdots\times x^{\deg(\bar t_0)}\begin{pmatrix} \bar t_0(1/x) & 1\\ 1 & 0\end{pmatrix},
\end{aligned}$$

where $\bar{\mathbf{t}}$ is the (b,a)-Thue-Morse sequence. By the properties of the Thue-Morse sequence, we have for $n\geq 0$

$$\begin{aligned}
M_{n+1}(x)&=W_n(x)\cdot M_n(x),\\
W_{n+1}(x)&=M_n(x)\cdot W_n(x).
\end{aligned}$$

Let $x := 1/z$. For each non-zero polynomial $P(z)$, define $\tilde{P}(x)$ to be $P(1/x)$. Then,

$$\mathrm{CF}_n(a,b) = \frac{P_n(z)}{Q_n(z)} = \frac{\tilde{P}_n(x)}{\tilde{Q}_n(x)} \in \mathbb{F}_2((x)) = \mathbb{F}_2((1/z)).$$

Comparing the definition of $M_n(x)$ with the definition of $P_n(x)$ and $Q_n(x)$, we see that

$$M_n(x)_{0,1} = x^{d_n}\tilde{P}_{2^n-1}(x),$$
$$M_n(x)_{0,0} = x^{d_n}\tilde{Q}_{2^n-1}(x),$$

for some positive integer d_n. Hence,

$$\mathrm{CF}_{2^{2n}-1}(a,b) = \frac{\tilde{P}_{2^{2n}-1}(x)}{\tilde{Q}_{2^{2n}-1}(x)} = \frac{M_{2n}(x)_{0,1}}{M_{2n}(x)_{0,0}}. \tag{2.2}$$

Therefore, by the convergence theorem of continued fraction, the algebraicity of $\mathrm{CF}(a,b)$ will be established if it is shown that both $M_{2n}(x)_{0,1}$ and $M_{2n}(x)_{0,0}$ converge to algebraic series in $\mathbb{F}_2[[x]]$.

Actually, we will prove that for all $0 \le i,j \le 1$ the four sequences $(M_{2n}(x)_{i,j})_n$, $(M_{2n+1}(x)_{i,j})_n$, $(W_{2n}(x)_{i,j})_n$, and $(W_{2n+1}(x)_{i,j})_n$ converge to algebraic series in $\mathbb{F}_2[[x]]$. For this purpose, we define four 2×2 matrices M^e, M^o, W^e, W^o as follows: For each $T \in \{M^e, M^o, W^e, W^o\}$ and $0 \le i,j \le 1$, $T_{i,j}$ is defined to be the unique solution in $\mathbb{F}_2[[x]]$ of the polynomial $\phi(T,i,j)$ under certain initial conditions; the polynomials $\phi(T,i,j)$ and initial conditions are given in Section 3. We will prove that these four matrices, whose components are algebraic by definition, are the limits of $(M_{2n}(x))_n$, $(M_{2n+1}(x))_n$, $(W_{2n}(x))_n$, and $(W_{2n+1}(x))_n$.

Let us explain how the polynomials $\phi(T,i,j)$ and initial conditions are found, and why the solutions exist and are unique. For $0 \le i,j \le 1$, the the coefficients of the polynomial $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$) are the Padé-Hermite approximants of type

$$(175, 175, 175, 175, 175)$$

of the vector

$$(1, T^3, T^6, T^9, T^{12}),$$

where $T = M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$), found by the Derksen algorithm. We take the first 8 terms of $M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$) as initial conditions for $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$). The following fact will be used to ensure that the solution exists and is unique: let $P(x,y) \in \mathbb{F}_2[x,y]$ and for each series $f(x) = \sum_{n=0}^{\infty} a_n x^n \in \mathbb{F}_2[[x]]$ denote the partial sum $\sum_{j=0}^{n-1} a_j x^j$ by $f_n(x)$ for $n \ge 0$. If for some $n \ge 0$ and $a_0, a_1, \ldots, a_{n-1} \in \mathbb{F}_2$ $P(x, \sum_{j=0}^{n-1} a_j x^j) = O(x^n)$ and $Q(x,y) := P(x, \sum_{j=0}^{n-1} a_j x^j + x^n y)$ can be written as $x^m \sum_{j=0}^{\infty} q_j(x) y^j$ where $q_j(x)$ are polynomials for $j \ge 0$, $q_1(0) = 1$, and $q_j(0) = 0$ for $j > 1$, then there exists a unique solution $f(x) \in \mathbb{F}_2[[x]]$ of $P(x, f(x)) = 0$ that satisfies the initial condition $f_n(x) = \sum_{j=0}^{n-1} a_j x^j$.

We state two lemmas concerning the four matrices M^e, M^o, W^e, W^o. The first one is about relations between them; the second, about the structure of the each matrix.

Lemma 2.1. *We have*

$$M^e = W^o \cdot M^o, \tag{2.3}$$

$$M^o = W^e \cdot M^e, \tag{2.4}$$

$$W^e = M^o \cdot W^o, \tag{2.5}$$

$$W^o = M^e \cdot W^e. \tag{2.6}$$

Proof. We give the proof of the identity

$$M^e_{0,0} = W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0},$$

the proofs of the others being similar.

First, we compute the minimal polynomials of $W^o_{0,0}M^o_{0,0}$ and $W^o_{0,1}M^o_{1,0}$. We know that

$$P(x,y) = \mathrm{Res}_z\left(\phi(W^o,0,0)(x,z),\ z^{12}\cdot\phi(M^o,0,0)(x,y/z)\right)$$

is an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We use Padé-Hermite approximation to find a candidate for the minimal polynomial of $W^o_{0,0}M^o_{0,0}$, that will be called $\phi_0(x,y)$. To prove that $\phi_0(x,y)$ is indeed the minimal polynomial, it suffices to prove that it is an irreducible factor of $P(x,y)$ of multiplicity m and that $Q(x,y) := P(x,y)/\phi_0(x,y)^m$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We verify the first point directly. For the second point, we truncate $W^o_{0,0}M^o_{0,0}$ to order 630 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 630, which proves that $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We find the minimal polynomial $\phi_1(x,y)$ of $W^o_{0,1}M^o_{1,0}$ in a similar way.

Now we prove that $\phi(M^e,0,0)$ is the minimal polynomial of $W^o_{0,0}M^o_{0,0}+W^o_{0,1}M^o_{1,0}$. We know that

$$S(x,y) = \mathrm{Res}_z\left(\phi_0(x,z),\ \phi_1(x,y+z)\right)$$

is an annihilating of $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$. We verify that $\phi(M^e,0,0)$ is an irreducible factor of $S(x,y)$ of multiplicity μ, and that $Q(x,y) := S(x,y)/\phi(M^e,0,0)^\mu$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}+W^o_{0,1}M^o_{1,0}$. To see the last point, we truncate $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$ to order 770 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 770, and therefore $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$.

Finally, the first 16 terms of $M^e_{0,0}$ and $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$ coincide. As these first terms determine a unique solution of $\phi(M^e,0,0)$, we know that the two series are one and the same. □

Define

$$R^e = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \qquad \text{and} \qquad R^o = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}.$$

Lemma 2.2. *For all integers $k \ge 2$ and $u = 2^{2k-1}$, the following identities hold.*

$$\begin{aligned} M^e[:14u] = {} & M^e[:7u] + x^u M^e[:6u] + x^{2u} M^e[:5u] + x^{3u} M^e[:4u] + x^{5u} M^e[:2u] \\ & + x^u M^e[:7u] + x^{2u} M^e[:6u] + x^{3u} M^e[:5u] + x^{4u} M^e[:4u] \\ & + x^{6u} M^e[:2u] + x^{4u} M^e[:7u] + x^{5u} M^e[:6u] + x^{6u} M^e[:5u] \\ & + x^{7u} M^e[:4u] + x^{9u} M^e[:2u] + x^{10u} M^e[:4u] \\ & + (x^{7u} + x^{8u} + x^{11u}) R^e, \\ W^e[:14u] = {} & W^e[:7u] + x^u W^e[:6u] + x^{2u} W^e[:5u] + x^{3u} W^e[:4u] + x^{5u} W^e[:2u] \end{aligned}$$

$$
\begin{aligned}
&+ x^{u}W^e[:7u] + x^{2u}W^e[:6u] + x^{3u}W^e[:5u] + x^{4u}W^e[:4u] \\
&+ x^{6u}W^e[:2u] + x^{4u}W^e[:7u] + x^{5u}W^e[:6u] + x^{6u}W^e[:5u] \\
&+ x^{7u}W^e[:4u] + x^{9u}W^e[:2u] + x^{10u}W^e[:4u] \\
&+ (x^{7u} + x^{8u} + x^{11u})R^e.
\end{aligned}
$$

For all integers $k \geq 2$ and $u = 2^{2k}$, the following identities hold.

$$
\begin{aligned}
M^o[:14u] &= M^o[:7u] + x^{u}M^o[:6u] + x^{2u}M^o[:5u] + x^{3u}M^o[:4u] + x^{5u}M^o[:2u] \\
&\quad + x^{u}M^o[:7u] + x^{2u}M^o[:6u] + x^{3u}M^o[:5u] + x^{4u}M^o[:4u] \\
&\quad + x^{6u}M^o[:2u] + x^{4u}M^o[:7u] + x^{5u}M^o[:6u] + x^{6u}M^o[:5u] \\
&\quad + x^{7u}M^o[:4u] + x^{9u}M^o[:2u] + x^{10u}M^o[:4u] \\
&\quad + (x^{7u} + x^{8u} + x^{11u})R^o, \\
W^o[:14u] &= W^o[:7u] + x^{u}W^o[:6u] + x^{2u}W^o[:5u] + x^{3u}W^o[:4u] + x^{5u}W^o[:2u] \\
&\quad + x^{u}W^o[:7u] + x^{2u}W^o[:6u] + x^{3u}W^o[:5u] + x^{4u}W^o[:4u] \\
&\quad + x^{6u}W^o[:2u] + x^{4u}W^o[:7u] + x^{5u}W^o[:6u] + x^{6u}W^o[:5u] \\
&\quad + x^{7u}W^o[:4u] + x^{9u}W^o[:2u] + x^{10u}W^o[:4u] \\
&\quad + (x^{7u} + x^{8u} + x^{11u})R^o.
\end{aligned}
$$

Proof. To prove Lemma 2.2 we first construct an automaton for each sequence concerned, and then transform the conditions on infinitely many k's into finitely many conditions on the states of the automaton. In the following, we will prove that for $T = M^o_{0,0}$, for all integer $k \geq 2$ and $u = 2^{2k}$,

$$
\begin{aligned}
T[:14u] &= T[:7u] + x^{u}T[:6u] + x^{2u}T[:5u] + x^{3u}T[:4u] + x^{5u}T[:2u] + x^{u}T[:7u] \\
&\quad + x^{2u}T[:6u] + x^{3u}T[:5u] + x^{4u}T[:4u] + x^{6u}T[:2u] + x^{4u}T[:7u] \\
&\quad + x^{5u}T[:6u] + x^{6u}T[:5u] + x^{7u}T[:4u] + x^{9u}T[:2u] + x^{10u}T[:4u].
\end{aligned}
$$

The proof of the other 15 cases are similar. We break down the above identity into 7 parts:

$$
\begin{aligned}
0 &= x^{7u}T[:u] + x^{5u}T[2u:3u] + x^{3u}T[4u:5u] + x^{2u}T[5u:6u] \\
&\quad + x^{u}T[6u:7u] + T[7u:8u], \\
0 &= x^{7u}T[u:2u] + x^{6u}T[2u:3u] + x^{5u}T[3u:4u] + x^{4u}T[4u:5u] \\
&\quad + T[8u:9u], \\
0 &= x^{9u}T[:u] + x^{7u}T[2u:3u] + x^{6u}T[3u:4u] + x^{5u}T[4u:5u] \\
&\quad + x^{4u}T[5u:6u] + T[9u:10u], \\
0 &= x^{10u}T[:u] + x^{9u}T[u:2u] + x^{7u}T[3u:4u] + x^{6u}T[4u:5u] \\
&\quad + x^{5u}T[5u:6u] + x^{4u}T[6u:7u] + T[10u:11u], \\
0 &= x^{10u}T[u:2u] + T[11u:12u], \\
0 &= x^{10u}T[2u:3u] + T[12u:13u], \\
0 &= x^{10u}T[3u:4u] + T[13u:14u],
\end{aligned}
$$

which can be rewritten as

$$\begin{aligned}
0 &= T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] \\
&\quad + T[[111w]_2], \quad (2.7)\\
0 &= T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[1000w]_2], \quad (2.8)\\
0 &= T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\
&\quad + T[[1001w]_2], \quad (2.9)\\
0 &= T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\
&\quad + T[[110w]_2] + T[[1010w]_2], \quad (2.10)\\
0 &= T[[1w]_2] + T[[1011w]_2], \quad (2.11)\\
0 &= T[[10w]_2] + T[[1100w]_2], \quad (2.12)\\
0 &= T[[11w]_2] + T[[1101w]_2], \quad (2.13)
\end{aligned}$$

for all binary word w of length $2k$ and $w \neq 0^{2k}$, and

$$\begin{aligned}
0 &= T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] \\
&\quad + T[[111w]_2], \quad (2.14)\\
0 &= T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[1000w]_2], \quad (2.15)\\
0 &= T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\
&\quad + T[[1001w]_2], \quad (2.16)\\
0 &= T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\
&\quad + T[[110w]_2] + T[[1010w]_2], \quad (2.17)\\
0 &= T[[1w]_2] + T[[1011w]_2], \quad (2.18)\\
0 &= T[[10w]_2] + T[[1100w]_2], \quad (2.19)\\
0 &= T[[11w]_2] + T[[1101w]_2], \quad (2.20)
\end{aligned}$$

for $w = 0^{2k}$.

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4803 states; its transition function and output function can be found in the annex. Let $A(s, w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

$$E_{2k} = \{A(i, w) : |w| = 2k, w \neq 0^{2k}\}.$$

Identities (2.7) through (2.20) can be written as

$$\begin{aligned}
0 &= \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 101)) \\
&\quad + \tau(A(s, 110)) + \tau(A(s, 111)), \quad (2.21)\\
0 &= \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 100)) \\
&\quad + \tau(A(s, 1000)), \quad (2.22)\\
0 &= \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 100)) \\
&\quad + \tau(A(s, 101)) + \tau(A(s, 1001)), \quad (2.23)\\
0 &= \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 11)) + \tau(A(s, 100)) \\
&\quad + \tau(A(s, 101)) + \tau(A(s, 110)) + \tau(A(s, 1010)), \quad (2.24)
\end{aligned}$$

$$0 = \tau(A(s,1)) + \tau(A(s,1011)), \tag{2.25}$$
$$0 = \tau(A(s,10)) + \tau(A(s,1100)), \tag{2.26}$$
$$0 = \tau(A(s,11)) + \tau(A(s,1101)), \tag{2.27}$$

for all $s \in E_{2k}$, and

$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,101)) \\ &\quad + \tau(A(s,110)) + \tau(A(s,111)), \end{aligned} \tag{2.28}$$
$$\begin{aligned} 0 &= \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,1000)), \end{aligned} \tag{2.29}$$
$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,101)) + \tau(A(s,1001)), \end{aligned} \tag{2.30}$$
$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1010)), \end{aligned} \tag{2.31}$$
$$0 = \tau(A(s,1)) + \tau(A(s,1011)), \tag{2.32}$$
$$0 = \tau(A(s,10)) + \tau(A(s,1100)), \tag{2.33}$$
$$0 = \tau(A(s,11)) + \tau(A(s,1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{32}), E_{32}) = (A(i,0^{18}), E_{18})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 16$, which turns out to be true. □

In the following lemma, we express M_{2k}, M_{2k+1}, W_{2k}, and W_{2k+1} in terms of M^e, M^o, W^e, and W^o.

Lemma 2.3. *For all integer $k \ge 2$, and $u = 2^{2k-1}$,*

$$\begin{aligned} M_{2k} &= M^e[:7u] + x^u M^e[:6u] + x^{2u} M^e[:5u] + x^{3u} M^e[:4u] + x^{5u} M^e[:2u] \\ &\quad + x^{7u} R^e, \\ W_{2k} &= W^e[:7u] + x^u W^e[:6u] + x^{2u} W^e[:5u] + x^{3u} W^e[:4u] + x^{5u} W^e[:2u] \\ &\quad + x^{7u} R^e. \end{aligned}$$

For all integer $k \ge 2$, and $u = 2^{2k}$,

$$\begin{aligned} M_{2k+1} &= M^o[:7u] + x^u M^o[:6u] + x^{2u} M^o[:5u] + x^{3u} M^o[:4u] + x^{5u} M^o[:2u] \\ &\quad + x^{7u} R^o, \\ W_{2k+1} &= W^o[:7u] + x^u W^o[:6u] + x^{2u} W^o[:5u] + x^{3u} W^o[:4u] + x^{5u} W^o[:2u] \\ &\quad + x^{7u} R^o. \end{aligned}$$

Proof. We call the four identities in Lemma 2.3 also by the name M_{2k}, W_{2k}, M_{2k+1}, and W_{2k+1}. For $n = 2$, the identities can be verified directly. For $n \ge 2$, we claim that

$$\begin{aligned} M_{2k} \wedge W_{2k} &\Rightarrow M_{2k+1} \wedge W_{2k+1}, \\ M_{2k+1} \wedge W_{2k+1} &\Rightarrow M_{2k+2} \wedge W_{2k+2}. \end{aligned}$$

We give the proof of

$$M_{2k} \wedge W_{2k} \Rightarrow M_{2k+1},$$

the other ones being similar. Set $u = 2^{2k}$ and $v = 2^{2k-1}$. By definition and induction hypothesis, the left side of identity M_{2k+1} is equal to

$$\begin{aligned} W_{2k}M_{2k} = \big(&W^e[:7v] + x^v W^e[:6v] + x^{2v}W^e[:5v] + x^{3v}W^e[:4v] \\ &+ x^{5v}W^e[:2v] + x^{7u}R^e\big) \times \big(M^e[:7v] + x^v M^e[:6v] + x^{2v}M^e[:5v] \\ &+ x^{3v}M^e[:4v] + x^{5v}M^e[:2v] + x^{7u}R^e\big); \end{aligned} \tag{2.35}$$

Call this expression lhs. Note that both sides of identity M_{2k+1} have the same term of highest degree $x^{14v}R^o$. Therefore we only need to prove that their difference is $O(x^{14v})$. Using Lemma 2.1 it can be seen that the right side of identity M_{2k+1} is congruent, modulo x^{14v}, to

$$\begin{aligned} W^e[:14v]M^e[:14v] + x^{2v}W^e[:12v]M^e[:12v] + x^{4v}W^e[:10v]M^e[:10v] \\ + x^{6v}W^e[:8v]M^e[:8v] + x^{10v}W^e[:4v]M^e[:4v]. \end{aligned}$$

For all $n \le 14$, replace the occurrences of $W^e[:n \cdot v]$ and $M^e[:n \cdot v]$ in the above expression by the reduction modulo $x^{n \cdot v}$ of the right side of the corresponding identity in Lemma 2.2 and get a new expression, which we call rhs. Define

$$\begin{aligned} X &:= x^v, \\ a_n &:= W^e[n \cdot v : (n+1) \cdot v]/X^n, \\ b_n &:= M^e[n \cdot v : (n+1) \cdot v]/X^n, \\ c &:= R^e. \end{aligned}$$

Using the notation introduced above, we can represent the expressions lhs (2.35) and rhs as polynomials in $\mathbb{F}_2[a_1, ..., a_{14}, b_1, ..., b_{14}, c][X]$. Note that it is not a problem that a_j commutes with b_k while W^e does not commute with M^e, because in the expressions concerned, the products of W^e-terms and M^e-terms are always in the same order. We let the computer do the simplification and check that the difference between these two polynomials is indeed $O(X^{14})$, which completes the proof. $\square$

Proof of Theorem 1.1. We prove the theorem for $\mathrm{CF}(a, b)$; for $\mathrm{CF}(b, a)$, the proof is similar. By Lemma 2.3, we have For all $0 \le j, k \le 1$,

$$\begin{aligned} \lim_{n\to\infty} M_{2n,j,k} &= M^e_{j,k}, \\ \lim_{n\to\infty} M_{2n+1,j,k} &= M^o_{j,k}, \\ \lim_{n\to\infty} W_{2n,j,k} &= W^e_{j,k}, \\ \lim_{n\to\infty} W_{2n+1,j,k} &= W^o_{j,k}. \end{aligned}$$

Let $z = 1/x$. By the convergence theorem and identity (2.2),

$$\mathrm{CF}(a, b) = \frac{M^e_{0,1}(x)}{M^e_{0,0}(x)}.$$

By definition, $\phi(M^e, 0, 1)$ and $\phi(M^e, 0, 0)$ are minimal polynomials of $M^e_{0,1}$ and $M^e_{0,0}$. Therefore

$$P(x, y) = \mathrm{Res}_t\left(\phi(M^e, 0, 1)(x, t), y^{12}\phi(M^e, 0, 1)(x, t/y)\right)$$

is an annihilating polynomial of $f(x) = M^e_{0,1}/M^e_{0,0}$.

Define

$$Q(x, y) = q_4(x)y^4 + q_3(x)y^3 + q_2(x)y^2 + q_1(x)y + q_0(x),$$

where

$$\begin{aligned}
q_0(x) &= x^{24}+x^{23}+x^{22}+x^{21}+x^{20}+x^{18}+x^{17}+x^{14}+x^{12}+x^{8}+x^{7},\\
q_1(x) &= x^{22}+x^{21}+x^{20}+x^{16}+x^{13}+x^{11}+x^{6}+x^{5}+x^{3}+x,\\
q_2(x) &= x^{20}+x^{18}+x^{16}+x^{14}+x^{12}+x^{6}+x^{4}+x^{2}+1,\\
q_3(x) &= x^{22}+x^{21}+x^{20}+x^{16}+x^{13}+x^{11}+x^{6}+x^{5}+x^{3}+x,\\
q_4(x) &= x^{23}+x^{22}+x^{21}+x^{20}+x^{17}+x^{7}+x^{6}+x^{4}+x^{2}.
\end{aligned}$$

The polynomial $Q(x,y)$ is the candidate for the minimal polynomial of $f(x)$ found by Padé-Hermite approximation. To prove that it is indeed the minimal polynomial of $f(x)$, we only need to prove that it is an irreducible factor of $P(x,y)$ of multiplicity m and $R(x,y) := P(x,y)/Q(x,y)^m$ is not an annihilating polynomial of $f(x)$. We verify the first point directly. For the second point, we find that when we truncate $f(x)$ to order 216, and substitute it for y in $R(z,y)$, we get a series with valuation smaller than 216, which proves that $R(z,y)$ is not an annihilating polynomial of $f(x)$. Finally, $z^{12}Q(1/z,y)$ is the minimal polynomial of $\mathrm{CF}(a,b)=f(1/z)$. □

3. Annexe

All 16 polynomials are of the form

$$p_0(x)+p_3(x)y^3+p_6(x)y^6+p_9(x)y^9+p_{12}(x)y^{12}.$$

The coefficients $p_j(x)$ and the 16 initial terms to determine the solutions uniquely are given below.

For $\phi(M^e,0,0)$:

$$\begin{aligned}
p_0(x) &= x^{114}+x^{112}+x^{108}+x^{104}+x^{102}+x^{82}+x^{80}+x^{78}+x^{76}+x^{74}+x^{72}\\
&\quad +x^{50}+x^{48}+x^{44}+x^{42}+x^{18}+x^{16}+x^{14}+x^{12},\\
p_3(x) &= x^{106}+x^{104}+x^{100}+x^{98}+x^{92}+x^{88}+x^{86}+x^{84}+x^{80}+x^{76}+x^{74}\\
&\quad +x^{72}+x^{68}+x^{64}+x^{62}+x^{60}+x^{58}+x^{54}+x^{52}+x^{46}+x^{42}+x^{38}\\
&\quad +x^{36}+x^{30}+x^{24}+x^{20}+x^{18}+x^{16}+x^{12}+x^{8},\\
p_6(x) &= x^{106}+x^{104}+x^{102}+x^{94}+x^{92}+x^{90}+x^{88}+x^{84}+x^{66}+x^{64}+x^{50}\\
&\quad +x^{44}+x^{42}+x^{38}+x^{36}+x^{32}+x^{30}+x^{20}+x^{16}+x^{12}+x^{6}+1,\\
p_9(x) &= x^{104}+x^{100}+x^{96}+x^{94}+x^{88}+x^{76}+x^{68}+x^{64}+x^{62}+x^{60}+x^{58}\\
&\quad +x^{54}+x^{52}+x^{44}+x^{40}+x^{34}+x^{30}+x^{26}+x^{24}+x^{22}+x^{18}+x^{14}\\
&\quad +x^{10}+x^{2},\\
p_{12}(x) &= x^{104}+x^{98}+x^{96}+x^{88}+x^{82}+x^{80}+x^{72}+x^{66}+x^{64}+x^{40}+x^{34}\\
&\quad +x^{32}+x^{8}+x^{2}+1,
\end{aligned}$$

and the initial terms are [1, 0, 1, 0, 1, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0].

For $\phi(M^e,0,1)$:

$$\begin{aligned}
p_0(x) &= x^{129}+x^{127}+x^{126}+x^{122}+x^{121}+x^{119}+x^{117}+x^{113}+x^{112}+x^{111}\\
&\quad +x^{110}+x^{109}+x^{108}+x^{107}+x^{105}+x^{104}+x^{100}+x^{98}+x^{97}+x^{89}\\
&\quad +x^{86}+x^{85}+x^{84}+x^{83}+x^{79}+x^{76}+x^{75}+x^{74}+x^{72}+x^{70}+x^{69}
\end{aligned}$$

$$
\begin{aligned}
&+x^{67}+x^{64}+x^{58}+x^{57}+x^{53}+x^{52}+x^{50}+x^{49}+x^{48}+x^{47}+x^{46}\\
&+x^{45}+x^{44}+x^{41}+x^{40}+x^{38}+x^{37}+x^{36}+x^{35}+x^{34}+x^{32}+x^{31}\\
&+x^{29}+x^{27},\\
p_3(x)&=x^{122}+x^{121}+x^{120}+x^{119}+x^{112}+x^{111}+x^{110}+x^{109}+x^{108}+x^{107}\\
&+x^{106}+x^{105}+x^{100}+x^{99}+x^{96}+x^{95}+x^{88}+x^{87}+x^{86}+x^{85}+x^{84}\\
&+x^{83}+x^{80}+x^{79}+x^{76}+x^{75}+x^{70}+x^{69}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{64}+x^{63}+x^{62}+x^{61}+x^{58}+x^{57}+x^{56}+x^{55}+x^{52}+x^{51}+x^{46}\\
&+x^{45}+x^{44}+x^{43}+x^{38}+x^{37}+x^{34}+x^{33}+x^{30}+x^{29}+x^{24}+x^{23}\\
&+x^{22}+x^{21}+x^{12}+x^{11}+x^{10}+x^{9},\\
p_6(x)&=x^{120}+x^{118}+x^{117}+x^{116}+x^{115}+x^{111}+x^{108}+x^{107}+x^{105}+x^{104}\\
&+x^{103}+x^{100}+x^{99}+x^{98}+x^{97}+x^{96}+x^{94}+x^{91}+x^{87}+x^{86}+x^{76}\\
&+x^{74}+x^{73}+x^{72}+x^{71}+x^{67}+x^{64}+x^{63}+x^{61}+x^{59}+x^{58}+x^{57}\\
&+x^{54}+x^{53}+x^{52}+x^{51}+x^{50}+x^{48}+x^{45}+x^{41}+x^{38}+x^{37}+x^{36}\\
&+x^{35}+x^{34}+x^{30}+x^{27}+x^{26}+x^{24}+x^{22}+x^{21}+x^{19}+x^{18}+x^{17}\\
&+x^{16}+x^{10}+x^{7}+x^{6},\\
p_9(x)&=x^{118}+x^{117}+x^{112}+x^{111}+x^{110}+x^{109}+x^{108}+x^{107}+x^{106}+x^{105}\\
&+x^{104}+x^{103}+x^{98}+x^{97}+x^{94}+x^{93}+x^{92}+x^{91}+x^{86}+x^{85}+x^{84}\\
&+x^{83}+x^{80}+x^{79}+x^{78}+x^{77}+x^{74}+x^{73}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{60}+x^{59}+x^{58}+x^{57}+x^{54}+x^{53}+x^{52}+x^{51}+x^{48}+x^{47}+x^{44}\\
&+x^{43}+x^{40}+x^{39}+x^{38}+x^{37}+x^{34}+x^{33}+x^{32}+x^{31}+x^{30}+x^{29}\\
&+x^{28}+x^{27}+x^{26}+x^{25}+x^{20}+x^{19}+x^{16}+x^{15}+x^{14}+x^{13}+x^{10}\\
&+x^{9}+x^{8}+x^{7}+x^{6}+x^{5}+x^{4}+x^{3},\\
p_{12}(x)&=x^{116}+x^{113}+x^{112}+x^{104}+x^{101}+x^{100}+x^{88}+x^{85}+x^{84}+x^{72}\\
&+x^{69}+x^{65}+x^{64}+x^{52}+x^{49}+x^{48}+x^{40}+x^{37}+x^{33}+x^{32}+x^{20}\\
&+x^{17}+x^{16}+x^{8}+x^{5}+x+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 1, 0, 1, 0, 0].

For $\phi(M^e, 1, 0)$:

$$
\begin{aligned}
p_0(x)&=x^{129}+x^{127}+x^{126}+x^{122}+x^{121}+x^{119}+x^{117}+x^{113}+x^{112}+x^{111}\\
&+x^{110}+x^{109}+x^{108}+x^{107}+x^{105}+x^{104}+x^{100}+x^{98}+x^{97}+x^{89}\\
&+x^{86}+x^{85}+x^{84}+x^{83}+x^{79}+x^{76}+x^{75}+x^{74}+x^{72}+x^{70}+x^{69}\\
&+x^{67}+x^{64}+x^{58}+x^{57}+x^{53}+x^{52}+x^{50}+x^{49}+x^{48}+x^{47}+x^{46}\\
&+x^{45}+x^{44}+x^{41}+x^{40}+x^{38}+x^{37}+x^{36}+x^{35}+x^{34}+x^{32}+x^{31}\\
&+x^{29}+x^{27},\\
p_3(x)&=x^{122}+x^{121}+x^{120}+x^{119}+x^{112}+x^{111}+x^{110}+x^{109}+x^{108}+x^{107}\\
&+x^{106}+x^{105}+x^{100}+x^{99}+x^{96}+x^{95}+x^{88}+x^{87}+x^{86}+x^{85}+x^{84}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{83} + x^{80} + x^{79} + x^{76} + x^{75} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} + x^{46}\\
&+ x^{45} + x^{44} + x^{43} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} + x^{29} + x^{24} + x^{23}\\
&+ x^{22} + x^{21} + x^{12} + x^{11} + x^{10} + x^{9},\\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{111} + x^{108} + x^{107} + x^{105} + x^{104}\\
&+ x^{103} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91} + x^{87} + x^{86} + x^{76}\\
&+ x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{64} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{45} + x^{41} + x^{38} + x^{37} + x^{36}\\
&+ x^{35} + x^{34} + x^{30} + x^{27} + x^{26} + x^{24} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17}\\
&+ x^{16} + x^{10} + x^{7} + x^{6},\\
p_9(x) &= x^{118} + x^{117} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105}\\
&+ x^{104} + x^{103} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{91} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48} + x^{47} + x^{44}\\
&+ x^{43} + x^{40} + x^{39} + x^{38} + x^{37} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29}\\
&+ x^{28} + x^{27} + x^{26} + x^{25} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{13} + x^{10}\\
&+ x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3},\\
p_{12}(x) &= x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72}\\
&+ x^{69} + x^{65} + x^{64} + x^{52} + x^{49} + x^{48} + x^{40} + x^{37} + x^{33} + x^{32} + x^{20}\\
&+ x^{17} + x^{16} + x^{8} + x^{5} + x + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 1, 0, 1, 0, 0].

For $\phi(M^e, 1, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{136} + x^{130} + x^{126} + x^{120} + x^{116} + x^{114} + x^{112} + x^{108}\\
&+ x^{102} + x^{100} + x^{96} + x^{92} + x^{86} + x^{84} + x^{78} + x^{76} + x^{66} + x^{60} + x^{52}\\
&+ x^{48} + x^{46} + x^{44} + x^{42},\\
p_3(x) &= x^{132} + x^{128} + x^{126} + x^{120} + x^{116} + x^{114} + x^{112} + x^{110} + x^{102} + x^{100}\\
&+ x^{94} + x^{90} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} + x^{60} + x^{52}\\
&+ x^{50} + x^{42} + x^{38} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22} + x^{20} + x^{8} + x^{6},\\
p_6(x) &= x^{132} + x^{124} + x^{122} + x^{120} + x^{118} + x^{110} + x^{108} + x^{106} + x^{104} + x^{102}\\
&+ x^{100} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{82} + x^{68} + x^{66} + x^{64} + x^{62}\\
&+ x^{60} + x^{58} + x^{56} + x^{50} + x^{42} + x^{34} + x^{24} + x^{22} + x^{20} + x^{18} + x^{12}\\
&+ x^{8} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{122} + x^{114} + x^{112} + x^{108} + x^{102} + x^{100} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{84} + x^{82} + x^{74} + x^{66} + x^{62} + x^{60} + x^{58} + x^{54}\\
&+ x^{50} + x^{46} + x^{44} + x^{38} + x^{26} + x^{24} + x^{20} + x^{14} + x^{12} + x^{8} + x^{6} + x^{4}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^2,\\
p_{12}(x) &= x^{128} + x^{112} + x^{104} + x^{88} + x^{80} + x^{72} + x^{40} + x^8 + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0].

For $\phi(W^e, 0, 0)$:

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{130} + x^{128} + x^{122} + x^{118} + x^{116} + x^{114} + x^{106} + x^{100}\\
&+ x^{98} + x^{92} + x^{88} + x^{84} + x^{82} + x^{78} + x^{72} + x^{68} + x^{62} + x^{58} + x^{56}\\
&+ x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{38} + x^{32} + x^{28} + x^{24} + x^{22} + x^{20}\\
&+ x^{12},\\
p_3(x) &= x^{132} + x^{128} + x^{126} + x^{124} + x^{122} + x^{116} + x^{114} + x^{112} + x^{108} + x^{106}\\
&+ x^{104} + x^{102} + x^{100} + x^{90} + x^{84} + x^{82} + x^{78} + x^{74} + x^{72} + x^{66} + x^{64}\\
&+ x^{60} + x^{48} + x^{42} + x^{36} + x^{32} + x^{30} + x^{26} + x^{24} + x^{18} + x^{16} + x^8,\\
p_6(x) &= x^{132} + x^{120} + x^{118} + x^{116} + x^{112} + x^{102} + x^{100} + x^{96} + x^{88} + x^{86}\\
&+ x^{84} + x^{76} + x^{72} + x^{70} + x^{68} + x^{66} + x^{62} + x^{58} + x^{48} + x^{42} + x^{38}\\
&+ x^{28} + x^{16} + x^{12} + x^8 + x^4 + x^2 + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{122} + x^{114} + x^{112} + x^{108} + x^{102} + x^{100} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{84} + x^{82} + x^{74} + x^{66} + x^{62} + x^{60} + x^{58} + x^{54}\\
&+ x^{50} + x^{46} + x^{44} + x^{38} + x^{26} + x^{24} + x^{20} + x^{14} + x^{12} + x^8 + x^6 + x^4\\
&+ x^2,\\
p_{12}(x) &= x^{128} + x^{112} + x^{104} + x^{88} + x^{80} + x^{72} + x^{40} + x^8 + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0].

For $\phi(W^e, 0, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{124} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{112}\\
&+ x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{97}\\
&+ x^{91} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{73}\\
&+ x^{72} + x^{68} + x^{66} + x^{62} + x^{61} + x^{60} + x^{50} + x^{49} + x^{44} + x^{42} + x^{41}\\
&+ x^{40} + x^{39} + x^{38} + x^{36} + x^{34} + x^{33} + x^{29} + x^{27} + x^{26} + x^{25} + x^{24}\\
&+ x^{23} + x^{21} + x^{19} + x^{18},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{100} + x^{99} + x^{96} + x^{95} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{80} + x^{79} + x^{76} + x^{75} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} + x^{46}\\
&+ x^{45} + x^{44} + x^{43} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} + x^{29} + x^{24} + x^{23}\\
&+ x^{22} + x^{21} + x^{12} + x^{11} + x^{10} + x^9,\\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{111} + x^{108} + x^{107} + x^{105} + x^{104}\\
&+ x^{103} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91} + x^{87} + x^{86} + x^{76}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{64} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{45} + x^{41} + x^{38} + x^{37} + x^{36}\\
&+ x^{35} + x^{34} + x^{30} + x^{27} + x^{26} + x^{24} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17}\\
&+ x^{16} + x^{10} + x^{7} + x^{6},\\
p_9(x) &= x^{118} + x^{117} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105}\\
&+ x^{104} + x^{103} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{91} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48} + x^{47} + x^{44}\\
&+ x^{43} + x^{40} + x^{39} + x^{38} + x^{37} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29}\\
&+ x^{28} + x^{27} + x^{26} + x^{25} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{13} + x^{10}\\
&+ x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3},\\
p_{12}(x) &= x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72}\\
&+ x^{69} + x^{65} + x^{64} + x^{52} + x^{49} + x^{48} + x^{40} + x^{37} + x^{33} + x^{32} + x^{20}\\
&+ x^{17} + x^{16} + x^{8} + x^{5} + x + 1,
\end{aligned}
$$

and the initial terms are [0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1].

For $\phi(W^e, 1, 0)$:

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{124} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{112}\\
&+ x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{97}\\
&+ x^{91} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{73}\\
&+ x^{72} + x^{68} + x^{66} + x^{62} + x^{61} + x^{60} + x^{50} + x^{49} + x^{44} + x^{42} + x^{41}\\
&+ x^{40} + x^{39} + x^{38} + x^{36} + x^{34} + x^{33} + x^{29} + x^{27} + x^{26} + x^{25} + x^{24}\\
&+ x^{23} + x^{21} + x^{19} + x^{18},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{100} + x^{99} + x^{96} + x^{95} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{80} + x^{79} + x^{76} + x^{75} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} + x^{46}\\
&+ x^{45} + x^{44} + x^{43} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} + x^{29} + x^{24} + x^{23}\\
&+ x^{22} + x^{21} + x^{12} + x^{11} + x^{10} + x^{9},\\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{111} + x^{108} + x^{107} + x^{105} + x^{104}\\
&+ x^{103} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91} + x^{87} + x^{86} + x^{76}\\
&+ x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{64} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{45} + x^{41} + x^{38} + x^{37} + x^{36}\\
&+ x^{35} + x^{34} + x^{30} + x^{27} + x^{26} + x^{24} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17}\\
&+ x^{16} + x^{10} + x^{7} + x^{6},\\
p_9(x) &= x^{118} + x^{117} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{104} + x^{103} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{91} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48} + x^{47} + x^{44}\\
&+ x^{43} + x^{40} + x^{39} + x^{38} + x^{37} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29}\\
&+ x^{28} + x^{27} + x^{26} + x^{25} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{13} + x^{10}\\
&+ x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3},\\
p_{12}(x) =\ & x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72}\\
&+ x^{69} + x^{65} + x^{64} + x^{52} + x^{49} + x^{48} + x^{40} + x^{37} + x^{33} + x^{32} + x^{20}\\
&+ x^{17} + x^{16} + x^{8} + x^{5} + x + 1,
\end{aligned}
$$

and the initial terms are [0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1].

For $\phi(W^e, 1, 1)$:

$$
\begin{aligned}
p_0(x) =\ & x^{114} + x^{112} + x^{104} + x^{102} + x^{98} + x^{94} + x^{92} + x^{84} + x^{80} + x^{78} + x^{76}\\
&+ x^{70} + x^{62} + x^{50} + x^{48} + x^{42} + x^{38} + x^{36} + x^{34} + x^{32} + x^{30} + x^{26}\\
&+ x^{24},\\
p_3(x) =\ & x^{106} + x^{104} + x^{96} + x^{94} + x^{92} + x^{82} + x^{80} + x^{72} + x^{66} + x^{60} + x^{58}\\
&+ x^{54} + x^{52} + x^{48} + x^{42} + x^{38} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24} + x^{20}\\
&+ x^{18} + x^{16} + x^{12} + x^{6},\\
p_6(x) =\ & x^{106} + x^{104} + x^{102} + x^{100} + x^{98} + x^{84} + x^{80} + x^{76} + x^{74} + x^{72} + x^{68}\\
&+ x^{66} + x^{64} + x^{62} + x^{60} + x^{54} + x^{50} + x^{48} + x^{42} + x^{38} + x^{34} + x^{32}\\
&+ x^{24} + x^{22} + x^{20} + x^{16} + x^{14} + x^{12} + x^{8} + x^{6} + x^{4} + 1,\\
p_9(x) =\ & x^{104} + x^{100} + x^{96} + x^{94} + x^{88} + x^{76} + x^{68} + x^{64} + x^{62} + x^{60} + x^{58}\\
&+ x^{54} + x^{52} + x^{44} + x^{40} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22} + x^{18} + x^{14}\\
&+ x^{10} + x^{2},\\
p_{12}(x) =\ & x^{104} + x^{98} + x^{96} + x^{88} + x^{82} + x^{80} + x^{72} + x^{66} + x^{64} + x^{40} + x^{34}\\
&+ x^{32} + x^{8} + x^{2} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0].

For $\phi(M^o, 0, 0)$:

$$
\begin{aligned}
p_0(x) =\ & x^{129} + x^{127} + x^{126} + x^{125} + x^{124} + x^{120} + x^{119} + x^{116} + x^{110} + x^{109}\\
&+ x^{108} + x^{107} + x^{106} + x^{102} + x^{97} + x^{95} + x^{94} + x^{90} + x^{89} + x^{85}\\
&+ x^{84} + x^{82} + x^{80} + x^{79} + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{65}\\
&+ x^{62} + x^{61} + x^{60} + x^{59} + x^{55} + x^{52} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45}\\
&+ x^{42} + x^{41} + x^{37} + x^{35} + x^{31} + x^{30} + x^{29} + x^{26} + x^{24} + x^{20} + x^{19}\\
&+ x^{18} + x^{16} + x^{15} + x^{14} + x^{13} + x^{12},\\
p_3(x) =\ & x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110}\\
&+ x^{108} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{93} + x^{92}
\end{aligned}
$$

$$
\begin{aligned}
&+x^{90}+x^{89}+x^{81}+x^{80}+x^{78}+x^{77}+x^{76}+x^{75}+x^{72}+x^{67}+x^{66}\\
&+x^{65}+x^{63}+x^{61}+x^{60}+x^{58}+x^{57}+x^{56}+x^{55}+x^{54}+x^{53}+x^{52}\\
&+x^{47}+x^{45}+x^{44}+x^{43}+x^{42}+x^{39}+x^{38}+x^{35}+x^{28}+x^{24}+x^{23}\\
&+x^{21}+x^{19}+x^{18}+x^{17}+x^{12}+x^{11}+x^{10}+x^{9}+x^{8},\\
p_6(x)=&\,x^{124}+x^{123}+x^{120}+x^{119}+x^{118}+x^{117}+x^{116}+x^{115}+x^{114}+x^{112}\\
&+x^{109}+x^{105}+x^{103}+x^{100}+x^{99}+x^{98}+x^{96}+x^{93}+x^{92}+x^{91}\\
&+x^{90}+x^{89}+x^{85}+x^{84}+x^{83}+x^{82}+x^{77}+x^{76}+x^{75}+x^{71}+x^{68}\\
&+x^{66}+x^{65}+x^{63}+x^{59}+x^{57}+x^{55}+x^{54}+x^{52}+x^{51}+x^{50}+x^{49}\\
&+x^{47}+x^{46}+x^{45}+x^{44}+x^{41}+x^{39}+x^{34}+x^{33}+x^{32}+x^{30}+x^{29}\\
&+x^{28}+x^{27}+x^{26}+x^{25}+x^{24}+x^{23}+x^{21}+x^{18}+x^{17}+x^{16}+x^{15}\\
&+x^{14}+x^{13}+x^{12}+x^{11}+x^{10}+x^{9}+x^{8}+x^{7}+x^{6}+x^{4}+x+1,\\
p_9(x)=&\,x^{124}+x^{121}+x^{117}+x^{116}+x^{76}+x^{73}+x^{69}+x^{68}+x^{60}+x^{57}+x^{53}\\
&+x^{52}+x^{44}+x^{41}+x^{37}+x^{36}+x^{28}+x^{25}+x^{21}+x^{20}+x^{12}+x^{9}\\
&+x^{5}+x^{4},\\
p_{12}(x)=&\,x^{124}+x^{121}+x^{117}+x^{113}+x^{112}+x^{104}+x^{101}+x^{100}+x^{88}+x^{85}\\
&+x^{84}+x^{76}+x^{73}+x^{72}+x^{68}+x^{65}+x^{64}+x^{60}+x^{57}+x^{53}+x^{49}\\
&+x^{48}+x^{44}+x^{41}+x^{40}+x^{36}+x^{33}+x^{32}+x^{28}+x^{25}+x^{21}+x^{17}\\
&+x^{16}+x^{12}+x^{9}+x^{8}+x^{4}+x+1,
\end{aligned}
$$

and the initial terms are [1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 0].

For $\phi(M^o, 0, 1)$:

$$
\begin{aligned}
p_0(x)=&\,x^{144}+x^{142}+x^{140}+x^{139}+x^{136}+x^{134}+x^{132}+x^{127}+x^{126}+x^{123}\\
&+x^{122}+x^{118}+x^{116}+x^{115}+x^{111}+x^{109}+x^{108}+x^{106}+x^{104}\\
&+x^{102}+x^{101}+x^{98}+x^{96}+x^{88}+x^{87}+x^{85}+x^{82}+x^{77}+x^{75}+x^{69}\\
&+x^{66}+x^{63}+x^{61}+x^{59}+x^{57}+x^{54}+x^{53}+x^{51}+x^{50}+x^{47}+x^{45}\\
&+x^{42}+x^{38}+x^{37}+x^{35}+x^{34}+x^{33}+x^{32}+x^{31}+x^{30}+x^{29}+x^{28}\\
&+x^{27},\\
p_3(x)=&\,x^{130}+x^{129}+x^{127}+x^{126}+x^{124}+x^{122}+x^{121}+x^{120}+x^{119}+x^{115}\\
&+x^{112}+x^{111}+x^{109}+x^{107}+x^{106}+x^{105}+x^{104}+x^{100}+x^{98}+x^{96}\\
&+x^{95}+x^{91}+x^{90}+x^{89}+x^{88}+x^{86}+x^{85}+x^{84}+x^{83}+x^{79}+x^{76}\\
&+x^{75}+x^{74}+x^{69}+x^{66}+x^{65}+x^{63}+x^{61}+x^{60}+x^{59}+x^{57}+x^{55}\\
&+x^{52}+x^{51}+x^{49}+x^{47}+x^{46}+x^{45}+x^{44}+x^{40}+x^{37}+x^{36}+x^{34}\\
&+x^{32}+x^{31}+x^{30}+x^{29}+x^{25}+x^{22}+x^{21}+x^{19}+x^{17}+x^{16}+x^{15}\\
&+x^{14}+x^{9},\\
p_6(x)=&\,x^{132}+x^{130}+x^{126}+x^{122}+x^{116}+x^{114}+x^{112}+x^{108}+x^{106}+x^{104}\\
&+x^{102}+x^{100}+x^{98}+x^{96}+x^{94}+x^{88}+x^{82}+x^{78}+x^{68}+x^{66}+x^{64}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{60} + x^{58} + x^{56} + x^{54} + x^{48} + x^{42} + x^{38} + x^{32} + x^{30} + x^{26} + x^{24}\\
&+ x^{18} + x^{16} + x^{10} + x^{6},\\
p_9(x) = &\, x^{134} + x^{133} + x^{132} + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124}\\
&+ x^{123} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} + x^{111}\\
&+ x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102}\\
&+ x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91}\\
&+ x^{90} + x^{89} + x^{88} + x^{87} + x^{83} + x^{74} + x^{73} + x^{72} + x^{70} + x^{69} + x^{68}\\
&+ x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55} + x^{42}\\
&+ x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30}\\
&+ x^{29} + x^{28} + x^{27} + x^{23} + x^{10} + x^{9} + x^{8} + x^{3},\\
p_{12}(x) = &\, x^{136} + x^{132} + x^{128} + x^{124} + x^{116} + x^{112} + x^{104} + x^{84} + x^{80} + x^{76}\\
&+ x^{60} + x^{56} + x^{44} + x^{28} + x^{24} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1].

For $\phi(M^o, 1, 0)$:

$$
\begin{aligned}
p_0(x) = &\, x^{122} + x^{120} + x^{119} + x^{118} + x^{116} + x^{113} + x^{110} + x^{105} + x^{104} + x^{103}\\
&+ x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{95} + x^{94} + x^{92} + x^{90} + x^{89} + x^{85}\\
&+ x^{80} + x^{79} + x^{76} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{63}\\
&+ x^{62} + x^{61} + x^{60} + x^{59} + x^{57} + x^{56} + x^{55} + x^{54} + x^{52} + x^{50} + x^{46}\\
&+ x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{27} + x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18},\\
p_3(x) = &\, x^{114} + x^{113} + x^{111} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102}\\
&+ x^{101} + x^{97} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79}\\
&+ x^{78} + x^{77} + x^{74} + x^{71} + x^{70} + x^{68} + x^{64} + x^{61} + x^{60} + x^{58} + x^{56}\\
&+ x^{55} + x^{54} + x^{53} + x^{50} + x^{47} + x^{46} + x^{44} + x^{40} + x^{37} + x^{36} + x^{33}\\
&+ x^{32} + x^{29} + x^{28} + x^{25} + x^{24} + x^{21} + x^{20} + x^{18} + x^{16} + x^{15} + x^{14}\\
&+ x^{13} + x^{9},\\
p_6(x) = &\, x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{102} + x^{98} + x^{96} + x^{90} + x^{86}\\
&+ x^{72} + x^{70} + x^{66} + x^{62} + x^{60} + x^{58} + x^{56} + x^{52} + x^{50} + x^{44} + x^{40}\\
&+ x^{36} + x^{34} + x^{26} + x^{20} + x^{18} + x^{16} + x^{6},\\
p_9(x) = &\, x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108}\\
&+ x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{98}\\
&+ x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87}\\
&+ x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76}\\
&+ x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{54} + x^{53} + x^{52} + x^{50} + x^{49}\\
&+ x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{35}
\end{aligned}
$$

$$
\begin{aligned}
&+x^{22}+x^{21}+x^{20}+x^{18}+x^{17}+x^{16}+x^{15}+x^{14}+x^{13}+x^{12}+x^{11}\\
&+x^{10}+x^{9}+x^{8}+x^{7}+x^{3},\\
p_{12}(x) &= x^{120}+x^{116}+x^{112}+x^{100}+x^{84}+x^{72}+x^{64}+x^{56}+x^{52}+x^{48}+x^{40}\\
&+x^{32}+x^{24}+x^{20}+x^{16}+x^{8}+1,
\end{aligned}
$$

and the initial terms are [0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0].

For $\phi(M^o, 1, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{129}+x^{127}+x^{125}+x^{120}+x^{119}+x^{115}+x^{113}+x^{112}+x^{111}+x^{109}\\
&+x^{103}+x^{102}+x^{101}+x^{100}+x^{99}+x^{98}+x^{97}+x^{96}+x^{95}+x^{94}\\
&+x^{93}+x^{92}+x^{88}+x^{83}+x^{81}+x^{80}+x^{78}+x^{77}+x^{73}+x^{72}+x^{68}\\
&+x^{66}+x^{64}+x^{62}+x^{61}+x^{52}+x^{51}+x^{50}+x^{49}+x^{45}+x^{42}+x^{39}\\
&+x^{37}+x^{36}+x^{33},\\
p_3(x) &= x^{124}+x^{123}+x^{119}+x^{116}+x^{115}+x^{114}+x^{111}+x^{109}+x^{106}+x^{105}\\
&+x^{103}+x^{102}+x^{97}+x^{96}+x^{94}+x^{92}+x^{91}+x^{90}+x^{87}+x^{86}+x^{85}\\
&+x^{84}+x^{82}+x^{81}+x^{80}+x^{79}+x^{77}+x^{76}+x^{75}+x^{74}+x^{72}+x^{71}\\
&+x^{68}+x^{64}+x^{63}+x^{62}+x^{61}+x^{59}+x^{58}+x^{53}+x^{52}+x^{50}+x^{45}\\
&+x^{41}+x^{39}+x^{38}+x^{37}+x^{36}+x^{35}+x^{32}+x^{29}+x^{24}+x^{23}+x^{22}\\
&+x^{21}+x^{20}+x^{18}+x^{15}+x^{13}+x^{12},\\
p_6(x) &= x^{124}+x^{123}+x^{119}+x^{116}+x^{114}+x^{113}+x^{111}+x^{109}+x^{107}+x^{105}\\
&+x^{97}+x^{96}+x^{94}+x^{92}+x^{90}+x^{88}+x^{87}+x^{86}+x^{85}+x^{84}+x^{83}\\
&+x^{82}+x^{80}+x^{76}+x^{75}+x^{74}+x^{73}+x^{72}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{64}+x^{61}+x^{58}+x^{55}+x^{53}+x^{52}+x^{48}+x^{47}+x^{46}+x^{45}+x^{39}\\
&+x^{38}+x^{37}+x^{36}+x^{35}+x^{33}+x^{25}+x^{24}+x^{23}+x^{22}+x^{21}+x^{20}\\
&+x^{19}+x^{15}+x^{14}+x^{13}+x^{12}+x^{11}+x^{9}+x^{5}+x+1,\\
p_9(x) &= x^{124}+x^{121}+x^{117}+x^{116}+x^{76}+x^{73}+x^{69}+x^{68}+x^{60}+x^{57}+x^{53}\\
&+x^{52}+x^{44}+x^{41}+x^{37}+x^{36}+x^{28}+x^{25}+x^{21}+x^{20}+x^{12}+x^{9}\\
&+x^{5}+x^{4},\\
p_{12}(x) &= x^{124}+x^{121}+x^{117}+x^{113}+x^{112}+x^{104}+x^{101}+x^{100}+x^{88}+x^{85}\\
&+x^{84}+x^{76}+x^{73}+x^{72}+x^{68}+x^{65}+x^{64}+x^{60}+x^{57}+x^{53}+x^{49}\\
&+x^{48}+x^{44}+x^{41}+x^{40}+x^{36}+x^{33}+x^{32}+x^{28}+x^{25}+x^{21}+x^{17}\\
&+x^{16}+x^{12}+x^{9}+x^{8}+x^{4}+x+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0].

For $\phi(W^o, 0, 0)$:

$$
\begin{aligned}
p_0(x) &= x^{129}+x^{127}+x^{126}+x^{125}+x^{124}+x^{120}+x^{119}+x^{116}+x^{110}+x^{109}\\
&+x^{108}+x^{107}+x^{106}+x^{102}+x^{97}+x^{95}+x^{94}+x^{90}+x^{89}+x^{85}\\
&+x^{84}+x^{82}+x^{80}+x^{79}+x^{76}+x^{74}+x^{73}+x^{72}+x^{71}+x^{67}+x^{65}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{62} + x^{61} + x^{60} + x^{59} + x^{55} + x^{52} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45}\\
&+ x^{42} + x^{41} + x^{37} + x^{35} + x^{31} + x^{30} + x^{29} + x^{26} + x^{24} + x^{20} + x^{19}\\
&+ x^{18} + x^{16} + x^{15} + x^{14} + x^{13} + x^{12},\\
p_3(x) = &\; x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110}\\
&+ x^{108} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{93} + x^{92}\\
&+ x^{90} + x^{89} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{75} + x^{72} + x^{67} + x^{66}\\
&+ x^{65} + x^{63} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{52}\\
&+ x^{47} + x^{45} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{35} + x^{28} + x^{24} + x^{23}\\
&+ x^{21} + x^{19} + x^{18} + x^{17} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8},\\
p_6(x) = &\; x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{112}\\
&+ x^{109} + x^{105} + x^{103} + x^{100} + x^{99} + x^{98} + x^{96} + x^{93} + x^{92} + x^{91}\\
&+ x^{90} + x^{89} + x^{85} + x^{84} + x^{83} + x^{82} + x^{77} + x^{76} + x^{75} + x^{71} + x^{68}\\
&+ x^{66} + x^{65} + x^{63} + x^{59} + x^{57} + x^{55} + x^{54} + x^{52} + x^{51} + x^{50} + x^{49}\\
&+ x^{47} + x^{46} + x^{45} + x^{44} + x^{41} + x^{39} + x^{34} + x^{33} + x^{32} + x^{30} + x^{29}\\
&+ x^{28} + x^{27} + x^{26} + x^{25} + x^{24} + x^{23} + x^{21} + x^{18} + x^{17} + x^{16} + x^{15}\\
&+ x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{4} + x + 1,\\
p_9(x) = &\; x^{124} + x^{121} + x^{117} + x^{116} + x^{76} + x^{73} + x^{69} + x^{68} + x^{60} + x^{57} + x^{53}\\
&+ x^{52} + x^{44} + x^{41} + x^{37} + x^{36} + x^{28} + x^{25} + x^{21} + x^{20} + x^{12} + x^{9}\\
&+ x^{5} + x^{4},\\
p_{12}(x) = &\; x^{124} + x^{121} + x^{117} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85}\\
&+ x^{84} + x^{76} + x^{73} + x^{72} + x^{68} + x^{65} + x^{64} + x^{60} + x^{57} + x^{53} + x^{49}\\
&+ x^{48} + x^{44} + x^{41} + x^{40} + x^{36} + x^{33} + x^{32} + x^{28} + x^{25} + x^{21} + x^{17}\\
&+ x^{16} + x^{12} + x^{9} + x^{8} + x^{4} + x + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 1, 0, 0, 0, 0, 1, 0, 0, 1, 1, 1, 0, 0, 0].

For $\phi(W^o, 0, 1)$:

$$
\begin{aligned}
p_0(x) = &\; x^{122} + x^{120} + x^{119} + x^{118} + x^{116} + x^{113} + x^{110} + x^{105} + x^{104} + x^{103}\\
&+ x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{95} + x^{94} + x^{92} + x^{90} + x^{89} + x^{85}\\
&+ x^{80} + x^{79} + x^{76} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{63}\\
&+ x^{62} + x^{61} + x^{60} + x^{59} + x^{57} + x^{56} + x^{55} + x^{54} + x^{52} + x^{50} + x^{46}\\
&+ x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{27} + x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18},\\
p_3(x) = &\; x^{114} + x^{113} + x^{111} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102}\\
&+ x^{101} + x^{97} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79}\\
&+ x^{78} + x^{77} + x^{74} + x^{71} + x^{70} + x^{68} + x^{64} + x^{61} + x^{60} + x^{58} + x^{56}\\
&+ x^{55} + x^{54} + x^{53} + x^{50} + x^{47} + x^{46} + x^{44} + x^{40} + x^{37} + x^{36} + x^{33}
\end{aligned}
$$

$$+ x^{32} + x^{29} + x^{28} + x^{25} + x^{24} + x^{21} + x^{20} + x^{18} + x^{16} + x^{15} + x^{14} + x^{13} + x^{9},$$

$$p_6(x) = x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{102} + x^{98} + x^{96} + x^{90} + x^{86} + x^{72} + x^{70} + x^{66} + x^{62} + x^{60} + x^{58} + x^{56} + x^{52} + x^{50} + x^{44} + x^{40} + x^{36} + x^{34} + x^{26} + x^{20} + x^{18} + x^{16} + x^{6},$$

$$p_9(x) = x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{67} + x^{54} + x^{53} + x^{52} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{35} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{3},$$

$$p_{12}(x) = x^{120} + x^{116} + x^{112} + x^{100} + x^{84} + x^{72} + x^{64} + x^{56} + x^{52} + x^{48} + x^{40} + x^{32} + x^{24} + x^{20} + x^{16} + x^{8} + 1,$$

and the initial terms are [0, 1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 1, 0, 0].

For $\phi(W^o, 1, 0)$:

$$p_0(x) = x^{144} + x^{142} + x^{140} + x^{139} + x^{136} + x^{134} + x^{132} + x^{127} + x^{126} + x^{123} + x^{122} + x^{118} + x^{116} + x^{115} + x^{111} + x^{109} + x^{108} + x^{106} + x^{104} + x^{102} + x^{101} + x^{98} + x^{96} + x^{88} + x^{87} + x^{85} + x^{82} + x^{77} + x^{75} + x^{69} + x^{66} + x^{63} + x^{61} + x^{59} + x^{57} + x^{54} + x^{53} + x^{51} + x^{50} + x^{47} + x^{45} + x^{42} + x^{38} + x^{37} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27},$$

$$p_3(x) = x^{130} + x^{129} + x^{127} + x^{126} + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{115} + x^{112} + x^{111} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{100} + x^{98} + x^{96} + x^{95} + x^{91} + x^{90} + x^{89} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{79} + x^{76} + x^{75} + x^{74} + x^{69} + x^{66} + x^{65} + x^{63} + x^{61} + x^{60} + x^{59} + x^{57} + x^{55} + x^{52} + x^{51} + x^{49} + x^{47} + x^{46} + x^{45} + x^{44} + x^{40} + x^{37} + x^{36} + x^{34} + x^{32} + x^{31} + x^{30} + x^{29} + x^{25} + x^{22} + x^{21} + x^{19} + x^{17} + x^{16} + x^{15} + x^{14} + x^{9},$$

$$p_6(x) = x^{132} + x^{130} + x^{126} + x^{122} + x^{116} + x^{114} + x^{112} + x^{108} + x^{106} + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{88} + x^{82} + x^{78} + x^{68} + x^{66} + x^{64} + x^{60} + x^{58} + x^{56} + x^{54} + x^{48} + x^{42} + x^{38} + x^{32} + x^{30} + x^{26} + x^{24} + x^{18} + x^{16} + x^{10} + x^{6},$$

$$p_9(x) = x^{134} + x^{133} + x^{132} + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124}$$

$$
\begin{aligned}
&+x^{123}+x^{119}+x^{118}+x^{117}+x^{116}+x^{114}+x^{113}+x^{112}+x^{111}\\
&+x^{110}+x^{109}+x^{108}+x^{107}+x^{106}+x^{105}+x^{104}+x^{103}+x^{102}\\
&+x^{101}+x^{100}+x^{99}+x^{98}+x^{97}+x^{96}+x^{95}+x^{94}+x^{93}+x^{92}+x^{91}\\
&+x^{90}+x^{89}+x^{88}+x^{87}+x^{83}+x^{74}+x^{73}+x^{72}+x^{70}+x^{69}+x^{68}\\
&+x^{67}+x^{66}+x^{65}+x^{64}+x^{63}+x^{62}+x^{61}+x^{60}+x^{59}+x^{55}+x^{42}\\
&+x^{41}+x^{40}+x^{38}+x^{37}+x^{36}+x^{35}+x^{34}+x^{33}+x^{32}+x^{31}+x^{30}\\
&+x^{29}+x^{28}+x^{27}+x^{23}+x^{10}+x^{9}+x^{8}+x^{3},\\
p_{12}(x)&=x^{136}+x^{132}+x^{128}+x^{124}+x^{116}+x^{112}+x^{104}+x^{84}+x^{80}+x^{76}\\
&+x^{60}+x^{56}+x^{44}+x^{28}+x^{24}+x^{12}+x^{8}+x^{4}+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1].

For $\phi(W^o, 1, 1)$:

$$
\begin{aligned}
p_0(x)&=x^{129}+x^{127}+x^{125}+x^{120}+x^{119}+x^{115}+x^{113}+x^{112}+x^{111}+x^{109}\\
&+x^{103}+x^{102}+x^{101}+x^{100}+x^{99}+x^{98}+x^{97}+x^{96}+x^{95}+x^{94}\\
&+x^{93}+x^{92}+x^{88}+x^{83}+x^{81}+x^{80}+x^{78}+x^{77}+x^{73}+x^{72}+x^{68}\\
&+x^{66}+x^{64}+x^{62}+x^{61}+x^{52}+x^{51}+x^{50}+x^{49}+x^{45}+x^{42}+x^{39}\\
&+x^{37}+x^{36}+x^{33},\\
p_3(x)&=x^{124}+x^{123}+x^{119}+x^{116}+x^{115}+x^{114}+x^{111}+x^{109}+x^{106}+x^{105}\\
&+x^{103}+x^{102}+x^{97}+x^{96}+x^{94}+x^{92}+x^{91}+x^{90}+x^{87}+x^{86}+x^{85}\\
&+x^{84}+x^{82}+x^{81}+x^{80}+x^{79}+x^{77}+x^{76}+x^{75}+x^{74}+x^{72}+x^{71}\\
&+x^{68}+x^{64}+x^{63}+x^{62}+x^{61}+x^{59}+x^{58}+x^{53}+x^{52}+x^{50}+x^{45}\\
&+x^{41}+x^{39}+x^{38}+x^{37}+x^{36}+x^{35}+x^{32}+x^{29}+x^{24}+x^{23}+x^{22}\\
&+x^{21}+x^{20}+x^{18}+x^{15}+x^{13}+x^{12},\\
p_6(x)&=x^{124}+x^{123}+x^{119}+x^{116}+x^{114}+x^{113}+x^{111}+x^{109}+x^{107}+x^{105}\\
&+x^{97}+x^{96}+x^{94}+x^{92}+x^{90}+x^{88}+x^{87}+x^{86}+x^{85}+x^{84}+x^{83}\\
&+x^{82}+x^{80}+x^{76}+x^{75}+x^{74}+x^{73}+x^{72}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{64}+x^{61}+x^{58}+x^{55}+x^{53}+x^{52}+x^{48}+x^{47}+x^{46}+x^{45}+x^{39}\\
&+x^{38}+x^{37}+x^{36}+x^{35}+x^{33}+x^{25}+x^{24}+x^{23}+x^{22}+x^{21}+x^{20}\\
&+x^{19}+x^{15}+x^{14}+x^{13}+x^{12}+x^{11}+x^{9}+x^{5}+x+1,\\
p_9(x)&=x^{124}+x^{121}+x^{117}+x^{116}+x^{76}+x^{73}+x^{69}+x^{68}+x^{60}+x^{57}+x^{53}\\
&+x^{52}+x^{44}+x^{41}+x^{37}+x^{36}+x^{28}+x^{25}+x^{21}+x^{20}+x^{12}+x^{9}\\
&+x^{5}+x^{4},\\
p_{12}(x)&=x^{124}+x^{121}+x^{117}+x^{113}+x^{112}+x^{104}+x^{101}+x^{100}+x^{88}+x^{85}\\
&+x^{84}+x^{76}+x^{73}+x^{72}+x^{68}+x^{65}+x^{64}+x^{60}+x^{57}+x^{53}+x^{49}\\
&+x^{48}+x^{44}+x^{41}+x^{40}+x^{36}+x^{33}+x^{32}+x^{28}+x^{25}+x^{21}+x^{17}\\
&+x^{16}+x^{12}+x^{9}+x^{8}+x^{4}+x+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 0, 0, 1, 0].

Below is the transition function and output function of an 2-automaton that generates $T = M^o_{0,0}$:

Transition function $(n, j) \mapsto \delta(n, j)$ $(\Lambda(n) := [\delta(n, 0), \delta(n, 1)])$:

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1201	[1930, 1652]	2402	[1657, 1531]	3603	[2344, 4210]
1	[3, 4]	1202	[1749, 1660]	2403	[3293, 3294]	3604	[4211, 1083]
2	[5, 6]	1203	[1931, 1932]	2404	[1755, 1923]	3605	[4212, 4213]
3	[7, 8]	1204	[1933, 756]	2405	[3295, 659]	3606	[4214, 2430]
4	[9, 10]	1205	[1934, 1935]	2406	[2081, 1545]	3607	[405, 4182]
5	[11, 12]	1206	[1891, 1788]	2407	[1805, 2056]	3608	[4215, 25]
6	[13, 14]	1207	[1936, 1665]	2408	[3231, 1689]	3609	[4216, 4217]
7	[15, 16]	1208	[695, 1937]	2409	[3296, 2129]	3610	[4218, 4101]
8	[17, 18]	1209	[672, 663]	2410	[1717, 2035]	3611	[902, 3943]
9	[19, 20]	1210	[1938, 1939]	2411	[3297, 208]	3612	[2899, 867]
10	[21, 22]	1211	[1940, 1941]	2412	[1685, 601]	3613	[2963, 1025]
11	[23, 24]	1212	[581, 1942]	2413	[194, 1561]	3614	[4219, 2728]
12	[25, 26]	1213	[1943, 1549]	2414	[1664, 3167]	3615	[4220, 4221]
13	[27, 28]	1214	[1944, 1739]	2415	[3298, 1629]	3616	[386, 307]
14	[29, 30]	1215	[1827, 1945]	2416	[3299, 806]	3617	[2363, 4222]
15	[31, 32]	1216	[1946, 182]	2417	[3300, 1824]	3618	[4223, 4224]
16	[33, 34]	1217	[1947, 1948]	2418	[3301, 2099]	3619	[4225, 4226]
17	[35, 36]	1218	[710, 1949]	2419	[1628, 3302]	3620	[1378, 453]
18	[37, 38]	1219	[1950, 827]	2420	[3303, 3304]	3621	[4227, 3805]
19	[39, 40]	1220	[527, 1951]	2421	[244, 3305]	3622	[4228, 275]
20	[41, 42]	1221	[1654, 807]	2422	[3306, 2001]	3623	[4229, 2438]
21	[43, 44]	1222	[1952, 1953]	2423	[3307, 1765]	3624	[4230, 4231]
22	[45, 46]	1223	[1803, 1954]	2424	[3308, 45]	3625	[471, 2741]
23	[47, 48]	1224	[804, 1955]	2425	[3309, 206]	3626	[4232, 1002]
24	[49, 50]	1225	[1956, 681]	2426	[2064, 3310]	3627	[1332, 2365]
25	[51, 52]	1226	[1957, 1958]	2427	[3311, 559]	3628	[4233, 3124]
26	[53, 54]	1227	[1959, 537]	2428	[3312, 3313]	3629	[4197, 1354]
27	[55, 56]	1228	[31, 1960]	2429	[786, 532]	3630	[3876, 2494]
28	[57, 58]	1229	[1961, 723]	2430	[3314, 3315]	3631	[4234, 4235]
29	[59, 60]	1230	[823, 1962]	2431	[1960, 816]	3632	[2574, 3096]
30	[61, 62]	1231	[226, 1963]	2432	[645, 185]	3633	[4236, 2532]
31	[63, 64]	1232	[1964, 1965]	2433	[56, 853]	3634	[4237, 4238]
32	[65, 66]	1233	[1966, 1678]	2434	[3316, 3317]	3635	[2684, 4239]
33	[67, 68]	1234	[1721, 130]	2435	[3318, 1750]	3636	[4240, 4241]
34	[69, 70]	1235	[1680, 832]	2436	[3172, 1646]	3637	[4242, 121]
35	[71, 72]	1236	[1754, 598]	2437	[834, 1528]	3638	[4243, 4244]
36	[73, 74]	1237	[1967, 1968]	2438	[1978, 158]	3639	[4245, 2483]
37	[75, 76]	1238	[1969, 1970]	2439	[2074, 3294]	3640	[4246, 1174]
38	[77, 78]	1239	[1781, 140]	2440	[3319, 678]	3641	[4247, 3118]

39	[79, 80]	1240	[1971, 1884]	2441	[2070, 3320]	3642	[3123, 2506]
40	[81, 82]	1241	[1587, 1972]	2442	[1607, 3318]	3643	[4248, 4249]
41	[83, 84]	1242	[1973, 843]	2443	[3321, 2145]	3644	[1081, 868]
42	[85, 86]	1243	[1974, 1693]	2444	[615, 1900]	3645	[4250, 4251]
43	[87, 88]	1244	[783, 1975]	2445	[3322, 3323]	3646	[3891, 3150]
44	[89, 90]	1245	[1575, 596]	2446	[655, 3318]	3647	[4252, 3070]
45	[91, 92]	1246	[1976, 1977]	2447	[3324, 3325]	3648	[4086, 332]
46	[93, 94]	1247	[1978, 1887]	2448	[1738, 839]	3649	[4253, 2597]
47	[95, 96]	1248	[1979, 1980]	2449	[3275, 3326]	3650	[4254, 2819]
48	[97, 98]	1249	[1819, 1981]	2450	[1643, 553]	3651	[4255, 1362]
49	[99, 100]	1250	[1982, 1983]	2451	[3327, 1834]	3652	[2246, 4256]
50	[101, 102]	1251	[1984, 1985]	2452	[1972, 640]	3653	[4257, 322]
51	[103, 104]	1252	[1986, 46]	2453	[3328, 765]	3654	[4258, 1275]
52	[105, 106]	1253	[790, 1987]	2454	[490, 3192]	3655	[3960, 2551]
53	[107, 108]	1254	[1988, 155]	2455	[530, 1690]	3656	[4259, 3969]
54	[109, 110]	1255	[1989, 1990]	2456	[2146, 3329]	3657	[4260, 2740]
55	[111, 112]	1256	[1991, 40]	2457	[3330, 508]	3658	[4261, 4262]
56	[113, 114]	1257	[127, 1806]	2458	[1542, 3207]	3659	[4263, 4264]
57	[115, 116]	1258	[182, 1992]	2459	[3331, 2181]	3660	[450, 1123]
58	[117, 118]	1259	[1948, 675]	2460	[132, 1689]	3661	[2606, 977]
59	[119, 120]	1260	[824, 1993]	2461	[3332, 3333]	3662	[4265, 4266]
60	[121, 122]	1261	[711, 1994]	2462	[669, 2011]	3663	[4267, 1401]
61	[123, 124]	1262	[1995, 1771]	2463	[225, 1555]	3664	[4268, 2801]
62	[125, 126]	1263	[1996, 803]	2464	[1681, 1733]	3665	[4269, 4270]
63	[127, 128]	1264	[1997, 172]	2465	[2093, 3334]	3666	[4271, 4272]
64	[129, 130]	1265	[1998, 1999]	2466	[3335, 1901]	3667	[3095, 1163]
65	[131, 132]	1266	[2000, 2001]	2467	[3311, 3336]	3668	[4273, 4274]
66	[133, 134]	1267	[2002, 2003]	2468	[3337, 3338]	3669	[4275, 4276]
67	[61, 135]	1268	[497, 666]	2469	[3339, 481]	3670	[4277, 4278]
68	[136, 137]	1269	[2004, 1776]	2470	[1999, 1714]	3671	[4279, 4280]
69	[138, 139]	1270	[139, 1917]	2471	[3340, 3341]	3672	[4281, 4282]
70	[140, 141]	1271	[2005, 1793]	2472	[665, 1580]	3673	[362, 4005]
71	[142, 143]	1272	[217, 1631]	2473	[2104, 2007]	3674	[4283, 2882]
72	[144, 145]	1273	[2006, 586]	2474	[504, 1942]	3675	[4284, 2324]
73	[146, 147]	1274	[2007, 2008]	2475	[32, 1542]	3676	[4285, 2874]
74	[148, 149]	1275	[2009, 2010]	2476	[1807, 3342]	3677	[4286, 2680]
75	[150, 151]	1276	[14, 2011]	2477	[1530, 1737]	3678	[4287, 4288]
76	[152, 153]	1277	[2012, 1593]	2478	[3343, 1880]	3679	[4289, 4290]
77	[154, 155]	1278	[2013, 2014]	2479	[717, 726]	3680	[4291, 2677]
78	[156, 148]	1279	[158, 1888]	2480	[3344, 1671]	3681	[4199, 4292]
79	[157, 158]	1280	[160, 2015]	2481	[3345, 3346]	3682	[2587, 4293]
80	[159, 160]	1281	[773, 34]	2482	[1616, 837]	3683	[3099, 1342]
81	[161, 162]	1282	[1540, 2016]	2483	[3265, 3347]	3684	[4294, 4295]
82	[43, 163]	1283	[2017, 2018]	2484	[3348, 486]	3685	[4296, 4297]

83	[164, 165]	1284	[792, 849]	2485	[3349, 1595]	3686	[1412, 1485]
84	[166, 2]	1285	[2019, 2020]	2486	[2053, 184]	3687	[3873, 922]
85	[167, 168]	1286	[607, 1897]	2487	[2225, 797]	3688	[2780, 4222]
86	[169, 170]	1287	[2021, 186]	2488	[3350, 3351]	3689	[4298, 4299]
87	[171, 172]	1288	[2022, 2023]	2489	[3352, 3171]	3690	[4300, 2525]
88	[173, 174]	1289	[2024, 214]	2490	[3353, 1541]	3691	[3741, 3126]
89	[175, 176]	1290	[2025, 2026]	2491	[55, 768]	3692	[4301, 1232]
90	[177, 178]	1291	[2027, 558]	2492	[2001, 3206]	3693	[4302, 874]
91	[179, 180]	1292	[2028, 2029]	2493	[205, 1995]	3694	[4303, 4304]
92	[181, 182]	1293	[758, 2030]	2494	[2140, 572]	3695	[4305, 4306]
93	[183, 184]	1294	[2031, 52]	2495	[3354, 171]	3696	[4307, 1288]
94	[185, 186]	1295	[2032, 2033]	2496	[3266, 127]	3697	[4308, 1189]
95	[187, 188]	1296	[2034, 2035]	2497	[3355, 631]	3698	[1015, 1481]
96	[189, 190]	1297	[2036, 481]	2498	[598, 48]	3699	[3865, 2410]
97	[191, 192]	1298	[2037, 1582]	2499	[3356, 1955]	3700	[4309, 1029]
98	[193, 194]	1299	[2038, 198]	2500	[1920, 57]	3701	[983, 1026]
99	[195, 196]	1300	[736, 2039]	2501	[782, 580]	3702	[1206, 1142]
100	[197, 198]	1301	[2040, 732]	2502	[3357, 1658]	3703	[4310, 4311]
101	[199, 200]	1302	[2041, 732]	2503	[2111, 510]	3704	[4312, 2769]
102	[201, 202]	1303	[202, 751]	2504	[2211, 1624]	3705	[4313, 2241]
103	[203, 204]	1304	[721, 2042]	2505	[549, 3358]	3706	[3128, 1486]
104	[205, 206]	1305	[729, 761]	2506	[596, 1691]	3707	[4314, 4315]
105	[207, 208]	1306	[2043, 2041]	2507	[571, 148]	3708	[2904, 1215]
106	[209, 210]	1307	[2044, 2044]	2508	[3291, 152]	3709	[4316, 4152]
107	[211, 212]	1308	[733, 2030]	2509	[501, 3173]	3710	[4317, 4068]
108	[213, 211]	1309	[2030, 201]	2510	[3242, 604]	3711	[4318, 4319]
109	[214, 215]	1310	[760, 2043]	2511	[1583, 564]	3712	[4320, 4321]
110	[202, 213]	1311	[53, 2043]	2512	[3359, 3360]	3713	[4322, 1307]
111	[216, 217]	1312	[214, 2042]	2513	[1683, 527]	3714	[3069, 1416]
112	[218, 219]	1313	[2045, 42]	2514	[3361, 3362]	3715	[4323, 2566]
113	[220, 221]	1314	[1905, 143]	2515	[3363, 1833]	3716	[4324, 2958]
114	[222, 223]	1315	[2046, 2047]	2516	[1948, 3364]	3717	[2858, 879]
115	[224, 225]	1316	[2048, 1584]	2517	[1927, 1835]	3718	[1398, 2811]
116	[226, 227]	1317	[2049, 2050]	2518	[1877, 1702]	3719	[1322, 2421]
117	[228, 229]	1318	[2051, 2052]	2519	[3365, 828]	3720	[4325, 4326]
118	[230, 231]	1319	[552, 562]	2520	[535, 3366]	3721	[4327, 4328]
119	[232, 233]	1320	[2053, 2054]	2521	[3367, 3368]	3722	[291, 1316]
120	[234, 13]	1321	[1566, 2055]	2522	[1610, 2121]	3723	[2828, 3125]
121	[235, 236]	1322	[2056, 1627]	2523	[3369, 810]	3724	[4329, 1423]
122	[237, 238]	1323	[2057, 1997]	2524	[634, 3370]	3725	[2529, 1087]
123	[239, 240]	1324	[1986, 1614]	2525	[3371, 2050]	3726	[4330, 470]
124	[241, 242]	1325	[2058, 1950]	2526	[3372, 837]	3727	[4331, 1353]
125	[243, 244]	1326	[2059, 2060]	2527	[1974, 645]	3728	[3821, 2365]
126	[245, 246]	1327	[1830, 2061]	2528	[1710, 32]	3729	[286, 323]

127	[247, 248]	1328	[2022, 2062]	2529	[1748, 1589]	3730	[4332, 1467]
128	[249, 250]	1329	[2063, 1649]	2530	[3222, 3373]	3731	[4333, 4334]
129	[251, 252]	1330	[1628, 535]	2531	[662, 1774]	3732	[4335, 2594]
130	[253, 254]	1331	[2064, 1578]	2532	[3319, 794]	3733	[4336, 2239]
131	[255, 256]	1332	[2017, 2065]	2533	[515, 1620]	3734	[2847, 261]
132	[257, 258]	1333	[148, 2066]	2534	[2008, 716]	3735	[3486, 844]
133	[259, 260]	1334	[2067, 1909]	2535	[3374, 608]	3736	[4337, 1755]
134	[261, 262]	1335	[2068, 2069]	2536	[243, 3353]	3737	[3602, 3717]
135	[263, 264]	1336	[2070, 2071]	2537	[3375, 3376]	3738	[4338, 1527]
136	[265, 266]	1337	[166, 2072]	2538	[210, 2108]	3739	[595, 8]
137	[267, 268]	1338	[215, 2073]	2539	[3348, 1933]	3740	[4339, 655]
138	[269, 270]	1339	[2074, 1720]	2540	[169, 2103]	3741	[1865, 141]
139	[271, 272]	1340	[2075, 230]	2541	[1894, 1657]	3742	[4340, 3304]
140	[273, 274]	1341	[2076, 2077]	2542	[650, 196]	3743	[4341, 491]
141	[275, 276]	1342	[221, 2078]	2543	[3377, 3378]	3744	[1535, 828]
142	[277, 278]	1343	[729, 2024]	2544	[3315, 3379]	3745	[2168, 3282]
143	[279, 280]	1344	[730, 201]	2545	[3380, 543]	3746	[554, 1950]
144	[281, 282]	1345	[2079, 1665]	2546	[10, 3346]	3747	[1909, 1735]
145	[283, 284]	1346	[555, 1965]	2547	[1691, 3238]	3748	[1973, 1949]
146	[285, 286]	1347	[2080, 2081]	2548	[3381, 1605]	3749	[13, 669]
147	[287, 87]	1348	[609, 654]	2549	[1824, 3382]	3750	[4342, 1638]
148	[288, 289]	1349	[2082, 2083]	2550	[764, 217]	3751	[1959, 501]
149	[290, 291]	1350	[2084, 1896]	2551	[2175, 2123]	3752	[1558, 3272]
150	[292, 293]	1351	[2085, 2019]	2552	[823, 1766]	3753	[840, 1711]
151	[294, 295]	1352	[576, 2086]	2553	[3383, 1721]	3754	[225, 2090]
152	[296, 297]	1353	[1941, 499]	2554	[3384, 1648]	3755	[1627, 534]
153	[298, 299]	1354	[2041, 757]	2555	[1742, 1924]	3756	[4343, 3318]
154	[300, 301]	1355	[2024, 721]	2556	[1548, 1627]	3757	[4344, 3526]
155	[302, 303]	1356	[213, 728]	2557	[3206, 227]	3758	[3195, 43]
156	[304, 305]	1357	[759, 760]	2558	[2096, 787]	3759	[4345, 2179]
157	[306, 307]	1358	[54, 2040]	2559	[1793, 152]	3760	[3548, 1552]
158	[308, 309]	1359	[751, 211]	2560	[3385, 1689]	3761	[4346, 3434]
159	[310, 311]	1360	[2087, 185]	2561	[3386, 1799]	3762	[3185, 1814]
160	[312, 313]	1361	[1687, 2088]	2562	[540, 1716]	3763	[4347, 1968]
161	[314, 315]	1362	[2089, 1854]	2563	[3387, 167]	3764	[4348, 614]
162	[316, 317]	1363	[2090, 1556]	2564	[3178, 3388]	3765	[3460, 230]
163	[318, 319]	1364	[2091, 828]	2565	[3389, 3390]	3766	[4349, 3546]
164	[320, 321]	1365	[2092, 2093]	2566	[1647, 178]	3767	[806, 1655]
165	[322, 323]	1366	[2094, 2095]	2567	[3391, 3353]	3768	[4350, 702]
166	[324, 325]	1367	[2096, 193]	2568	[3392, 3184]	3769	[3524, 1891]
167	[326, 327]	1368	[2097, 2077]	2569	[3393, 3394]	3770	[3396, 190]
168	[270, 328]	1369	[2098, 2099]	2570	[1647, 491]	3771	[3664, 2143]
169	[329, 330]	1370	[517, 2100]	2571	[2081, 1758]	3772	[3247, 129]
170	[331, 332]	1371	[2101, 1812]	2572	[1919, 158]	3773	[4351, 4352]

171	[333, 334]	1372	[511, 625]	2573	[3395, 3396]	3774	[3265, 231]
172	[335, 336]	1373	[2102, 1526]	2574	[228, 2200]	3775	[2068, 746]
173	[337, 338]	1374	[1557, 2103]	2575	[3357, 3358]	3776	[3322, 208]
174	[339, 340]	1375	[2104, 831]	2576	[2156, 577]	3777	[4353, 3556]
175	[341, 342]	1376	[596, 503]	2577	[1735, 3397]	3778	[759, 53]
176	[343, 344]	1377	[2105, 230]	2578	[1788, 2131]	3779	[4354, 1800]
177	[345, 346]	1378	[2106, 2107]	2579	[3398, 833]	3780	[2224, 1643]
178	[347, 348]	1379	[785, 2108]	2580	[1914, 2138]	3781	[1579, 661]
179	[349, 350]	1380	[1887, 2109]	2581	[3399, 1748]	3782	[852, 1758]
180	[351, 352]	1381	[2110, 806]	2582	[1926, 1616]	3783	[2087, 714]
181	[353, 354]	1382	[1877, 1588]	2583	[3400, 3401]	3784	[4344, 1980]
182	[355, 356]	1383	[2111, 1633]	2584	[3402, 1682]	3785	[772, 3231]
183	[357, 358]	1384	[2112, 1581]	2585	[3403, 777]	3786	[1999, 1593]
184	[359, 360]	1385	[2113, 2088]	2586	[3404, 3355]	3787	[3318, 1698]
185	[361, 362]	1386	[851, 2081]	2587	[1594, 3353]	3788	[3444, 510]
186	[363, 364]	1387	[2114, 678]	2588	[3405, 3277]	3789	[4355, 1980]
187	[365, 366]	1388	[531, 154]	2589	[1861, 2227]	3790	[4356, 1834]
188	[367, 368]	1389	[2115, 1927]	2590	[3406, 1921]	3791	[1529, 1547]
189	[369, 370]	1390	[1858, 1575]	2591	[3407, 1941]	3792	[153, 1714]
190	[371, 372]	1391	[2116, 1681]	2592	[3408, 3409]	3793	[4357, 1814]
191	[373, 374]	1392	[704, 1647]	2593	[3187, 222]	3794	[4358, 2029]
192	[375, 376]	1393	[2056, 686]	2594	[3410, 739]	3795	[1553, 3611]
193	[377, 378]	1394	[507, 2117]	2595	[3411, 2202]	3796	[625, 564]
194	[379, 380]	1395	[2118, 504]	2596	[3412, 3181]	3797	[1584, 1533]
195	[381, 382]	1396	[2119, 584]	2597	[3413, 677]	3798	[4359, 694]
196	[383, 384]	1397	[659, 693]	2598	[3291, 1590]	3799	[4360, 3622]
197	[385, 386]	1398	[33, 774]	2599	[1950, 3414]	3800	[3640, 3556]
198	[387, 388]	1399	[2120, 2121]	2600	[2060, 3338]	3801	[2093, 671]
199	[389, 390]	1400	[1623, 193]	2601	[3415, 593]	3802	[4361, 1791]
200	[391, 392]	1401	[2122, 1609]	2602	[1925, 1615]	3803	[4362, 3362]
201	[393, 394]	1402	[160, 2123]	2603	[3416, 3417]	3804	[4363, 2048]
202	[395, 396]	1403	[2124, 2125]	2604	[3418, 189]	3805	[4364, 3351]
203	[397, 398]	1404	[611, 62]	2605	[1616, 3419]	3806	[4365, 813]
204	[399, 400]	1405	[2126, 241]	2606	[779, 704]	3807	[4366, 3206]
205	[401, 402]	1406	[754, 1829]	2607	[3420, 2047]	3808	[4367, 3311]
206	[403, 85]	1407	[2127, 2128]	2608	[3421, 532]	3809	[1898, 1770]
207	[404, 405]	1408	[2129, 2130]	2609	[1818, 1919]	3810	[4368, 507]
208	[406, 407]	1409	[1795, 2131]	2610	[218, 1744]	3811	[3487, 2197]
209	[408, 409]	1410	[1812, 1929]	2611	[739, 2130]	3812	[36, 1581]
210	[410, 411]	1411	[2132, 816]	2612	[3422, 1536]	3813	[4369, 3238]
211	[396, 412]	1412	[1703, 1911]	2613	[2134, 1665]	3814	[3537, 767]
212	[413, 414]	1413	[1989, 2133]	2614	[3423, 3424]	3815	[4370, 3288]
213	[394, 415]	1414	[753, 1862]	2615	[608, 147]	3816	[1710, 1960]
214	[416, 417]	1415	[2134, 790]	2616	[3425, 3426]	3817	[4371, 3178]

215	[418, 419]	1416	[1761, 635]	2617	[667, 1884]	3818	[2180, 497]
216	[420, 421]	1417	[2135, 2136]	2618	[3427, 3428]	3819	[1530, 191]
217	[422, 423]	1418	[2137, 2138]	2619	[1581, 627]	3820	[4372, 1757]
218	[424, 425]	1419	[2139, 834]	2620	[3244, 576]	3821	[2157, 484]
219	[309, 426]	1420	[1744, 2140]	2621	[3429, 1604]	3822	[4373, 748]
220	[427, 428]	1421	[2141, 2142]	2622	[3239, 1821]	3823	[3465, 491]
221	[429, 430]	1422	[1972, 2143]	2623	[3430, 3291]	3824	[4374, 4375]
222	[431, 432]	1423	[2144, 2145]	2624	[2063, 707]	3825	[654, 805]
223	[433, 434]	1424	[2146, 2147]	2625	[3431, 1765]	3826	[778, 3172]
224	[435, 436]	1425	[1890, 188]	2626	[3432, 33]	3827	[4376, 1688]
225	[437, 438]	1426	[2019, 1800]	2627	[1761, 3370]	3828	[4377, 1861]
226	[439, 440]	1427	[2148, 1715]	2628	[3433, 3434]	3829	[1775, 1894]
227	[441, 442]	1428	[2149, 1777]	2629	[3435, 1554]	3830	[830, 2007]
228	[443, 444]	1429	[1612, 2090]	2630	[2058, 826]	3831	[4378, 4379]
229	[445, 446]	1430	[2048, 1532]	2631	[3436, 634]	3832	[533, 2100]
230	[447, 448]	1431	[1657, 37]	2632	[176, 3437]	3833	[4380, 1945]
231	[449, 450]	1432	[2150, 2151]	2633	[178, 1586]	3834	[4381, 1542]
232	[451, 452]	1433	[2152, 2153]	2634	[3248, 1675]	3835	[1550, 499]
233	[453, 454]	1434	[554, 826]	2635	[3438, 2093]	3836	[3666, 639]
234	[455, 456]	1435	[785, 1872]	2636	[2216, 1728]	3837	[1613, 1824]
235	[457, 458]	1436	[2154, 158]	2637	[3220, 606]	3838	[4382, 3364]
236	[459, 460]	1437	[2059, 2155]	2638	[1757, 1621]	3839	[2207, 3272]
237	[461, 462]	1438	[1570, 2156]	2639	[480, 582]	3840	[4383, 1598]
238	[463, 464]	1439	[578, 643]	2640	[692, 1962]	3841	[2210, 481]
239	[465, 466]	1440	[2157, 1731]	2641	[3439, 543]	3842	[742, 204]
240	[467, 468]	1441	[2086, 2158]	2642	[3440, 150]	3843	[1873, 1948]
241	[428, 469]	1442	[1861, 2159]	2643	[3441, 1532]	3844	[4384, 669]
242	[470, 471]	1443	[803, 1680]	2644	[3442, 3443]	3845	[3389, 3376]
243	[472, 473]	1444	[2160, 2161]	2645	[3444, 1633]	3846	[3623, 3338]
244	[474, 475]	1445	[1943, 1877]	2646	[831, 2008]	3847	[3193, 3357]
245	[476, 477]	1446	[2162, 2163]	2647	[3445, 810]	3848	[639, 2143]
246	[478, 273]	1447	[2008, 1868]	2648	[3226, 2026]	3849	[4385, 238]
247	[479, 480]	1448	[2164, 1985]	2649	[1674, 1638]	3850	[4386, 1997]
248	[481, 482]	1449	[2165, 735]	2650	[3446, 3205]	3851	[4387, 3612]
249	[483, 484]	1450	[1776, 2166]	2651	[621, 712]	3852	[4388, 701]
250	[238, 485]	1451	[2167, 695]	2652	[152, 1999]	3853	[32, 816]
251	[486, 487]	1452	[626, 1537]	2653	[236, 3447]	3854	[4389, 3271]
252	[140, 488]	1453	[2168, 2169]	2654	[3448, 1615]	3855	[3511, 2093]
253	[489, 490]	1454	[2170, 2171]	2655	[670, 3334]	3856	[2098, 4390]
254	[491, 492]	1455	[509, 2172]	2656	[3351, 2018]	3857	[223, 1751]
255	[493, 494]	1456	[2173, 1735]	2657	[3449, 573]	3858	[4391, 210]
256	[495, 496]	1457	[2174, 2175]	2658	[3450, 1990]	3859	[673, 664]
257	[497, 498]	1458	[2176, 2177]	2659	[3451, 2146]	3860	[4392, 3323]
258	[499, 500]	1459	[1527, 835]	2660	[3452, 1758]	3861	[4393, 140]

259	[501, 502]	1460	[2178, 2147]	2661	[3453, 1644]	3862	[3535, 806]
260	[8, 503]	1461	[550, 1757]	2662	[35, 2112]	3863	[3600, 2]
261	[504, 505]	1462	[132, 2179]	2663	[3454, 783]	3864	[3344, 3498]
262	[506, 507]	1463	[2180, 2181]	2664	[705, 1632]	3865	[178, 492]
263	[508, 509]	1464	[2182, 2183]	2665	[2181, 666]	3866	[4394, 684]
264	[510, 511]	1465	[2184, 2163]	2666	[185, 1601]	3867	[1799, 2020]
265	[512, 513]	1466	[2185, 2186]	2667	[3455, 3456]	3868	[3439, 738]
266	[514, 515]	1467	[2187, 1579]	2668	[10, 3379]	3869	[2139, 1527]
267	[516, 517]	1468	[1806, 133]	2669	[3457, 1739]	3870	[4395, 3498]
268	[518, 519]	1469	[2188, 1684]	2670	[3458, 143]	3871	[4396, 3200]
269	[520, 521]	1470	[2189, 2034]	2671	[174, 1764]	3872	[1874, 675]
270	[522, 523]	1471	[241, 2190]	2672	[3459, 2145]	3873	[3302, 1669]
271	[524, 525]	1472	[158, 2109]	2673	[3460, 3265]	3874	[3502, 3179]
272	[526, 527]	1473	[2191, 737]	2674	[3461, 3462]	3875	[3464, 1676]
273	[528, 529]	1474	[2192, 2193]	2675	[610, 61]	3876	[1569, 1939]
274	[530, 531]	1475	[1966, 2194]	2676	[3463, 743]	3877	[4397, 176]
275	[532, 533]	1476	[1715, 237]	2677	[2038, 2151]	3878	[1661, 1816]
276	[534, 535]	1477	[2090, 540]	2678	[1812, 176]	3879	[2031, 3607]
277	[536, 537]	1478	[2195, 1970]	2679	[224, 1612]	3880	[719, 2193]
278	[538, 539]	1479	[518, 1751]	2680	[3464, 528]	3881	[4398, 1531]
279	[540, 541]	1480	[2196, 2197]	2681	[3465, 178]	3882	[4399, 1674]
280	[542, 543]	1481	[191, 1840]	2682	[1700, 763]	3883	[3539, 2063]
281	[544, 545]	1482	[2198, 236]	2683	[3466, 1673]	3884	[3617, 1981]
282	[546, 547]	1483	[2199, 2200]	2684	[3467, 1673]	3885	[3712, 3209]
283	[548, 549]	1484	[673, 2201]	2685	[765, 3468]	3886	[4400, 533]
284	[514, 550]	1485	[2201, 2202]	2686	[794, 679]	3887	[3391, 244]
285	[551, 552]	1486	[1911, 1819]	2687	[2179, 746]	3888	[4401, 1948]
286	[553, 554]	1487	[1929, 1908]	2688	[3469, 1853]	3889	[1653, 1997]
287	[555, 173]	1488	[1561, 1534]	2689	[709, 1973]	3890	[4402, 1808]
288	[556, 557]	1489	[2203, 1986]	2690	[3470, 1729]	3891	[3374, 146]
289	[558, 559]	1490	[2141, 1992]	2691	[3471, 2050]	3892	[4403, 46]
290	[560, 48]	1491	[2204, 1911]	2692	[3418, 3396]	3893	[691, 823]
291	[561, 526]	1492	[577, 2158]	2693	[3472, 140]	3894	[572, 1767]
292	[562, 563]	1493	[40, 2205]	2694	[3473, 2062]	3895	[585, 1880]
293	[564, 565]	1494	[1851, 581]	2695	[3474, 2039]	3896	[498, 667]
294	[566, 567]	1495	[2206, 1718]	2696	[3475, 3476]	3897	[4404, 3265]
295	[568, 569]	1496	[2207, 574]	2697	[788, 568]	3898	[641, 3307]
296	[570, 571]	1497	[1531, 2208]	2698	[3477, 1790]	3899	[4405, 185]
297	[572, 573]	1498	[2209, 517]	2699	[3478, 3479]	3900	[1844, 33]
298	[574, 575]	1499	[1906, 1626]	2700	[3272, 3480]	3901	[3504, 773]
299	[576, 577]	1500	[2210, 150]	2701	[1874, 3364]	3902	[1526, 1592]
300	[578, 579]	1501	[1961, 2177]	2702	[3481, 1594]	3903	[139, 168]
301	[580, 581]	1502	[2211, 57]	2703	[1839, 192]	3904	[674, 3364]
302	[582, 583]	1503	[664, 2212]	2704	[11, 617]	3905	[3399, 810]

303	[584, 585]	1504	[1633, 511]	2705	[3482, 165]	3906	[832, 3506]
304	[586, 587]	1505	[2213, 2107]	2706	[143, 1640]	3907	[4406, 33]
305	[588, 589]	1506	[678, 795]	2707	[1652, 3188]	3908	[2220, 743]
306	[147, 590]	1507	[2214, 2186]	2708	[3483, 611]	3909	[4407, 3234]
307	[591, 592]	1508	[1788, 181]	2709	[3484, 224]	3910	[4339, 1607]
308	[593, 594]	1509	[2215, 13]	2710	[2001, 226]	3911	[4408, 1799]
309	[595, 596]	1510	[193, 788]	2711	[3485, 503]	3912	[3214, 37]
310	[597, 598]	1511	[2216, 514]	2712	[3486, 58]	3913	[3217, 4409]
311	[599, 233]	1512	[2217, 1942]	2713	[3487, 3313]	3914	[4410, 578]
312	[600, 601]	1513	[1934, 2218]	2714	[3488, 567]	3915	[4411, 1831]
313	[194, 568]	1514	[2219, 129]	2715	[3489, 783]	3916	[54, 2041]
314	[602, 603]	1515	[2128, 580]	2716	[3490, 3491]	3917	[4395, 1671]
315	[604, 605]	1516	[2220, 204]	2717	[3492, 1570]	3918	[4412, 149]
316	[606, 607]	1517	[2221, 1733]	2718	[3493, 2065]	3919	[2028, 2047]
317	[608, 609]	1518	[2222, 2223]	2719	[1622, 2096]	3920	[2165, 4413]
318	[610, 611]	1519	[2224, 2225]	2720	[8, 1691]	3921	[4414, 1645]
319	[612, 140]	1520	[484, 796]	2721	[3494, 1917]	3922	[611, 135]
320	[613, 614]	1521	[2226, 31]	2722	[3495, 1922]	3923	[4415, 1654]
321	[615, 494]	1522	[1790, 2227]	2723	[1646, 177]	3924	[3677, 1834]
322	[616, 617]	1523	[787, 194]	2724	[3496, 1541]	3925	[4416, 490]
323	[618, 592]	1524	[618, 1664]	2725	[3461, 1870]	3926	[1789, 1861]
324	[619, 620]	1525	[2228, 582]	2726	[3497, 3498]	3927	[4417, 1972]
325	[621, 622]	1526	[2229, 1223]	2727	[3499, 2044]	3928	[1684, 1951]
326	[623, 624]	1527	[2230, 2231]	2728	[1598, 815]	3929	[4418, 1725]
327	[625, 626]	1528	[2232, 2233]	2729	[3175, 1737]	3930	[699, 1798]
328	[521, 627]	1529	[2234, 2235]	2730	[3500, 2083]	3931	[4419, 1576]
329	[628, 629]	1530	[2236, 375]	2731	[3501, 3211]	3932	[4420, 3428]
330	[630, 631]	1531	[2237, 2238]	2732	[2131, 182]	3933	[3695, 622]
331	[632, 633]	1532	[2239, 1487]	2733	[3502, 542]	3934	[480, 1921]
332	[634, 635]	1533	[2240, 1074]	2734	[2004, 2149]	3935	[3671, 1729]
333	[636, 637]	1534	[1410, 2241]	2735	[3503, 231]	3936	[1536, 3289]
334	[245, 587]	1535	[2242, 1480]	2736	[1997, 3201]	3937	[223, 519]
335	[638, 512]	1536	[2243, 2244]	2737	[3277, 531]	3938	[4421, 564]
336	[639, 640]	1537	[2245, 2246]	2738	[812, 1792]	3939	[4422, 1882]
337	[173, 641]	1538	[2247, 2248]	2739	[3504, 33]	3940	[3495, 1755]
338	[642, 643]	1539	[2249, 2250]	2740	[582, 545]	3941	[1656, 3214]
339	[644, 645]	1540	[2251, 2252]	2741	[3353, 3305]	3942	[495, 1994]
340	[154, 646]	1541	[473, 2253]	2742	[3505, 3315]	3943	[1814, 1849]
341	[647, 648]	1542	[64, 2254]	2743	[1955, 3506]	3944	[4423, 42]
342	[649, 650]	1543	[2255, 2256]	2744	[508, 607]	3945	[40, 3582]
343	[651, 652]	1544	[2257, 1123]	2745	[2181, 498]	3946	[4424, 2026]
344	[653, 605]	1545	[1518, 2258]	2746	[217, 3468]	3947	[4425, 630]
345	[147, 654]	1546	[78, 2259]	2747	[3244, 2156]	3948	[2112, 521]
346	[655, 656]	1547	[2260, 2261]	2748	[526, 1684]	3949	[3601, 3357]

347	[657, 658]	1548	[2262, 959]	2749	[3507, 244]	3950	[2175, 2015]
348	[659, 480]	1549	[1522, 15]	2750	[3508, 2163]	3951	[4426, 1692]
349	[660, 661]	1550	[950, 383]	2751	[1728, 515]	3952	[4427, 4428]
350	[647, 662]	1551	[2263, 2264]	2752	[590, 43]	3953	[3528, 3447]
351	[663, 664]	1552	[96, 2265]	2753	[822, 692]	3954	[4429, 1717]
352	[665, 661]	1553	[2266, 2267]	2754	[697, 3401]	3955	[3586, 1776]
353	[666, 667]	1554	[1175, 940]	2755	[3509, 2212]	3956	[4363, 1910]
354	[668, 669]	1555	[1508, 2268]	2756	[3253, 1958]	3957	[587, 612]
355	[670, 671]	1556	[969, 2269]	2757	[2185, 3348]	3958	[1619, 1826]
356	[672, 673]	1557	[1418, 73]	2758	[1862, 1683]	3959	[3213, 3248]
357	[674, 675]	1558	[2270, 2271]	2759	[3510, 2060]	3960	[1556, 541]
358	[676, 677]	1559	[2272, 2273]	2760	[3511, 670]	3961	[4430, 3336]
359	[678, 679]	1560	[952, 2274]	2761	[3512, 3307]	3962	[1930, 3187]
360	[680, 681]	1561	[1408, 2275]	2762	[1926, 836]	3963	[3528, 1645]
361	[682, 683]	1562	[2276, 2277]	2763	[3288, 1954]	3964	[4431, 635]
362	[622, 684]	1563	[2278, 2279]	2764	[3513, 161]	3965	[3608, 723]
363	[588, 685]	1564	[2280, 2281]	2765	[3514, 146]	3966	[2027, 3311]
364	[686, 534]	1565	[2282, 2283]	2766	[36, 521]	3967	[4432, 499]
365	[687, 688]	1566	[2284, 2285]	2767	[3515, 817]	3968	[3259, 1688]
366	[689, 690]	1567	[874, 988]	2768	[3516, 2218]	3969	[1547, 1737]
367	[691, 692]	1568	[2286, 2287]	2769	[3517, 574]	3970	[3613, 1561]
368	[479, 693]	1569	[1370, 403]	2770	[567, 3225]	3971	[4433, 4434]
369	[694, 137]	1570	[2288, 2289]	2771	[574, 3480]	3972	[3482, 750]
370	[695, 696]	1571	[2290, 2291]	2772	[1801, 3518]	3973	[483, 1731]
371	[697, 698]	1572	[2292, 2293]	2773	[3519, 656]	3974	[4435, 512]
372	[481, 151]	1573	[2294, 2295]	2774	[2182, 1913]	3975	[3492, 3244]
373	[699, 700]	1574	[2296, 2297]	2775	[3520, 1891]	3976	[4436, 3627]
374	[701, 702]	1575	[1443, 2298]	2776	[1941, 650]	3977	[3654, 1904]
375	[703, 149]	1576	[1226, 2299]	2777	[3521, 3288]	3978	[4437, 494]
376	[704, 177]	1577	[2300, 2301]	2778	[3522, 3523]	3979	[4438, 646]
377	[705, 672]	1578	[2302, 2288]	2779	[3292, 1857]	3980	[1632, 663]
378	[706, 707]	1579	[254, 2303]	2780	[128, 133]	3981	[4439, 4440]
379	[708, 625]	1580	[2304, 2305]	2781	[1896, 604]	3982	[3475, 4375]
380	[709, 710]	1581	[72, 2306]	2782	[3524, 1787]	3983	[3179, 738]
381	[711, 496]	1582	[2307, 2308]	2783	[3525, 3526]	3984	[4441, 535]
382	[712, 713]	1583	[2309, 1017]	2784	[3273, 1681]	3985	[4442, 604]
383	[714, 186]	1584	[2310, 2311]	2785	[3527, 3528]	3986	[648, 2067]
384	[222, 518]	1585	[2312, 2313]	2786	[836, 3419]	3987	[4410, 642]
385	[715, 716]	1586	[346, 984]	2787	[3529, 198]	3988	[4443, 1817]
386	[717, 718]	1587	[2314, 2315]	2788	[179, 3394]	3989	[3672, 3184]
387	[719, 720]	1588	[106, 2316]	2789	[534, 3302]	3990	[4444, 4445]
388	[721, 215]	1589	[2317, 883]	2790	[1929, 3437]	3991	[4446, 168]
389	[722, 723]	1590	[2318, 2319]	2791	[3530, 1972]	3992	[4447, 2018]
390	[724, 189]	1591	[2320, 2321]	2792	[3531, 3417]	3993	[4448, 129]

391	[725, 726]	1592	[2322, 2323]	2793	[607, 2172]	3994	[41, 3594]
392	[668, 14]	1593	[2324, 2325]	2794	[3532, 200]	3995	[3723, 1556]
393	[201, 727]	1594	[2313, 2326]	2795	[769, 1943]	3996	[2203, 45]
394	[728, 729]	1595	[2327, 2328]	2796	[552, 1630]	3997	[4449, 1831]
395	[730, 731]	1596	[2329, 2330]	2797	[3533, 665]	3998	[633, 2194]
396	[732, 733]	1597	[2331, 2332]	2798	[2140, 771]	3999	[4425, 3355]
397	[734, 735]	1598	[1041, 1252]	2799	[604, 3534]	4000	[4450, 184]
398	[736, 737]	1599	[2333, 2334]	2800	[3535, 1654]	4001	[4451, 670]
399	[542, 738]	1600	[2335, 2336]	2801	[3182, 136]	4002	[4452, 1764]
400	[739, 740]	1601	[2337, 2338]	2802	[3536, 577]	4003	[3236, 1594]
401	[741, 692]	1602	[2339, 2340]	2803	[1922, 1756]	4004	[3689, 36]
402	[742, 743]	1603	[2341, 2342]	2804	[3537, 3538]	4005	[133, 3342]
403	[519, 744]	1604	[2343, 2344]	2805	[3539, 706]	4006	[4453, 794]
404	[745, 746]	1605	[278, 2345]	2806	[1532, 1585]	4007	[4427, 4352]
405	[747, 748]	1606	[2346, 2347]	2807	[3540, 765]	4008	[4454, 726]
406	[749, 750]	1607	[2348, 2349]	2808	[3541, 1632]	4009	[4455, 1986]
407	[751, 728]	1608	[2350, 1502]	2809	[3542, 1867]	4010	[4456, 12]
408	[752, 753]	1609	[2351, 2352]	2810	[3543, 1780]	4011	[4457, 535]
409	[156, 703]	1610	[2353, 312]	2811	[2156, 2086]	4012	[566, 490]
410	[754, 755]	1611	[2354, 1218]	2812	[3544, 1706]	4013	[3670, 634]
411	[486, 756]	1612	[2355, 970]	2813	[3545, 3546]	4014	[2092, 670]
412	[731, 727]	1613	[2356, 2357]	2814	[3359, 1741]	4015	[4446, 1917]
413	[757, 758]	1614	[2358, 2359]	2815	[612, 1865]	4016	[4458, 3357]
414	[215, 759]	1615	[2275, 1493]	2816	[1758, 1701]	4017	[4439, 614]
415	[727, 213]	1616	[2360, 2282]	2817	[3510, 2155]	4018	[745, 2069]
416	[733, 730]	1617	[2361, 1195]	2818	[3547, 593]	4019	[4459, 562]
417	[211, 729]	1618	[1217, 1258]	2819	[3548, 1810]	4020	[4345, 1689]
418	[760, 54]	1619	[2362, 2363]	2820	[182, 2142]	4021	[183, 2054]
419	[212, 761]	1620	[1230, 2364]	2821	[3549, 3271]	4022	[4460, 3629]
420	[762, 763]	1621	[2365, 2366]	2822	[3302, 3366]	4023	[161, 3682]
421	[764, 765]	1622	[2367, 1407]	2823	[3550, 1579]	4024	[4461, 1726]
422	[766, 767]	1623	[2368, 2369]	2824	[3419, 1565]	4025	[1780, 3700]
423	[768, 769]	1624	[1068, 2370]	2825	[221, 241]	4026	[3705, 807]
424	[770, 771]	1625	[2371, 1166]	2826	[3551, 2123]	4027	[4462, 2146]
425	[772, 132]	1626	[2372, 2373]	2827	[3369, 1748]	4028	[581, 505]
426	[773, 774]	1627	[2374, 961]	2828	[1600, 3182]	4029	[3707, 578]
427	[775, 710]	1628	[2375, 2376]	2829	[3552, 1827]	4030	[1837, 2145]
428	[776, 777]	1629	[2377, 2378]	2830	[3553, 3554]	4031	[4463, 572]
429	[778, 779]	1630	[2379, 2380]	2831	[1745, 694]	4032	[1667, 1877]
430	[780, 560]	1631	[2381, 2382]	2832	[586, 246]	4033	[1843, 2193]
431	[781, 782]	1632	[2269, 2383]	2833	[2186, 486]	4034	[3633, 3616]
432	[783, 784]	1633	[2384, 2309]	2834	[3555, 3556]	4035	[657, 3382]
433	[609, 590]	1634	[2385, 2386]	2835	[3271, 696]	4036	[4464, 559]
434	[209, 785]	1635	[2387, 2388]	2836	[826, 3414]	4037	[4465, 607]

435	[786, 516]	1636	[2389, 2390]	2837	[1690, 1644]	4038	[1878, 523]
436	[787, 788]	1637	[2391, 973]	2838	[3557, 3320]	4039	[4416, 567]
437	[789, 479]	1638	[2392, 2393]	2839	[3324, 3426]	4040	[3567, 169]
438	[790, 791]	1639	[2394, 1156]	2840	[3472, 1865]	4041	[3425, 3325]
439	[792, 793]	1640	[2395, 2396]	2841	[2189, 1717]	4042	[4466, 805]
440	[794, 795]	1641	[1382, 2397]	2842	[2000, 1708]	4043	[3237, 542]
441	[796, 589]	1642	[2398, 2399]	2843	[771, 573]	4044	[4467, 523]
442	[797, 798]	1643	[2400, 2401]	2844	[3558, 2023]	4045	[220, 1572]
443	[799, 38]	1644	[954, 2402]	2845	[507, 1945]	4046	[4468, 1557]
444	[800, 801]	1645	[2403, 2404]	2846	[3559, 680]	4047	[1709, 31]
445	[802, 501]	1646	[2405, 347]	2847	[3260, 506]	4048	[4466, 43]
446	[803, 804]	1647	[364, 2406]	2848	[2178, 3329]	4049	[3168, 3248]
447	[805, 163]	1648	[2407, 2408]	2849	[3246, 3560]	4050	[4382, 675]
448	[806, 807]	1649	[2409, 2410]	2850	[3561, 2172]	4051	[3569, 1938]
449	[808, 809]	1650	[2411, 2412]	2851	[3562, 2052]	4052	[4469, 1691]
450	[810, 811]	1651	[2413, 2414]	2852	[3563, 3347]	4053	[1881, 1530]
451	[812, 813]	1652	[2415, 930]	2853	[3351, 2065]	4054	[4470, 718]
452	[814, 692]	1653	[2416, 2417]	2854	[1969, 3564]	4055	[4471, 1684]
453	[701, 815]	1654	[2418, 2419]	2855	[3403, 3565]	4056	[4472, 2155]
454	[816, 817]	1655	[2420, 2421]	2856	[3566, 622]	4057	[1936, 790]
455	[818, 819]	1656	[1228, 2237]	2857	[3567, 1557]	4058	[4473, 2158]
456	[820, 821]	1657	[2422, 2423]	2858	[1846, 1792]	4059	[3408, 547]
457	[822, 823]	1658	[2424, 21]	2859	[3568, 1849]	4060	[4474, 3192]
458	[824, 825]	1659	[2425, 1053]	2860	[752, 1747]	4061	[4475, 2146]
459	[826, 827]	1660	[2426, 2427]	2861	[1857, 785]	4062	[1559, 1953]
460	[828, 829]	1661	[2428, 2429]	2862	[2206, 2035]	4063	[4433, 3200]
461	[830, 831]	1662	[2430, 2431]	2863	[3569, 1569]	4064	[4476, 1983]
462	[832, 833]	1663	[2432, 2433]	2864	[1764, 3368]	4065	[4477, 677]
463	[834, 835]	1664	[2434, 2435]	2865	[58, 3285]	4066	[4478, 1945]
464	[836, 837]	1665	[282, 2436]	2866	[3570, 1560]	4067	[3628, 3575]
465	[838, 839]	1666	[1420, 2437]	2867	[2085, 1799]	4068	[3199, 4434]
466	[840, 610]	1667	[890, 106]	2868	[3571, 3572]	4069	[4479, 165]
467	[841, 558]	1668	[2378, 2236]	2869	[1572, 2078]	4070	[4429, 2034]
468	[842, 572]	1669	[2376, 2438]	2870	[3573, 1993]	4071	[1916, 528]
469	[710, 843]	1670	[2439, 2440]	2871	[9, 3315]	4072	[4480, 3596]
470	[57, 844]	1671	[2441, 2442]	2872	[3574, 3575]	4073	[3570, 1953]
471	[845, 225]	1672	[2443, 2444]	2873	[1732, 1682]	4074	[3543, 1725]
472	[846, 847]	1673	[2445, 2446]	2874	[3576, 1871]	4075	[4481, 1768]
473	[650, 500]	1674	[2447, 2354]	2875	[3182, 694]	4076	[4482, 1791]
474	[848, 849]	1675	[2448, 1231]	2876	[2155, 3577]	4077	[3684, 3556]
475	[189, 850]	1676	[2449, 2450]	2877	[3578, 3572]	4078	[4483, 4413]
476	[851, 852]	1677	[2451, 2452]	2878	[3579, 1549]	4079	[2025, 3227]
477	[853, 854]	1678	[2453, 2454]	2879	[3580, 1717]	4080	[3609, 1995]
478	[855, 530]	1679	[2455, 2456]	2880	[788, 1561]	4081	[4484, 4485]

479	[856, 857]	1680	[2457, 2458]	2881	[1665, 1987]	4082	[4388, 1598]
480	[858, 859]	1681	[2459, 2460]	2882	[676, 1617]	4083	[4486, 3700]
481	[860, 861]	1682	[2461, 2462]	2883	[1884, 3388]	4084	[1859, 1562]
482	[862, 863]	1683	[2463, 2464]	2884	[2034, 1718]	4085	[4487, 2072]
483	[864, 865]	1684	[2465, 1438]	2885	[3581, 37]	4086	[805, 44]
484	[126, 866]	1685	[2466, 1113]	2886	[1753, 780]	4087	[4488, 189]
485	[867, 868]	1686	[1235, 2467]	2887	[37, 2208]	4088	[4489, 3603]
486	[869, 870]	1687	[2468, 2469]	2888	[3215, 3582]	4089	[4490, 790]
487	[871, 872]	1688	[382, 2470]	2889	[174, 3307]	4090	[4491, 640]
488	[873, 874]	1689	[2471, 2472]	2890	[3583, 1900]	4091	[3385, 2179]
489	[875, 876]	1690	[2473, 2474]	2891	[3584, 50]	4092	[4482, 1846]
490	[877, 878]	1691	[16, 2475]	2892	[3553, 2153]	4093	[4492, 3575]
491	[879, 63]	1692	[2476, 2477]	2893	[3585, 3248]	4094	[669, 1855]
492	[6, 880]	1693	[920, 2337]	2894	[3586, 2149]	4095	[4493, 3419]
493	[881, 882]	1694	[2478, 2479]	2895	[3587, 2201]	4096	[4494, 1742]
494	[883, 884]	1695	[2480, 416]	2896	[3588, 528]	4097	[1760, 634]
495	[885, 886]	1696	[2481, 2377]	2897	[521, 1582]	4098	[2213, 3589]
496	[887, 888]	1697	[2482, 2483]	2898	[2106, 3589]	4099	[613, 4440]
497	[889, 890]	1698	[1181, 907]	2899	[3396, 850]	4100	[2187, 665]
498	[891, 892]	1699	[1392, 2484]	2900	[3590, 2054]	4101	[3562, 4379]
499	[893, 894]	1700	[2485, 2486]	2901	[3190, 618]	4102	[4495, 2015]
500	[895, 896]	1701	[1520, 2487]	2902	[3591, 2017]	4103	[4496, 190]
501	[897, 898]	1702	[1524, 2413]	2903	[693, 1921]	4104	[1736, 191]
502	[899, 900]	1703	[2488, 2489]	2904	[1643, 797]	4105	[3204, 3523]
503	[901, 902]	1704	[2450, 2490]	2905	[3592, 3462]	4106	[4497, 136]
504	[903, 904]	1705	[2491, 2492]	2906	[3339, 150]	4107	[4361, 1846]
505	[905, 906]	1706	[2493, 2494]	2907	[1742, 3397]	4108	[4498, 1922]
506	[907, 908]	1707	[2495, 2496]	2908	[1791, 813]	4109	[703, 2066]
507	[909, 910]	1708	[2497, 2498]	2909	[3593, 3594]	4110	[4499, 3370]
508	[911, 912]	1709	[2499, 2500]	2910	[2155, 3338]	4111	[802, 537]
509	[913, 914]	1710	[2501, 2502]	2911	[3595, 3596]	4112	[3232, 703]
510	[915, 916]	1711	[2503, 263]	2912	[1820, 3240]	4113	[3662, 4445]
511	[917, 918]	1712	[2504, 1162]	2913	[494, 3597]	4114	[762, 1562]
512	[919, 920]	1713	[2505, 2506]	2914	[3471, 3287]	4115	[2122, 783]
513	[921, 922]	1714	[297, 2507]	2915	[3527, 236]	4116	[3514, 608]
514	[923, 924]	1715	[2508, 2509]	2916	[3598, 3599]	4117	[4500, 1824]
515	[925, 926]	1716	[2510, 2511]	2917	[1904, 1973]	4118	[4501, 4502]
516	[927, 928]	1717	[2512, 2513]	2918	[2073, 53]	4119	[4503, 540]
517	[929, 292]	1718	[2514, 363]	2919	[2043, 2040]	4120	[1642, 2225]
518	[930, 931]	1719	[2515, 1300]	2920	[3600, 2072]	4121	[4504, 1676]
519	[932, 933]	1720	[2516, 2517]	2921	[3467, 3198]	4122	[2102, 1715]
520	[934, 935]	1721	[2462, 2518]	2922	[3601, 549]	4123	[2173, 1742]
521	[936, 937]	1722	[2519, 2520]	2923	[3602, 3603]	4124	[3337, 3577]
522	[938, 939]	1723	[2521, 2522]	2924	[3604, 2172]	4125	[4338, 834]

523	[940, 261]	1724	[2523, 1071]	2925	[3605, 2071]	4126	[4505, 2063]
524	[941, 942]	1725	[965, 2524]	2926	[3606, 3607]	4127	[3551, 2015]
525	[943, 944]	1726	[2525, 978]	2927	[757, 733]	4128	[3413, 1617]
526	[945, 946]	1727	[2526, 2527]	2928	[722, 2177]	4129	[4498, 1755]
527	[947, 948]	1728	[2528, 2529]	2929	[235, 3528]	4130	[4506, 48]
528	[949, 950]	1729	[2530, 2531]	2930	[3608, 2177]	4131	[4349, 3599]
529	[951, 952]	1730	[2532, 2533]	2931	[3609, 206]	4132	[3625, 1660]
530	[953, 954]	1731	[1414, 2534]	2932	[3610, 1870]	4133	[4342, 1675]
531	[955, 302]	1732	[2535, 2536]	2933	[1773, 819]	4134	[4370, 1803]
532	[942, 956]	1733	[2537, 2538]	2934	[3435, 3611]	4135	[4507, 3401]
533	[957, 958]	1734	[2253, 2539]	2935	[1583, 626]	4136	[4475, 2178]
534	[959, 960]	1735	[2540, 2541]	2936	[3508, 3612]	4137	[3478, 3434]
535	[961, 962]	1736	[2259, 2542]	2937	[560, 1796]	4138	[146, 609]
536	[963, 899]	1737	[2543, 2544]	2938	[3613, 568]	4139	[4508, 2008]
537	[964, 965]	1738	[2545, 283]	2939	[1995, 1808]	4140	[4509, 617]
538	[966, 967]	1739	[2546, 2547]	2940	[3614, 3285]	4141	[562, 1668]
539	[968, 969]	1740	[2548, 1098]	2941	[3615, 50]	4142	[4510, 1717]
540	[970, 971]	1741	[1461, 96]	2942	[1857, 210]	4143	[3650, 3271]
541	[972, 973]	1742	[2549, 856]	2943	[761, 721]	4144	[4511, 581]
542	[974, 975]	1743	[2550, 2551]	2944	[2042, 759]	4145	[1637, 1675]
543	[976, 977]	1744	[1003, 2552]	2945	[731, 202]	4146	[4462, 2178]
544	[978, 979]	1745	[2308, 267]	2946	[2073, 760]	4147	[3659, 574]
545	[980, 981]	1746	[2553, 1006]	2947	[1982, 3616]	4148	[2144, 1838]
546	[982, 983]	1747	[2554, 945]	2948	[2192, 720]	4149	[4512, 3673]
547	[984, 985]	1748	[1145, 2555]	2949	[3617, 1596]	4150	[2037, 627]
548	[986, 987]	1749	[2556, 2557]	2950	[3610, 3462]	4151	[49, 4502]
549	[988, 989]	1750	[2325, 2558]	2951	[3618, 1833]	4152	[3685, 2061]
550	[990, 991]	1751	[1106, 2559]	2952	[2040, 757]	4153	[4513, 2175]
551	[992, 993]	1752	[2560, 976]	2953	[3619, 245]	4154	[4514, 1718]
552	[994, 995]	1753	[2561, 1076]	2954	[606, 509]	4155	[4515, 1819]
553	[996, 997]	1754	[1367, 97]	2955	[3466, 3198]	4156	[3521, 1803]
554	[376, 998]	1755	[2380, 2562]	2956	[593, 1743]	4157	[4374, 3476]
555	[999, 339]	1756	[2563, 2564]	2957	[3620, 227]	4158	[4516, 850]
556	[1000, 1001]	1757	[924, 2482]	2958	[3621, 3622]	4159	[4517, 3479]
557	[1002, 1003]	1758	[2565, 1242]	2959	[2042, 2073]	4160	[4518, 589]
558	[1004, 1005]	1759	[946, 2566]	2960	[3623, 3577]	4161	[3605, 3320]
559	[1006, 1007]	1760	[2567, 2568]	2961	[1620, 2136]	4162	[3710, 620]
560	[1008, 1009]	1761	[2569, 2570]	2962	[2078, 2190]	4163	[3496, 3305]
561	[1010, 1011]	1762	[2571, 2572]	2963	[847, 1745]	4164	[4519, 3713]
562	[1012, 1013]	1763	[2573, 2574]	2964	[3624, 139]	4165	[741, 823]
563	[1014, 1015]	1764	[2575, 2576]	2965	[3410, 2129]	4166	[4520, 634]
564	[918, 1016]	1765	[2470, 1384]	2966	[3625, 585]	4167	[4441, 3302]
565	[1017, 1018]	1766	[1457, 2577]	2967	[3626, 3627]	4168	[1670, 3498]
566	[1019, 1020]	1767	[1503, 470]	2968	[3628, 3629]	4169	[3497, 1671]

567	[1021, 1022]	1768	[2370, 2578]	2969	[1910, 1584]	4170	[4521, 1601]
568	[1023, 1024]	1769	[2579, 2580]	2970	[3630, 3506]	4171	[3571, 1695]
569	[1025, 1026]	1770	[2581, 2582]	2971	[3631, 614]	4172	[728, 212]
570	[1027, 288]	1771	[2583, 16]	2972	[129, 1722]	4173	[4522, 1833]
571	[1028, 290]	1772	[2584, 2585]	2973	[1737, 1840]	4174	[4523, 2023]
572	[1029, 1030]	1773	[2586, 2587]	2974	[1769, 1899]	4175	[4518, 685]
573	[1031, 1032]	1774	[2588, 2589]	2975	[622, 713]	4176	[207, 3323]
574	[1033, 1034]	1775	[2590, 2591]	2976	[1689, 2069]	4177	[3474, 737]
575	[1035, 279]	1776	[2592, 2593]	2977	[3632, 1541]	4178	[732, 758]
576	[1036, 1037]	1777	[2594, 399]	2978	[3633, 1983]	4179	[4524, 1580]
577	[1038, 1039]	1778	[2595, 2596]	2979	[3634, 3635]	4180	[195, 500]
578	[1040, 1041]	1779	[2597, 2598]	2980	[516, 533]	4181	[3615, 4502]
579	[1042, 1043]	1780	[2599, 2600]	2981	[2044, 3499]	4182	[1629, 562]
580	[1044, 1045]	1781	[477, 873]	2982	[3636, 737]	4183	[4525, 588]
581	[1046, 1047]	1782	[2601, 2602]	2983	[3637, 2072]	4184	[3445, 1748]
582	[857, 1048]	1783	[2603, 1055]	2984	[3638, 1938]	4185	[3286, 2050]
583	[1049, 1050]	1784	[2604, 2605]	2985	[3433, 3479]	4186	[4521, 186]
584	[1051, 1052]	1785	[303, 2606]	2986	[3639, 192]	4187	[2076, 3635]
585	[1053, 1054]	1786	[2607, 271]	2987	[3640, 3641]	4188	[4366, 226]
586	[1055, 1056]	1787	[2608, 2609]	2988	[3250, 3642]	4189	[4526, 45]
587	[1057, 1058]	1788	[2610, 2611]	2989	[1682, 3186]	4190	[638, 1576]
588	[1059, 1060]	1789	[2612, 2613]	2990	[3643, 1846]	4191	[3299, 1654]
589	[866, 1061]	1790	[2614, 2615]	2991	[3489, 1609]	4192	[3715, 3289]
590	[1062, 318]	1791	[2616, 2617]	2992	[3644, 653]	4193	[1568, 1938]
591	[1063, 1064]	1792	[2618, 2619]	2993	[1783, 3443]	4194	[3383, 129]
592	[1065, 1066]	1793	[2620, 298]	2994	[3645, 2096]	4195	[3620, 1963]
593	[1067, 1068]	1794	[2621, 2622]	2995	[1704, 1595]	4196	[4527, 735]
594	[1069, 1070]	1795	[2623, 2624]	2996	[3191, 3225]	4197	[4523, 2062]
595	[1071, 901]	1796	[1075, 1409]	2997	[2219, 1721]	4198	[4528, 720]
596	[1072, 1073]	1797	[2625, 422]	2998	[664, 2202]	4199	[4483, 735]
597	[1074, 1075]	1798	[2626, 1397]	2999	[3646, 486]	4200	[1609, 1975]
598	[1076, 1077]	1799	[1043, 2627]	3000	[239, 2125]	4201	[4529, 500]
599	[1078, 1079]	1800	[2628, 2280]	3001	[3647, 2178]	4202	[3598, 3546]
600	[1080, 1081]	1801	[2629, 2413]	3002	[1569, 3280]	4203	[4476, 3616]
601	[1082, 1083]	1802	[2630, 2631]	3003	[3307, 3368]	4204	[727, 751]
602	[1084, 1085]	1803	[2632, 2633]	3004	[3648, 815]	4205	[4484, 539]
603	[1086, 1087]	1804	[2577, 2634]	3005	[3552, 507]	4206	[3314, 10]
604	[1088, 81]	1805	[2635, 2636]	3006	[3649, 3523]	4207	[4503, 1556]
605	[1089, 1090]	1806	[2637, 2638]	3007	[3650, 695]	4208	[4522, 1841]
606	[1091, 1092]	1807	[248, 2639]	3008	[3651, 3652]	4209	[3618, 1841]
607	[1093, 1094]	1808	[402, 2640]	3009	[3653, 3635]	4210	[1790, 2159]
608	[1095, 1062]	1809	[2641, 2642]	3010	[1573, 1884]	4211	[682, 1635]
609	[1096, 1097]	1810	[1077, 1162]	3011	[3654, 709]	4212	[4530, 1963]
610	[1098, 1099]	1811	[2643, 2644]	3012	[3614, 1768]	4213	[2051, 4379]

611	[1100, 1040]	1812	[2645, 2646]	3013	[197, 2151]	4214	[4507, 698]
612	[1101, 1102]	1813	[2647, 2648]	3014	[3655, 1636]	4215	[3363, 1841]
613	[1103, 1104]	1814	[2233, 2649]	3015	[3656, 1973]	4216	[4337, 1922]
614	[1105, 1106]	1815	[2650, 1095]	3016	[3332, 2223]	4217	[3593, 42]
615	[1107, 1108]	1816	[2651, 2652]	3017	[3657, 1807]	4218	[4531, 589]
616	[1109, 1110]	1817	[1483, 2653]	3018	[1763, 571]	4219	[848, 793]
617	[1111, 1112]	1818	[2654, 2655]	3019	[2060, 3577]	4220	[3343, 3189]
618	[1113, 1114]	1819	[2489, 2656]	3020	[3658, 1995]	4221	[616, 12]
619	[1115, 1116]	1820	[2657, 2658]	3021	[3340, 557]	4222	[1900, 3597]
620	[884, 1117]	1821	[2659, 2455]	3022	[3659, 3272]	4223	[3694, 3401]
621	[1118, 1119]	1822	[2660, 1100]	3023	[3595, 3279]	4224	[3591, 3351]
622	[861, 1120]	1823	[2661, 2662]	3024	[3660, 134]	4225	[4532, 706]
623	[1121, 1122]	1824	[444, 304]	3025	[3440, 481]	4226	[781, 2128]
624	[1123, 1124]	1825	[2663, 2664]	3026	[219, 2140]	4227	[4533, 825]
625	[1125, 1126]	1826	[2665, 2666]	3027	[1704, 1819]	4228	[4534, 1695]
626	[1127, 1128]	1827	[2667, 2668]	3028	[846, 1600]	4229	[3576, 1864]
627	[935, 1129]	1828	[2669, 1133]	3029	[3661, 1581]	4230	[3507, 3353]
628	[1130, 1131]	1829	[2670, 2671]	3030	[3662, 2171]	4231	[599, 1867]
629	[272, 1132]	1830	[2672, 2673]	3031	[3663, 1609]	4232	[4535, 1937]
630	[1133, 1134]	1831	[2674, 2675]	3032	[3664, 640]	4233	[4380, 2117]
631	[1135, 308]	1832	[2676, 2604]	3033	[548, 3357]	4234	[734, 4413]
632	[1136, 1137]	1833	[2677, 2678]	3034	[3665, 537]	4235	[51, 3607]
633	[366, 1138]	1834	[2596, 2679]	3035	[3371, 3287]	4236	[4480, 3279]
634	[1139, 1140]	1835	[2680, 1188]	3036	[3666, 1972]	4237	[4506, 1796]
635	[1141, 1142]	1836	[2681, 2682]	3037	[2057, 171]	4238	[4536, 1853]
636	[1143, 1144]	1837	[2683, 2684]	3038	[3667, 1664]	4239	[758, 730]
637	[1022, 1145]	1838	[1005, 2685]	3039	[651, 3317]	4240	[619, 809]
638	[1146, 1147]	1839	[1159, 2686]	3040	[1644, 155]	4241	[4364, 2017]
639	[1148, 1149]	1840	[2687, 306]	3041	[3668, 3528]	4242	[3709, 3227]
640	[1150, 1151]	1841	[2688, 2689]	3042	[3669, 2052]	4243	[3729, 1751]
641	[1152, 1153]	1842	[2690, 1010]	3043	[2160, 1977]	4244	[3308, 1986]
642	[1154, 1155]	1843	[2691, 2692]	3044	[1682, 1883]	4245	[1778, 3456]
643	[1156, 1157]	1844	[2693, 69]	3045	[3670, 1761]	4246	[4537, 1560]
644	[1158, 1159]	1845	[2694, 2695]	3046	[3671, 593]	4247	[4536, 3681]
645	[1160, 1161]	1846	[2696, 2697]	3047	[3672, 3673]	4248	[4443, 2008]
646	[1162, 1163]	1847	[82, 2382]	3048	[796, 685]	4249	[3361, 3304]
647	[1164, 1165]	1848	[2698, 1521]	3049	[3674, 3284]	4250	[4538, 1776]
648	[1166, 1167]	1849	[2699, 2700]	3050	[724, 3396]	4251	[3405, 530]
649	[1168, 1169]	1850	[1147, 2701]	3051	[1592, 238]	4252	[4371, 1884]
650	[1170, 1171]	1851	[2702, 905]	3052	[3675, 153]	4253	[4539, 3289]
651	[1172, 1173]	1852	[2703, 2704]	3053	[3676, 3223]	4254	[4405, 714]
652	[1174, 1175]	1853	[2705, 1303]	3054	[3677, 1927]	4255	[4540, 3599]
653	[1176, 1177]	1854	[2639, 2706]	3055	[532, 517]	4256	[653, 3534]
654	[1178, 1179]	1855	[1202, 2707]	3056	[1933, 487]	4257	[715, 1868]

655	[1180, 1181]	1856	[2708, 1403]	3057	[3678, 160]	4258	[4541, 14]
656	[1182, 1183]	1857	[2709, 2710]	3058	[3679, 1557]	4259	[1825, 648]
657	[1184, 934]	1858	[2711, 1072]	3059	[3680, 3681]	4260	[2204, 1704]
658	[1185, 968]	1859	[2712, 2713]	3060	[181, 2141]	4261	[4542, 40]
659	[1186, 1187]	1860	[2714, 2715]	3061	[819, 3682]	4262	[3631, 4440]
660	[295, 1188]	1861	[2716, 2497]	3062	[3683, 1751]	4263	[1699, 564]
661	[1189, 259]	1862	[2717, 2465]	3063	[3407, 649]	4264	[489, 567]
662	[1190, 1191]	1863	[2718, 2719]	3064	[1955, 833]	4265	[4543, 696]
663	[1192, 1193]	1864	[2720, 2546]	3065	[667, 3178]	4266	[1991, 3215]
664	[1194, 943]	1865	[1475, 2528]	3066	[3684, 3641]	4267	[4513, 160]
665	[1195, 1196]	1866	[2721, 2722]	3067	[3685, 1831]	4268	[1976, 2161]
666	[1197, 1198]	1867	[440, 1031]	3068	[567, 3192]	4269	[4497, 694]
667	[1199, 1200]	1868	[2359, 2723]	3069	[527, 1759]	4270	[2174, 160]
668	[1201, 1202]	1869	[2724, 2725]	3070	[3580, 2034]	4271	[4544, 598]
669	[1203, 1204]	1870	[2726, 2727]	3071	[3686, 832]	4272	[3392, 3673]
670	[1205, 1206]	1871	[2576, 2728]	3072	[2225, 553]	4273	[4406, 773]
671	[1207, 1208]	1872	[2710, 115]	3073	[3639, 1840]	4274	[2176, 723]
672	[1209, 1210]	1873	[2729, 2730]	3074	[3637, 2]	4275	[4478, 2117]
673	[1211, 1212]	1874	[2731, 2732]	3075	[3687, 2020]	4276	[2046, 2029]
674	[1144, 1213]	1875	[2733, 2734]	3076	[3214, 1531]	4277	[3661, 521]
675	[1214, 1215]	1876	[2735, 1463]	3077	[3315, 3346]	4278	[3233, 3417]
676	[1216, 1217]	1877	[2736, 2737]	3078	[3210, 3688]	4279	[4472, 2060]
677	[1218, 1219]	1878	[2738, 2739]	3079	[177, 491]	4280	[3270, 633]
678	[1220, 1221]	1879	[2427, 2740]	3080	[3689, 2112]	4281	[4545, 3518]
679	[1222, 300]	1880	[2741, 2463]	3081	[3419, 1882]	4282	[3276, 642]
680	[1223, 1224]	1881	[2742, 2543]	3082	[3690, 1780]	4283	[4514, 2035]
681	[462, 1089]	1882	[2743, 2744]	3083	[3691, 1771]	4284	[3306, 1708]
682	[1225, 1226]	1883	[2460, 2745]	3084	[3692, 1548]	4285	[4546, 3713]
683	[1227, 1228]	1884	[2746, 2747]	3085	[230, 3347]	4286	[4547, 167]
684	[1229, 1230]	1885	[2295, 2748]	3086	[3693, 1614]	4287	[3708, 148]
685	[1231, 1101]	1886	[2749, 2750]	3087	[2086, 688]	4288	[522, 1879]
686	[1232, 1233]	1887	[400, 2751]	3088	[3694, 698]	4289	[3643, 1791]
687	[1234, 1235]	1888	[307, 2752]	3089	[3695, 712]	4290	[3328, 217]
688	[1037, 1236]	1889	[2753, 2754]	3090	[3696, 3294]	4291	[47, 1796]
689	[1237, 1238]	1890	[2755, 2756]	3091	[3697, 665]	4292	[2030, 731]
690	[1239, 251]	1891	[2757, 2758]	3092	[3698, 226]	4293	[3355, 1818]
691	[1240, 1241]	1892	[2759, 2760]	3093	[3500, 3284]	4294	[4548, 3279]
692	[1242, 369]	1893	[2761, 2422]	3094	[3699, 3597]	4295	[3697, 1579]
693	[1243, 980]	1894	[2762, 2763]	3095	[1707, 1599]	4296	[4517, 3434]
694	[1244, 1245]	1895	[2764, 1088]	3096	[1725, 3700]	4297	[4549, 1725]
695	[1246, 1247]	1896	[2765, 2766]	3097	[3701, 1655]	4298	[4550, 2019]
696	[1248, 1249]	1897	[1092, 1178]	3098	[837, 1565]	4299	[3455, 1779]
697	[1250, 1251]	1898	[2767, 2768]	3099	[853, 1943]	4300	[4477, 1617]
698	[1252, 1253]	1899	[2769, 2620]	3100	[3702, 1660]	4301	[4551, 1966]

699	[1254, 1255]	1900	[1380, 2770]	3101	[3531, 3234]	4302	[2152, 3554]
700	[1256, 1257]	1901	[882, 2771]	3102	[3281, 2169]	4303	[164, 750]
701	[1258, 1259]	1902	[2772, 445]	3103	[3636, 2039]	4304	[3621, 200]
702	[1260, 75]	1903	[2773, 2774]	3104	[199, 3622]	4305	[4542, 3215]
703	[1261, 1262]	1904	[2775, 2776]	3105	[2129, 740]	4306	[1719, 3294]
704	[1263, 1264]	1905	[2777, 2395]	3106	[494, 1901]	4307	[3558, 2062]
705	[1265, 1266]	1906	[2778, 2779]	3107	[3703, 657]	4308	[536, 501]
706	[1267, 1268]	1907	[2444, 2780]	3108	[3256, 803]	4309	[4552, 4485]
707	[1269, 1270]	1908	[2477, 1160]	3109	[1811, 175]	4310	[4526, 1986]
708	[1271, 1272]	1909	[1167, 2781]	3110	[3704, 1552]	4311	[3327, 1927]
709	[1273, 1274]	1910	[2782, 2240]	3111	[804, 832]	4312	[4495, 2123]
710	[1275, 1276]	1911	[1090, 2329]	3112	[3705, 1655]	4313	[2195, 3564]
711	[1277, 1278]	1912	[2783, 2784]	3113	[1639, 578]	4314	[3579, 1877]
712	[1279, 1280]	1913	[2785, 2786]	3114	[3706, 1630]	4315	[3387, 139]
713	[1119, 1281]	1914	[2787, 2788]	3115	[3229, 3269]	4316	[4528, 2193]
714	[1282, 1283]	1915	[2789, 2790]	3116	[3707, 642]	4317	[4487, 2]
715	[1284, 1285]	1916	[2791, 2451]	3117	[3278, 3596]	4318	[4448, 1721]
716	[1286, 433]	1917	[2792, 2793]	3118	[3242, 653]	4319	[3716, 3603]
717	[1287, 5]	1918	[2794, 2726]	3119	[3708, 703]	4320	[3561, 1897]
718	[1288, 1289]	1919	[2795, 2796]	3120	[3427, 3627]	4321	[4347, 748]
719	[1290, 1291]	1920	[2797, 381]	3121	[3709, 2026]	4322	[1672, 3198]
720	[1292, 972]	1921	[2396, 2798]	3122	[3710, 809]	4323	[3301, 4390]
721	[414, 1293]	1922	[2799, 447]	3123	[3711, 1598]	4324	[4553, 52]
722	[1294, 1295]	1923	[2800, 1220]	3124	[3712, 3713]	4325	[4458, 549]
723	[1296, 947]	1924	[2539, 2801]	3125	[1648, 819]	4326	[3293, 1720]
724	[1297, 371]	1925	[2802, 1491]	3126	[763, 3518]	4327	[4544, 560]
725	[1298, 1299]	1926	[2332, 2803]	3127	[3714, 3379]	4328	[3303, 3362]
726	[1300, 418]	1927	[2804, 472]	3128	[1782, 224]	4329	[3647, 2146]
727	[1301, 1302]	1928	[2805, 1296]	3129	[3715, 829]	4330	[3484, 845]
728	[1303, 1304]	1929	[2644, 2806]	3130	[3517, 3272]	4331	[3331, 497]
729	[415, 1305]	1930	[2807, 2808]	3131	[558, 3336]	4332	[3321, 1838]
730	[1306, 1301]	1931	[2809, 1507]	3132	[39, 3215]	4333	[4403, 1614]
731	[1307, 1308]	1932	[2810, 2811]	3133	[3716, 3717]	4334	[3432, 773]
732	[1309, 1310]	1933	[2812, 2361]	3134	[3718, 3342]	4335	[3257, 542]
733	[1311, 1312]	1934	[2813, 2814]	3135	[2002, 3652]	4336	[4554, 1929]
734	[1313, 1314]	1935	[2815, 2816]	3136	[663, 2201]	4337	[4555, 4556]
735	[1315, 1316]	1936	[2817, 2818]	3137	[3719, 58]	4338	[4557, 4558]
736	[1317, 467]	1937	[2819, 383]	3138	[3649, 3205]	4339	[4559, 1182]
737	[1318, 1319]	1938	[344, 2820]	3139	[3720, 701]	4340	[4560, 3815]
738	[1320, 935]	1939	[2821, 2822]	3140	[1723, 3378]	4341	[916, 2980]
739	[1321, 1322]	1940	[2823, 893]	3141	[3721, 2155]	4342	[4561, 2511]
740	[1323, 1324]	1941	[1504, 895]	3142	[694, 1762]	4343	[2719, 2325]
741	[1325, 1326]	1942	[2824, 2312]	3143	[3202, 525]	4344	[4562, 3738]
742	[1327, 1328]	1943	[114, 2825]	3144	[3722, 568]	4345	[2299, 1151]

743	[1280, 1329]	1944	[2826, 2827]	3145	[3365, 1536]	4346	[4563, 4564]
744	[931, 1330]	1945	[328, 2828]	3146	[3251, 1652]	4347	[4565, 2674]
745	[1331, 1332]	1946	[436, 2442]	3147	[3723, 540]	4348	[4566, 101]
746	[1333, 1334]	1947	[2829, 1214]	3148	[1947, 1874]	4349	[4567, 4228]
747	[1335, 1336]	1948	[2830, 2831]	3149	[3724, 678]	4350	[989, 3019]
748	[1337, 1338]	1949	[1274, 2832]	3150	[2007, 1817]	4351	[4568, 4569]
749	[1339, 1340]	1950	[1253, 953]	3151	[3725, 2208]	4352	[1079, 2229]
750	[1341, 1342]	1951	[2833, 1239]	3152	[3423, 2014]	4353	[4570, 4571]
751	[1343, 1344]	1952	[2834, 406]	3153	[3726, 2078]	4354	[2836, 2701]
752	[1345, 1346]	1953	[2835, 2549]	3154	[3727, 1933]	4355	[4572, 2341]
753	[1347, 1348]	1954	[2631, 2836]	3155	[3728, 1620]	4356	[4573, 2805]
754	[1349, 1350]	1955	[2456, 2837]	3156	[3729, 519]	4357	[4574, 2389]
755	[1351, 1352]	1956	[2640, 2780]	3157	[3196, 1948]	4358	[4575, 4576]
756	[1353, 257]	1957	[2838, 2839]	3158	[3730, 3616]	4359	[1191, 2571]
757	[1354, 1355]	1958	[1330, 964]	3159	[3692, 2056]	4360	[4577, 4578]
758	[1356, 393]	1959	[2840, 2841]	3160	[3731, 2171]	4361	[4579, 1454]
759	[1293, 1357]	1960	[2842, 2843]	3161	[3384, 1773]	4362	[4580, 4581]
760	[419, 1358]	1961	[2844, 1111]	3162	[3732, 2149]	4363	[4582, 4583]
761	[1304, 1359]	1962	[1326, 2599]	3163	[3733, 2048]	4364	[4584, 4585]
762	[1360, 1361]	1963	[2845, 1125]	3164	[3734, 133]	4365	[2412, 2246]
763	[1362, 1363]	1964	[2846, 2847]	3165	[3679, 169]	4366	[334, 2845]
764	[1364, 1365]	1965	[933, 2848]	3166	[1562, 3518]	4367	[4586, 4587]
765	[1366, 1367]	1966	[2849, 1168]	3167	[1114, 1028]	4368	[2531, 2793]
766	[1368, 1369]	1967	[2850, 2851]	3168	[3735, 2392]	4369	[2509, 3912]
767	[268, 1370]	1968	[1474, 1343]	3169	[1342, 1213]	4370	[4588, 4589]
768	[1371, 1372]	1969	[2852, 2586]	3170	[3736, 3737]	4371	[1372, 2969]
769	[1373, 1374]	1970	[301, 2853]	3171	[3738, 3739]	4372	[4590, 4028]
770	[1375, 454]	1971	[2578, 2675]	3172	[3740, 345]	4373	[4591, 2968]
771	[426, 1376]	1972	[2854, 2789]	3173	[2841, 3741]	4374	[4592, 3826]
772	[1377, 1378]	1973	[2855, 1379]	3174	[3742, 2415]	4375	[1484, 3131]
773	[1379, 1380]	1974	[2856, 361]	3175	[2615, 2687]	4376	[4593, 2523]
774	[1381, 1382]	1975	[2857, 2858]	3176	[2533, 2686]	4377	[4594, 4595]
775	[1383, 1384]	1976	[2859, 2860]	3177	[3743, 3744]	4378	[4596, 3763]
776	[1385, 1386]	1977	[1048, 359]	3178	[1198, 2762]	4379	[4597, 4598]
777	[1387, 1388]	1978	[1134, 2861]	3179	[3745, 3746]	4380	[4599, 359]
778	[1389, 1390]	1979	[2862, 2863]	3180	[2298, 2373]	4381	[4600, 1497]
779	[1391, 1392]	1980	[1124, 2864]	3181	[3747, 3748]	4382	[4601, 1330]
780	[1393, 1394]	1981	[2865, 2294]	3182	[1510, 3749]	4383	[4602, 1260]
781	[1395, 1396]	1982	[2866, 2867]	3183	[3750, 3751]	4384	[4603, 981]
782	[1397, 1398]	1983	[2868, 2869]	3184	[2913, 1049]	4385	[4604, 867]
783	[1399, 1400]	1984	[2870, 2871]	3185	[3752, 2699]	4386	[4605, 335]
784	[1401, 1402]	1985	[2872, 2873]	3186	[2283, 1393]	4387	[4606, 3901]
785	[1403, 1404]	1986	[2874, 2875]	3187	[3753, 3754]	4388	[4607, 1458]
786	[1405, 1406]	1987	[2818, 2876]	3188	[2808, 932]	4389	[4608, 4609]

787	[1407, 1408]	1988	[2771, 2431]	3189	[2557, 3755]	4390	[2903, 1332]
788	[1409, 1410]	1989	[2877, 2418]	3190	[3756, 2434]	4391	[4610, 3027]
789	[1411, 1412]	1990	[1026, 67]	3191	[1131, 2880]	4392	[4611, 105]
790	[1413, 1414]	1991	[2878, 2879]	3192	[3757, 2687]	4393	[1348, 392]
791	[1415, 1416]	1992	[2442, 2880]	3193	[3758, 2424]	4394	[898, 399]
792	[1417, 1418]	1993	[1208, 2881]	3194	[1155, 1402]	4395	[4612, 2670]
793	[1419, 1420]	1994	[2882, 923]	3195	[2723, 89]	4396	[4613, 4614]
794	[1421, 1422]	1995	[2883, 2884]	3196	[3759, 3760]	4397	[4615, 3812]
795	[1423, 1424]	1996	[2885, 2886]	3197	[3761, 3762]	4398	[4616, 77]
796	[1425, 1426]	1997	[1278, 2260]	3198	[3763, 2571]	4399	[4617, 4618]
797	[1427, 1428]	1998	[425, 2887]	3199	[3764, 3765]	4400	[1122, 2432]
798	[1429, 1430]	1999	[2888, 2889]	3200	[3766, 2245]	4401	[4619, 4620]
799	[1281, 1431]	2000	[2890, 1331]	3201	[2417, 3767]	4402	[2562, 2454]
800	[1432, 1433]	2001	[2487, 441]	3202	[3768, 3769]	4403	[2285, 276]
801	[1434, 1435]	2002	[2891, 2892]	3203	[3051, 3770]	4404	[4621, 449]
802	[1436, 1437]	2003	[2697, 860]	3204	[3771, 3772]	4405	[872, 363]
803	[1438, 1439]	2004	[2893, 2894]	3205	[3096, 2887]	4406	[4622, 4623]
804	[1440, 1441]	2005	[2895, 1375]	3206	[3773, 3774]	4407	[4624, 4625]
805	[1442, 1443]	2006	[2896, 478]	3207	[1497, 125]	4408	[4626, 4627]
806	[1444, 1445]	2007	[2593, 2897]	3208	[3775, 3776]	4409	[4297, 1431]
807	[1446, 1447]	2008	[2898, 2899]	3209	[3777, 3778]	4410	[4628, 1042]
808	[1448, 1449]	2009	[2900, 2901]	3210	[3779, 3780]	4411	[4629, 4630]
809	[1270, 1450]	2010	[2902, 2903]	3211	[1224, 3781]	4412	[4631, 2706]
810	[1404, 459]	2011	[1050, 2904]	3212	[384, 3782]	4413	[4632, 1025]
811	[1451, 1452]	2012	[1439, 2903]	3213	[3783, 3784]	4414	[68, 952]
812	[1453, 1018]	2013	[2905, 2731]	3214	[3785, 3786]	4415	[4633, 4634]
813	[1454, 1455]	2014	[90, 2632]	3215	[3787, 1004]	4416	[4635, 4636]
814	[1456, 1457]	2015	[311, 1075]	3216	[3788, 906]	4417	[4637, 4638]
815	[1458, 1459]	2016	[2906, 1186]	3217	[3789, 1347]	4418	[4639, 4640]
816	[1460, 1461]	2017	[2907, 2908]	3218	[3790, 2335]	4419	[4641, 921]
817	[66, 1462]	2018	[2909, 2575]	3219	[3791, 3792]	4420	[4642, 3940]
818	[1463, 262]	2019	[2231, 2910]	3220	[3793, 1093]	4421	[2338, 2245]
819	[1464, 897]	2020	[2911, 1460]	3221	[2390, 3111]	4422	[2502, 3853]
820	[1465, 1466]	2021	[2912, 2913]	3222	[3794, 3795]	4423	[4643, 4177]
821	[1467, 1468]	2022	[2914, 2915]	3223	[3796, 3797]	4424	[4644, 4203]
822	[1469, 1470]	2023	[2916, 2917]	3224	[3798, 3141]	4425	[4645, 4646]
823	[1471, 1472]	2024	[2918, 2919]	3225	[876, 2542]	4426	[372, 1175]
824	[1473, 1474]	2025	[2920, 2921]	3226	[3799, 3800]	4427	[4647, 3053]
825	[448, 1475]	2026	[1422, 1023]	3227	[2397, 3801]	4428	[4146, 4648]
826	[1428, 1476]	2027	[2922, 2923]	3228	[3802, 2907]	4429	[4649, 4650]
827	[1430, 1477]	2028	[2924, 2925]	3229	[3803, 3804]	4430	[1034, 3166]
828	[1478, 1479]	2029	[2926, 413]	3230	[3805, 2281]	4431	[4651, 268]
829	[1480, 1481]	2030	[1355, 2927]	3231	[2352, 2976]	4432	[4138, 1249]
830	[1482, 1483]	2031	[2928, 2929]	3232	[330, 2973]	4433	[4652, 4653]

831	[317, 1286]	2032	[2930, 2931]	3233	[3806, 2331]	4434	[4181, 2484]
832	[1007, 1484]	2033	[2932, 2933]	3234	[944, 3040]	4435	[4654, 4655]
833	[1485, 1486]	2034	[2934, 2935]	3235	[3807, 2278]	4436	[4656, 4657]
834	[1487, 1488]	2035	[2936, 2937]	3236	[3808, 3809]	4437	[4658, 4659]
835	[1489, 1490]	2036	[2938, 294]	3237	[3810, 3811]	4438	[2289, 2652]
836	[1491, 1492]	2037	[2622, 2939]	3238	[18, 3812]	4439	[4660, 4661]
837	[1493, 1494]	2038	[2940, 2941]	3239	[3813, 3814]	4440	[336, 4662]
838	[1495, 1496]	2039	[2925, 2942]	3240	[3815, 3816]	4441	[2369, 1319]
839	[118, 1497]	2040	[1358, 2943]	3241	[3817, 2563]	4442	[4663, 1089]
840	[1498, 1499]	2041	[1112, 1311]	3242	[3818, 3819]	4443	[264, 94]
841	[1500, 1501]	2042	[1359, 2944]	3243	[3820, 3821]	4444	[4664, 2387]
842	[1502, 1503]	2043	[1357, 1309]	3244	[266, 1038]	4445	[2544, 77]
843	[1384, 1504]	2044	[2945, 2946]	3245	[1187, 2671]	4446	[4665, 1434]
844	[1505, 1506]	2045	[2947, 2948]	3246	[3822, 1246]	4447	[1488, 968]
845	[1507, 1508]	2046	[2949, 2950]	3247	[3823, 253]	4448	[4666, 4667]
846	[1509, 1510]	2047	[2951, 2952]	3248	[3824, 3825]	4449	[4668, 1086]
847	[1511, 265]	2048	[2953, 2954]	3249	[3826, 2366]	4450	[4669, 1419]
848	[1512, 1513]	2049	[2955, 2480]	3250	[3827, 1391]	4451	[4670, 3935]
849	[1514, 1515]	2050	[2876, 2956]	3251	[3828, 3829]	4452	[4671, 3003]
850	[1516, 463]	2051	[2957, 2445]	3252	[3830, 2961]	4453	[4672, 4673]
851	[1517, 1518]	2052	[2958, 2959]	3253	[3831, 1478]	4454	[4674, 2979]
852	[1519, 1520]	2053	[2960, 1514]	3254	[2732, 3832]	4455	[4675, 2358]
853	[1521, 1522]	2054	[910, 2961]	3255	[3833, 2932]	4456	[4676, 4677]
854	[1523, 1524]	2055	[2875, 2962]	3256	[3834, 2457]	4457	[98, 2942]
855	[1525, 955]	2056	[1173, 2963]	3257	[3835, 1320]	4458	[4678, 4679]
856	[1526, 237]	2057	[2964, 2965]	3258	[3836, 3837]	4459	[4680, 1014]
857	[1527, 1528]	2058	[1334, 2689]	3259	[3838, 3839]	4460	[4681, 4682]
858	[1529, 1530]	2059	[2966, 2967]	3260	[3840, 909]	4461	[3142, 1324]
859	[1531, 38]	2060	[1433, 2815]	3261	[3841, 3842]	4462	[4683, 4684]
860	[1532, 1533]	2061	[2968, 2969]	3262	[3843, 3054]	4463	[4685, 1031]
861	[568, 1534]	2062	[24, 89]	3263	[3844, 3845]	4464	[2564, 3068]
862	[1535, 1536]	2063	[2768, 2556]	3264	[3846, 3847]	4465	[1268, 2619]
863	[564, 1537]	2064	[2970, 2716]	3265	[900, 3848]	4466	[3754, 2917]
864	[1538, 1539]	2065	[2971, 2972]	3266	[3849, 249]	4467	[4686, 4687]
865	[1540, 145]	2066	[2973, 2375]	3267	[3850, 1263]	4468	[4688, 4689]
866	[244, 1541]	2067	[1165, 2540]	3268	[3851, 1509]	4469	[4690, 3894]
867	[1542, 817]	2068	[2974, 2975]	3269	[3852, 3853]	4470	[4691, 4692]
868	[649, 499]	2069	[2976, 2795]	3270	[3854, 3855]	4471	[1061, 2833]
869	[1543, 1544]	2070	[2977, 2872]	3271	[3856, 3857]	4472	[4693, 4694]
870	[1545, 1546]	2071	[2978, 1356]	3272	[3061, 1421]	4473	[1424, 2605]
871	[1547, 191]	2072	[2979, 2980]	3273	[3858, 2537]	4474	[4695, 3065]
872	[1548, 686]	2073	[2959, 2981]	3274	[2552, 3859]	4475	[4696, 4697]
873	[852, 1545]	2074	[2982, 2983]	3275	[3860, 2616]	4476	[4698, 4699]
874	[854, 1549]	2075	[2984, 2985]	3276	[3861, 3862]	4477	[4700, 2320]

875	[1550, 650]	2076	[2986, 1341]	3277	[2342, 1234]	4478	[3140, 3085]
876	[1551, 1552]	2077	[2987, 107]	3278	[3863, 3864]	4479	[4701, 2810]
877	[1553, 1554]	2078	[2988, 2989]	3279	[2551, 2746]	4480	[4702, 2705]
878	[1555, 1556]	2079	[2990, 2991]	3280	[2682, 3865]	4481	[4007, 2546]
879	[1557, 170]	2080	[2992, 2993]	3281	[3866, 2765]	4482	[4703, 2618]
880	[798, 826]	2081	[2994, 2995]	3282	[2238, 3867]	4483	[4704, 4705]
881	[1558, 574]	2082	[2996, 2997]	3283	[3868, 3869]	4484	[4706, 4707]
882	[1559, 1560]	2083	[2656, 2998]	3284	[3781, 2743]	4485	[2908, 4708]
883	[1561, 569]	2084	[2999, 3000]	3285	[1447, 1523]	4486	[293, 2516]
884	[1562, 1563]	2085	[3001, 2911]	3286	[3870, 3871]	4487	[4709, 2493]
885	[1564, 1565]	2086	[3002, 1082]	3287	[3872, 355]	4488	[4710, 1516]
886	[1566, 1567]	2087	[1400, 2937]	3288	[1066, 3873]	4489	[4711, 4597]
887	[1568, 1569]	2088	[1171, 3003]	3289	[3006, 2845]	4490	[4712, 1415]
888	[1570, 576]	2089	[3004, 2645]	3290	[3874, 3875]	4491	[1369, 3060]
889	[1571, 1572]	2090	[896, 2510]	3291	[2737, 3876]	4492	[4713, 1292]
890	[666, 1573]	2091	[3005, 3006]	3292	[3877, 3878]	4493	[2297, 2743]
891	[1574, 1575]	2092	[3007, 1207]	3293	[3879, 3880]	4494	[1129, 2873]
892	[1576, 513]	2093	[3008, 1091]	3294	[2600, 1127]	4495	[2839, 3747]
893	[1577, 1578]	2094	[3009, 1148]	3295	[3881, 858]	4496	[1219, 336]
894	[1579, 1580]	2095	[3010, 1154]	3296	[3882, 3883]	4497	[3896, 2446]
895	[1581, 1582]	2096	[3011, 379]	3297	[3884, 3885]	4498	[4714, 2800]
896	[511, 1583]	2097	[3012, 3013]	3298	[3886, 2379]	4499	[2892, 2572]
897	[1584, 1585]	2098	[3014, 2292]	3299	[3887, 2420]	4500	[4715, 1185]
898	[491, 1586]	2099	[2889, 2975]	3300	[3888, 3889]	4501	[4716, 4247]
899	[1587, 639]	2100	[928, 1051]	3301	[3890, 3891]	4502	[4661, 109]
900	[1549, 1588]	2101	[3015, 3016]	3302	[1450, 247]	4503	[2758, 972]
901	[810, 1589]	2102	[3017, 3018]	3303	[3892, 3893]	4504	[4717, 4718]
902	[1590, 153]	2103	[2760, 3019]	3304	[1094, 3894]	4505	[4719, 1269]
903	[677, 1591]	2104	[3020, 3021]	3305	[3895, 3896]	4506	[4299, 3963]
904	[1592, 680]	2105	[3022, 3023]	3306	[3897, 3773]	4507	[4720, 2951]
905	[153, 1593]	2106	[3024, 1067]	3307	[338, 3898]	4508	[2436, 2359]
906	[1594, 244]	2107	[3025, 3026]	3308	[3899, 93]	4509	[4721, 2916]
907	[768, 853]	2108	[3027, 3028]	3309	[3900, 2583]	4510	[4722, 2936]
908	[1595, 1596]	2109	[2861, 1434]	3310	[3901, 3902]	4511	[4723, 2824]
909	[187, 1597]	2110	[3029, 3030]	3311	[70, 3903]	4512	[4724, 1256]
910	[1598, 702]	2111	[3031, 917]	3312	[3904, 3905]	4513	[4725, 3047]
911	[1599, 1600]	2112	[2707, 2307]	3313	[2306, 3906]	4514	[4726, 984]
912	[714, 1601]	2113	[3032, 3033]	3314	[3907, 3908]	4515	[1138, 2865]
913	[1602, 1603]	2114	[3034, 3035]	3315	[2518, 3872]	4516	[2520, 3767]
914	[1604, 1605]	2115	[3036, 3037]	3316	[3909, 3910]	4517	[4727, 4322]
915	[1606, 1607]	2116	[3038, 3039]	3317	[3911, 3912]	4518	[3930, 3770]
916	[769, 854]	2117	[2666, 353]	3318	[3913, 1033]	4519	[4728, 1315]
917	[1608, 219]	2118	[1266, 3040]	3319	[3914, 1222]	4520	[4729, 1141]
918	[1609, 784]	2119	[3041, 1284]	3320	[3915, 3916]	4521	[2235, 352]

919	[1610, 1611]	2120	[3042, 3043]	3321	[3917, 2987]	4522	[4730, 4731]
920	[845, 1612]	2121	[973, 3044]	3322	[3918, 3919]	4523	[4732, 3933]
921	[1613, 657]	2122	[3045, 3046]	3323	[3920, 1306]	4524	[1472, 1296]
922	[45, 1614]	2123	[3047, 3048]	3324	[3921, 2709]	4525	[3072, 1231]
923	[1615, 1616]	2124	[3049, 2608]	3325	[1352, 1285]	4526	[4733, 4734]
924	[1617, 1618]	2125	[3050, 3051]	3326	[2244, 3922]	4527	[4735, 1387]
925	[1619, 506]	2126	[2860, 1032]	3327	[3923, 3924]	4528	[4736, 2902]
926	[1620, 1621]	2127	[3052, 2702]	3328	[3925, 3926]	4529	[4737, 2853]
927	[1622, 1623]	2128	[1016, 1046]	3329	[3927, 3928]	4530	[4738, 3077]
928	[1624, 58]	2129	[3053, 2665]	3330	[3929, 3930]	4531	[4739, 944]
929	[1625, 1626]	2130	[3054, 2516]	3331	[3931, 891]	4532	[4740, 4741]
930	[1627, 1628]	2131	[2609, 3055]	3332	[3932, 889]	4533	[4742, 1337]
931	[1629, 1630]	2132	[3018, 2547]	3333	[3933, 3934]	4534	[4743, 3766]
932	[765, 1631]	2133	[1445, 3056]	3334	[3935, 3936]	4535	[1238, 90]
933	[1632, 673]	2134	[3057, 3058]	3335	[2555, 1270]	4536	[4744, 4745]
934	[1633, 708]	2135	[1459, 2533]	3336	[2923, 2505]	4537	[4746, 3920]
935	[499, 196]	2136	[991, 3027]	3337	[2788, 3937]	4538	[4747, 4748]
936	[1634, 1635]	2137	[3059, 1021]	3338	[2967, 3895]	4539	[3043, 1239]
937	[1539, 1636]	2138	[3060, 3061]	3339	[3938, 862]	4540	[4749, 391]
938	[1637, 1638]	2139	[3062, 2232]	3340	[3939, 3008]	4541	[3780, 1050]
939	[1639, 642]	2140	[3063, 3064]	3341	[3940, 3941]	4542	[4750, 4751]
940	[1604, 1640]	2141	[2624, 2508]	3342	[2638, 316]	4543	[4752, 319]
941	[1641, 679]	2142	[354, 3065]	3343	[3942, 3943]	4544	[2679, 3048]
942	[1642, 1643]	2143	[2315, 1333]	3344	[3944, 1351]	4545	[2814, 2316]
943	[531, 1644]	2144	[3066, 3067]	3345	[1490, 2876]	4546	[4753, 4632]
944	[236, 1645]	2145	[3068, 1244]	3346	[20, 3945]	4547	[4754, 2792]
945	[1646, 1647]	2146	[1132, 3069]	3347	[3946, 903]	4548	[4755, 4756]
946	[1648, 161]	2147	[3070, 2883]	3348	[3947, 3948]	4549	[4757, 4309]
947	[706, 1649]	2148	[3071, 461]	3349	[2832, 2279]	4550	[4758, 4759]
948	[1615, 836]	2149	[2658, 3072]	3350	[3949, 2909]	4551	[4760, 2453]
949	[1650, 1651]	2150	[3073, 2868]	3351	[2633, 3950]	4552	[4761, 3915]
950	[1652, 222]	2151	[3074, 2945]	3352	[3951, 1399]	4553	[4762, 2651]
951	[1653, 171]	2152	[3075, 27]	3353	[3952, 3953]	4554	[3769, 2477]
952	[1654, 1655]	2153	[3076, 3077]	3354	[3954, 3955]	4555	[4763, 826]
953	[1656, 1657]	2154	[2401, 2869]	3355	[3956, 3957]	4556	[1886, 1791]
954	[549, 1658]	2155	[3078, 3079]	3356	[3958, 3906]	4557	[4341, 178]
955	[1659, 584]	2156	[3080, 3081]	3357	[2989, 2343]	4558	[2167, 3271]
956	[584, 1660]	2157	[3082, 1059]	3358	[3959, 3960]	4559	[4764, 592]
957	[1661, 1662]	2158	[2864, 2432]	3359	[3961, 3962]	4560	[3701, 807]
958	[517, 1663]	2159	[2715, 3068]	3360	[2786, 3963]	4561	[600, 1686]
959	[498, 1573]	2160	[3083, 3084]	3361	[3964, 2659]	4562	[4474, 3225]
960	[591, 1664]	2161	[979, 3085]	3362	[1083, 2476]	4563	[2164, 2033]
961	[1665, 791]	2162	[3086, 2302]	3363	[3965, 3966]	4564	[4411, 2061]
962	[1666, 128]	2163	[1285, 3087]	3364	[2730, 2973]	4565	[4765, 2066]

963	[1667, 1549]	2164	[3088, 3089]	3365	[3967, 3968]	4566	[3730, 1983]
964	[1630, 1668]	2165	[3090, 3091]	3366	[1319, 3937]	4567	[4766, 1880]
965	[535, 1669]	2166	[2894, 2634]	3367	[3945, 3934]	4568	[4767, 1621]
966	[1670, 1671]	2167	[3092, 3093]	3368	[1153, 3969]	4569	[636, 3491]
967	[1672, 1673]	2168	[3094, 3095]	3369	[3970, 2317]	4570	[3459, 1838]
968	[1674, 1675]	2169	[1431, 3096]	3370	[2568, 2741]	4571	[2114, 794]
969	[1676, 1677]	2170	[3097, 1227]	3371	[3971, 3972]	4572	[3380, 738]
970	[633, 1678]	2171	[2483, 3098]	3372	[3973, 2998]	4573	[4510, 2034]
971	[1679, 1680]	2172	[1455, 3099]	3373	[975, 2799]	4574	[1836, 1938]
972	[1681, 1682]	2173	[2334, 2933]	3374	[3974, 3975]	4575	[4412, 2066]
973	[1683, 1684]	2174	[3100, 3101]	3375	[3976, 3977]	4576	[3574, 3629]
974	[1685, 1686]	2175	[3102, 3010]	3376	[3978, 3859]	4577	[203, 743]
975	[590, 805]	2176	[3103, 3104]	3377	[3979, 949]	4578	[841, 3311]
976	[1687, 1688]	2177	[2303, 3105]	3378	[3839, 3980]	4579	[4768, 509]
977	[1689, 746]	2178	[1204, 2249]	3379	[3981, 1194]	4580	[4543, 1937]
978	[1617, 1591]	2179	[256, 3106]	3380	[3982, 3796]	4581	[3241, 1755]
979	[1690, 154]	2180	[3107, 3108]	3381	[2321, 2858]	4582	[4769, 61]
980	[1691, 1692]	2181	[3109, 1199]	3382	[2357, 3983]	4583	[1543, 1932]
981	[1693, 185]	2182	[3110, 2368]	3383	[3984, 2519]	4584	[4770, 834]
982	[1694, 1695]	2183	[2931, 3111]	3384	[3985, 314]	4585	[3400, 698]
983	[1696, 1697]	2184	[3112, 3113]	3385	[3986, 1333]	4586	[4770, 1527]
984	[654, 43]	2185	[3114, 3115]	3386	[3987, 2628]	4587	[1845, 1993]
985	[656, 1698]	2186	[3084, 871]	3387	[3988, 3989]	4588	[2188, 527]
986	[1699, 626]	2187	[3116, 3117]	3388	[2969, 3796]	4589	[138, 167]
987	[1700, 1562]	2188	[1056, 3118]	3389	[3990, 915]	4590	[3330, 606]
988	[1545, 1701]	2189	[3119, 3120]	3390	[3765, 979]	4591	[4771, 1596]
989	[1549, 1702]	2190	[2293, 911]	3391	[2745, 3895]	4592	[4772, 3447]
990	[1703, 1704]	2191	[3121, 3050]	3392	[3991, 2626]	4593	[4539, 829]
991	[680, 485]	2192	[3122, 3123]	3393	[3992, 2348]	4594	[4389, 695]
992	[1705, 1545]	2193	[3124, 3125]	3394	[1047, 2913]	4595	[3547, 1729]
993	[59, 1706]	2194	[1137, 3126]	3395	[3993, 3994]	4596	[4531, 685]
994	[1707, 846]	2195	[3127, 3128]	3396	[863, 1105]	4597	[1984, 2033]
995	[1708, 226]	2196	[3129, 3130]	3397	[2933, 3060]	4598	[212, 2024]
996	[1709, 1710]	2197	[3131, 1485]	3398	[2404, 122]	4599	[1797, 700]
997	[1676, 529]	2198	[3132, 3133]	3399	[3995, 3996]	4600	[3481, 243]
998	[1711, 611]	2199	[3134, 3135]	3400	[3997, 2926]	4601	[3393, 180]
999	[1712, 154]	2200	[939, 337]	3401	[332, 3998]	4602	[2036, 150]
1000	[1713, 1714]	2201	[1210, 3136]	3402	[3999, 2744]	4603	[3645, 1623]
1001	[628, 801]	2202	[1212, 1353]	3403	[4000, 1371]	4604	[1940, 649]
1002	[814, 823]	2203	[3137, 3138]	3404	[4001, 2654]	4605	[3530, 639]
1003	[1715, 1592]	2204	[3139, 3140]	3405	[4002, 4003]	4606	[4535, 696]
1004	[1556, 1716]	2205	[3141, 3142]	3406	[4004, 4005]	4607	[4773, 1527]
1005	[1717, 1718]	2206	[3143, 880]	3407	[4006, 4007]	4608	[3719, 844]
1006	[1719, 1720]	2207	[3144, 3145]	3408	[4008, 3824]	4609	[1944, 839]

1007	[1721, 1722]	2208	[2423, 2492]	3409	[2935, 2230]	4610	[3218, 846]
1008	[1723, 1724]	2209	[3146, 1236]	3410	[4009, 1323]	4611	[3604, 1897]
1009	[1725, 1726]	2210	[3147, 3148]	3411	[2848, 3051]	4612	[4489, 3717]
1010	[1727, 1728]	2211	[3149, 1505]	3412	[4010, 3982]	4613	[2045, 3594]
1011	[1729, 594]	2212	[2961, 3150]	3413	[4011, 4012]	4614	[1813, 1539]
1012	[820, 1730]	2213	[3151, 3152]	3414	[2689, 3747]	4615	[3619, 586]
1013	[1630, 563]	2214	[3153, 2812]	3415	[4013, 4014]	4616	[570, 156]
1014	[1731, 588]	2215	[3154, 1203]	3416	[4015, 367]	4617	[3349, 1819]
1015	[753, 561]	2216	[3155, 925]	3417	[1060, 2824]	4618	[1551, 1810]
1016	[219, 842]	2217	[2437, 1388]	3418	[4016, 4017]	4619	[4432, 650]
1017	[1732, 1733]	2218	[2438, 1471]	3419	[2700, 3076]	4620	[1979, 3526]
1018	[1734, 1735]	2219	[3156, 3157]	3420	[4018, 1318]	4621	[4774, 810]
1019	[1736, 1737]	2220	[3158, 3074]	3421	[4019, 929]	4622	[2154, 1887]
1020	[1738, 1739]	2221	[3159, 2283]	3422	[4020, 4021]	4623	[3436, 1761]
1021	[1740, 1741]	2222	[3160, 3161]	3423	[4022, 3143]	4624	[4545, 1563]
1022	[1734, 1742]	2223	[4, 2720]	3424	[3857, 4023]	4625	[3451, 2178]
1023	[1729, 1743]	2224	[3162, 1427]	3425	[4024, 3999]	4626	[4775, 1803]
1024	[1744, 842]	2225	[3163, 1429]	3426	[1376, 4025]	4627	[808, 620]
1025	[1711, 61]	2226	[3164, 65]	3427	[4026, 4027]	4628	[4359, 136]
1026	[1745, 136]	2227	[3165, 3166]	3428	[2472, 4028]	4629	[4548, 3596]
1027	[1746, 558]	2228	[2886, 1049]	3429	[4029, 4030]	4630	[4437, 1900]
1028	[1747, 561]	2229	[1679, 804]	3430	[4031, 296]	4631	[1577, 3310]
1029	[1748, 811]	2230	[592, 3167]	3431	[2383, 2720]	4632	[4519, 3209]
1030	[693, 582]	2231	[626, 565]	3432	[4032, 1381]	4633	[4465, 509]
1031	[577, 688]	2232	[3168, 1674]	3433	[4033, 4034]	4634	[3626, 3428]
1032	[1749, 585]	2233	[1751, 3169]	3434	[922, 4035]	4635	[4368, 1827]
1033	[656, 1750]	2234	[3170, 712]	3435	[4036, 2994]	4636	[3283, 2083]
1034	[1751, 744]	2235	[1602, 3171]	3436	[4037, 4038]	4637	[4776, 796]
1035	[1752, 542]	2236	[3172, 704]	3437	[342, 3986]	4638	[1866, 233]
1036	[1753, 1754]	2237	[537, 3173]	3438	[4039, 4040]	4639	[3638, 1569]
1037	[1644, 646]	2238	[1960, 1542]	3439	[4041, 2748]	4640	[1952, 1560]
1038	[1755, 1756]	2239	[3174, 821]	3440	[4042, 4043]	4641	[4455, 45]
1039	[515, 1757]	2240	[506, 1827]	3441	[350, 2312]	4642	[3693, 46]
1040	[1758, 1546]	2241	[2131, 2141]	3442	[4044, 4045]	4643	[4449, 2061]
1041	[1684, 1759]	2242	[3175, 191]	3443	[3966, 1235]	4644	[4777, 2033]
1042	[1760, 1761]	2243	[1696, 3176]	3444	[4046, 4047]	4645	[4778, 633]
1043	[136, 1762]	2244	[1919, 1887]	3445	[4048, 4049]	4646	[3295, 479]
1044	[1763, 156]	2245	[1896, 653]	3446	[4050, 4051]	4647	[4779, 505]
1045	[1764, 1765]	2246	[1555, 540]	3447	[3133, 2888]	4648	[1965, 641]
1046	[692, 1766]	2247	[3177, 677]	3448	[4052, 4053]	4649	[3702, 585]
1047	[842, 771]	2248	[1918, 809]	3449	[2345, 1352]	4650	[2170, 4445]
1048	[237, 680]	2249	[3178, 1885]	3450	[4054, 2391]	4651	[3501, 3688]
1049	[771, 1767]	2250	[3179, 543]	3451	[4055, 3927]	4652	[4780, 3603]
1050	[780, 598]	2251	[3180, 485]	3452	[3962, 78]	4653	[4549, 1780]

1051	[1623, 787]	2252	[2094, 3181]	3453	[2591, 2265]	4654	[4399, 3248]
1052	[58, 1768]	2253	[847, 3182]	3454	[4056, 4057]	4655	[3296, 739]
1053	[1769, 1770]	2254	[128, 1807]	3455	[4058, 4059]	4656	[4499, 635]
1054	[206, 1771]	2255	[3183, 3184]	3456	[4051, 1209]	4657	[1802, 3288]
1055	[1772, 1773]	2256	[551, 1629]	3457	[4060, 2906]	4658	[3177, 1617]
1056	[1774, 1734]	2257	[3185, 1539]	3458	[4061, 4062]	4659	[538, 4485]
1057	[1775, 1656]	2258	[1733, 3186]	3459	[4063, 4064]	4660	[4479, 750]
1058	[1776, 1777]	2259	[3187, 3188]	3460	[4065, 3946]	4661	[2032, 1985]
1059	[1778, 1779]	2260	[510, 708]	3461	[4066, 4067]	4662	[512, 1850]
1060	[1780, 1726]	2261	[585, 3189]	3462	[4068, 2918]	4663	[3404, 630]
1061	[246, 1781]	2262	[3190, 591]	3463	[4069, 387]	4664	[4431, 3370]
1062	[246, 612]	2263	[3191, 3192]	3464	[4070, 4071]	4665	[1740, 3360]
1063	[1782, 845]	2264	[3193, 549]	3465	[442, 6]	4666	[3212, 182]
1064	[645, 714]	2265	[1757, 2136]	3466	[4072, 2372]	4667	[1752, 3179]
1065	[1783, 1784]	2266	[3194, 1640]	3467	[4073, 4074]	4668	[4537, 1953]
1066	[1664, 1785]	2267	[2006, 245]	3468	[1365, 2397]	4669	[4491, 2143]
1067	[1786, 1567]	2268	[2186, 1933]	3469	[4075, 2688]	4670	[2091, 1536]
1068	[1787, 1788]	2269	[1965, 174]	3470	[4076, 1069]	4671	[1794, 1754]
1069	[1789, 1790]	2270	[3195, 805]	3471	[4077, 4078]	4672	[4775, 3288]
1070	[1791, 1792]	2271	[3196, 1874]	3472	[3755, 275]	4673	[4552, 539]
1071	[1793, 1590]	2272	[3197, 3198]	3473	[4079, 4080]	4674	[4766, 3189]
1072	[1794, 780]	2273	[3199, 3200]	3474	[4081, 4082]	4675	[4515, 1595]
1073	[503, 1692]	2274	[171, 3201]	3475	[4083, 2459]	4676	[4781, 716]
1074	[1787, 1795]	2275	[2128, 1851]	3476	[2494, 2939]	4677	[4534, 3572]
1075	[598, 1796]	2276	[3202, 3203]	3477	[4084, 3165]	4678	[3722, 1561]
1076	[1797, 1798]	2277	[1909, 1742]	3478	[4085, 3777]	4679	[3549, 695]
1077	[1799, 1800]	2278	[3204, 3205]	3479	[2627, 2736]	4680	[1842, 753]
1078	[1801, 1563]	2279	[3206, 1963]	3480	[2271, 4086]	4681	[4530, 227]
1079	[1802, 1803]	2280	[642, 579]	3481	[4087, 474]	4682	[747, 1968]
1080	[1804, 713]	2281	[1590, 1999]	3482	[4088, 2257]	4683	[4763, 1950]
1081	[1805, 1548]	2282	[816, 3207]	3483	[2267, 125]	4684	[159, 2175]
1082	[1806, 1807]	2283	[1826, 507]	3484	[4089, 437]	4685	[1659, 1749]
1083	[206, 1808]	2284	[3208, 3209]	3485	[4053, 2476]	4686	[3494, 168]
1084	[1809, 1810]	2285	[3210, 3211]	3486	[2558, 1447]	4687	[3224, 40]
1085	[1811, 1812]	2286	[3212, 2141]	3487	[4090, 3025]	4688	[3678, 2175]
1086	[1813, 1814]	2287	[3213, 1674]	3488	[4091, 3757]	4689	[1860, 1790]
1087	[580, 504]	2288	[1894, 3214]	3489	[4092, 2857]	4690	[644, 1693]
1088	[1815, 1816]	2289	[3215, 2205]	3490	[4093, 2934]	4691	[4529, 196]
1089	[831, 1817]	2290	[3216, 1584]	3491	[3065, 4094]	4692	[3469, 3681]
1090	[630, 1818]	2291	[3217, 603]	3492	[4095, 3080]	4693	[4776, 588]
1091	[648, 1774]	2292	[3218, 1599]	3493	[1157, 3983]	4694	[2162, 3612]
1092	[1819, 1596]	2293	[1693, 714]	3494	[3795, 2752]	4695	[524, 3203]
1093	[1820, 1821]	2294	[1862, 526]	3495	[4096, 4097]	4696	[4494, 1735]
1094	[1814, 1636]	2295	[1904, 710]	3496	[4098, 3867]	4697	[3721, 2060]

1095	[1822, 610]	2296	[3219, 2086]	3497	[4099, 4100]	4698	[4346, 3479]
1096	[1823, 127]	2297	[3220, 508]	3498	[4101, 3782]	4699	[3458, 1604]
1097	[1824, 658]	2298	[677, 1618]	3499	[3499, 3499]	4700	[3683, 519]
1098	[1825, 662]	2299	[1599, 847]	3500	[4102, 887]	4701	[4423, 3594]
1099	[1826, 1827]	2300	[3221, 3207]	3501	[4103, 2775]	4702	[4777, 1985]
1100	[1828, 1829]	2301	[3222, 3223]	3502	[4104, 4105]	4703	[520, 1581]
1101	[553, 798]	2302	[3224, 3215]	3503	[2820, 3936]	4704	[4780, 3717]
1102	[1607, 656]	2303	[490, 3225]	3504	[4106, 4107]	4705	[4408, 2019]
1103	[1830, 1831]	2304	[3226, 3227]	3505	[4108, 3981]	4706	[3197, 1673]
1104	[1832, 1833]	2305	[1803, 3228]	3506	[1441, 1014]	4707	[4353, 3641]
1105	[1536, 829]	2306	[143, 1605]	3507	[423, 4109]	4708	[2149, 2166]
1106	[1834, 1835]	2307	[1660, 3189]	3508	[4110, 4111]	4709	[2049, 3287]
1107	[1836, 1569]	2308	[3188, 518]	3509	[2972, 468]	4710	[4773, 834]
1108	[1837, 1838]	2309	[2067, 1734]	3510	[4112, 4113]	4711	[2191, 2039]
1109	[1839, 1840]	2310	[3229, 3230]	3511	[4114, 4115]	4712	[4520, 1761]
1110	[725, 718]	2311	[819, 162]	3512	[2662, 2470]	4713	[3632, 3305]
1111	[1832, 1841]	2312	[3231, 2179]	3513	[4116, 316]	4714	[4471, 527]
1112	[761, 214]	2313	[662, 2067]	3514	[4117, 1096]	4715	[3585, 1674]
1113	[1842, 1747]	2314	[3232, 148]	3515	[2803, 2786]	4716	[4782, 1582]
1114	[1754, 560]	2315	[3233, 3234]	3516	[4118, 2569]	4717	[3624, 167]
1115	[1843, 720]	2316	[1573, 3178]	3517	[4119, 1035]	4718	[3258, 706]
1116	[749, 165]	2317	[3235, 1562]	3518	[2713, 2865]	4719	[4547, 139]
1117	[528, 1677]	2318	[3236, 243]	3519	[4120, 2507]	4720	[4527, 4413]
1118	[1844, 773]	2319	[1807, 134]	3520	[4121, 4122]	4721	[4481, 3285]
1119	[1845, 825]	2320	[3237, 3179]	3521	[4123, 3802]	4722	[597, 560]
1120	[1846, 813]	2321	[519, 3169]	3522	[4124, 4125]	4723	[131, 3231]
1121	[1847, 795]	2322	[2119, 1749]	3523	[3953, 2324]	4724	[4365, 1792]
1122	[1848, 56]	2323	[2201, 2212]	3524	[4126, 2623]	4725	[4525, 796]
1123	[641, 1764]	2324	[503, 3238]	3525	[4127, 4128]	4726	[2089, 624]
1124	[1539, 1849]	2325	[1708, 3206]	3526	[1262, 3792]	4727	[3532, 3622]
1125	[587, 1781]	2326	[2179, 2069]	3527	[4129, 2403]	4728	[4771, 1981]
1126	[1773, 161]	2327	[3239, 3240]	3528	[2822, 2835]	4729	[4508, 1817]
1127	[1576, 1850]	2328	[712, 684]	3529	[4130, 4131]	4730	[3573, 825]
1128	[782, 1851]	2329	[1817, 716]	3530	[4132, 1150]	4731	[3711, 701]
1129	[708, 1583]	2330	[1818, 1978]	3531	[4133, 4134]	4732	[4783, 539]
1130	[1852, 1853]	2331	[3241, 1922]	3532	[4135, 3852]	4733	[3698, 3206]
1131	[623, 1854]	2332	[1666, 1806]	3533	[4136, 4137]	4734	[2196, 3313]
1132	[14, 1855]	2333	[2084, 3242]	3534	[2766, 4138]	4735	[4348, 4440]
1133	[1856, 1857]	2334	[1795, 181]	3535	[4139, 1446]	4736	[4783, 4485]
1134	[797, 554]	2335	[3243, 3244]	3536	[2527, 2864]	4737	[556, 3341]
1135	[1858, 595]	2336	[1834, 1928]	3537	[4140, 3745]	4738	[2199, 229]
1136	[1859, 763]	2337	[1827, 2117]	3538	[2570, 4141]	4739	[3377, 1724]
1137	[1860, 1861]	2338	[1612, 1555]	3539	[4142, 2409]	4740	[4415, 806]
1138	[1747, 1862]	2339	[3245, 1767]	3540	[4143, 2381]	4741	[1875, 512]

1139	[1863, 1864]	2340	[3246, 1651]	3541	[4144, 1211]	4742	[4553, 3607]
1140	[1781, 1865]	2341	[3247, 1721]	3542	[4145, 4146]	4743	[4782, 627]
1141	[1866, 1867]	2342	[1728, 550]	3543	[4147, 4148]	4744	[4781, 1868]
1142	[1817, 1868]	2343	[1865, 488]	3544	[4149, 3163]	4745	[3634, 2077]
1143	[1869, 1870]	2344	[3248, 1638]	3545	[4150, 4151]	4746	[4784, 4434]
1144	[1863, 1871]	2345	[537, 502]	3546	[4152, 395]	4747	[4401, 1874]
1145	[210, 1872]	2346	[3249, 785]	3547	[4153, 2550]	4748	[3300, 657]
1146	[1873, 1874]	2347	[3250, 2010]	3548	[4154, 2581]	4749	[2021, 1601]
1147	[1875, 1576]	2348	[3251, 3187]	3549	[4155, 1248]	4750	[4393, 1865]
1148	[1876, 1697]	2349	[1731, 796]	3550	[4156, 2304]	4751	[4417, 639]
1149	[854, 1877]	2350	[3252, 664]	3551	[4157, 1477]	4752	[1876, 3176]
1150	[1878, 1879]	2351	[3253, 3254]	3552	[3028, 328]	4753	[4765, 149]
1151	[1660, 1880]	2352	[56, 769]	3553	[4158, 1383]	4754	[4768, 607]
1152	[1881, 1547]	2353	[3255, 2071]	3554	[3853, 453]	4755	[4360, 200]
1153	[837, 1882]	2354	[798, 1950]	3555	[4159, 3911]	4756	[4396, 4434]
1154	[1733, 1883]	2355	[3256, 1679]	3556	[100, 2833]	4757	[4774, 1748]
1155	[1884, 1885]	2356	[3257, 3179]	3557	[4160, 4161]	4758	[3665, 501]
1156	[1886, 1846]	2357	[3258, 2063]	3558	[4162, 4]	4759	[4424, 3227]
1157	[1887, 1888]	2358	[3259, 2088]	3559	[2500, 3087]	4760	[3488, 490]
1158	[1889, 10]	2359	[1595, 1981]	3560	[1363, 3787]	4761	[4784, 3200]
1159	[1890, 1597]	2360	[3260, 1826]	3561	[865, 2467]	4762	[4533, 1993]
1160	[1891, 1795]	2361	[2078, 242]	3562	[4163, 4164]	4763	[3957, 2678]
1161	[1737, 192]	2362	[3261, 2017]	3563	[3928, 1208]	4764	[4785, 303]
1162	[238, 681]	2363	[1634, 683]	3564	[2652, 382]	4765	[3809, 1124]
1163	[1624, 844]	2364	[1680, 1955]	3565	[3091, 351]	4766	[3021, 940]
1164	[1892, 169]	2365	[1921, 545]	3566	[4165, 1229]	4767	[2763, 1468]
1165	[1893, 1894]	2366	[484, 588]	3567	[4166, 331]	4768	[2433, 1455]
1166	[1895, 1896]	2367	[3262, 2129]	3568	[252, 1070]	4769	[4786, 1462]
1167	[561, 1683]	2368	[3263, 618]	3569	[4167, 2821]	4770	[4787, 4788]
1168	[779, 1646]	2369	[3188, 223]	3570	[4168, 4169]	4771	[4789, 3781]
1169	[509, 1897]	2370	[844, 1768]	3571	[4170, 4171]	4772	[1452, 2452]
1170	[1898, 1899]	2371	[3264, 2197]	3572	[3871, 4172]	4773	[4790, 1489]
1171	[1900, 1901]	2372	[2075, 3265]	3573	[4173, 4174]	4774	[4791, 1451]
1172	[1902, 1879]	2373	[550, 1620]	3574	[4175, 4176]	4775	[4792, 4793]
1173	[1903, 1904]	2374	[3266, 1666]	3575	[4177, 4178]	4776	[4293, 2393]
1174	[1905, 1604]	2375	[631, 1978]	3576	[4179, 2953]	4777	[4794, 2785]
1175	[1851, 504]	2376	[1572, 241]	3577	[4113, 4109]	4778	[4795, 4796]
1176	[1906, 1907]	2377	[3267, 3172]	3578	[4180, 4181]	4779	[2305, 351]
1177	[176, 1908]	2378	[571, 703]	3579	[2330, 4182]	4780	[4797, 4798]
1178	[1774, 1909]	2379	[3268, 3269]	3580	[4183, 2514]	4781	[4799, 4025]
1179	[1910, 1532]	2380	[533, 1663]	3581	[4003, 3098]	4782	[4800, 3131]
1180	[1848, 768]	2381	[3270, 1966]	3582	[80, 1279]	4783	[4801, 2978]
1181	[1911, 1595]	2382	[3271, 1937]	3583	[4184, 4185]	4784	[4802, 3978]
1182	[1912, 1913]	2383	[3272, 575]	3584	[4186, 4187]	4785	[3267, 779]

1183	[592, 1785]	2384	[3273, 1732]	3585	[4188, 2448]	4786	[3520, 1787]
1184	[1914, 1915]	2385	[3274, 583]	3586	[4189, 4190]	4787	[4457, 3302]
1185	[1916, 1676]	2386	[3275, 690]	3587	[1396, 360]	4788	[3235, 763]
1186	[1575, 8]	2387	[3276, 578]	3588	[4191, 951]	4789	[144, 2016]
1187	[150, 482]	2388	[3277, 1690]	3589	[3847, 2501]	4790	[1946, 2141]
1188	[167, 1917]	2389	[3278, 3279]	3590	[4192, 4193]	4791	[4421, 626]
1189	[1918, 620]	2390	[1938, 3280]	3591	[4194, 2971]	4792	[1971, 3178]
1190	[234, 668]	2391	[3281, 3282]	3592	[4195, 2441]	4793	[2110, 1654]
1191	[631, 1919]	2392	[3283, 3284]	3593	[4196, 4197]	4794	[3463, 204]
1192	[1920, 1624]	2393	[844, 3285]	3594	[3126, 1442]	4795	[3422, 828]
1193	[1921, 583]	2394	[157, 1887]	3595	[4198, 4199]	4796	[632, 1966]
1194	[1922, 1923]	2395	[3286, 3287]	3596	[2250, 4200]	4797	[3473, 2023]
1195	[1735, 1924]	2396	[3288, 3228]	3597	[1108, 3002]	4798	[3606, 52]
1196	[763, 1563]	2397	[828, 3289]	3598	[4201, 4202]	4799	[4351, 4428]
1197	[1925, 1926]	2398	[3290, 739]	3599	[4203, 4204]	4800	[3352, 1603]
1198	[1927, 1928]	2399	[2005, 3291]	3600	[4205, 4206]	4801	[3555, 3641]
1199	[1600, 1745]	2400	[3292, 209]	3601	[4207, 3959]	4802	[3696, 1720]
1200	[175, 1929]	2401	[686, 1628]	3602	[4208, 4209]		

Output function $n \mapsto \tau(n)$:

n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$
0	0	801	1	1602	0	2403	0	3204	0	4005	0
1	0	802	1	1603	0	2404	0	3205	0	4006	1
2	1	803	1	1604	1	2405	0	3206	0	4007	1
3	0	804	0	1605	0	2406	1	3207	1	4008	1
4	0	805	1	1606	1	2407	1	3208	0	4009	0
5	1	806	1	1607	1	2408	0	3209	0	4010	0
6	1	807	1	1608	0	2409	1	3210	0	4011	1
7	0	808	0	1609	1	2410	0	3211	0	4012	1
8	0	809	1	1610	1	2411	0	3212	1	4013	1
9	0	810	1	1611	0	2412	1	3213	1	4014	0
10	0	811	1	1612	0	2413	1	3214	1	4015	1
11	1	812	0	1613	0	2414	0	3215	1	4016	1
12	0	813	1	1614	1	2415	0	3216	1	4017	1
13	1	814	0	1615	0	2416	0	3217	1	4018	1
14	0	815	0	1616	0	2417	1	3218	0	4019	0
15	0	816	1	1617	1	2418	0	3219	1	4020	1
16	0	817	0	1618	0	2419	0	3220	0	4021	0
17	0	818	1	1619	1	2420	0	3221	0	4022	0
18	0	819	1	1620	0	2421	0	3222	0	4023	0
19	0	820	0	1621	0	2422	0	3223	1	4024	0
20	0	821	1	1622	0	2423	0	3224	0	4025	1
21	0	822	1	1623	1	2424	0	3225	0	4026	0
22	0	823	0	1624	0	2425	0	3226	0	4027	1

23	1	824	1	1625	1	2426	1	3227	0	4028	1
24	1	825	1	1626	1	2427	0	3228	0	4029	1
25	0	826	0	1627	0	2428	0	3229	0	4030	1
26	1	827	1	1628	0	2429	1	3230	1	4031	0
27	1	828	0	1629	0	2430	1	3231	0	4032	0
28	1	829	0	1630	1	2431	1	3232	0	4033	0
29	0	830	0	1631	1	2432	1	3233	1	4034	1
30	0	831	0	1632	1	2433	0	3234	0	4035	0
31	0	832	1	1633	0	2434	0	3235	0	4036	1
32	0	833	0	1634	0	2435	1	3236	1	4037	1
33	0	834	0	1635	1	2436	0	3237	1	4038	0
34	0	835	1	1636	0	2437	0	3238	0	4039	1
35	0	836	1	1637	1	2438	0	3239	0	4040	0
36	1	837	0	1638	0	2439	0	3240	1	4041	0
37	0	838	0	1639	0	2440	0	3241	0	4042	1
38	1	839	1	1640	1	2441	1	3242	1	4043	1
39	0	840	1	1641	1	2442	1	3243	1	4044	0
40	0	841	1	1642	1	2443	1	3244	0	4045	0
41	0	842	0	1643	1	2444	0	3245	0	4046	1
42	0	843	0	1644	0	2445	0	3246	1	4047	1
43	0	844	0	1645	0	2446	0	3247	0	4048	1
44	0	845	0	1646	0	2447	1	3248	0	4049	0
45	0	846	0	1647	1	2448	1	3249	1	4050	1
46	0	847	0	1648	1	2449	1	3250	1	4051	0
47	1	848	0	1649	1	2450	1	3251	1	4052	1
48	0	849	1	1650	0	2451	1	3252	0	4053	0
49	1	850	1	1651	1	2452	1	3253	1	4054	0
50	0	851	0	1652	0	2453	1	3254	1	4055	0
51	0	852	0	1653	0	2454	0	3255	1	4056	1
52	1	853	0	1654	0	2455	0	3256	0	4057	0
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55	1	856	0	1657	0	2458	0	3259	1	4060	1
56	0	857	1	1658	0	2459	0	3260	0	4061	1
57	1	858	1	1659	0	2460	1	3261	1	4062	0
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60	1	861	0	1662	1	2463	1	3264	1	4065	0
61	0	862	0	1663	1	2464	0	3265	0	4066	0
62	0	863	1	1664	0	2465	1	3266	0	4067	1
63	0	864	1	1665	0	2466	1	3267	0	4068	1
64	0	865	0	1666	1	2467	0	3268	1	4069	1
65	0	866	0	1667	0	2468	0	3269	0	4070	1
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67	0	868	1	1669	0	2470	1	3271	1	4072	1
68	1	869	0	1670	0	2471	1	3272	1	4073	0
69	0	870	0	1671	1	2472	0	3273	0	4074	1
70	0	871	1	1672	1	2473	1	3274	0	4075	1
71	0	872	0	1673	0	2474	0	3275	1	4076	0
72	1	873	0	1674	1	2475	0	3276	1	4077	0
73	1	874	0	1675	1	2476	1	3277	1	4078	0
74	0	875	0	1676	1	2477	0	3278	0	4079	0
75	0	876	0	1677	1	2478	0	3279	1	4080	1
76	0	877	0	1678	1	2479	1	3280	1	4081	0
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78	1	879	1	1680	1	2481	1	3282	1	4083	1
79	0	880	0	1681	0	2482	0	3283	0	4084	0
80	0	881	0	1682	1	2483	0	3284	1	4085	1
81	0	882	0	1683	1	2484	1	3285	1	4086	1
82	0	883	1	1684	1	2485	1	3286	1	4087	0
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86	0	887	1	1688	1	2489	1	3290	1	4091	0
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89	0	890	0	1691	0	2492	0	3293	0	4094	1
90	0	891	1	1692	1	2493	0	3294	1	4095	0
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92	0	893	0	1694	0	2495	1	3296	1	4097	0
93	0	894	1	1695	1	2496	0	3297	0	4098	0
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95	1	896	0	1697	0	2498	1	3299	0	4100	1
96	0	897	0	1698	0	2499	1	3300	1	4101	0
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98	1	899	0	1700	1	2501	1	3302	1	4103	1
99	1	900	0	1701	0	2502	1	3303	0	4104	1
100	1	901	1	1702	0	2503	0	3304	0	4105	0
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102	0	903	0	1704	1	2505	0	3306	0	4107	0
103	0	904	1	1705	1	2506	1	3307	0	4108	0
104	0	905	0	1706	0	2507	0	3308	0	4109	1
105	1	906	1	1707	1	2508	1	3309	0	4110	0
106	1	907	1	1708	1	2509	0	3310	1	4111	1
107	1	908	0	1709	1	2510	1	3311	0	4112	0
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109	1	910	1	1711	0	2512	0	3313	0	4114	1
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112	1	913	0	1714	0	2515	1	3316	0	4117	0
113	0	914	1	1715	1	2516	0	3317	1	4118	1
114	1	915	1	1716	1	2517	1	3318	1	4119	0
115	1	916	1	1717	0	2518	1	3319	0	4120	1
116	1	917	0	1718	1	2519	1	3320	0	4121	1
117	1	918	1	1719	1	2520	0	3321	1	4122	1
118	1	919	1	1720	0	2521	0	3322	0	4123	0
119	0	920	0	1721	1	2522	1	3323	1	4124	0
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121	1	922	0	1723	0	2524	0	3325	0	4126	0
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123	0	924	1	1725	0	2526	1	3327	1	4128	1
124	0	925	1	1726	0	2527	0	3328	1	4129	0
125	0	926	0	1727	1	2528	1	3329	1	4130	0
126	0	927	0	1728	1	2529	0	3330	1	4131	1
127	0	928	0	1729	0	2530	0	3331	0	4132	0
128	1	929	1	1730	0	2531	1	3332	1	4133	0
129	0	930	0	1731	1	2532	0	3333	1	4134	1
130	0	931	0	1732	1	2533	1	3334	1	4135	1
131	0	932	1	1733	0	2534	1	3335	1	4136	1
132	1	933	1	1734	0	2535	1	3336	0	4137	1
133	0	934	0	1735	0	2536	0	3337	0	4138	1
134	0	935	0	1736	1	2537	0	3338	1	4139	0
135	1	936	0	1737	1	2538	0	3339	0	4140	1
136	1	937	1	1738	1	2539	1	3340	1	4141	0
137	0	938	1	1739	0	2540	0	3341	1	4142	0
138	0	939	0	1740	1	2541	1	3342	1	4143	0
139	1	940	1	1741	0	2542	1	3343	0	4144	0
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141	1	942	1	1743	0	2544	1	3345	1	4146	1
142	0	943	0	1744	1	2545	1	3346	0	4147	1
143	0	944	0	1745	0	2546	0	3347	1	4148	0
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145	1	946	1	1747	0	2548	1	3349	1	4150	0
146	1	947	0	1748	0	2549	1	3350	0	4151	1
147	0	948	0	1749	0	2550	0	3351	0	4152	1
148	0	949	0	1750	1	2551	1	3352	1	4153	0
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150	0	951	0	1752	0	2553	0	3354	1	4155	0
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158	1	959	1	1760	0	2561	0	3362	1	4163	0
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160	0	961	0	1762	1	2563	1	3364	1	4165	0
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162	0	963	0	1764	1	2565	1	3366	1	4167	0
163	1	964	1	1765	1	2566	1	3367	0	4168	0
164	0	965	0	1766	1	2567	0	3368	0	4169	0
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166	0	967	1	1768	0	2569	1	3370	1	4171	0
167	0	968	1	1769	0	2570	1	3371	0	4172	0
168	1	969	1	1770	1	2571	1	3372	1	4173	0
169	0	970	0	1771	1	2572	1	3373	0	4174	1
170	0	971	0	1772	1	2573	1	3374	1	4175	0
171	0	972	0	1773	0	2574	1	3375	0	4176	1
172	0	973	1	1774	1	2575	1	3376	1	4177	0
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175	0	976	0	1777	0	2578	1	3379	1	4180	1
176	1	977	1	1778	1	2579	0	3380	1	4181	0
177	0	978	1	1779	1	2580	0	3381	1	4182	0
178	0	979	1	1780	1	2581	1	3382	1	4183	0
179	0	980	0	1781	0	2582	1	3383	0	4184	1
180	1	981	0	1782	1	2583	1	3384	0	4185	1
181	0	982	0	1783	1	2584	1	3385	0	4186	0
182	0	983	1	1784	1	2585	1	3386	0	4187	1
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187	1	988	0	1789	1	2590	1	3391	0	4192	0
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192	1	993	0	1794	1	2595	1	3396	1	4197	1
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196	0	997	1	1798	0	2599	1	3400	1	4201	0
197	1	998	0	1799	1	2600	1	3401	0	4202	0
198	0	999	0	1800	0	2601	1	3402	1	4203	0

199	0	1000	0	1801	1	2602	0	3403	1	4204	1
200	0	1001	0	1802	0	2603	1	3404	0	4205	0
201	0	1002	0	1803	1	2604	1	3405	1	4206	1
202	0	1003	1	1804	0	2605	0	3406	1	4207	0
203	0	1004	1	1805	1	2606	1	3407	1	4208	0
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205	0	1006	1	1807	1	2608	0	3409	0	4210	0
206	1	1007	1	1808	0	2609	1	3410	0	4211	1
207	1	1008	0	1809	0	2610	1	3411	1	4212	0
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209	1	1010	1	1811	0	2612	1	3413	1	4214	1
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212	0	1013	1	1814	0	2615	0	3416	1	4217	1
213	0	1014	1	1815	1	2616	0	3417	1	4218	1
214	1	1015	1	1816	0	2617	1	3418	1	4219	0
215	0	1016	0	1817	0	2618	0	3419	1	4220	0
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218	1	1019	1	1820	1	2621	1	3422	1	4223	0
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221	1	1022	0	1823	1	2624	1	3425	0	4226	1
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226	1	1027	0	1828	1	2629	1	3430	0	4231	1
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228	1	1029	0	1830	0	2631	1	3432	0	4233	1
229	1	1030	0	1831	0	2632	1	3433	0	4234	0
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232	0	1033	0	1834	0	2635	1	3436	1	4237	0
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234	1	1035	0	1836	0	2637	0	3438	1	4239	0
235	1	1036	0	1837	1	2638	1	3439	0	4240	0
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237	0	1038	0	1839	0	2640	1	3441	0	4242	1
238	0	1039	1	1840	0	2641	0	3442	0	4243	1
239	0	1040	1	1841	1	2642	1	3443	0	4244	0
240	1	1041	1	1842	0	2643	0	3444	1	4245	1
241	0	1042	0	1843	0	2644	0	3445	1	4246	1
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243	0	1044	1	1845	0	2646	0	3447	1	4248	1
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245	0	1046	1	1847	0	2648	0	3449	1	4250	1
246	0	1047	0	1848	0	2649	1	3450	0	4251	1
247	0	1048	0	1849	1	2650	1	3451	0	4252	0
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268	0	1069	1	1870	0	2671	1	3472	0	4273	1
269	0	1070	0	1871	1	2672	0	3473	0	4274	0
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294	1	1095	0	1896	0	2697	0	3498	0	4299	0
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299	0	1100	1	1901	0	2702	0	3503	0	4304	1
300	1	1101	1	1902	1	2703	0	3504	1	4305	1
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305	1	1106	0	1907	0	2708	0	3509	0	4310	1
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307	1	1108	1	1909	1	2710	0	3511	1	4312	1
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309	0	1110	0	1911	0	2712	0	3513	0	4314	1
310	0	1111	1	1912	0	2713	1	3514	0	4315	1
311	1	1112	0	1913	0	2714	0	3515	1	4316	1
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313	1	1114	0	1915	1	2716	1	3517	0	4318	1
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317	0	1118	0	1919	1	2720	0	3521	0	4322	1
318	1	1119	0	1920	1	2721	0	3522	0	4323	0
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320	0	1121	0	1922	1	2723	0	3524	0	4325	1
321	0	1122	0	1923	0	2724	0	3525	0	4326	0
322	0	1123	0	1924	1	2725	0	3526	0	4327	1
323	0	1124	1	1925	0	2726	0	3527	0	4328	0
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328	0	1129	1	1930	0	2731	1	3532	1	4333	0
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334	0	1135	0	1936	0	2737	1	3538	1	4339	0
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363	1	1164	0	1965	1	2766	1	3567	0	4368	1
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373	0	1174	0	1975	0	2776	0	3577	0	4378	1
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385	1	1186	1	1987	0	2788	0	3589	0	4390	0
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389	0	1190	1	1991	1	2792	0	3593	1	4394	1
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391	0	1192	1	1993	0	2794	1	3595	1	4396	0
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393	0	1194	1	1995	0	2796	1	3597	1	4398	0
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