PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z^6 + z^5 + z^2 + 1, z + 1)$

GUO-NIU HAN* AND YINING HU*

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 $(a,b) = (z^6 + z^5 + z^2 + 1, z + 1)$.

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

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

Date: runone at : 30/04/2020 06:09:31 .

2010 *Mathematics Subject Classification.* 11B85, 11J70, 11B50, 11Y65, 05A15.

Key words and phrases. automatic sequence, continued fraction, Thue-Morse sequence.

* This paper was automatically generated from a computer program developed by the authors, with 1.6 hours CPU time used.

Theorem 1.1. *When* $(a,b)=(z^6+z^5+z^2+1, z+1)$, *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 $\mathrm{CF}(a,b)$,

$$\begin{aligned}
p_0(z)&=z^{15}+z^{13}+z^{10}+z^7+z^2+z+1,\\
p_1(z)&=z^{21}+z^{20}+z^{19}+z^{18}+z^{17}+z^{12}+z^9+z^6+z^3+z,\\
p_2(z)&=z^{22}+z^{10}+z^6+1,\\
p_3(z)&=z^{21}+z^{20}+z^{19}+z^{18}+z^{17}+z^{12}+z^9+z^6+z^3+z,\\
p_4(z)&=z^{20}+z^{18}+z^{16}+z^{15}+z^{14}+z^{13}+z^{12}+z^{10}+z^8+z^7+z^6+z+1,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{18}+z^{16}+z^{15}+z^{14}+z^{13}+z^{12}+z^8+z^7+z^6+z^4+z^2+z+1,\\
p_1(z)&=z^{21}+z^{20}+z^{19}+z^{18}+z^{17}+z^{12}+z^9+z^6+z^3+z,\\
p_2(z)&=z^{22}+z^{10}+z^6+1,\\
p_3(z)&=z^{21}+z^{20}+z^{19}+z^{18}+z^{17}+z^{12}+z^9+z^6+z^3+z,\\
p_4(z)&=z^{20}+z^{15}+z^{13}+z^7+z^4+z+1.
\end{aligned}$$

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

Lemma 2.2. *For all integers $k \geq 2$ and $u = 2^{2k-1}$, the following identities hold.*
$$\begin{aligned} M^e[:14u] = {} & M^e[:7u] + x^{5u}M^e[:2u] + x^{5u}M^e[:7u] + x^{10u}M^e[:2u] \\ & + x^{9u}M^e[:5u] + x^{10u}M^e[:4u] + x^{12u}M^e[:2u] + x^{13u}M^e[:u] \\ & + (x^{7u} + x^{12u})R^e, \\ W^e[:14u] = {} & W^e[:7u] + x^{5u}W^e[:2u] + x^{5u}W^e[:7u] + x^{10u}W^e[:2u] \\ & + x^{9u}W^e[:5u] + x^{10u}W^e[:4u] + x^{12u}W^e[:2u] + x^{13u}W^e[:u] \\ & + (x^{7u} + x^{12u})R^e. \end{aligned}$$

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

$$\begin{aligned} M^o[:14u] &= M^o[:7u] + x^{5u}M^o[:2u] + x^{5u}M^o[:7u] + x^{10u}M^o[:2u] \\ &\quad + x^{9u}M^o[:5u] + x^{10u}M^o[:4u] + x^{12u}M^o[:2u] + x^{13u}M^o[:u] \\ &\quad + (x^{7u} + x^{12u})R^o, \\ W^o[:14u] &= W^o[:7u] + x^{5u}W^o[:2u] + x^{5u}W^o[:7u] + x^{10u}W^o[:2u] \\ &\quad + x^{9u}W^o[:5u] + x^{10u}W^o[:4u] + x^{12u}W^o[:2u] + x^{13u}W^o[:u] \\ &\quad + (x^{7u} + x^{12u})R^o. \end{aligned}$$

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 $u = 2^{2k}$,

$$\begin{aligned} T[:14u] &= T[:7u] + x^{5u}T[:2u] + x^{5u}T[:7u] + x^{10u}T[:2u] + x^{9u}T[:5u] \\ &\quad + x^{10u}T[:4u] + x^{12u}T[:2u] + x^{13u}T[:u] + (x^{7u} + x^{12u}). \end{aligned}$$

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

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

which can be rewritten as

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

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

$$1 = T[[10w]_2] + T[[111w]_2], \tag{2.14}$$
$$0 = T[[11w]_2] + T[[1000w]_2], \tag{2.15}$$
$$0 = T[[w]_2] + T[[100w]_2] + T[[1001w]_2], \tag{2.16}$$
$$0 = T[[1w]_2] + T[[101w]_2] + T[[1010w]_2], \tag{2.17}$$
$$0 = T[[10w]_2] + T[[110w]_2] + T[[1011w]_2], \tag{2.18}$$

$$1 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[1100w]_2], \tag{2.19}$$
$$0 = T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 3993 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

$$0 = \tau(A(s, 10)) + \tau(A(s, 111)), \tag{2.21}$$
$$0 = \tau(A(s, 11)) + \tau(A(s, 1000)), \tag{2.22}$$
$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 100)) + \tau(A(s, 1001)), \tag{2.23}$$
$$0 = \tau(A(s, 1)) + \tau(A(s, 101)) + \tau(A(s, 1010)), \tag{2.24}$$
$$0 = \tau(A(s, 10)) + \tau(A(s, 110)) + \tau(A(s, 1011)), \tag{2.25}$$
$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 11)) + \tau(A(s, 1100)), \tag{2.26}$$
$$\begin{aligned} 0 = {} & \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 11)) + \tau(A(s, 100)) \\ & + \tau(A(s, 1101)), \end{aligned} \tag{2.27}$$

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

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

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{38}), E_{38}) = (A(i, 0^{14}), E_{14})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 19$, which turns out to be true. $\square$

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 $u = 2^{2k-1}$,*

$$M_{2k} = M^e[:7u] + x^{5u} M^e[:2u] + x^{7u} R^e,$$
$$W_{2k} = W^e[:7u] + x^{5u} W^e[:2u] + x^{7u} R^e.$$

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

$$M_{2k+1} = M^o[:7u] + x^{5u} M^o[:2u] + x^{7u} R^o,$$
$$W_{2k+1} = W^o[:7u] + x^{5u} W^o[:2u] + x^{7u} R^o.$$

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 $n \geq 2$, we claim that

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

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

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

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

$$W^e[:14v]M^e[:14v] + x^{10v}W^e[:4v]M^e[:4v].$$

For all $n \leq 14$, 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. □

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 $0 \leq j, k \leq 1$,

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

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

$$\begin{aligned}
q_0(x)&=x^{22}+x^{21}+x^{20}+x^{15}+x^{12}+x^9+x^7,\\
q_1(x)&=x^{21}+x^{19}+x^{16}+x^{13}+x^{10}+x^5+x^4+x^3+x^2+x,\\
q_2(x)&=x^{22}+x^{16}+x^{12}+1,\\
q_3(x)&=x^{21}+x^{19}+x^{16}+x^{13}+x^{10}+x^5+x^4+x^3+x^2+x,\\
q_4(x)&=x^{22}+x^{21}+x^{16}+x^{15}+x^{14}+x^{12}+x^{10}+x^9+x^8+x^7+x^6+x^4+x^2.
\end{aligned}$$

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 $\mathrm{CF}(a,b)=f(1/z)$. $\square$

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

$$\begin{aligned}
p_0(x)&=x^{102}+x^{92}+x^{88}+x^{82}+x^{76}+x^{74}+x^{68}+x^{64}+x^{60}+x^{56}+x^{52}\\
&\quad+x^{50}+x^{48}+x^{44}+x^{42}+x^{40}+x^{36}+x^{32}+x^{28}+x^{24}+x^{20}+x^{16}\\
&\quad+x^{12},\\
p_3(x)&=x^{100}+x^{96}+x^{92}+x^{90}+x^{82}+x^{70}+x^{66}+x^{62}+x^{60}+x^{56}+x^{54}\\
&\quad+x^{52}+x^{50}+x^{48}+x^{36}+x^{28}+x^{26}+x^{24}+x^{22}+x^{16}+x^{10}+x^8,\\
p_6(x)&=x^{100}+x^{98}+x^{94}+x^{90}+x^{88}+x^{86}+x^{82}+x^{78}+x^{76}+x^{74}+x^{70}\\
&\quad+x^{66}+x^{50}+x^{48}+x^{40}+x^{36}+x^{34}+x^{26}+x^{22}+x^{16}+x^{14}+x^{10}\\
&\quad+x^8+x^4+x^2+1,\\
p_9(x)&=x^{100}+x^{94}+x^{92}+x^{90}+x^{88}+x^{86}+x^{84}+x^{80}+x^{78}+x^{76}+x^{70}\\
&\quad+x^{68}+x^{64}+x^{60}+x^{58}+x^{56}+x^{54}+x^{52}+x^{46}+x^{40}+x^{38}+x^{28}\\
&\quad+x^{24}+x^{22}+x^{18}+x^{14}+x^6+x^2,\\
p_{12}(x)&=x^{102}+x^{100}+x^{98}+x^{96}+x^{94}+x^{90}+x^{84}+x^{80}+x^{70}+x^{68}+x^{66}
\end{aligned}$$

$$+ x^{64} + x^{62} + x^{58} + x^{54} + x^{50} + x^{46} + x^{42} + x^{38} + x^{34} + x^{30} + x^{26} + x^{22} + x^{18} + x^{14} + x^{10} + x^{4} + 1,$$

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

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

$$\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{114} + x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{95} + x^{91} \\
&\quad + x^{88} + x^{86} + x^{85} + x^{84} + x^{79} + x^{78} + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} \\
&\quad + x^{70} + x^{69} + x^{67} + x^{62} + x^{60} + x^{59} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50} \\
&\quad + x^{49} + x^{46} + x^{45} + x^{44} + x^{41} + x^{40} + x^{35} + x^{34} + x^{32} + x^{31} + x^{27}, \\
p_3(x) &= x^{108} + x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{94} + x^{93} + x^{92} + x^{91} \\
&\quad + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{68} + x^{67} + x^{66} \\
&\quad + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} \\
&\quad + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} \\
&\quad + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{26} + x^{25} \\
&\quad + x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9}, \\
p_6(x) &= x^{111} + x^{110} + x^{106} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{95} \\
&\quad + x^{94} + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{85} + x^{82} + x^{80} + x^{73} + x^{72} \\
&\quad + x^{71} + x^{70} + x^{69} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{58} + x^{56} + x^{55} \\
&\quad + x^{54} + x^{50} + x^{49} + x^{48} + x^{44} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} \\
&\quad + x^{31} + x^{28} + x^{26} + x^{23} + x^{22} + x^{19} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} \\
&\quad + x^{8} + x^{6}, \\
p_9(x) &= x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} \\
&\quad + x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{87} + x^{82} \\
&\quad + x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} \\
&\quad + x^{68} + x^{67} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{59} + x^{56} + x^{55} + x^{52} \\
&\quad + x^{51} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} \\
&\quad + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} \\
&\quad + x^{15} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{117} + x^{116} + x^{112} + x^{101} + x^{100} + x^{97} + x^{93} + x^{89} + x^{84} + x^{65} + x^{64} \\
&\quad + x^{61} + x^{57} + x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} \\
&\quad + x^{17} + x^{16} + x^{13} + x^{9} + x^{5} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{114} + x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{95} + x^{91} \\
&\quad + x^{88} + x^{86} + x^{85} + x^{84} + x^{79} + x^{78} + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} \\
&\quad + x^{70} + x^{69} + x^{67} + x^{62} + x^{60} + x^{59} + x^{58} + x^{56} + x^{54} + x^{51} + x^{50}
\end{aligned}$$

$$
\begin{aligned}
&+x^{49}+x^{46}+x^{45}+x^{44}+x^{41}+x^{40}+x^{35}+x^{34}+x^{32}+x^{31}+x^{27},\\
p_3(x)=&\,x^{108}+x^{107}+x^{104}+x^{103}+x^{102}+x^{101}+x^{94}+x^{93}+x^{92}+x^{91}\\
&+x^{88}+x^{87}+x^{84}+x^{83}+x^{82}+x^{81}+x^{80}+x^{79}+x^{68}+x^{67}+x^{66}\\
&+x^{65}+x^{64}+x^{63}+x^{60}+x^{59}+x^{58}+x^{57}+x^{56}+x^{55}+x^{52}+x^{51}\\
&+x^{48}+x^{47}+x^{46}+x^{45}+x^{44}+x^{43}+x^{42}+x^{41}+x^{40}+x^{39}+x^{38}\\
&+x^{37}+x^{36}+x^{35}+x^{34}+x^{33}+x^{32}+x^{31}+x^{30}+x^{29}+x^{26}+x^{25}\\
&+x^{18}+x^{17}+x^{14}+x^{13}+x^{10}+x^{9},\\
p_6(x)=&\,x^{111}+x^{110}+x^{106}+x^{103}+x^{102}+x^{101}+x^{100}+x^{98}+x^{97}+x^{95}\\
&+x^{94}+x^{92}+x^{91}+x^{89}+x^{88}+x^{87}+x^{85}+x^{82}+x^{80}+x^{73}+x^{72}\\
&+x^{71}+x^{70}+x^{69}+x^{66}+x^{65}+x^{63}+x^{62}+x^{61}+x^{58}+x^{56}+x^{55}\\
&+x^{54}+x^{50}+x^{49}+x^{48}+x^{44}+x^{39}+x^{38}+x^{37}+x^{36}+x^{35}+x^{33}\\
&+x^{31}+x^{28}+x^{26}+x^{23}+x^{22}+x^{19}+x^{14}+x^{13}+x^{12}+x^{11}+x^{10}\\
&+x^{8}+x^{6},\\
p_9(x)=&\,x^{114}+x^{113}+x^{110}+x^{109}+x^{108}+x^{107}+x^{106}+x^{105}+x^{104}+x^{103}\\
&+x^{102}+x^{101}+x^{98}+x^{97}+x^{96}+x^{95}+x^{92}+x^{91}+x^{88}+x^{87}+x^{82}\\
&+x^{81}+x^{80}+x^{79}+x^{78}+x^{77}+x^{74}+x^{73}+x^{72}+x^{71}+x^{70}+x^{69}\\
&+x^{68}+x^{67}+x^{66}+x^{65}+x^{62}+x^{61}+x^{60}+x^{59}+x^{56}+x^{55}+x^{52}\\
&+x^{51}+x^{44}+x^{43}+x^{42}+x^{41}+x^{40}+x^{39}+x^{36}+x^{35}+x^{34}+x^{33}\\
&+x^{32}+x^{31}+x^{30}+x^{29}+x^{28}+x^{27}+x^{22}+x^{21}+x^{18}+x^{17}+x^{16}\\
&+x^{15}+x^{12}+x^{11}+x^{10}+x^{9}+x^{8}+x^{7}+x^{6}+x^{5}+x^{4}+x^{3},\\
p_{12}(x)=&\,x^{117}+x^{116}+x^{112}+x^{101}+x^{100}+x^{97}+x^{93}+x^{89}+x^{84}+x^{65}+x^{64}\\
&+x^{61}+x^{57}+x^{53}+x^{49}+x^{45}+x^{41}+x^{37}+x^{33}+x^{29}+x^{25}+x^{20}\\
&+x^{17}+x^{16}+x^{13}+x^{9}+x^{5}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)=&\,x^{132}+x^{130}+x^{126}+x^{122}+x^{120}+x^{118}+x^{114}+x^{112}+x^{110}+x^{108}\\
&+x^{106}+x^{102}+x^{100}+x^{94}+x^{92}+x^{88}+x^{84}+x^{80}+x^{78}+x^{76}+x^{74}\\
&+x^{70}+x^{68}+x^{62}+x^{60}+x^{58}+x^{54}+x^{52}+x^{50}+x^{46}+x^{42},\\
p_3(x)=&\,x^{130}+x^{128}+x^{126}+x^{122}+x^{118}+x^{116}+x^{112}+x^{98}+x^{96}+x^{92}\\
&+x^{90}+x^{88}+x^{86}+x^{80}+x^{78}+x^{74}+x^{72}+x^{54}+x^{52}+x^{50}+x^{40}\\
&+x^{38}+x^{34}+x^{32}+x^{26}+x^{20}+x^{18}+x^{14}+x^{10}+x^{6},\\
p_6(x)=&\,x^{130}+x^{128}+x^{126}+x^{124}+x^{122}+x^{118}+x^{112}+x^{108}+x^{106}+x^{98}\\
&+x^{96}+x^{86}+x^{82}+x^{80}+x^{78}+x^{74}+x^{72}+x^{68}+x^{64}+x^{60}+x^{54}\\
&+x^{52}+x^{48}+x^{40}+x^{38}+x^{36}+x^{34}+x^{32}+x^{28}+x^{26}+x^{14}+x^{12}\\
&+x^{10}+x^{6}+x^{2}+1,
\end{aligned}
$$

$$p_9(x) = x^{130} + x^{128} + x^{126} + x^{116} + x^{114} + x^{106} + x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{80} + x^{70} + x^{66} + x^{64} + x^{60} + x^{58} + x^{54} + x^{50} + x^{42} + x^{40} + x^{38} + x^{28} + x^{26} + x^{16} + x^{12} + x^{10} + x^{6} + x^{2},$$
$$p_{12}(x) = x^{132} + x^{128} + x^{116} + x^{112} + x^{100} + x^{96} + x^{92} + x^{88} + x^{84} + x^{80} + x^{60} + x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{28} + x^{24} + x^{20} + x^{16} + x^{12} + x^{8} + x^{4} + 1,$$

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

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

$$p_0(x) = x^{132} + x^{130} + x^{128} + x^{126} + x^{124} + x^{120} + x^{118} + x^{116} + x^{108} + x^{106} + x^{104} + x^{98} + x^{96} + x^{92} + x^{88} + x^{86} + x^{80} + x^{76} + x^{74} + x^{70} + x^{66} + x^{58} + x^{54} + x^{52} + x^{46} + x^{44} + x^{42} + x^{40} + x^{38} + x^{32} + x^{26} + x^{22} + x^{12},$$
$$p_3(x) = x^{130} + x^{128} + x^{122} + x^{114} + x^{100} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{62} + x^{60} + x^{58} + x^{56} + x^{52} + x^{50} + x^{40} + x^{34} + x^{32} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18} + x^{12} + x^{8},$$
$$p_6(x) = x^{130} + x^{122} + x^{116} + x^{114} + x^{112} + x^{108} + x^{106} + x^{104} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{78} + x^{74} + x^{70} + x^{64} + x^{62} + x^{58} + x^{56} + x^{48} + x^{34} + x^{32} + x^{30} + x^{8} + x^{4} + x^{2} + 1,$$
$$p_9(x) = x^{130} + x^{128} + x^{126} + x^{116} + x^{114} + x^{106} + x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{80} + x^{70} + x^{66} + x^{64} + x^{60} + x^{58} + x^{54} + x^{50} + x^{42} + x^{40} + x^{38} + x^{28} + x^{26} + x^{16} + x^{12} + x^{10} + x^{6} + x^{2},$$
$$p_{12}(x) = x^{132} + x^{128} + x^{116} + x^{112} + x^{100} + x^{96} + x^{92} + x^{88} + x^{84} + x^{80} + x^{60} + x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{28} + x^{24} + x^{20} + x^{16} + x^{12} + x^{8} + x^{4} + 1,$$

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

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

$$p_0(x) = x^{117} + x^{116} + x^{114} + x^{111} + x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{101} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{85} + x^{84} + x^{80} + x^{78} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{69} + x^{62} + x^{61} + x^{59} + x^{58} + x^{48} + x^{46} + x^{45} + x^{41} + x^{40} + x^{37} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} + x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18},$$
$$p_3(x) = x^{108} + x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{68} + x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38}$$

$$\begin{aligned}
&+ x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{26} + x^{25} \\
&+ x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9}, \\
p_6(x) &= x^{111} + x^{110} + x^{106} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{95} \\
&+ x^{94} + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{85} + x^{82} + x^{80} + x^{73} + x^{72} \\
&+ x^{71} + x^{70} + x^{69} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{58} + x^{56} + x^{55} \\
&+ x^{54} + x^{50} + x^{49} + x^{48} + x^{44} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} \\
&+ x^{31} + x^{28} + x^{26} + x^{23} + x^{22} + x^{19} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} \\
&+ x^{8} + x^{6}, \\
p_9(x) &= x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} \\
&+ x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{87} + x^{82} \\
&+ x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} \\
&+ x^{68} + x^{67} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{59} + x^{56} + x^{55} + x^{52} \\
&+ x^{51} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} \\
&+ x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} \\
&+ x^{15} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{117} + x^{116} + x^{112} + x^{101} + x^{100} + x^{97} + x^{93} + x^{89} + x^{84} + x^{65} + x^{64} \\
&+ x^{61} + x^{57} + x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} \\
&+ x^{17} + x^{16} + x^{13} + x^{9} + x^{5} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{114} + x^{111} + x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{101} \\
&+ x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{85} + x^{84} + x^{80} \\
&+ x^{78} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{69} + x^{62} + x^{61} + x^{59} + x^{58} \\
&+ x^{48} + x^{46} + x^{45} + x^{41} + x^{40} + x^{37} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} \\
&+ x^{27} + x^{26} + x^{25} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_3(x) &= x^{108} + x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{94} + x^{93} + x^{92} + x^{91} \\
&+ x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{68} + x^{67} + x^{66} \\
&+ x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{51} \\
&+ x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} \\
&+ x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{26} + x^{25} \\
&+ x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9}, \\
p_6(x) &= x^{111} + x^{110} + x^{106} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{95} \\
&+ x^{94} + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{85} + x^{82} + x^{80} + x^{73} + x^{72} \\
&+ x^{71} + x^{70} + x^{69} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{58} + x^{56} + x^{55} \\
&+ x^{54} + x^{50} + x^{49} + x^{48} + x^{44} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35} + x^{33}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{31} + x^{28} + x^{26} + x^{23} + x^{22} + x^{19} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} \\
&+ x^{8} + x^{6}, \\
p_9(x) &= x^{114} + x^{113} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} \\
&+ x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{87} + x^{82} \\
&+ x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} \\
&+ x^{68} + x^{67} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{59} + x^{56} + x^{55} + x^{52} \\
&+ x^{51} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} \\
&+ x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} \\
&+ x^{15} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{117} + x^{116} + x^{112} + x^{101} + x^{100} + x^{97} + x^{93} + x^{89} + x^{84} + x^{65} + x^{64} \\
&+ x^{61} + x^{57} + x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} \\
&+ x^{17} + x^{16} + x^{13} + x^{9} + x^{5} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{102} + x^{98} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{78} + x^{74} + x^{70} + x^{64} \\
&+ x^{60} + x^{54} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42} + x^{38} + x^{32} + x^{30} + x^{28} \\
&+ x^{24}, \\
p_3(x) &= x^{100} + x^{94} + x^{92} + x^{90} + x^{82} + x^{80} + x^{78} + x^{76} + x^{74} + x^{70} + x^{68} \\
&+ x^{64} + x^{60} + x^{48} + x^{44} + x^{42} + x^{36} + x^{32} + x^{30} + x^{24} + x^{22} + x^{16} \\
&+ x^{12} + x^{6}, \\
p_6(x) &= x^{100} + x^{94} + x^{92} + x^{88} + x^{82} + x^{78} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} \\
&+ x^{60} + x^{52} + x^{50} + x^{42} + x^{36} + x^{30} + x^{28} + x^{24} + x^{22} + x^{16} + x^{6} \\
&+ x^{2} + 1, \\
p_9(x) &= x^{100} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{76} + x^{70} \\
&+ x^{68} + x^{64} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{46} + x^{40} + x^{38} + x^{28} \\
&+ x^{24} + x^{22} + x^{18} + x^{14} + x^{6} + x^{2}, \\
p_{12}(x) &= x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{90} + x^{84} + x^{80} + x^{70} + x^{68} + x^{66} \\
&+ x^{64} + x^{62} + x^{58} + x^{54} + x^{50} + x^{46} + x^{42} + x^{38} + x^{34} + x^{30} + x^{26} \\
&+ x^{22} + x^{18} + x^{14} + x^{10} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} \\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{90} \\
&+ x^{88} + x^{87} + x^{83} + x^{81} + x^{72} + x^{71} + x^{68} + x^{67} + x^{63} + x^{62} + x^{61} \\
&+ x^{60} + x^{58} + x^{56} + x^{51} + x^{48} + x^{46} + x^{45} + x^{42} + x^{41} + x^{35} + x^{29}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{27} + x^{26} + x^{25} + x^{20} + x^{18} + x^{17} + x^{16} + x^{14} + x^{12},\\
p_3(x) &= x^{113} + x^{112} + x^{111} + x^{110} + x^{107} + x^{104} + x^{101} + x^{100} + x^{97} + x^{95}\\
&+ x^{93} + x^{92} + x^{90} + x^{84} + x^{82} + x^{81} + x^{79} + x^{78} + x^{77} + x^{74} + x^{72}\\
&+ x^{71} + x^{70} + x^{68} + x^{64} + x^{60} + x^{58} + x^{56} + x^{53} + x^{51} + x^{50} + x^{47}\\
&+ x^{46} + x^{45} + x^{38} + x^{37} + x^{35} + x^{27} + x^{23} + x^{21} + x^{20} + x^{17} + x^{14}\\
&+ x^{13} + x^{10} + x^{8},\\
p_6(x) &= x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{106} + x^{105} + x^{103} + x^{98} + x^{97}\\
&+ x^{96} + x^{95} + x^{93} + x^{90} + x^{89} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77}\\
&+ x^{76} + x^{75} + x^{72} + x^{71} + x^{70} + x^{62} + x^{61} + x^{57} + x^{56} + x^{51} + x^{50}\\
&+ x^{46} + x^{44} + x^{43} + x^{41} + x^{39} + x^{37} + x^{36} + x^{31} + x^{28} + x^{26} + x^{25}\\
&+ x^{24} + x^{23} + x^{20} + x^{19} + x^{10} + x^{6} + x^{5} + x^{4} + 1,\\
p_9(x) &= x^{113} + x^{112} + x^{108} + x^{105} + x^{104} + x^{100} + x^{97} + x^{96} + x^{92} + x^{89}\\
&+ x^{88} + x^{84} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{17} + x^{16} + x^{12}\\
&+ x^{9} + x^{8} + x^{4},\\
p_{12}(x) &= x^{117} + x^{116} + x^{113} + x^{108} + x^{105} + x^{104} + x^{101} + x^{96} + x^{93} + x^{92}\\
&+ x^{88} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{65} + x^{64} + x^{61} + x^{57}\\
&+ x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} + x^{13} + x^{12}\\
&+ x^{8} + x^{5} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{132} + x^{129} + x^{128} + x^{127} + x^{124} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114}\\
&+ x^{112} + x^{110} + x^{109} + x^{107} + x^{106} + x^{104} + x^{103} + x^{100} + x^{99} + x^{97}\\
&+ x^{95} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{81}\\
&+ x^{79} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65}\\
&+ x^{61} + x^{59} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{46} + x^{44} + x^{43}\\
&+ x^{42} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{29} + x^{27},\\
p_3(x) &= x^{123} + x^{121} + x^{119} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109}\\
&+ x^{108} + x^{102} + x^{100} + x^{99} + x^{98} + x^{95} + x^{93} + x^{92} + x^{89} + x^{88} + x^{87}\\
&+ x^{85} + x^{84} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{75} + x^{73} + x^{72} + x^{70}\\
&+ x^{69} + x^{66} + x^{65} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{53} + x^{48} + x^{47}\\
&+ x^{46} + x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{32} + x^{31}\\
&+ x^{30} + x^{24} + x^{22} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} + x^{11} + x^{10}\\
&+ x^{9},\\
p_6(x) &= x^{126} + x^{122} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104} + x^{92}\\
&+ x^{90} + x^{88} + x^{84} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{68} + x^{58} + x^{56}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{54} + x^{52} + x^{50} + x^{42} + x^{38} + x^{34} + x^{32} + x^{24} + x^{22} + x^{18} + x^{14} \\
&+ x^{8} + x^{6}, \\
p_9(x) &= x^{129} + x^{127} + x^{124} + x^{123} + x^{121} + x^{119} + x^{116} + x^{115} + x^{113} + x^{111} \\
&+ x^{109} + x^{108} + x^{104} + x^{103} + x^{97} + x^{95} + x^{93} + x^{92} + x^{88} + x^{87} \\
&+ x^{77} + x^{75} + x^{73} + x^{72} + x^{68} + x^{67} + x^{33} + x^{31} + x^{28} + x^{27} + x^{25} \\
&+ x^{23} + x^{20} + x^{19} + x^{13} + x^{11} + x^{9} + x^{8} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{132} + x^{124} + x^{120} + x^{104} + x^{100} + x^{92} + x^{84} + x^{80} + x^{76} + x^{68} + x^{60} \\
&+ x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{32} + x^{16} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{112} + x^{109} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{99} + x^{98} + x^{96} \\
&+ x^{95} + x^{93} + x^{91} + x^{89} + x^{84} + x^{77} + x^{76} + x^{75} + x^{74} + x^{70} + x^{69} \\
&+ x^{68} + x^{67} + x^{63} + x^{62} + x^{60} + x^{59} + x^{57} + x^{53} + x^{50} + x^{49} + x^{47} \\
&+ x^{46} + x^{45} + x^{44} + x^{43} + x^{40} + x^{37} + x^{34} + x^{32} + x^{31} + x^{29} + x^{28} \\
&+ x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18}, \\
p_3(x) &= x^{103} + x^{101} + x^{98} + x^{97} + x^{95} + x^{90} + x^{89} + x^{88} + x^{86} + x^{85} + x^{84} \\
&+ x^{83} + x^{77} + x^{72} + x^{70} + x^{68} + x^{67} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} \\
&+ x^{53} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} \\
&+ x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} \\
&+ x^{27} + x^{26} + x^{25} + x^{24} + x^{22} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} \\
&+ x^{11} + x^{10} + x^{9}, \\
p_6(x) &= x^{106} + x^{98} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82} + x^{80} + x^{68} + x^{66} \\
&+ x^{64} + x^{60} + x^{58} + x^{56} + x^{50} + x^{44} + x^{34} + x^{32} + x^{30} + x^{28} + x^{26} \\
&+ x^{18} + x^{14} + x^{8} + x^{6}, \\
p_9(x) &= x^{109} + x^{107} + x^{105} + x^{104} + x^{100} + x^{99} + x^{93} + x^{91} + x^{89} + x^{88} + x^{84} \\
&+ x^{83} + x^{77} + x^{75} + x^{73} + x^{72} + x^{68} + x^{67} + x^{13} + x^{11} + x^{9} + x^{8} + x^{4} \\
&+ x^{3}, \\
p_{12}(x) &= x^{112} + x^{108} + x^{100} + x^{96} + x^{88} + x^{76} + x^{68} + x^{60} + x^{56} + x^{52} + x^{48} \\
&+ x^{44} + x^{40} + x^{36} + x^{32} + x^{28} + x^{24} + x^{20} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{115} + x^{114} + x^{111} + x^{109} + x^{108} + x^{107} + x^{106} + x^{104} \\
&+ x^{103} + x^{98} + x^{97} + x^{96} + x^{94} + x^{92} + x^{91} + x^{87} + x^{85} + x^{83} + x^{80} \\
&+ x^{78} + x^{77} + x^{76} + x^{75} + x^{71} + x^{69} + x^{68} + x^{63} + x^{61} + x^{59} + x^{58} \\
&+ x^{57} + x^{55} + x^{54} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{42} + x^{40}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{39} + x^{37} + x^{36} + x^{33},\\
p_3(x) &= x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{106} + x^{103} + x^{99} + x^{95}\\
&+ x^{94} + x^{92} + x^{91} + x^{88} + x^{86} + x^{85} + x^{82} + x^{75} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{67} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&+ x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{41} + x^{38} + x^{35} + x^{33} + x^{28}\\
&+ x^{26} + x^{25} + x^{24} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} + x^{12},\\
p_6(x) &= x^{115} + x^{114} + x^{112} + x^{111} + x^{105} + x^{104} + x^{102} + x^{97} + x^{96} + x^{94}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78} + x^{75} + x^{69}\\
&+ x^{68} + x^{66} + x^{64} + x^{63} + x^{61} + x^{58} + x^{55} + x^{54} + x^{52} + x^{51} + x^{46}\\
&+ x^{45} + x^{43} + x^{38} + x^{37} + x^{35} + x^{28} + x^{25} + x^{24} + x^{22} + x^{21} + x^{17}\\
&+ x^{14} + x^{12} + x^{11} + x^{9} + x^{8} + x^{5} + 1,\\
p_9(x) &= x^{113} + x^{112} + x^{108} + x^{105} + x^{104} + x^{100} + x^{97} + x^{96} + x^{92} + x^{89}\\
&+ x^{88} + x^{84} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{17} + x^{16} + x^{12}\\
&+ x^{9} + x^{8} + x^{4},\\
p_{12}(x) &= x^{117} + x^{116} + x^{113} + x^{108} + x^{105} + x^{104} + x^{101} + x^{96} + x^{93} + x^{92}\\
&+ x^{88} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{65} + x^{64} + x^{61} + x^{57}\\
&+ x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} + x^{13} + x^{12}\\
&+ x^{8} + x^{5} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105}\\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{90}\\
&+ x^{88} + x^{87} + x^{83} + x^{81} + x^{72} + x^{71} + x^{68} + x^{67} + x^{63} + x^{62} + x^{61}\\
&+ x^{60} + x^{58} + x^{56} + x^{51} + x^{48} + x^{46} + x^{45} + x^{42} + x^{41} + x^{35} + x^{29}\\
&+ x^{27} + x^{26} + x^{25} + x^{20} + x^{18} + x^{17} + x^{16} + x^{14} + x^{12},\\
p_3(x) &= x^{113} + x^{112} + x^{111} + x^{110} + x^{107} + x^{104} + x^{101} + x^{100} + x^{97} + x^{95}\\
&+ x^{93} + x^{92} + x^{90} + x^{84} + x^{82} + x^{81} + x^{79} + x^{78} + x^{77} + x^{74} + x^{72}\\
&+ x^{71} + x^{70} + x^{68} + x^{64} + x^{60} + x^{58} + x^{56} + x^{53} + x^{51} + x^{50} + x^{47}\\
&+ x^{46} + x^{45} + x^{38} + x^{37} + x^{35} + x^{27} + x^{23} + x^{21} + x^{20} + x^{17} + x^{14}\\
&+ x^{13} + x^{10} + x^{8},\\
p_6(x) &= x^{115} + x^{114} + x^{113} + x^{110} + x^{109} + x^{106} + x^{105} + x^{103} + x^{98} + x^{97}\\
&+ x^{96} + x^{95} + x^{93} + x^{90} + x^{89} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77}\\
&+ x^{76} + x^{75} + x^{72} + x^{71} + x^{70} + x^{62} + x^{61} + x^{57} + x^{56} + x^{51} + x^{50}\\
&+ x^{46} + x^{44} + x^{43} + x^{41} + x^{39} + x^{37} + x^{36} + x^{31} + x^{28} + x^{26} + x^{25}\\
&+ x^{24} + x^{23} + x^{20} + x^{19} + x^{10} + x^{6} + x^{5} + x^{4} + 1,
\end{aligned}
$$

$$\begin{aligned}
p_9(x) &= x^{113} + x^{112} + x^{108} + x^{105} + x^{104} + x^{100} + x^{97} + x^{96} + x^{92} + x^{89} \\
&\quad + x^{88} + x^{84} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{17} + x^{16} + x^{12} \\
&\quad + x^{9} + x^{8} + x^{4}, \\
p_{12}(x) &= x^{117} + x^{116} + x^{113} + x^{108} + x^{105} + x^{104} + x^{101} + x^{96} + x^{93} + x^{92} \\
&\quad + x^{88} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{65} + x^{64} + x^{61} + x^{57} \\
&\quad + x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} + x^{13} + x^{12} \\
&\quad + x^{8} + x^{5} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{112} + x^{109} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{99} + x^{98} + x^{96} \\
&\quad + x^{95} + x^{93} + x^{91} + x^{89} + x^{84} + x^{77} + x^{76} + x^{75} + x^{74} + x^{70} + x^{69} \\
&\quad + x^{68} + x^{67} + x^{63} + x^{62} + x^{60} + x^{59} + x^{57} + x^{53} + x^{50} + x^{49} + x^{47} \\
&\quad + x^{46} + x^{45} + x^{44} + x^{43} + x^{40} + x^{37} + x^{34} + x^{32} + x^{31} + x^{29} + x^{28} \\
&\quad + x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18}, \\
p_3(x) &= x^{103} + x^{101} + x^{98} + x^{97} + x^{95} + x^{90} + x^{89} + x^{88} + x^{86} + x^{85} + x^{84} \\
&\quad + x^{83} + x^{77} + x^{72} + x^{70} + x^{68} + x^{67} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} \\
&\quad + x^{53} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} \\
&\quad + x^{27} + x^{26} + x^{25} + x^{24} + x^{22} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} \\
&\quad + x^{11} + x^{10} + x^{9}, \\
p_6(x) &= x^{106} + x^{98} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82} + x^{80} + x^{68} + x^{66} \\
&\quad + x^{64} + x^{60} + x^{58} + x^{56} + x^{50} + x^{44} + x^{34} + x^{32} + x^{30} + x^{28} + x^{26} \\
&\quad + x^{18} + x^{14} + x^{8} + x^{6}, \\
p_9(x) &= x^{109} + x^{107} + x^{105} + x^{104} + x^{100} + x^{99} + x^{93} + x^{91} + x^{89} + x^{88} + x^{84} \\
&\quad + x^{83} + x^{77} + x^{75} + x^{73} + x^{72} + x^{68} + x^{67} + x^{13} + x^{11} + x^{9} + x^{8} + x^{4} \\
&\quad + x^{3}, \\
p_{12}(x) &= x^{112} + x^{108} + x^{100} + x^{96} + x^{88} + x^{76} + x^{68} + x^{60} + x^{56} + x^{52} + x^{48} \\
&\quad + x^{44} + x^{40} + x^{36} + x^{32} + x^{28} + x^{24} + x^{20} + x^{8} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{132} + x^{129} + x^{128} + x^{127} + x^{124} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114} \\
&\quad + x^{112} + x^{110} + x^{109} + x^{107} + x^{106} + x^{104} + x^{103} + x^{100} + x^{99} + x^{97} \\
&\quad + x^{95} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{81} \\
&\quad + x^{79} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65} \\
&\quad + x^{61} + x^{59} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{46} + x^{44} + x^{43}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{42} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{29} + x^{27},\\
p_3(x) &= x^{123} + x^{121} + x^{119} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109}\\
&+ x^{108} + x^{102} + x^{100} + x^{99} + x^{98} + x^{95} + x^{93} + x^{92} + x^{89} + x^{88} + x^{87}\\
&+ x^{85} + x^{84} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{75} + x^{73} + x^{72} + x^{70}\\
&+ x^{69} + x^{66} + x^{65} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{53} + x^{48} + x^{47}\\
&+ x^{46} + x^{45} + x^{44} + x^{42} + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{32} + x^{31}\\
&+ x^{30} + x^{24} + x^{22} + x^{20} + x^{19} + x^{16} + x^{15} + x^{14} + x^{12} + x^{11} + x^{10}\\
&+ x^{9},\\
p_6(x) &= x^{126} + x^{122} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104} + x^{92}\\
&+ x^{90} + x^{88} + x^{84} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{68} + x^{58} + x^{56}\\
&+ x^{54} + x^{52} + x^{50} + x^{42} + x^{38} + x^{34} + x^{32} + x^{24} + x^{22} + x^{18} + x^{14}\\
&+ x^{8} + x^{6},\\
p_9(x) &= x^{129} + x^{127} + x^{124} + x^{123} + x^{121} + x^{119} + x^{116} + x^{115} + x^{113} + x^{111}\\
&+ x^{109} + x^{108} + x^{104} + x^{103} + x^{97} + x^{95} + x^{93} + x^{92} + x^{88} + x^{87}\\
&+ x^{77} + x^{75} + x^{73} + x^{72} + x^{68} + x^{67} + x^{33} + x^{31} + x^{28} + x^{27} + x^{25}\\
&+ x^{23} + x^{20} + x^{19} + x^{13} + x^{11} + x^{9} + x^{8} + x^{4} + x^{3},\\
p_{12}(x) &= x^{132} + x^{124} + x^{120} + x^{104} + x^{100} + x^{92} + x^{84} + x^{80} + x^{76} + x^{68} + x^{60}\\
&+ x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{32} + x^{16} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{117} + x^{116} + x^{115} + x^{114} + x^{111} + x^{109} + x^{108} + x^{107} + x^{106} + x^{104}\\
&+ x^{103} + x^{98} + x^{97} + x^{96} + x^{94} + x^{92} + x^{91} + x^{87} + x^{85} + x^{83} + x^{80}\\
&+ x^{78} + x^{77} + x^{76} + x^{75} + x^{71} + x^{69} + x^{68} + x^{63} + x^{61} + x^{59} + x^{58}\\
&+ x^{57} + x^{55} + x^{54} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{42} + x^{40}\\
&+ x^{39} + x^{37} + x^{36} + x^{33},\\
p_3(x) &= x^{113} + x^{112} + x^{111} + x^{110} + x^{109} + x^{108} + x^{106} + x^{103} + x^{99} + x^{95}\\
&+ x^{94} + x^{92} + x^{91} + x^{88} + x^{86} + x^{85} + x^{82} + x^{75} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{67} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&+ x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{41} + x^{38} + x^{35} + x^{33} + x^{28}\\
&+ x^{26} + x^{25} + x^{24} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} + x^{12},\\
p_6(x) &= x^{115} + x^{114} + x^{112} + x^{111} + x^{105} + x^{104} + x^{102} + x^{97} + x^{96} + x^{94}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78} + x^{75} + x^{69}\\
&+ x^{68} + x^{66} + x^{64} + x^{63} + x^{61} + x^{58} + x^{55} + x^{54} + x^{52} + x^{51} + x^{46}\\
&+ x^{45} + x^{43} + x^{38} + x^{37} + x^{35} + x^{28} + x^{25} + x^{24} + x^{22} + x^{21} + x^{17}\\
&+ x^{14} + x^{12} + x^{11} + x^{9} + x^{8} + x^{5} + 1,
\end{aligned}
$$

$$\begin{aligned}
p_9(x) = {} & x^{113} + x^{112} + x^{108} + x^{105} + x^{104} + x^{100} + x^{97} + x^{96} + x^{92} + x^{89} \\
& + x^{88} + x^{84} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{17} + x^{16} + x^{12} \\
& + x^9 + x^8 + x^4, \\
p_{12}(x) = {} & x^{117} + x^{116} + x^{113} + x^{108} + x^{105} + x^{104} + x^{101} + x^{96} + x^{93} + x^{92} \\
& + x^{88} + x^{81} + x^{80} + x^{76} + x^{73} + x^{72} + x^{68} + x^{65} + x^{64} + x^{61} + x^{57} \\
& + x^{53} + x^{49} + x^{45} + x^{41} + x^{37} + x^{33} + x^{29} + x^{25} + x^{20} + x^{13} + x^{12} \\
& + x^8 + x^5 + x^4 + 1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 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]	999	[1715, 1716]	1998	[2977, 2553]	2997	[2310, 3525]
1	[3, 4]	1000	[1698, 1717]	1999	[2978, 441]	2998	[205, 3744]
2	[5, 6]	1001	[520, 1718]	2000	[2606, 2979]	2999	[1759, 1634]
3	[7, 8]	1002	[586, 1719]	2001	[2722, 369]	3000	[724, 3692]
4	[9, 10]	1003	[1693, 1720]	2002	[2980, 2744]	3001	[498, 1785]
5	[11, 12]	1004	[1721, 33]	2003	[2981, 1080]	3002	[3715, 1986]
6	[13, 14]	1005	[1722, 1723]	2004	[2982, 1044]	3003	[3350, 2098]
7	[15, 16]	1006	[1724, 1725]	2005	[2983, 2984]	3004	[1894, 1706]
8	[17, 18]	1007	[1726, 893]	2006	[2985, 2986]	3005	[219, 1812]
9	[19, 20]	1008	[1727, 1679]	2007	[1039, 2987]	3006	[3709, 750]
10	[21, 22]	1009	[1728, 624]	2008	[2988, 1377]	3007	[3745, 525]
11	[23, 24]	1010	[1712, 1729]	2009	[2989, 1497]	3008	[3746, 2075]
12	[25, 26]	1011	[1730, 1731]	2010	[2547, 2990]	3009	[3732, 3652]
13	[27, 28]	1012	[1732, 1733]	2011	[2969, 2991]	3010	[794, 3489]
14	[29, 30]	1013	[1734, 1735]	2012	[2992, 2993]	3011	[2471, 3486]
15	[31, 32]	1014	[1736, 1737]	2013	[2804, 2713]	3012	[3661, 2222]
16	[33, 34]	1015	[1738, 1739]	2014	[2994, 2995]	3013	[3535, 2455]
17	[35, 36]	1016	[1740, 1741]	2015	[2996, 2997]	3014	[1801, 3568]
18	[37, 38]	1017	[1742, 1743]	2016	[2916, 2998]	3015	[3432, 1791]
19	[39, 40]	1018	[156, 839]	2017	[952, 2999]	3016	[851, 3747]
20	[41, 42]	1019	[1666, 1744]	2018	[1534, 1161]	3017	[2104, 3534]
21	[43, 44]	1020	[1745, 1746]	2019	[1391, 3000]	3018	[3402, 1928]
22	[45, 46]	1021	[1747, 1748]	2020	[1282, 1429]	3019	[3748, 3717]
23	[47, 48]	1022	[189, 1749]	2021	[256, 3001]	3020	[506, 3745]
24	[49, 50]	1023	[1750, 1751]	2022	[2937, 3002]	3021	[712, 2242]
25	[51, 52]	1024	[1752, 1753]	2023	[3003, 2671]	3022	[2063, 726]
26	[53, 54]	1025	[1754, 1755]	2024	[1366, 2519]	3023	[2388, 3749]
27	[55, 56]	1026	[180, 1756]	2025	[3004, 3005]	3024	[751, 3750]
28	[57, 58]	1027	[869, 1757]	2026	[1157, 3006]	3025	[804, 2038]
29	[59, 60]	1028	[728, 1620]	2027	[3007, 3008]	3026	[2111, 3632]

30	[61, 62]	1029	[1758, 1759]	2028	[2927, 3009]	3027	[2237, 2467]
31	[63, 64]	1030	[904, 1760]	2029	[2814, 343]	3028	[1888, 2415]
32	[65, 66]	1031	[1761, 1762]	2030	[1370, 1373]	3029	[3751, 2417]
33	[67, 68]	1032	[1763, 233]	2031	[3010, 3011]	3030	[1840, 3494]
34	[69, 70]	1033	[197, 1764]	2032	[1483, 3012]	3031	[3705, 3447]
35	[71, 72]	1034	[1678, 825]	2033	[3013, 1501]	3032	[3512, 1800]
36	[73, 74]	1035	[1765, 1766]	2034	[3014, 2928]	3033	[3752, 2296]
37	[75, 76]	1036	[8, 587]	2035	[3015, 1174]	3034	[3601, 2368]
38	[77, 78]	1037	[195, 1767]	2036	[3016, 3017]	3035	[2414, 206]
39	[79, 80]	1038	[1768, 1769]	2037	[3018, 1279]	3036	[3696, 3753]
40	[81, 82]	1039	[1770, 1771]	2038	[446, 3019]	3037	[2460, 3754]
41	[83, 84]	1040	[512, 1772]	2039	[3020, 2615]	3038	[714, 3755]
42	[85, 86]	1041	[1773, 1774]	2040	[3021, 1369]	3039	[1699, 3557]
43	[87, 88]	1042	[1775, 1776]	2041	[3022, 3023]	3040	[3756, 3714]
44	[89, 90]	1043	[1777, 1778]	2042	[1563, 3024]	3041	[3757, 3758]
45	[91, 92]	1044	[1779, 1780]	2043	[3025, 2706]	3042	[2297, 135]
46	[93, 94]	1045	[1781, 1782]	2044	[1268, 3026]	3043	[3759, 2273]
47	[95, 96]	1046	[1783, 1784]	2045	[3027, 2890]	3044	[816, 3760]
48	[97, 98]	1047	[1785, 1786]	2046	[1173, 1430]	3045	[3761, 3762]
49	[99, 100]	1048	[1673, 1787]	2047	[3028, 3029]	3046	[2439, 2100]
50	[101, 102]	1049	[609, 635]	2048	[3030, 3031]	3047	[3753, 3582]
51	[103, 104]	1050	[1788, 1789]	2049	[2661, 3032]	3048	[638, 3763]
52	[105, 106]	1051	[1790, 1677]	2050	[3033, 411]	3049	[892, 1813]
53	[107, 108]	1052	[1791, 1792]	2051	[438, 1582]	3050	[3545, 3643]
54	[109, 110]	1053	[1793, 1794]	2052	[3034, 3035]	3051	[209, 3602]
55	[111, 112]	1054	[920, 1795]	2053	[2594, 3036]	3052	[2050, 1697]
56	[113, 114]	1055	[1796, 1797]	2054	[3037, 3038]	3053	[3764, 2073]
57	[115, 116]	1056	[1798, 1799]	2055	[3039, 2723]	3054	[3437, 3497]
58	[117, 118]	1057	[1800, 179]	2056	[3040, 2528]	3055	[2078, 2195]
59	[119, 120]	1058	[1708, 1801]	2057	[1584, 2589]	3056	[2290, 3765]
60	[121, 122]	1059	[1802, 1803]	2058	[2993, 3041]	3057	[1681, 3625]
61	[123, 124]	1060	[1804, 1805]	2059	[3042, 3043]	3058	[3546, 3718]
62	[125, 126]	1061	[1806, 1807]	2060	[360, 2885]	3059	[1838, 3766]
63	[127, 128]	1062	[1808, 1809]	2061	[2904, 1114]	3060	[2221, 1982]
64	[129, 130]	1063	[1810, 1811]	2062	[2496, 1318]	3061	[176, 3674]
65	[131, 132]	1064	[1812, 1670]	2063	[1242, 3044]	3062	[1719, 1979]
66	[133, 134]	1065	[1813, 1742]	2064	[3045, 95]	3063	[3422, 3767]
67	[135, 136]	1066	[1814, 1815]	2065	[3046, 1513]	3064	[3636, 3746]
68	[137, 138]	1067	[1816, 1817]	2066	[3047, 1198]	3065	[3465, 3638]
69	[139, 140]	1068	[1818, 1819]	2067	[3048, 3049]	3066	[3466, 3645]
70	[141, 142]	1069	[1820, 709]	2068	[934, 326]	3067	[138, 3768]
71	[143, 144]	1070	[1821, 1822]	2069	[3050, 3051]	3068	[3607, 3769]
72	[145, 146]	1071	[1823, 1824]	2070	[2991, 3052]	3069	[12, 190]
73	[147, 148]	1072	[700, 1796]	2071	[3053, 3054]	3070	[1877, 3770]

74	[149, 150]	1073	[1825, 1826]	2072	[3055, 479]	3071	[1797, 1783]
75	[151, 152]	1074	[44, 1827]	2073	[3023, 3056]	3072	[3720, 3369]
76	[153, 154]	1075	[1828, 1829]	2074	[1556, 1179]	3073	[3771, 1745]
77	[155, 156]	1076	[146, 1830]	2075	[3057, 3058]	3074	[48, 1596]
78	[157, 158]	1077	[1831, 1832]	2076	[1081, 3059]	3075	[755, 1715]
79	[159, 160]	1078	[1833, 1834]	2077	[82, 3060]	3076	[2299, 2461]
80	[161, 162]	1079	[1835, 1836]	2078	[3061, 3062]	3077	[2267, 3772]
81	[163, 164]	1080	[1837, 1838]	2079	[3063, 1543]	3078	[3773, 2069]
82	[165, 166]	1081	[1839, 1840]	2080	[284, 3064]	3079	[3774, 3425]
83	[167, 168]	1082	[1841, 1842]	2081	[478, 2561]	3080	[150, 3406]
84	[169, 170]	1083	[1843, 1844]	2082	[3065, 3066]	3081	[3775, 1798]
85	[171, 172]	1084	[1845, 1846]	2083	[3067, 3068]	3082	[1999, 3483]
86	[173, 174]	1085	[1847, 1848]	2084	[1034, 3069]	3083	[832, 3761]
87	[175, 176]	1086	[803, 1849]	2085	[352, 1413]	3084	[2445, 762]
88	[177, 178]	1087	[1850, 1851]	2086	[2503, 3070]	3085	[2422, 3626]
89	[179, 180]	1088	[32, 1852]	2087	[3071, 1243]	3086	[2423, 3665]
90	[181, 182]	1089	[1853, 1854]	2088	[3072, 3073]	3087	[3537, 497]
91	[183, 184]	1090	[1829, 666]	2089	[3074, 999]	3088	[3600, 3459]
92	[185, 186]	1091	[532, 1638]	2090	[364, 3075]	3089	[3776, 3536]
93	[187, 129]	1092	[834, 1855]	2091	[3076, 2586]	3090	[3777, 2091]
94	[188, 189]	1093	[1856, 1857]	2092	[3077, 65]	3091	[3778, 3677]
95	[190, 191]	1094	[1858, 1859]	2093	[1525, 1509]	3092	[820, 3409]
96	[192, 193]	1095	[1860, 1861]	2094	[3078, 3079]	3093	[3476, 780]
97	[194, 195]	1096	[1862, 1863]	2095	[3080, 2833]	3094	[3462, 1616]
98	[196, 197]	1097	[1864, 1820]	2096	[3081, 1055]	3095	[765, 3779]
99	[198, 199]	1098	[1865, 1866]	2097	[1188, 3082]	3096	[678, 3780]
100	[200, 201]	1099	[1867, 1868]	2098	[1423, 2624]	3097	[1696, 3436]
101	[202, 203]	1100	[1869, 1870]	2099	[278, 1490]	3098	[1767, 3781]
102	[204, 205]	1101	[1859, 1871]	2100	[338, 3021]	3099	[3760, 1975]
103	[206, 207]	1102	[1872, 1873]	2101	[2692, 390]	3100	[3763, 3530]
104	[208, 209]	1103	[1874, 1875]	2102	[3083, 3084]	3101	[1948, 852]
105	[210, 211]	1104	[1876, 1877]	2103	[3085, 3086]	3102	[2061, 3782]
106	[212, 213]	1105	[1878, 1879]	2104	[1186, 3087]	3103	[2080, 3783]
107	[214, 215]	1106	[1880, 1881]	2105	[3088, 1035]	3104	[3784, 3785]
108	[216, 217]	1107	[1882, 1883]	2106	[2610, 3089]	3105	[3786, 3513]
109	[218, 219]	1108	[201, 1884]	2107	[414, 2690]	3106	[1809, 3748]
110	[220, 221]	1109	[1885, 1886]	2108	[3090, 2725]	3107	[3787, 3366]
111	[222, 223]	1110	[1887, 1888]	2109	[3091, 3045]	3108	[2099, 1700]
112	[224, 225]	1111	[1889, 612]	2110	[3092, 1482]	3109	[3788, 3722]
113	[226, 227]	1112	[1890, 1891]	2111	[2613, 3093]	3110	[3578, 2345]
114	[228, 137]	1113	[1871, 1892]	2112	[1216, 994]	3111	[232, 2125]
115	[229, 230]	1114	[1893, 1894]	2113	[3094, 3095]	3112	[3523, 3656]
116	[231, 232]	1115	[1886, 677]	2114	[3096, 3097]	3113	[2301, 2094]
117	[233, 234]	1116	[1895, 1896]	2115	[3098, 3099]	3114	[1695, 1750]

118	[235, 236]	1117	[1897, 872]	2116	[3100, 1360]	3115	[3789, 3589]
119	[237, 238]	1118	[1898, 1899]	2117	[1523, 2929]	3116	[3790, 3778]
120	[239, 240]	1119	[1900, 1901]	2118	[2745, 3101]	3117	[1705, 3756]
121	[241, 242]	1120	[1902, 1903]	2119	[2931, 3102]	3118	[2059, 598]
122	[243, 244]	1121	[1904, 1905]	2120	[116, 1116]	3119	[3791, 3703]
123	[245, 246]	1122	[1906, 760]	2121	[1230, 3103]	3120	[3783, 3704]
124	[247, 248]	1123	[1907, 1908]	2122	[2910, 1339]	3121	[2480, 3642]
125	[249, 250]	1124	[1909, 1910]	2123	[3104, 285]	3122	[2420, 3792]
126	[251, 252]	1125	[1911, 772]	2124	[2984, 1397]	3123	[3641, 3776]
127	[253, 254]	1126	[2, 1912]	2125	[3105, 2948]	3124	[3793, 3794]
128	[255, 256]	1127	[1913, 1914]	2126	[3106, 3107]	3125	[3697, 1911]
129	[257, 258]	1128	[859, 1915]	2127	[3051, 1424]	3126	[2040, 1906]
130	[259, 260]	1129	[1916, 204]	2128	[1565, 3108]	3127	[3470, 913]
131	[261, 262]	1130	[1917, 1918]	2129	[2933, 1225]	3128	[3740, 3558]
132	[263, 264]	1131	[1919, 1920]	2130	[3031, 2583]	3129	[1668, 3795]
133	[265, 266]	1132	[227, 1921]	2131	[317, 417]	3130	[2148, 2032]
134	[267, 268]	1133	[1922, 1923]	2132	[2878, 3109]	3131	[3796, 1837]
135	[269, 270]	1134	[1663, 618]	2133	[482, 428]	3132	[3736, 3797]
136	[271, 272]	1135	[1659, 1924]	2134	[3110, 1048]	3133	[2065, 858]
137	[273, 274]	1136	[1661, 1925]	2135	[3029, 1526]	3134	[2108, 2232]
138	[275, 276]	1137	[1926, 1927]	2136	[3111, 3018]	3135	[3798, 2058]
139	[277, 278]	1138	[910, 1858]	2137	[3112, 2861]	3136	[611, 3799]
140	[279, 280]	1139	[1928, 1929]	2138	[1421, 3113]	3137	[3618, 3430]
141	[281, 282]	1140	[1930, 1931]	2139	[3114, 2557]	3138	[1760, 3788]
142	[283, 284]	1141	[1932, 1606]	2140	[2701, 2975]	3139	[3495, 3599]
143	[285, 286]	1142	[1933, 1934]	2141	[3054, 91]	3140	[3800, 3743]
144	[287, 288]	1143	[1935, 1936]	2142	[3115, 3116]	3141	[3468, 2376]
145	[289, 290]	1144	[1627, 1937]	2143	[3117, 3118]	3142	[3795, 2194]
146	[291, 111]	1145	[1938, 1939]	2144	[3119, 3120]	3143	[3747, 2419]
147	[292, 293]	1146	[1940, 1618]	2145	[3121, 3122]	3144	[172, 3695]
148	[294, 295]	1147	[1941, 897]	2146	[1315, 2760]	3145	[3541, 2219]
149	[296, 297]	1148	[1787, 1942]	2147	[1591, 1555]	3146	[1644, 2239]
150	[298, 299]	1149	[1943, 1944]	2148	[3123, 3124]	3147	[888, 3711]
151	[300, 301]	1150	[1945, 1946]	2149	[1463, 3125]	3148	[3590, 3662]
152	[302, 303]	1151	[1947, 1948]	2150	[3126, 2662]	3149	[3755, 3694]
153	[304, 305]	1152	[1949, 55]	2151	[1155, 3007]	3150	[3801, 1623]
154	[306, 307]	1153	[1950, 746]	2152	[3124, 3127]	3151	[730, 3721]
155	[308, 309]	1154	[866, 1951]	2153	[2986, 3128]	3152	[534, 3659]
156	[310, 311]	1155	[1952, 1953]	2154	[2582, 3129]	3153	[3554, 3751]
157	[312, 313]	1156	[514, 1954]	2155	[1554, 1380]	3154	[3377, 3798]
158	[314, 315]	1157	[1939, 1955]	2156	[3130, 1394]	3155	[3520, 2457]
159	[316, 317]	1158	[1956, 1957]	2157	[2717, 3130]	3156	[1857, 2318]
160	[318, 319]	1159	[1958, 1959]	2158	[2856, 1422]	3157	[3514, 503]
161	[320, 321]	1160	[1960, 1961]	2159	[332, 1438]	3158	[2131, 212]

162	[322, 323]	1161	[1962, 729]	2160	[375, 109]	3159	[1593, 1736]
163	[324, 325]	1162	[1963, 1964]	2161	[3131, 2981]	3160	[1595, 3802]
164	[326, 327]	1163	[1965, 660]	2162	[1214, 2988]	3161	[603, 3803]
165	[328, 329]	1164	[649, 1631]	2163	[3009, 3132]	3162	[3804, 3805]
166	[122, 330]	1165	[1966, 1967]	2164	[1115, 3004]	3163	[3803, 2164]
167	[331, 332]	1166	[1968, 511]	2165	[3133, 2703]	3164	[779, 3583]
168	[333, 334]	1167	[829, 1969]	2166	[3118, 1326]	3165	[3797, 3473]
169	[335, 336]	1168	[1970, 1971]	2167	[3122, 2697]	3166	[3806, 3771]
170	[337, 338]	1169	[1972, 1973]	2168	[370, 2806]	3167	[710, 3741]
171	[339, 340]	1170	[1974, 808]	2169	[1033, 117]	3168	[1852, 3800]
172	[341, 342]	1171	[1975, 1976]	2170	[124, 2815]	3169	[1819, 2370]
173	[343, 344]	1172	[1977, 1978]	2171	[2846, 1299]	3170	[725, 224]
174	[345, 346]	1173	[1979, 641]	2172	[3134, 3135]	3171	[2374, 3471]
175	[347, 348]	1174	[1980, 1981]	2173	[3109, 3136]	3172	[1879, 3733]
176	[349, 350]	1175	[855, 883]	2174	[3137, 2747]	3173	[178, 3448]
177	[351, 352]	1176	[1982, 885]	2175	[1195, 3138]	3174	[3463, 1818]
178	[353, 354]	1177	[1983, 1984]	2176	[3139, 2779]	3175	[3585, 1895]
179	[355, 356]	1178	[1985, 1963]	2177	[2919, 1559]	3176	[2139, 3573]
180	[357, 358]	1179	[1986, 1816]	2178	[3140, 2992]	3177	[3807, 2157]
181	[359, 360]	1180	[1987, 1988]	2179	[2608, 3141]	3178	[849, 3647]
182	[361, 362]	1181	[1751, 1989]	2180	[3142, 2829]	3179	[3808, 2302]
183	[363, 364]	1182	[1990, 147]	2181	[3143, 2908]	3180	[623, 1628]
184	[365, 366]	1183	[1946, 1991]	2182	[3144, 2909]	3181	[811, 3809]
185	[367, 368]	1184	[1992, 1993]	2183	[3145, 1284]	3182	[3651, 2424]
186	[369, 370]	1185	[1994, 1995]	2184	[2912, 2766]	3183	[3810, 3808]
187	[371, 259]	1186	[1996, 1997]	2185	[3146, 3104]	3184	[2117, 2330]
188	[372, 373]	1187	[1998, 61]	2186	[3147, 2972]	3185	[3811, 3511]
189	[374, 375]	1188	[628, 1761]	2187	[3148, 2698]	3186	[3653, 2464]
190	[376, 377]	1189	[1915, 1999]	2188	[2971, 1468]	3187	[3612, 3812]
191	[378, 379]	1190	[2000, 2001]	2189	[3149, 3150]	3188	[3503, 3464]
192	[380, 381]	1191	[2002, 2003]	2190	[1545, 3151]	3189	[3813, 3381]
193	[382, 383]	1192	[2004, 2005]	2191	[2663, 2762]	3190	[3532, 3679]
194	[384, 385]	1193	[2006, 2007]	2192	[356, 1245]	3191	[2474, 2395]
195	[386, 387]	1194	[2008, 2009]	2193	[1531, 3085]	3192	[2311, 3757]
196	[388, 389]	1195	[2010, 637]	2194	[2584, 1111]	3193	[2244, 3655]
197	[390, 391]	1196	[2011, 2012]	2195	[474, 3152]	3194	[142, 1806]
198	[392, 393]	1197	[2013, 2014]	2196	[3153, 3028]	3195	[3693, 3438]
199	[394, 19]	1198	[2015, 2016]	2197	[3154, 3155]	3196	[1723, 3604]
200	[18, 395]	1199	[2017, 2018]	2198	[3156, 2911]	3197	[3814, 3774]
201	[396, 397]	1200	[2019, 2020]	2199	[3157, 2721]	3198	[3758, 3725]
202	[398, 399]	1201	[2021, 652]	2200	[1378, 2847]	3199	[2324, 527]
203	[400, 291]	1202	[2022, 2023]	2201	[3158, 105]	3200	[3815, 3816]
204	[401, 402]	1203	[1731, 549]	2202	[3159, 3160]	3201	[3644, 2025]
205	[403, 404]	1204	[1995, 2024]	2203	[1191, 3161]	3202	[1637, 3817]

206	[405, 287]	1205	[2025, 200]	2204	[1475, 3121]	3203	[3630, 3419]
207	[406, 407]	1206	[813, 2026]	2205	[3162, 3163]	3204	[3817, 854]
208	[305, 408]	1207	[2027, 2028]	2206	[266, 283]	3205	[494, 3818]
209	[409, 410]	1208	[2029, 1629]	2207	[1323, 3164]	3206	[2183, 1694]
210	[411, 412]	1209	[2030, 2031]	2208	[3165, 2490]	3207	[1937, 3543]
211	[413, 414]	1210	[2032, 2033]	2209	[2489, 3166]	3208	[3819, 3484]
212	[415, 416]	1211	[2034, 163]	2210	[1145, 3167]	3209	[3792, 3790]
213	[417, 418]	1212	[50, 1612]	2211	[3168, 1065]	3210	[1757, 2093]
214	[419, 420]	1213	[2035, 2036]	2212	[3169, 964]	3211	[3506, 3793]
215	[421, 422]	1214	[2037, 1887]	2213	[3170, 300]	3212	[2355, 3708]
216	[334, 423]	1215	[2038, 561]	2214	[3171, 1470]	3213	[1753, 3368]
217	[424, 425]	1216	[2039, 2040]	2215	[1060, 3172]	3214	[3397, 1828]
218	[426, 427]	1217	[1844, 740]	2216	[3173, 3174]	3215	[3820, 3457]
219	[428, 429]	1218	[2041, 1593]	2217	[1516, 3175]	3216	[244, 805]
220	[430, 431]	1219	[2042, 2043]	2218	[2792, 2655]	3217	[2190, 3819]
221	[432, 433]	1220	[2044, 2045]	2219	[3084, 2598]	3218	[2116, 3712]
222	[434, 273]	1221	[864, 2046]	2220	[3082, 2823]	3219	[640, 3821]
223	[435, 436]	1222	[2047, 2048]	2221	[1541, 2623]	3220	[2197, 192]
224	[437, 438]	1223	[593, 696]	2222	[3176, 3177]	3221	[2284, 2115]
225	[439, 440]	1224	[2049, 2050]	2223	[3178, 473]	3222	[846, 3822]
226	[441, 442]	1225	[2051, 2052]	2224	[936, 1356]	3223	[2046, 3427]
227	[443, 444]	1226	[2053, 1972]	2225	[3179, 3131]	3224	[1671, 3806]
228	[445, 446]	1227	[2054, 2008]	2226	[2889, 2573]	3225	[3412, 3687]
229	[447, 448]	1228	[164, 2055]	2227	[3180, 3181]	3226	[630, 2363]
230	[449, 450]	1229	[2056, 2057]	2228	[2483, 3182]	3227	[1993, 3479]
231	[451, 452]	1230	[2058, 2059]	2229	[1574, 1234]	3228	[3458, 1966]
232	[453, 454]	1231	[2060, 2061]	2230	[1165, 3183]	3229	[1908, 1691]
233	[303, 455]	1232	[2062, 2063]	2231	[3184, 3185]	3230	[2456, 3574]
234	[456, 457]	1233	[2064, 2065]	2232	[385, 3186]	3231	[799, 3678]
235	[458, 459]	1234	[2066, 1793]	2233	[1550, 1149]	3232	[1803, 3801]
236	[460, 318]	1235	[2067, 2068]	2234	[3187, 2940]	3233	[3823, 3775]
237	[461, 462]	1236	[2069, 2070]	2235	[1465, 3025]	3234	[3553, 3684]
238	[463, 464]	1237	[1892, 128]	2236	[3188, 1156]	3235	[2003, 582]
239	[465, 466]	1238	[2071, 1632]	2237	[2939, 2980]	3236	[1686, 2447]
240	[467, 468]	1239	[2072, 688]	2238	[3189, 2514]	3237	[1805, 3616]
241	[469, 470]	1240	[2073, 2074]	2239	[2590, 3144]	3238	[2096, 568]
242	[471, 472]	1241	[2075, 602]	2240	[3138, 312]	3239	[863, 570]
243	[473, 474]	1242	[814, 2076]	2241	[1205, 2741]	3240	[1912, 1938]
244	[475, 476]	1243	[2077, 2078]	2242	[1209, 2882]	3241	[1914, 1998]
245	[477, 478]	1244	[2079, 2080]	2243	[1502, 1078]	3242	[3782, 2275]
246	[479, 480]	1245	[1978, 2081]	2244	[3058, 3190]	3243	[3375, 3415]
247	[481, 482]	1246	[2082, 2083]	2245	[3191, 3192]	3244	[3441, 2184]
248	[483, 484]	1247	[695, 2084]	2246	[3193, 2773]	3245	[10, 3505]
249	[485, 486]	1248	[2085, 2086]	2247	[2998, 3194]	3246	[1826, 2340]

250	[487, 488]	1249	[2087, 2088]	2248	[3195, 3033]	3247	[3576, 1898]
251	[489, 490]	1250	[2089, 2090]	2249	[1446, 3196]	3248	[2359, 3824]
252	[491, 492]	1251	[613, 1856]	2250	[402, 3197]	3249	[2172, 2332]
253	[493, 494]	1252	[2091, 2092]	2251	[3198, 3199]	3250	[3825, 1980]
254	[495, 496]	1253	[2093, 802]	2252	[1317, 3200]	3251	[3826, 819]
255	[497, 498]	1254	[2094, 1890]	2253	[3005, 1447]	3252	[132, 3807]
256	[499, 500]	1255	[2095, 2096]	2254	[88, 3201]	3253	[797, 2138]
257	[501, 502]	1256	[2097, 1649]	2255	[2788, 3067]	3254	[36, 2277]
258	[503, 504]	1257	[2098, 2099]	2256	[3202, 2581]	3255	[2092, 547]
259	[505, 506]	1258	[2100, 2039]	2257	[2941, 372]	3256	[3827, 2060]
260	[507, 508]	1259	[1684, 2101]	2258	[3160, 3203]	3257	[1615, 3660]
261	[509, 510]	1260	[2102, 2103]	2259	[3204, 453]	3258	[3426, 3727]
262	[511, 512]	1261	[211, 2104]	2260	[963, 1135]	3259	[3401, 175]
263	[513, 514]	1262	[1971, 2105]	2261	[2905, 2653]	3260	[2380, 32]
264	[515, 516]	1263	[2106, 889]	2262	[3116, 1236]	3261	[1899, 3828]
265	[517, 518]	1264	[2107, 2108]	2263	[3205, 363]	3262	[1870, 650]
266	[519, 520]	1265	[1786, 2109]	2264	[3036, 3206]	3263	[3372, 3829]
267	[521, 522]	1266	[540, 2110]	2265	[2825, 3081]	3264	[3830, 3379]
268	[523, 524]	1267	[1720, 2111]	2266	[977, 3207]	3265	[3754, 2034]
269	[525, 526]	1268	[2112, 1726]	2267	[3208, 3209]	3266	[3451, 3831]
270	[527, 528]	1269	[1873, 670]	2268	[1399, 3210]	3267	[1680, 3392]
271	[529, 530]	1270	[1896, 2113]	2269	[3211, 3123]	3268	[3832, 2238]
272	[531, 532]	1271	[184, 2114]	2270	[2599, 3168]	3269	[3517, 2176]
273	[533, 534]	1272	[2115, 2116]	2271	[340, 2533]	3270	[1605, 3706]
274	[535, 536]	1273	[1675, 2117]	2272	[6, 2696]	3271	[3750, 2130]
275	[537, 538]	1274	[2118, 2119]	2273	[2637, 345]	3272	[3802, 1992]
276	[539, 540]	1275	[681, 1641]	2274	[3038, 85]	3273	[571, 656]
277	[541, 542]	1276	[2120, 2121]	2275	[2618, 2535]	3274	[3799, 1752]
278	[543, 544]	1277	[2122, 505]	2276	[3212, 1341]	3275	[3594, 847]
279	[545, 546]	1278	[2123, 2124]	2277	[1443, 3213]	3276	[2068, 1947]
280	[547, 548]	1279	[2125, 882]	2278	[1159, 2585]	3277	[1780, 2263]
281	[549, 550]	1280	[2126, 2127]	2279	[1571, 1488]	3278	[918, 3683]
282	[551, 552]	1281	[900, 2128]	2280	[3206, 3047]	3279	[3805, 3833]
283	[553, 554]	1282	[2129, 1655]	2281	[1232, 3214]	3280	[2206, 1770]
284	[555, 556]	1283	[2130, 1667]	2282	[2807, 3215]	3281	[2288, 3773]
285	[54, 557]	1284	[230, 2131]	2283	[3216, 3217]	3282	[528, 3542]
286	[558, 216]	1285	[1746, 2132]	2284	[3218, 371]	3283	[3781, 3791]
287	[559, 560]	1286	[2133, 2134]	2285	[3219, 3220]	3284	[1855, 919]
288	[561, 562]	1287	[878, 1864]	2286	[3221, 3222]	3285	[1988, 3362]
289	[563, 198]	1288	[2135, 870]	2287	[2666, 931]	3286	[3794, 589]
290	[564, 565]	1289	[2136, 2137]	2288	[3136, 2952]	3287	[2163, 737]
291	[566, 567]	1290	[2138, 2139]	2289	[2560, 2727]	3288	[1875, 3826]
292	[568, 569]	1291	[1762, 2140]	2290	[3223, 3224]	3289	[3627, 1843]
293	[570, 571]	1292	[2141, 850]	2291	[3225, 2898]	3290	[3834, 2351]

294	[572, 573]	1293	[2142, 171]	2292	[3226, 2609]	3291	[768, 185]
295	[574, 575]	1294	[1929, 1727]	2293	[1349, 3227]	3292	[2323, 3654]
296	[576, 577]	1295	[1764, 2143]	2294	[323, 2914]	3293	[2304, 3787]
297	[578, 579]	1296	[2144, 2145]	2295	[2795, 1256]	3294	[3581, 3561]
298	[580, 581]	1297	[2146, 2079]	2296	[3228, 3096]	3295	[144, 2095]
299	[582, 583]	1298	[2147, 2148]	2297	[3229, 1287]	3296	[701, 2437]
300	[584, 585]	1299	[2149, 2150]	2298	[3230, 3137]	3297	[703, 3620]
301	[567, 586]	1300	[788, 2151]	2299	[1252, 1093]	3298	[2434, 2274]
302	[587, 588]	1301	[1976, 2152]	2300	[3197, 3078]	3299	[1794, 2322]
303	[589, 590]	1302	[2005, 563]	2301	[3069, 3231]	3300	[3785, 2217]
304	[591, 237]	1303	[2007, 2153]	2302	[3232, 2983]	3301	[3821, 3835]
305	[592, 593]	1304	[2154, 2155]	2303	[3233, 2945]	3302	[3742, 2320]
306	[594, 595]	1305	[2156, 776]	2304	[2920, 3234]	3303	[3836, 646]
307	[596, 597]	1306	[2157, 596]	2305	[2951, 296]	3304	[3508, 3814]
308	[598, 599]	1307	[1729, 2158]	2306	[3235, 298]	3305	[3837, 1907]
309	[600, 601]	1308	[2159, 2129]	2307	[1587, 3236]	3306	[3658, 2462]
310	[602, 603]	1309	[2160, 1765]	2308	[1334, 3216]	3307	[168, 2159]
311	[604, 605]	1310	[2161, 2002]	2309	[3172, 3237]	3308	[671, 3461]
312	[606, 607]	1311	[2162, 2163]	2310	[3238, 3239]	3309	[2390, 3832]
313	[608, 609]	1312	[2164, 2165]	2311	[1433, 3240]	3310	[3812, 3738]
314	[610, 611]	1313	[1739, 2166]	2312	[1340, 3241]	3311	[3768, 3637]
315	[612, 613]	1314	[783, 2167]	2313	[3242, 3063]	3312	[3831, 523]
316	[614, 615]	1315	[2168, 499]	2314	[1011, 1202]	3313	[3702, 911]
317	[616, 617]	1316	[556, 2169]	2315	[3243, 3016]	3314	[722, 2446]
318	[618, 619]	1317	[1953, 2]	2316	[1088, 3218]	3315	[174, 3580]
319	[620, 621]	1318	[2170, 1847]	2317	[3108, 2966]	3316	[1683, 3830]
320	[622, 623]	1319	[2171, 2172]	2318	[2677, 2810]	3317	[3838, 3359]
321	[624, 625]	1320	[669, 2106]	2319	[3244, 2812]	3318	[508, 3834]
322	[626, 239]	1321	[898, 835]	2320	[1396, 3245]	3319	[3516, 3839]
323	[627, 628]	1322	[2173, 2174]	2321	[325, 3080]	3320	[3547, 2349]
324	[629, 630]	1323	[2043, 2175]	2322	[2743, 3246]	3321	[2208, 2066]
325	[631, 632]	1324	[2176, 1823]	2323	[2511, 3247]	3322	[1664, 3548]
326	[633, 634]	1325	[1743, 2177]	2324	[1180, 1067]	3323	[1690, 2179]
327	[635, 636]	1326	[2178, 2011]	2325	[2719, 2790]	3324	[747, 3823]
328	[637, 638]	1327	[2179, 2180]	2326	[427, 3091]	3325	[2397, 3840]
329	[639, 640]	1328	[2181, 2182]	2327	[1449, 3027]	3326	[3671, 877]
330	[641, 642]	1329	[2166, 2183]	2328	[2622, 2524]	3327	[3559, 3825]
331	[643, 644]	1330	[2184, 2185]	2329	[440, 3248]	3328	[1830, 841]
332	[524, 645]	1331	[634, 2186]	2330	[1162, 3010]	3329	[661, 3533]
333	[646, 647]	1332	[2182, 1930]	2331	[2494, 3083]	3330	[3713, 3698]
334	[648, 649]	1333	[2187, 2188]	2332	[3127, 3249]	3331	[3841, 1885]
335	[650, 651]	1334	[2189, 2190]	2333	[3250, 3015]	3332	[3765, 867]
336	[652, 653]	1335	[2191, 2027]	2334	[3141, 2543]	3333	[3829, 551]
337	[654, 655]	1336	[1934, 2192]	2335	[330, 2559]	3334	[2048, 2135]

338	[656, 657]	1337	[2193, 2102]	2336	[459, 3251]	3335	[3603, 1626]
339	[658, 659]	1338	[2194, 600]	2337	[1099, 3252]	3336	[542, 243]
340	[660, 661]	1339	[2195, 2196]	2338	[2614, 2709]	3337	[3592, 3841]
341	[662, 663]	1340	[1961, 2197]	2339	[2625, 3253]	3338	[1955, 558]
342	[664, 665]	1341	[2198, 1734]	2340	[2782, 2621]	3339	[2119, 177]
343	[666, 667]	1342	[2199, 2200]	2341	[3254, 3126]	3340	[1991, 2285]
344	[668, 669]	1343	[2201, 51]	2342	[1379, 1069]	3341	[3816, 3417]
345	[670, 671]	1344	[2202, 1669]	2343	[3073, 1237]	3342	[1884, 1594]
346	[672, 673]	1345	[2203, 2204]	2344	[3255, 3256]	3343	[538, 1974]
347	[674, 675]	1346	[2205, 2015]	2345	[3257, 3115]	3344	[3690, 3398]
348	[673, 676]	1347	[2052, 2206]	2346	[3258, 269]	3345	[3842, 3837]
349	[677, 678]	1348	[2207, 2208]	2347	[3259, 3260]	3346	[1771, 3611]
350	[221, 679]	1349	[2209, 2210]	2348	[1119, 3261]	3347	[3646, 3843]
351	[680, 681]	1350	[2211, 2212]	2349	[1101, 3262]	3348	[3844, 79]
352	[682, 683]	1351	[2213, 2214]	2350	[3263, 3264]	3349	[969, 3189]
353	[684, 685]	1352	[2215, 2216]	2351	[3265, 1210]	3350	[358, 3845]
354	[686, 687]	1353	[2217, 2181]	2352	[2731, 1229]	3351	[1529, 347]
355	[688, 689]	1354	[2218, 824]	2353	[3099, 1112]	3352	[293, 3315]
356	[690, 662]	1355	[2219, 807]	2354	[2532, 2669]	3353	[1266, 1505]
357	[691, 692]	1356	[1703, 145]	2355	[3266, 3267]	3354	[1134, 947]
358	[693, 694]	1357	[2220, 2221]	2356	[3120, 2923]	3355	[108, 3304]
359	[552, 695]	1358	[2222, 2223]	2357	[3019, 3268]	3356	[2566, 3846]
360	[696, 697]	1359	[2224, 2225]	2358	[3269, 2877]	3357	[2763, 3847]
361	[698, 699]	1360	[2226, 2227]	2359	[3270, 1335]	3358	[1471, 3046]
362	[152, 700]	1361	[2132, 2228]	2360	[3271, 3272]	3359	[2826, 1557]
363	[203, 701]	1362	[2229, 1869]	2361	[3207, 3273]	3360	[3848, 1172]
364	[702, 703]	1363	[2230, 2231]	2362	[2838, 2516]	3361	[3342, 2956]
365	[704, 705]	1364	[2232, 2233]	2363	[416, 1585]	3362	[3248, 3229]
366	[636, 706]	1365	[2234, 2235]	2364	[2884, 2842]	3363	[2965, 1012]
367	[707, 708]	1366	[2236, 2237]	2365	[1411, 1130]	3364	[2886, 3298]
368	[709, 710]	1367	[2238, 1614]	2366	[3252, 3274]	3365	[1418, 3849]
369	[711, 712]	1368	[2239, 2240]	2367	[1388, 2964]	3366	[3234, 3850]
370	[713, 714]	1369	[657, 2241]	2368	[3275, 3276]	3367	[3851, 1573]
371	[715, 507]	1370	[2242, 800]	2369	[450, 986]	3368	[3852, 988]
372	[716, 155]	1371	[2243, 2244]	2370	[3277, 3191]	3369	[3278, 2893]
373	[717, 718]	1372	[2245, 2246]	2371	[492, 3278]	3370	[1286, 2512]
374	[719, 720]	1373	[2045, 2247]	2372	[2770, 477]	3371	[3301, 3853]
375	[721, 722]	1374	[2248, 606]	2373	[2689, 3279]	3372	[3854, 1403]
376	[723, 724]	1375	[694, 2249]	2374	[1575, 113]	3373	[2493, 316]
377	[575, 702]	1376	[706, 2123]	2375	[3280, 3055]	3374	[1527, 2943]
378	[526, 725]	1377	[2250, 2251]	2376	[3281, 3282]	3375	[393, 3324]
379	[726, 584]	1378	[1942, 2252]	2377	[2679, 2970]	3376	[90, 3855]
380	[727, 728]	1379	[2253, 2254]	2378	[3240, 2844]	3377	[3856, 3053]
381	[729, 730]	1380	[2255, 2082]	2379	[3283, 3117]	3378	[3857, 1510]

382	[731, 732]	1381	[2256, 2257]	2380	[1061, 3284]	3379	[2603, 435]
383	[733, 734]	1382	[2258, 2259]	2381	[3285, 2793]	3380	[3858, 257]
384	[735, 736]	1383	[238, 139]	2382	[1320, 3286]	3381	[1354, 3173]
385	[737, 738]	1384	[2175, 1674]	2383	[3287, 3288]	3382	[3859, 2870]
386	[699, 739]	1385	[2260, 614]	2384	[3012, 2757]	3383	[2534, 3860]
387	[740, 716]	1386	[2014, 2261]	2385	[270, 3281]	3384	[3861, 2855]
388	[683, 741]	1387	[2134, 1758]	2386	[3249, 992]	3385	[3253, 2817]
389	[510, 742]	1388	[857, 2262]	2387	[1487, 2936]	3386	[2946, 3862]
390	[743, 698]	1389	[2263, 2264]	2388	[3241, 1353]	3387	[3155, 3863]
391	[744, 745]	1390	[2265, 2266]	2389	[2818, 3289]	3388	[3203, 3198]
392	[746, 747]	1391	[1718, 2267]	2390	[3128, 2595]	3389	[3864, 3331]
393	[748, 749]	1392	[2268, 2269]	2391	[1538, 1250]	3390	[3163, 1311]
394	[750, 751]	1393	[2270, 1773]	2392	[423, 3114]	3391	[3314, 2879]
395	[752, 753]	1394	[2233, 1728]	2393	[3290, 2880]	3392	[1085, 3865]
396	[754, 755]	1395	[166, 2271]	2394	[2486, 2853]	3393	[3181, 3866]
397	[756, 757]	1396	[2272, 2053]	2395	[1568, 27]	3394	[342, 1478]
398	[758, 759]	1397	[2273, 704]	2396	[3291, 3292]	3395	[1129, 101]
399	[760, 761]	1398	[2274, 566]	2397	[3293, 3106]	3396	[1412, 2738]
400	[762, 763]	1399	[2275, 2276]	2398	[2953, 3171]	3397	[1056, 3071]
401	[764, 765]	1400	[2277, 1768]	2399	[3294, 2569]	3398	[3177, 1464]
402	[766, 767]	1401	[2088, 680]	2400	[3295, 1346]	3399	[3867, 2729]
403	[577, 768]	1402	[2278, 2202]	2401	[2777, 447]	3400	[2821, 1444]
404	[769, 770]	1403	[2279, 2280]	2402	[407, 3014]	3401	[110, 349]
405	[676, 771]	1404	[2281, 2282]	2403	[3296, 3050]	3402	[3868, 1420]
406	[772, 773]	1405	[2283, 2284]	2404	[3297, 1212]	3403	[1075, 3158]
407	[774, 775]	1406	[2285, 2286]	2405	[1294, 3265]	3404	[2733, 3037]
408	[776, 777]	1407	[1733, 2049]	2406	[3298, 322]	3405	[3869, 943]
409	[778, 779]	1408	[1737, 2287]	2407	[3299, 3300]	3406	[112, 3290]
410	[780, 781]	1409	[2174, 2288]	2408	[1466, 1277]	3407	[3870, 3034]
411	[782, 783]	1410	[2289, 2290]	2409	[3220, 3301]	3408	[379, 3170]
412	[581, 784]	1411	[2291, 1919]	2410	[3302, 3303]	3409	[2843, 3295]
413	[785, 786]	1412	[868, 2234]	2411	[3304, 3094]	3410	[1087, 3871]
414	[787, 788]	1413	[2292, 2293]	2412	[1303, 1314]	3411	[3006, 3872]
415	[789, 790]	1414	[160, 2294]	2413	[3305, 2797]	3412	[1496, 3873]
416	[791, 792]	1415	[2295, 245]	2414	[2775, 406]	3413	[3209, 3874]
417	[793, 727]	1416	[2296, 2297]	2415	[490, 2548]	3414	[1228, 3134]
418	[617, 794]	1417	[2298, 2173]	2416	[2864, 3306]	3415	[3875, 3193]
419	[770, 795]	1418	[687, 2299]	2417	[3307, 2646]	3416	[3268, 2482]
420	[796, 797]	1419	[1959, 2022]	2418	[3308, 306]	3417	[3062, 1462]
421	[798, 799]	1420	[2300, 2301]	2419	[3182, 1018]	3418	[3876, 2962]
422	[800, 801]	1421	[2302, 629]	2420	[3309, 353]	3419	[1518, 419]
423	[802, 803]	1422	[2303, 2304]	2421	[3279, 3310]	3420	[1127, 3877]
424	[590, 804]	1423	[2305, 2306]	2422	[2999, 3242]	3421	[2575, 2857]
425	[805, 806]	1424	[2307, 2308]	2423	[2681, 975]	3422	[1218, 2865]

426	[807, 249]	1425	[2309, 2310]	2424	[3311, 3312]	3423	[1182, 2785]
427	[808, 809]	1426	[2143, 1802]	2425	[3101, 3204]	3424	[1451, 3211]
428	[810, 811]	1427	[2254, 2311]	2426	[24, 3297]	3425	[3878, 3879]
429	[812, 813]	1428	[890, 2154]	2427	[3313, 3314]	3426	[2967, 3233]
430	[583, 814]	1429	[2312, 1689]	2428	[1401, 935]	3427	[3880, 2545]
431	[815, 816]	1430	[689, 2313]	2429	[3286, 302]	3428	[2901, 3881]
432	[817, 818]	1431	[242, 2314]	2430	[2859, 1540]	3429	[3129, 3882]
433	[819, 820]	1432	[2315, 2316]	2431	[2627, 1564]	3430	[1053, 3338]
434	[675, 821]	1433	[1846, 187]	2432	[3315, 3316]	3431	[3043, 929]
435	[822, 823]	1434	[1883, 2317]	2433	[3317, 3154]	3432	[3282, 2742]
436	[824, 631]	1435	[2318, 2319]	2434	[1364, 1409]	3433	[2683, 2507]
437	[825, 826]	1436	[2320, 2321]	2435	[3261, 3076]	3434	[2676, 3883]
438	[801, 827]	1437	[2322, 2323]	2436	[3318, 2694]	3435	[2959, 3344]
439	[828, 829]	1438	[644, 2324]	2437	[2995, 3319]	3436	[2930, 1519]
440	[821, 830]	1439	[2325, 915]	2438	[2552, 3226]	3437	[1504, 1499]
441	[831, 832]	1440	[2326, 1754]	2439	[3227, 3020]	3438	[98, 1032]
442	[833, 834]	1441	[720, 2327]	2440	[3152, 107]	3439	[3056, 1200]
443	[835, 836]	1442	[1716, 1808]	2441	[3320, 1460]	3440	[3884, 3885]
444	[837, 838]	1443	[1717, 2328]	2442	[3321, 3322]	3441	[3886, 3146]
445	[839, 840]	1444	[2329, 2292]	2443	[3323, 1338]	3442	[3107, 2501]
446	[841, 686]	1445	[2330, 2331]	2444	[1404, 2925]	3443	[3052, 3221]
447	[842, 843]	1446	[2216, 2309]	2445	[954, 2913]	3444	[3887, 1384]
448	[844, 11]	1447	[2332, 2333]	2446	[3324, 1537]	3445	[3089, 3888]
449	[845, 846]	1448	[2334, 2335]	2447	[2605, 3065]	3446	[1141, 2611]
450	[847, 222]	1449	[1834, 2295]	2448	[3060, 491]	3447	[3889, 1128]
451	[848, 849]	1450	[162, 2336]	2449	[3303, 3048]	3448	[1043, 2982]
452	[850, 851]	1451	[2026, 501]	2450	[3325, 3326]	3449	[455, 3098]
453	[852, 853]	1452	[836, 1672]	2451	[3166, 3072]	3450	[3201, 1328]
454	[854, 855]	1453	[2057, 1900]	2452	[2728, 3139]	3451	[2749, 3317]
455	[856, 857]	1454	[2018, 2337]	2453	[3284, 1175]	3452	[1560, 1248]
456	[858, 859]	1455	[2338, 2339]	2454	[1357, 1227]	3453	[3890, 3891]
457	[860, 861]	1456	[2340, 2341]	2455	[2632, 1183]	3454	[2651, 1281]
458	[862, 863]	1457	[2342, 2035]	2456	[3327, 3328]	3455	[3892, 3180]
459	[786, 864]	1458	[2343, 2344]	2457	[3113, 2656]	3456	[3849, 3893]
460	[865, 866]	1459	[2345, 2346]	2458	[3329, 3330]	3457	[2869, 3169]
461	[867, 868]	1460	[2347, 2348]	2459	[3331, 3332]	3458	[3894, 3266]
462	[579, 869]	1461	[2349, 2350]	2460	[976, 3057]	3459	[3895, 3088]
463	[870, 871]	1462	[2351, 658]	2461	[2588, 2769]	3460	[3011, 3870]
464	[872, 53]	1463	[496, 133]	2462	[3333, 3334]	3461	[397, 3296]
465	[873, 874]	1464	[2352, 2353]	2463	[3335, 961]	3462	[3167, 2604]
466	[875, 876]	1465	[2354, 2355]	2464	[1224, 1533]	3463	[1139, 3255]
467	[877, 878]	1466	[2145, 2356]	2465	[1241, 2906]	3464	[3896, 3897]
468	[838, 879]	1467	[2357, 616]	2466	[3336, 121]	3465	[2867, 3898]
469	[880, 881]	1468	[2358, 2359]	2467	[2551, 1453]	3466	[1083, 3899]

470	[882, 812]	1469	[2360, 672]	2468	[2822, 3337]	3467	[1494, 2787]
471	[883, 884]	1470	[2361, 2362]	2469	[3338, 3299]	3468	[1350, 2791]
472	[885, 886]	1471	[2363, 664]	2470	[3339, 16]	3469	[3900, 3901]
473	[887, 888]	1472	[2247, 2364]	2471	[3340, 968]	3470	[2735, 3283]
474	[889, 890]	1473	[1617, 2365]	2472	[3341, 3342]	3471	[3200, 3228]
475	[891, 892]	1474	[2366, 2367]	2473	[3214, 3022]	3472	[1064, 1405]
476	[893, 648]	1475	[2368, 674]	2474	[3343, 1118]	3473	[1336, 3875]
477	[894, 895]	1476	[895, 2369]	2475	[3344, 3105]	3474	[3093, 409]
478	[130, 896]	1477	[60, 2051]	2476	[3260, 87]	3475	[1249, 1400]
479	[897, 898]	1478	[663, 8]	2477	[3345, 3346]	3476	[3902, 1402]
480	[899, 900]	1479	[2370, 533]	2478	[1003, 3347]	3477	[3903, 3868]
481	[901, 810]	1480	[2371, 2372]	2479	[3334, 981]	3478	[3862, 3904]
482	[902, 903]	1481	[2373, 2374]	2480	[1147, 1038]	3479	[1108, 2664]
483	[861, 904]	1482	[826, 2375]	2481	[3348, 52]	3480	[2973, 23]
484	[905, 906]	1483	[2376, 2017]	2482	[739, 1611]	3481	[3905, 3345]
485	[907, 908]	1484	[2377, 2378]	2483	[1866, 2387]	3482	[3906, 1138]
486	[215, 845]	1485	[2192, 1643]	2484	[2463, 513]	3483	[924, 3907]
487	[909, 910]	1486	[2379, 2042]	2485	[876, 3349]	3484	[3151, 2950]
488	[911, 912]	1487	[2127, 2380]	2486	[225, 3350]	3485	[1332, 2576]
489	[913, 914]	1488	[2381, 1831]	2487	[14, 815]	3486	[350, 3341]
490	[915, 916]	1489	[2382, 2343]	2488	[3351, 901]	3487	[1285, 2918]
491	[917, 918]	1490	[2383, 2122]	2489	[1842, 576]	3488	[3908, 3902]
492	[919, 920]	1491	[2384, 1804]	2490	[557, 3352]	3489	[3217, 3909]
493	[921, 922]	1492	[749, 2385]	2491	[1931, 1738]	3490	[3872, 2808]
494	[923, 924]	1493	[2321, 2386]	2492	[2249, 3353]	3491	[2712, 2686]
495	[925, 926]	1494	[217, 2373]	2493	[3354, 3355]	3492	[2881, 3910]
496	[927, 928]	1495	[2387, 2388]	2494	[2331, 3356]	3493	[2858, 3911]
497	[929, 930]	1496	[2140, 1994]	2495	[3357, 3358]	3494	[3175, 3145]
498	[931, 932]	1497	[2389, 2390]	2496	[2319, 1845]	3495	[1492, 3912]
499	[933, 934]	1498	[2391, 684]	2497	[3359, 1692]	3496	[3194, 3913]
500	[935, 936]	1499	[2392, 2393]	2498	[3360, 3361]	3497	[2979, 93]
501	[937, 938]	1500	[2378, 2394]	2499	[3362, 3363]	3498	[1495, 1074]
502	[939, 940]	1501	[1766, 1833]	2500	[3364, 3365]	3499	[20, 3157]
503	[941, 942]	1502	[2350, 2379]	2501	[840, 891]	3500	[1041, 1107]
504	[943, 944]	1503	[2395, 1647]	2502	[3366, 3367]	3501	[336, 3880]
505	[945, 946]	1504	[2396, 2397]	2503	[3368, 2019]	3502	[1247, 3896]
506	[488, 467]	1505	[2109, 494]	2504	[3369, 3370]	3503	[3914, 254]
507	[947, 948]	1506	[632, 2142]	2505	[3371, 3372]	3504	[1435, 2495]
508	[949, 950]	1507	[2398, 2213]	2506	[2372, 2272]	3505	[2734, 3915]
509	[951, 952]	1508	[2399, 2400]	2507	[3373, 229]	3506	[442, 3916]
510	[953, 954]	1509	[1824, 1713]	2508	[3374, 2211]	3507	[366, 3917]
511	[955, 956]	1510	[1601, 2401]	2509	[199, 3375]	3508	[3097, 3867]
512	[957, 958]	1511	[2251, 2402]	2510	[3376, 3377]	3509	[3918, 3908]
513	[959, 960]	1512	[2403, 2404]	2511	[2180, 3378]	3510	[2640, 2684]

514	[961, 941]	1513	[2081, 2405]	2512	[2177, 2253]	3511	[3347, 1267]
515	[962, 963]	1514	[2406, 2407]	2513	[2076, 1682]	3512	[3845, 355]
516	[964, 965]	1515	[2408, 909]	2514	[3379, 3380]	3513	[1359, 3919]
517	[966, 967]	1516	[2286, 2409]	2515	[3381, 3382]	3514	[3920, 955]
518	[968, 969]	1517	[773, 2392]	2516	[3383, 1779]	3515	[3222, 3270]
519	[970, 971]	1518	[2158, 796]	2517	[2317, 3384]	3516	[3272, 2577]
520	[470, 972]	1519	[2241, 515]	2518	[3385, 1941]	3517	[1199, 2947]
521	[973, 974]	1520	[2200, 1874]	2519	[2280, 2072]	3518	[2845, 1123]
522	[975, 976]	1521	[193, 2382]	2520	[1836, 787]	3519	[3026, 3921]
523	[92, 977]	1522	[2410, 2199]	2521	[827, 3386]	3520	[2932, 3329]
524	[978, 979]	1523	[2411, 2412]	2522	[3358, 2442]	3521	[3922, 1427]
525	[980, 424]	1524	[2413, 226]	2523	[3387, 3388]	3522	[3913, 2961]
526	[422, 437]	1525	[1822, 2414]	2524	[3389, 1662]	3523	[3923, 1325]
527	[981, 982]	1526	[2415, 2416]	2525	[3390, 721]	3524	[3236, 3924]
528	[408, 983]	1527	[2417, 2418]	2526	[3391, 1763]	3525	[3237, 2968]
529	[984, 985]	1528	[2419, 2420]	2527	[46, 1687]	3526	[3239, 292]
530	[986, 987]	1529	[1772, 1950]	2528	[601, 157]	3527	[3925, 3926]
531	[988, 989]	1530	[2421, 2422]	2529	[3392, 3393]	3528	[2674, 1219]
532	[990, 991]	1531	[1799, 2423]	2530	[3394, 3395]	3529	[3199, 2958]
533	[992, 993]	1532	[2424, 2425]	2531	[3396, 3397]	3530	[1408, 2718]
534	[994, 995]	1533	[597, 2426]	2532	[3398, 3399]	3531	[2875, 487]
535	[983, 996]	1534	[2427, 1878]	2533	[2386, 1860]	3532	[3881, 1098]
536	[997, 998]	1535	[2428, 1841]	2534	[2124, 2435]	3533	[1045, 3927]
537	[999, 1000]	1536	[2009, 2141]	2535	[3400, 3401]	3534	[3087, 2580]
538	[1001, 75]	1537	[667, 2429]	2536	[2153, 3402]	3535	[2834, 2521]
539	[1002, 1003]	1538	[2430, 880]	2537	[3403, 1865]	3536	[2724, 3339]
540	[960, 1004]	1539	[2431, 2303]	2538	[223, 3404]	3537	[2568, 3928]
541	[1005, 1006]	1540	[2432, 1850]	2539	[2264, 2279]	3538	[2922, 2820]
542	[1007, 475]	1541	[2433, 2434]	2540	[2426, 2403]	3539	[989, 3929]
543	[1008, 1009]	1542	[853, 2243]	2541	[3405, 1968]	3540	[3095, 2619]
544	[1010, 1011]	1543	[1756, 2411]	2542	[3406, 3407]	3541	[950, 3149]
545	[1012, 1013]	1544	[2435, 2436]	2543	[3408, 2398]	3542	[982, 3323]
546	[1014, 1015]	1545	[2437, 2438]	2544	[3409, 2399]	3543	[1520, 2957]
547	[1016, 1017]	1546	[585, 2439]	2545	[1817, 752]	3544	[3322, 2484]
548	[1018, 1019]	1547	[2440, 2441]	2546	[3410, 1709]	3545	[2652, 3925]
549	[1020, 1021]	1548	[2442, 2443]	2547	[3411, 3364]	3546	[2811, 2654]
550	[1022, 1023]	1549	[1957, 159]	2548	[1639, 3412]	3547	[3316, 3263]
551	[1024, 1025]	1550	[2444, 1945]	2549	[3413, 3414]	3548	[2520, 2487]
552	[1026, 1027]	1551	[742, 2445]	2550	[3415, 2245]	3549	[2634, 2647]
553	[1028, 1029]	1552	[2446, 633]	2551	[734, 735]	3550	[3891, 3930]
554	[1030, 1031]	1553	[2447, 2255]	2552	[2225, 3416]	3551	[2556, 3922]
555	[1032, 1033]	1554	[1964, 2256]	2553	[3417, 1604]	3552	[3288, 3238]
556	[472, 1034]	1555	[784, 2448]	2554	[775, 3418]	3553	[2668, 3269]
557	[1035, 400]	1556	[2367, 1987]	2555	[3419, 3420]	3554	[84, 3307]

558	[4, 1036]	1557	[2449, 2450]	2556	[3421, 707]	3555	[1292, 1091]
559	[1037, 980]	1558	[2101, 196]	2557	[619, 3422]	3556	[2665, 1231]
560	[1038, 1039]	1559	[1607, 2085]	2558	[2210, 2120]	3557	[3931, 1263]
561	[1040, 1041]	1560	[2451, 2087]	2559	[2188, 3423]	3558	[1090, 3932]
562	[1042, 1043]	1561	[653, 2452]	2560	[642, 161]	3559	[2786, 2954]
563	[1044, 1045]	1562	[2453, 41]	2561	[3424, 3376]	3560	[1577, 3892]
564	[1046, 1047]	1563	[2454, 235]	2562	[3425, 3426]	3561	[2726, 3258]
565	[1048, 1049]	1564	[2455, 2265]	2563	[2001, 865]	3562	[1458, 3176]
566	[1050, 1051]	1565	[2294, 2456]	2564	[3427, 856]	3563	[2891, 2537]
567	[1052, 1053]	1566	[2457, 2458]	2565	[3428, 3429]	3564	[3328, 3250]
568	[1054, 458]	1567	[186, 572]	2566	[3430, 3431]	3565	[3933, 3934]
569	[1055, 1056]	1568	[1925, 2431]	2567	[2212, 3432]	3566	[2505, 2753]
570	[1057, 1058]	1569	[554, 2054]	2568	[1748, 3433]	3567	[412, 289]
571	[1059, 1060]	1570	[2459, 2460]	2569	[3434, 3435]	3568	[2771, 3321]
572	[944, 1061]	1571	[134, 1724]	2570	[3436, 3437]	3569	[3853, 1362]
573	[1025, 1062]	1572	[2461, 2136]	2571	[2033, 3410]	3570	[468, 3914]
574	[1063, 1064]	1573	[2462, 2463]	2572	[2341, 210]	3571	[3000, 2902]
575	[1065, 1066]	1574	[2464, 1952]	2573	[3438, 3439]	3572	[2894, 3935]
576	[1067, 1068]	1575	[2090, 2220]	2574	[3440, 2089]	3573	[3174, 3936]
577	[1069, 367]	1576	[2465, 2466]	2575	[2362, 3441]	3574	[258, 3933]
578	[1070, 1071]	1577	[2467, 2468]	2576	[3442, 1932]	3575	[2816, 2715]
579	[1072, 1073]	1578	[2469, 2470]	2577	[1863, 3443]	3576	[3002, 3937]
580	[1074, 1075]	1579	[2306, 149]	2578	[562, 3444]	3577	[3938, 3257]
581	[1076, 1077]	1580	[34, 2471]	2579	[1597, 2250]	3578	[3001, 3280]
582	[1078, 1079]	1581	[2472, 2248]	2580	[1710, 9]	3579	[3850, 2896]
583	[1080, 1081]	1582	[2473, 2474]	2581	[914, 3445]	3580	[2784, 3939]
584	[1082, 1083]	1583	[2475, 1956]	2582	[3446, 793]	3581	[3044, 1387]
585	[1084, 1085]	1584	[2476, 143]	2583	[2365, 1889]	3582	[3940, 3179]
586	[1086, 1087]	1585	[1701, 2338]	2584	[3447, 610]	3583	[2805, 3856]
587	[16, 1088]	1586	[1633, 13]	2585	[3353, 2354]	3584	[3910, 265]
588	[1089, 1090]	1587	[2477, 2478]	2586	[3448, 3449]	3585	[3246, 5]
589	[1091, 460]	1588	[761, 2432]	2587	[3450, 3451]	3586	[3337, 3864]
590	[1092, 275]	1589	[2375, 842]	2588	[2369, 3452]	3587	[3937, 2593]
591	[1093, 1094]	1590	[2479, 564]	2589	[565, 1960]	3588	[3941, 962]
592	[1095, 1096]	1591	[908, 2480]	2590	[3453, 778]	3589	[3846, 3942]
593	[1097, 463]	1592	[2481, 2482]	2591	[1774, 887]	3590	[3936, 3285]
594	[1098, 1099]	1593	[66, 2483]	2592	[3454, 2226]	3591	[2629, 2960]
595	[1100, 1101]	1594	[2484, 2485]	2593	[2448, 3455]	3592	[2752, 2860]
596	[1102, 937]	1595	[96, 2486]	2594	[573, 3442]	3593	[404, 3291]
597	[1103, 1104]	1596	[2487, 2488]	2595	[1599, 2013]	3594	[3943, 2776]
598	[1105, 1106]	1597	[1168, 2489]	2596	[3456, 2112]	3595	[3024, 1295]
599	[1107, 1108]	1598	[2490, 2491]	2597	[3457, 3458]	3596	[3068, 3311]
600	[1109, 1110]	1599	[1376, 2492]	2598	[809, 715]	3597	[2597, 3944]
601	[1111, 314]	1600	[1481, 405]	2599	[3459, 3460]	3598	[3907, 3302]

602	[1112, 1113]	1601	[1385, 2493]	2600	[158, 2325]	3599	[2780, 3895]
603	[1114, 1115]	1602	[1006, 2494]	2601	[3461, 3462]	3600	[3912, 2607]
604	[1116, 1117]	1603	[2495, 2496]	2602	[2441, 822]	3601	[466, 2711]
605	[1118, 1119]	1604	[2497, 2498]	2603	[879, 3463]	3602	[1398, 3013]
606	[1120, 1121]	1605	[2499, 2500]	2604	[3464, 3465]	3603	[3945, 2530]
607	[1122, 398]	1606	[2501, 2502]	2605	[3429, 3466]	3604	[3866, 123]
608	[1123, 1124]	1607	[1104, 2503]	2606	[1924, 3467]	3605	[3247, 1265]
609	[457, 1125]	1608	[2504, 2505]	2607	[2385, 3468]	3606	[2897, 3946]
610	[1126, 1127]	1609	[1469, 1167]	2608	[544, 519]	3607	[3274, 2628]
611	[1128, 1129]	1610	[2506, 1457]	2609	[3469, 3470]	3608	[3210, 449]
612	[1130, 1131]	1611	[2507, 2508]	2610	[3471, 3472]	3609	[2754, 973]
613	[1132, 1133]	1612	[100, 2509]	2611	[3473, 3474]	3610	[1110, 3195]
614	[965, 1134]	1613	[2510, 2511]	2612	[3475, 3476]	3611	[3276, 1253]
615	[1135, 1136]	1614	[2512, 2513]	2613	[3477, 3478]	3612	[1431, 3090]
616	[354, 1137]	1615	[2514, 2515]	2614	[1989, 848]	3613	[2899, 2578]
617	[1138, 1139]	1616	[2516, 2517]	2615	[3479, 3480]	3614	[2541, 1512]
618	[1140, 1141]	1617	[2518, 1454]	2616	[1951, 3481]	3615	[2924, 3140]
619	[1142, 1143]	1618	[2519, 2520]	2617	[3482, 2453]	3616	[2756, 3294]
620	[942, 1144]	1619	[2521, 2522]	2618	[3483, 2168]	3617	[3947, 1293]
621	[368, 1145]	1620	[381, 2523]	2619	[2240, 509]	3618	[3921, 3313]
622	[1146, 1147]	1621	[1416, 430]	2620	[3484, 1977]	3619	[3135, 443]
623	[1148, 328]	1622	[2524, 2525]	2621	[3485, 3389]	3620	[3948, 3112]
624	[1149, 1150]	1623	[1548, 119]	2622	[3486, 3487]	3621	[3874, 2866]
625	[1151, 990]	1624	[2526, 2527]	2623	[621, 2209]	3622	[2702, 3949]
626	[1152, 1153]	1625	[2528, 77]	2624	[1755, 3488]	3623	[3256, 382]
627	[1154, 1155]	1626	[1331, 2529]	2625	[3489, 3490]	3624	[2563, 451]
628	[1156, 1157]	1627	[2530, 2531]	2626	[3491, 2047]	3625	[1344, 25]
629	[1158, 1159]	1628	[1393, 2532]	2627	[2348, 2476]	3626	[3310, 3950]
630	[86, 1160]	1629	[2533, 2534]	2628	[2344, 2281]	3627	[3909, 3208]
631	[1161, 1162]	1630	[476, 333]	2629	[2165, 3391]	3628	[452, 3243]
632	[1163, 339]	1631	[2535, 2536]	2630	[3492, 3493]	3629	[3927, 3244]
633	[1164, 1165]	1632	[2537, 1365]	2631	[3494, 3495]	3630	[3935, 2835]
634	[1166, 261]	1633	[2538, 2539]	2632	[3496, 1872]	3631	[1160, 3945]
635	[1167, 1168]	1634	[2540, 2541]	2633	[732, 3383]	3632	[2649, 3188]
636	[1169, 1170]	1635	[2522, 2542]	2634	[1807, 1625]	3633	[254, 3205]
637	[1171, 335]	1636	[2543, 2544]	2635	[2227, 1660]	3634	[3070, 3890]
638	[1172, 1173]	1637	[2545, 2546]	2636	[3497, 45]	3635	[2558, 3318]
639	[1174, 1052]	1638	[2491, 2547]	2637	[3498, 1970]	3636	[3332, 2892]
640	[1175, 1176]	1639	[2548, 2549]	2638	[2261, 3421]	3637	[276, 3343]
641	[1009, 320]	1640	[1262, 2550]	2639	[685, 764]	3638	[3897, 3948]
642	[1177, 1178]	1641	[985, 1164]	2640	[3499, 2410]	3639	[3898, 3903]
643	[1179, 1180]	1642	[1244, 2551]	2641	[2293, 2291]	3640	[1410, 378]
644	[1181, 1182]	1643	[74, 2552]	2642	[3443, 2178]	3641	[3273, 3212]
645	[1183, 1184]	1644	[2553, 2554]	2643	[2468, 3500]	3642	[425, 3951]

646	[1185, 1186]	1645	[2555, 2556]	2644	[2425, 2258]	3643	[68, 3143]
647	[1187, 1188]	1646	[2557, 945]	2645	[234, 2041]	3644	[3932, 1142]
648	[1189, 29]	1647	[1023, 483]	2646	[170, 3501]	3645	[3882, 3142]
649	[1190, 1191]	1648	[260, 2558]	2647	[2105, 3354]	3646	[3952, 2641]
650	[1192, 1193]	1649	[2559, 2560]	2648	[3502, 3503]	3647	[3262, 1171]
651	[1194, 1195]	1650	[2561, 2562]	2649	[1891, 2203]	3648	[1425, 2996]
652	[1196, 1197]	1651	[311, 2563]	2650	[2223, 3504]	3649	[2949, 3040]
653	[1198, 1199]	1652	[2564, 2565]	2651	[3505, 3506]	3650	[2565, 2985]
654	[1200, 1201]	1653	[126, 2566]	2652	[2276, 2187]	3651	[3326, 3906]
655	[1202, 1203]	1654	[2567, 445]	2653	[2429, 151]	3652	[3267, 3953]
656	[1204, 1205]	1655	[346, 1152]	2654	[2466, 59]	3653	[3942, 2994]
657	[1206, 1207]	1656	[1094, 1100]	2655	[3507, 3508]	3654	[3926, 3235]
658	[1208, 1209]	1657	[1355, 2568]	2656	[823, 1702]	3655	[377, 3918]
659	[1210, 1211]	1658	[2569, 2570]	2657	[3509, 1835]	3656	[313, 3954]
660	[1212, 394]	1659	[2571, 2572]	2658	[3510, 1747]	3657	[1222, 3333]
661	[1213, 1214]	1660	[2573, 2574]	2659	[3511, 2413]	3658	[395, 3335]
662	[940, 17]	1661	[1547, 2575]	2660	[140, 3512]	3659	[1342, 3955]
663	[1215, 1216]	1662	[2576, 1140]	2661	[3513, 3514]	3660	[2616, 2900]
664	[1144, 1217]	1663	[974, 978]	2662	[2086, 247]	3661	[2591, 3178]
665	[286, 1218]	1664	[2577, 1102]	2663	[3515, 3516]	3662	[3956, 3957]
666	[1219, 1220]	1665	[2578, 2579]	2664	[3380, 733]	3663	[462, 3894]
667	[1221, 1222]	1666	[2580, 1514]	2665	[679, 2062]	3664	[2539, 3854]
668	[1223, 1224]	1667	[2581, 2582]	2666	[52, 39]	3665	[2751, 3110]
669	[1225, 1226]	1668	[2583, 2584]	2667	[2452, 3517]	3666	[1500, 3077]
670	[1227, 1228]	1669	[2585, 1419]	2668	[3518, 3519]	3667	[3939, 927]
671	[1229, 1230]	1670	[2586, 310]	2669	[2336, 3424]	3668	[3224, 1261]
672	[1231, 1232]	1671	[2587, 1026]	2670	[1776, 789]	3669	[3251, 3148]
673	[28, 1233]	1672	[1477, 2588]	2671	[2113, 3520]	3670	[3958, 3959]
674	[1234, 1235]	1673	[2589, 2590]	2672	[3521, 1904]	3671	[1178, 1276]
675	[1236, 125]	1674	[2509, 2591]	2673	[2394, 3522]	3672	[3079, 2764]
676	[1237, 1238]	1675	[2554, 2592]	2674	[2412, 3523]	3673	[1589, 1177]
677	[1239, 1240]	1676	[2593, 2594]	2675	[3524, 2283]	3674	[3960, 3275]
678	[1077, 1241]	1677	[2595, 2510]	2676	[3525, 3526]	3675	[70, 1581]
679	[431, 1242]	1678	[104, 1544]	2677	[607, 3527]	3676	[2601, 1493]
680	[1243, 1046]	1679	[2596, 2597]	2678	[3528, 1821]	3677	[1386, 361]
681	[383, 1244]	1680	[2598, 2599]	2679	[2152, 713]	3678	[3161, 3162]
682	[1245, 341]	1681	[22, 2600]	2680	[2416, 743]	3679	[3899, 465]
683	[1246, 1247]	1682	[1307, 2601]	2681	[697, 1676]	3680	[2974, 2832]
684	[1248, 1249]	1683	[2602, 2603]	2682	[2401, 3373]	3681	[3075, 3074]
685	[1250, 469]	1684	[106, 2564]	2683	[2402, 3529]	3682	[3901, 1206]
686	[1251, 1252]	1685	[2604, 2605]	2684	[3407, 165]	3683	[1586, 1455]
687	[1253, 1254]	1686	[1448, 434]	2685	[3530, 2270]	3684	[3928, 3277]
688	[1255, 384]	1687	[362, 2606]	2686	[2031, 2312]	3685	[3035, 3961]
689	[1256, 1257]	1688	[94, 64]	2687	[3531, 3532]	3686	[2645, 3165]

690	[1258, 1215]	1689	[2607, 2608]	2688	[3533, 2162]	3687	[2549, 3225]
691	[1259, 1260]	1690	[2609, 2610]	2689	[3534, 2029]	3688	[3873, 1185]
692	[1261, 1262]	1691	[2611, 1474]	2690	[1795, 3535]	3689	[3213, 3287]
693	[1263, 1264]	1692	[1233, 2567]	2691	[2020, 2149]	3690	[3954, 1459]
694	[1265, 1266]	1693	[2612, 2613]	2692	[781, 744]	3691	[3871, 2989]
695	[1267, 1268]	1694	[282, 2614]	2693	[2169, 2067]	3692	[329, 1436]
696	[1269, 67]	1695	[2615, 2616]	2694	[1984, 2156]	3693	[3883, 3962]
697	[1270, 1271]	1696	[2617, 2618]	2695	[3536, 3537]	3694	[3008, 3327]
698	[1272, 1273]	1697	[2619, 2620]	2696	[886, 183]	3695	[1058, 2708]
699	[1274, 1275]	1698	[2621, 2622]	2697	[3538, 2421]	3696	[3183, 3940]
700	[1276, 1105]	1699	[2623, 1348]	2698	[2103, 862]	3697	[2963, 3111]
701	[1277, 1278]	1700	[2624, 1579]	2699	[2246, 833]	3698	[3963, 3964]
702	[1279, 1280]	1701	[420, 2625]	2700	[3539, 2334]	3699	[3185, 3965]
703	[1281, 1282]	1702	[2626, 1562]	2701	[830, 591]	3700	[1201, 1300]
704	[1283, 966]	1703	[1461, 2627]	2702	[3540, 3541]	3701	[3863, 1566]
705	[1284, 1285]	1704	[2628, 2629]	2703	[1744, 860]	3702	[433, 3030]
706	[1004, 392]	1705	[2630, 2587]	2704	[741, 3502]	3703	[1036, 3931]
707	[268, 1286]	1706	[2631, 2632]	2705	[3542, 535]	3704	[3064, 1316]
708	[1287, 1288]	1707	[1298, 2633]	2706	[3543, 3544]	3705	[3944, 1126]
709	[1289, 1290]	1708	[1542, 2634]	2707	[2405, 3545]	3706	[2819, 2650]
710	[1291, 1292]	1709	[2635, 2630]	2708	[182, 3546]	3707	[1062, 3293]
711	[1293, 1294]	1710	[2636, 21]	2709	[595, 3547]	3708	[3951, 3876]
712	[1295, 1296]	1711	[114, 2637]	2710	[605, 2347]	3709	[1407, 3900]
713	[1297, 1298]	1712	[2638, 489]	2711	[874, 2193]	3710	[3966, 1480]
714	[1299, 1028]	1713	[2639, 2640]	2712	[3548, 2451]	3711	[3264, 3223]
715	[1275, 949]	1714	[2641, 2642]	2713	[2121, 3549]	3712	[2523, 3963]
716	[1300, 1301]	1715	[2643, 2644]	2714	[2228, 2479]	3713	[3300, 3219]
717	[1302, 1303]	1716	[1361, 2635]	2715	[2450, 3550]	3714	[2765, 1221]
718	[1304, 1305]	1717	[2592, 2645]	2716	[522, 2459]	3715	[1414, 3920]
719	[1306, 1307]	1718	[2646, 1030]	2717	[1650, 2289]	3716	[2714, 357]
720	[484, 1308]	1719	[2647, 970]	2718	[3551, 3552]	3717	[998, 3259]
721	[1309, 1310]	1720	[2648, 2649]	2719	[2287, 3553]	3718	[1363, 3156]
722	[1311, 1312]	1721	[1439, 2555]	2720	[2356, 2444]	3719	[2997, 2675]
723	[1313, 1204]	1722	[2650, 1014]	2721	[42, 3554]	3720	[3319, 2887]
724	[1314, 1315]	1723	[480, 2651]	2722	[3555, 3556]	3721	[3950, 1072]
725	[1316, 1317]	1724	[1467, 2652]	2723	[2313, 1640]	3722	[72, 1005]
726	[1318, 1084]	1725	[2653, 1001]	2724	[3557, 748]	3723	[3865, 1007]
727	[1319, 1320]	1726	[2654, 1189]	2725	[2418, 1940]	3724	[2710, 3320]
728	[1321, 1322]	1727	[2655, 485]	2726	[3558, 3559]	3725	[3292, 2636]
729	[1197, 1323]	1728	[2656, 1151]	2727	[3423, 831]	3726	[3967, 2658]
730	[1324, 1070]	1729	[295, 2657]	2728	[1849, 3560]	3727	[3879, 2827]
731	[1325, 331]	1730	[2658, 1020]	2729	[3561, 3562]	3728	[464, 3340]
732	[1326, 1327]	1731	[2659, 376]	2730	[916, 2056]	3729	[1511, 2682]
733	[1328, 1329]	1732	[2660, 2661]	2731	[3563, 837]	3730	[2850, 951]

734	[1330, 1331]	1733	[2662, 1122]	2732	[250, 2381]	3731	[3877, 2873]
735	[1329, 1332]	1734	[429, 2663]	2733	[3564, 3565]	3732	[3917, 3956]
736	[1333, 1334]	1735	[2664, 2665]	2734	[1609, 3566]	3733	[3893, 2540]
737	[301, 922]	1736	[2482, 2666]	2735	[647, 3567]	3734	[2620, 3848]
738	[1335, 1336]	1737	[2667, 2668]	2736	[3568, 2004]	3735	[1558, 97]
739	[1337, 1259]	1738	[2669, 2670]	2737	[3569, 1654]	3736	[3312, 997]
740	[1338, 308]	1739	[2671, 2672]	2738	[3570, 3498]	3737	[2926, 3092]
741	[928, 1272]	1740	[2673, 2674]	2739	[3571, 1922]	3738	[2525, 374]
742	[1339, 1340]	1741	[2675, 2676]	2740	[2470, 3456]	3739	[1121, 2803]
743	[1226, 1255]	1742	[309, 2677]	2741	[2024, 153]	3740	[3968, 3958]
744	[1341, 1342]	1743	[1521, 396]	2742	[767, 828]	3741	[1290, 2942]
745	[1343, 1344]	1744	[1406, 1515]	2743	[3572, 2189]	3742	[118, 3966]
746	[264, 1345]	1745	[2678, 2679]	2744	[3573, 1704]	3743	[3215, 2978]
747	[1346, 1347]	1746	[2680, 2681]	2745	[2400, 3446]	3744	[3969, 3943]
748	[1348, 1349]	1747	[2682, 2683]	2746	[213, 3563]	3745	[2546, 3254]
749	[1271, 1350]	1748	[2684, 1522]	2747	[3574, 3564]	3746	[2935, 2673]
750	[1351, 1352]	1749	[2685, 1392]	2748	[3567, 3575]	3747	[1498, 3309]
751	[1353, 1354]	1750	[2686, 2687]	2749	[806, 3576]	3748	[2761, 1382]
752	[1021, 1355]	1751	[2688, 2689]	2750	[3577, 3578]	3749	[2876, 2794]
753	[1356, 1357]	1752	[2690, 2691]	2751	[3367, 3579]	3750	[1136, 386]
754	[1358, 1359]	1753	[391, 2692]	2752	[546, 785]	3751	[3847, 3308]
755	[1360, 1361]	1754	[2693, 1154]	2753	[3370, 1917]	3752	[1235, 3941]
756	[1362, 1363]	1755	[2694, 2538]	2754	[3580, 622]	3753	[3245, 1417]
757	[1322, 1364]	1756	[2695, 1313]	2755	[1778, 3581]	3754	[436, 324]
758	[1365, 1366]	1757	[2696, 1239]	2756	[1927, 668]	3755	[2868, 2504]
759	[1367, 1368]	1758	[2697, 2617]	2757	[3582, 2224]	3756	[2831, 3858]
760	[1369, 1370]	1759	[2698, 2571]	2758	[3583, 2268]	3757	[1484, 3970]
761	[1371, 1372]	1760	[2699, 2700]	2759	[3584, 3585]	3758	[3955, 3967]
762	[1373, 1374]	1761	[1124, 2701]	2760	[2167, 218]	3759	[2508, 3003]
763	[1375, 1376]	1762	[2600, 2702]	2761	[3500, 3586]	3760	[1450, 1040]
764	[1377, 1378]	1763	[2703, 456]	2762	[3587, 1721]	3761	[274, 3147]
765	[1117, 1379]	1764	[389, 2704]	2763	[3588, 1949]	3762	[3924, 3184]
766	[1066, 277]	1765	[2705, 439]	2764	[3589, 3590]	3763	[2691, 365]
767	[1380, 1381]	1766	[2706, 2707]	2765	[896, 2454]	3764	[2798, 1024]
768	[1382, 1383]	1767	[2708, 1517]	2766	[3455, 3428]	3765	[3860, 3861]
769	[1347, 984]	1768	[2709, 2710]	2767	[3529, 3413]	3766	[2800, 3952]
770	[1384, 1385]	1769	[2711, 2712]	2768	[40, 3591]	3767	[3049, 2851]
771	[410, 1386]	1770	[2713, 2714]	2769	[718, 723]	3768	[319, 1086]
772	[1387, 1388]	1771	[2715, 2716]	2770	[1851, 3592]	3769	[3946, 3884]
773	[1389, 1304]	1772	[956, 2717]	2771	[871, 1636]	3770	[2849, 1570]
774	[1390, 1391]	1773	[2718, 2719]	2772	[3593, 3594]	3771	[2488, 3042]
775	[1392, 1393]	1774	[2720, 1549]	2773	[3595, 495]	3772	[2934, 401]
776	[1394, 1008]	1775	[2721, 2722]	2774	[3596, 917]	3773	[3915, 3039]
777	[1395, 1396]	1776	[2723, 2724]	2775	[1749, 774]	3774	[2872, 2839]

778	[1397, 1398]	1777	[2725, 1082]	2776	[3597, 1985]	3775	[2502, 2750]
779	[1027, 1399]	1778	[2562, 2726]	2777	[3480, 844]	3776	[26, 1367]
780	[1400, 1401]	1779	[1327, 1196]	2778	[3598, 3499]	3777	[3934, 2693]
781	[1402, 1343]	1780	[2727, 2596]	2779	[3560, 2389]	3778	[1452, 939]
782	[1403, 1404]	1781	[1150, 2728]	2780	[3599, 3600]	3779	[3855, 89]
783	[1170, 426]	1782	[2729, 1576]	2781	[3586, 3485]	3780	[3904, 3336]
784	[1405, 1406]	1783	[2730, 2731]	2782	[240, 3601]	3781	[348, 2854]
785	[1013, 1407]	1784	[2732, 2733]	2783	[3602, 3603]	3782	[3971, 481]
786	[1015, 1408]	1785	[930, 2734]	2784	[3604, 3454]	3783	[1506, 3947]
787	[1409, 1410]	1786	[987, 923]	2785	[550, 604]	3784	[3186, 2699]
788	[1051, 1411]	1787	[1254, 2735]	2786	[3488, 3475]	3785	[3330, 2688]
789	[1017, 1412]	1788	[2736, 2737]	2787	[659, 3605]	3786	[3965, 2659]
790	[1413, 1414]	1789	[2738, 2739]	2788	[3606, 3607]	3787	[3306, 3851]
791	[272, 1415]	1790	[2740, 79]	2789	[3608, 553]	3788	[2527, 1037]
792	[299, 1416]	1791	[2741, 1390]	2790	[3404, 1943]	3789	[1532, 3852]
793	[1417, 1321]	1792	[2742, 2705]	2791	[2114, 3507]	3790	[3102, 3886]
794	[1137, 1418]	1793	[1073, 2743]	2792	[58, 3405]	3791	[3032, 2768]
795	[1419, 1306]	1794	[76, 2638]	2793	[3609, 1600]	3792	[3964, 2518]
796	[1420, 1421]	1795	[2744, 2745]	2794	[2335, 2097]	3793	[3041, 3271]
797	[1422, 1423]	1796	[2746, 2730]	2795	[3610, 3521]	3794	[3916, 1092]
798	[307, 359]	1797	[2747, 2732]	2796	[3544, 1983]	3795	[1552, 3938]
799	[1424, 1425]	1798	[2748, 2749]	2797	[3611, 1876]	3796	[2944, 2801]
800	[1296, 1426]	1799	[2750, 2751]	2798	[2328, 3612]	3797	[938, 3905]
801	[1427, 1428]	1800	[280, 2752]	2799	[792, 3613]	3798	[3190, 2680]
802	[1429, 281]	1801	[2753, 2754]	2800	[1635, 3614]	3799	[3125, 3889]
803	[1430, 1431]	1802	[2704, 1551]	2801	[3615, 2198]	3800	[3103, 3119]
804	[1432, 1433]	1803	[2670, 1476]	2802	[3616, 754]	3801	[991, 3960]
805	[1434, 1435]	1804	[2755, 2756]	2803	[3617, 1880]	3802	[2485, 263]
806	[1436, 1437]	1805	[2757, 1358]	2804	[1905, 3492]	3803	[1019, 3133]
807	[1438, 1439]	1806	[2758, 2759]	2805	[3549, 3618]	3804	[2700, 1063]
808	[1440, 1441]	1807	[2760, 1440]	2806	[655, 2300]	3805	[120, 2781]
809	[1442, 1443]	1808	[2644, 2761]	2807	[3565, 3619]	3806	[1301, 2678]
810	[1444, 1274]	1809	[2762, 2763]	2808	[3620, 531]	3807	[3949, 3869]
811	[1445, 1446]	1810	[2657, 1524]	2809	[903, 2357]	3808	[3959, 1166]
812	[1447, 1448]	1811	[2498, 1223]	2810	[3621, 3622]	3809	[3164, 2976]
813	[1238, 1022]	1812	[2764, 2765]	2811	[3527, 202]	3810	[1106, 3232]
814	[1079, 1449]	1813	[2766, 2767]	2812	[3623, 3624]	3811	[3346, 3305]
815	[262, 1450]	1814	[2768, 1057]	2813	[2128, 1933]	3812	[3929, 2836]
816	[1308, 1451]	1815	[2769, 2770]	2814	[3625, 3434]	3813	[2500, 3859]
817	[444, 1452]	1816	[1184, 2771]	2815	[3626, 194]	3814	[3888, 3878]
818	[1453, 1169]	1817	[2772, 83]	2816	[248, 2133]	3815	[3911, 3153]
819	[1454, 1432]	1818	[2773, 2602]	2817	[3490, 3627]	3816	[2987, 2977]
820	[1455, 1456]	1819	[958, 2774]	2818	[3628, 3629]	3817	[2544, 1507]
821	[1457, 1458]	1820	[1536, 1291]	2819	[906, 3630]	3818	[922, 3159]

822	[1459, 1324]	1821	[1125, 2775]	2820	[3631, 902]	3819	[3150, 2907]
823	[1460, 1461]	1822	[2776, 2777]	2821	[3632, 1867]	3820	[3957, 3923]
824	[1462, 1163]	1823	[2778, 2639]	2822	[128, 3633]	3821	[3017, 2915]
825	[102, 1463]	1824	[2779, 2780]	2823	[3501, 2077]	3822	[3086, 3857]
826	[1464, 1465]	1825	[2781, 2782]	2824	[2364, 3496]	3823	[1345, 3887]
827	[1426, 1466]	1826	[2783, 2784]	2825	[1918, 3572]	3824	[1049, 1472]
828	[486, 1467]	1827	[2785, 2786]	2826	[1921, 817]	3825	[1561, 2955]
829	[1381, 1246]	1828	[2787, 2788]	2827	[3634, 3635]	3826	[3919, 3972]
830	[297, 461]	1829	[2789, 959]	2828	[236, 3636]	3827	[3192, 2736]
831	[1468, 1469]	1830	[2790, 2740]	2829	[3637, 2161]	3828	[2874, 2626]
832	[1470, 1471]	1831	[2791, 2792]	2830	[3638, 3639]	3829	[995, 3969]
833	[1472, 1473]	1832	[2793, 2499]	2831	[3640, 3641]	3830	[3930, 3230]
834	[1474, 1475]	1833	[2794, 2795]	2832	[3642, 541]	3831	[2572, 1089]
835	[1476, 1477]	1834	[2707, 2796]	2833	[2110, 2475]	3832	[3289, 2895]
836	[1478, 1479]	1835	[2797, 1050]	2834	[3386, 2170]	3833	[3196, 2783]
837	[418, 380]	1836	[1312, 2798]	2835	[3643, 1926]	3834	[948, 3202]
838	[1480, 1481]	1837	[2799, 2800]	2836	[790, 3644]	3835	[1176, 471]
839	[1482, 1483]	1838	[2801, 337]	2837	[3645, 3646]	3836	[2837, 3061]
840	[996, 1484]	1839	[2802, 1539]	2838	[1651, 3357]	3837	[3972, 3971]
841	[1372, 1485]	1840	[2803, 2804]	2839	[560, 2006]	3838	[1217, 1567]
842	[1486, 1487]	1841	[932, 2805]	2840	[3647, 2010]	3839	[3059, 3968]
843	[1488, 1076]	1842	[2806, 2807]	2841	[3635, 3453]	3840	[3970, 3325]
844	[1489, 1395]	1843	[2808, 1309]	2842	[3352, 1722]	3841	[1441, 3187]
845	[1490, 1491]	1844	[972, 2809]	2843	[3648, 2205]	3842	[3231, 2883]
846	[344, 1492]	1845	[2810, 2811]	2844	[3467, 1788]	3843	[3953, 2888]
847	[1493, 1494]	1846	[2812, 1330]	2845	[708, 1909]	3844	[3973, 161]
848	[78, 1495]	1847	[2813, 2814]	2846	[3624, 3387]	3845	[502, 690]
849	[1415, 1496]	1848	[2815, 2816]	2847	[3649, 3650]	3846	[3472, 3974]
850	[1497, 1498]	1849	[2817, 2818]	2848	[2252, 3538]	3847	[1656, 594]
851	[1499, 1500]	1850	[1207, 2819]	2849	[3550, 3651]	3848	[3975, 1965]
852	[1501, 1502]	1851	[2820, 2821]	2850	[738, 2064]	3849	[3384, 1962]
853	[1503, 1504]	1852	[64, 2822]	2851	[3652, 3653]	3850	[3700, 3786]
854	[1505, 1506]	1853	[1193, 1302]	2852	[3460, 791]	3851	[3822, 3539]
855	[1507, 1508]	1854	[2823, 1530]	2853	[2259, 231]	3852	[3445, 3731]
856	[1509, 267]	1855	[1473, 2824]	2854	[2333, 2342]	3853	[3762, 2230]
857	[1510, 1511]	1856	[1131, 2825]	2855	[3575, 141]	3854	[3552, 3728]
858	[1512, 1319]	1857	[1133, 2826]	2856	[3654, 2305]	3855	[3493, 3813]
859	[1513, 1258]	1858	[2827, 2828]	2857	[3655, 2449]	3856	[548, 1893]
860	[1514, 4]	1859	[2829, 271]	2858	[1782, 711]	3857	[246, 3649]
861	[1515, 1516]	1860	[2830, 2831]	2859	[757, 2433]	3858	[3414, 3555]
862	[1517, 953]	1861	[2774, 1489]	2860	[1613, 3351]	3859	[3974, 3403]
863	[1491, 1059]	1862	[1368, 933]	2861	[1653, 2030]	3860	[3839, 3838]
864	[1437, 1518]	1863	[2832, 1016]	2862	[3656, 731]	3861	[207, 43]
865	[1519, 1520]	1864	[2833, 2834]	2863	[3657, 3658]	3862	[2023, 2383]

866	[1383, 1521]	1865	[2835, 2778]	2864	[1954, 2191]	3863	[2055, 1775]
867	[1522, 1523]	1866	[2836, 2837]	2865	[3659, 2377]	3864	[3633, 2021]
868	[1524, 1486]	1867	[2767, 2746]	2866	[3660, 3661]	3865	[2337, 3577]
869	[1071, 1525]	1868	[2633, 2838]	2867	[3662, 3663]	3866	[1657, 758]
870	[1260, 432]	1869	[2839, 1192]	2868	[3664, 3371]	3867	[3780, 2465]
871	[1526, 1527]	1870	[2840, 1194]	2869	[3665, 719]	3868	[1624, 3739]
872	[1528, 1529]	1871	[2828, 2841]	2870	[3365, 2406]	3869	[2409, 3810]
873	[1530, 1531]	1872	[2842, 2843]	2871	[3666, 2326]	3870	[795, 521]
874	[967, 1532]	1873	[2844, 2845]	2872	[3667, 1652]	3871	[1944, 3976]
875	[1533, 1534]	1874	[327, 2846]	2873	[2196, 3491]	3872	[1792, 2160]
876	[1535, 1251]	1875	[2847, 2848]	2874	[3668, 3400]	3873	[3809, 1996]
877	[1456, 1054]	1876	[2716, 2849]	2875	[3669, 3670]	3874	[3779, 3699]
878	[1031, 1536]	1877	[1485, 2850]	2876	[2407, 3671]	3875	[3977, 3595]
879	[1537, 1538]	1878	[2851, 2852]	2877	[3519, 608]	3876	[1707, 3691]
880	[1539, 69]	1879	[2853, 115]	2878	[3672, 2428]	3877	[2316, 3623]
881	[1540, 1541]	1880	[2854, 2506]	2879	[3670, 3664]	3878	[1648, 3634]
882	[454, 1542]	1881	[2855, 2856]	2880	[191, 3673]	3879	[3978, 2371]
883	[1543, 81]	1882	[2857, 2858]	2881	[3674, 3675]	3880	[651, 1853]
884	[1508, 1351]	1883	[2796, 2859]	2882	[3676, 2477]	3881	[3726, 2118]
885	[1544, 1545]	1884	[1203, 2789]	2883	[3677, 3411]	3882	[615, 1711]
886	[1546, 1547]	1885	[2860, 413]	2884	[3678, 3648]	3883	[1811, 905]
887	[1305, 1548]	1886	[2515, 1434]	2885	[2257, 2207]	3884	[3686, 3979]
888	[1549, 1550]	1887	[2861, 2862]	2886	[3679, 626]	3885	[3980, 3360]
889	[1551, 1552]	1888	[2863, 2864]	2887	[3680, 1862]	3886	[2458, 3784]
890	[1553, 1554]	1889	[2739, 1132]	2888	[2185, 782]	3887	[516, 2260]
891	[1555, 1556]	1890	[2865, 1002]	2889	[3681, 3440]	3888	[252, 3978]
892	[1557, 1558]	1891	[2866, 1588]	2890	[530, 3666]	3889	[3772, 1916]
893	[1310, 1190]	1892	[1211, 2867]	2891	[3562, 3571]	3890	[3749, 3469]
894	[30, 415]	1893	[2824, 2631]	2892	[3444, 769]	3891	[3770, 3730]
895	[1559, 1560]	1894	[1113, 2868]	2893	[2339, 3682]	3892	[3622, 3515]
896	[1068, 1561]	1895	[926, 2869]	2894	[3683, 2307]	3893	[1901, 907]
897	[1562, 1563]	1896	[2870, 2871]	2895	[3629, 2315]	3894	[1741, 1685]
898	[1564, 99]	1897	[1583, 2872]	2896	[3684, 2358]	3895	[3976, 2000]
899	[1257, 1565]	1898	[2873, 2874]	2897	[3685, 3686]	3896	[2083, 3981]
900	[1240, 1375]	1899	[80, 388]	2898	[3639, 1958]	3897	[2084, 2044]
901	[1352, 1445]	1900	[2759, 2875]	2899	[3687, 3688]	3898	[3767, 3842]
902	[1566, 1042]	1901	[1479, 2876]	2900	[3689, 3690]	3899	[1969, 875]
903	[1567, 1568]	1902	[2877, 2878]	2901	[3691, 2236]	3900	[3766, 3587]
904	[1569, 71]	1903	[2879, 2648]	2902	[2393, 2472]	3901	[3361, 3977]
905	[1570, 1571]	1904	[2880, 2881]	2903	[3692, 2146]	3902	[3979, 2201]
906	[1572, 1187]	1905	[2882, 1337]	2904	[3435, 3693]	3903	[3663, 3820]
907	[1573, 1574]	1906	[2550, 1371]	2905	[3439, 555]	3904	[3835, 241]
908	[1280, 1575]	1907	[2883, 2884]	2906	[1832, 2218]	3905	[1861, 3737]
909	[1576, 1577]	1908	[2885, 2886]	2907	[3694, 1608]	3906	[3840, 2126]

910	[399, 1578]	1909	[2887, 1095]	2908	[3605, 1882]	3907	[3688, 3836]
911	[1153, 294]	1910	[1288, 1097]	2909	[3478, 899]	3908	[3818, 2278]
912	[1579, 73]	1911	[1428, 1389]	2910	[3695, 3394]	3909	[1688, 3482]
913	[1580, 1553]	1912	[2871, 255]	2911	[2231, 3696]	3910	[3673, 3408]
914	[1581, 421]	1913	[2672, 2497]	2912	[3382, 3374]	3911	[1923, 3752]
915	[1582, 1583]	1914	[2888, 2889]	2913	[1646, 3551]	3912	[2404, 2384]
916	[290, 1584]	1915	[2890, 2891]	2914	[2443, 3628]	3913	[3744, 3593]
917	[1585, 1586]	1916	[2892, 403]	2915	[136, 3697]	3914	[3824, 3982]
918	[979, 1587]	1917	[2893, 2894]	2916	[3698, 798]	3915	[2070, 3777]
919	[1588, 1589]	1918	[2895, 1146]	2917	[2186, 131]	3916	[1725, 537]
920	[1590, 1591]	1919	[2896, 2897]	2918	[1827, 3669]	3917	[705, 517]
921	[1592, 1593]	1920	[2898, 2899]	2919	[3579, 3531]	3918	[2266, 1902]
922	[1594, 1595]	1921	[993, 2748]	2920	[3699, 3700]	3919	[2028, 3390]
923	[1596, 1597]	1922	[2900, 2901]	2921	[3701, 3631]	3920	[3614, 3735]
924	[1598, 1599]	1923	[2902, 2903]	2922	[3650, 3702]	3921	[1848, 220]
925	[1600, 1601]	1924	[2570, 2904]	2923	[3703, 1814]	3922	[3420, 214]
926	[1602, 1603]	1925	[2574, 2905]	2924	[3704, 3617]	3923	[3983, 643]
927	[1604, 1605]	1926	[2906, 1572]	2925	[2235, 3705]	3924	[2478, 3811]
928	[1606, 1607]	1927	[2513, 1270]	2926	[2282, 2473]	3925	[3355, 3804]
929	[1608, 1609]	1928	[2579, 1109]	2927	[3706, 3584]	3926	[843, 580]
930	[1610, 251]	1929	[2907, 1269]	2928	[3707, 2396]	3927	[3433, 3668]
931	[1611, 691]	1930	[2908, 1528]	2929	[3708, 3709]	3928	[1973, 3667]
932	[1612, 1613]	1931	[2909, 2910]	2930	[2012, 3710]	3929	[3566, 3640]
933	[1614, 1615]	1932	[2911, 2912]	2931	[3711, 1777]	3930	[3416, 3764]
934	[1616, 1617]	1933	[2913, 2695]	2932	[3712, 3713]	3931	[2271, 1665]
935	[1618, 1619]	1934	[1273, 1580]	2933	[3714, 2298]	3932	[1854, 717]
936	[1620, 228]	1935	[2914, 1289]	2934	[2155, 766]	3933	[692, 3815]
937	[1621, 1622]	1936	[2915, 2916]	2935	[2327, 3657]	3934	[504, 620]
938	[1623, 1624]	1937	[2529, 2917]	2936	[3522, 3715]	3935	[3682, 3385]
939	[912, 35]	1938	[2918, 2685]	2937	[1714, 3716]	3936	[3828, 3477]
940	[1625, 37]	1939	[2841, 1569]	2938	[1622, 2107]	3937	[3619, 3509]
941	[1626, 1627]	1940	[971, 2919]	2939	[1784, 2352]	3938	[3356, 3789]
942	[1628, 873]	1941	[1578, 2920]	2940	[3393, 545]	3939	[38, 2366]
943	[1629, 1630]	1942	[2921, 2922]	2941	[3717, 1935]	3940	[1967, 3796]
944	[1631, 539]	1943	[321, 2643]	2942	[2137, 2037]	3941	[1981, 3450]
945	[1632, 1633]	1944	[1029, 351]	2943	[3718, 3615]	3942	[3431, 2469]
946	[1634, 1635]	1945	[2923, 2924]	2944	[2314, 654]	3943	[1997, 3689]
947	[1636, 1637]	1946	[2925, 2926]	2945	[1936, 3608]	3944	[3843, 1913]
948	[1638, 1639]	1947	[1143, 2927]	2946	[1920, 2229]	3945	[569, 3396]
949	[1640, 173]	1948	[2928, 1503]	2947	[2016, 3719]	3946	[3734, 3980]
950	[1641, 1642]	1949	[2929, 2863]	2948	[2269, 2147]	3947	[3982, 3827]
951	[1643, 682]	1950	[1220, 2930]	2949	[1789, 3621]	3948	[3981, 3596]
952	[56, 1644]	1951	[2531, 2931]	2950	[2438, 3720]	3949	[645, 3676]
953	[1645, 1646]	1952	[2492, 2720]	2951	[3721, 578]	3950	[3833, 1825]

954	[1647, 1648]	1953	[1278, 2932]	2952	[3722, 559]	3951	[2353, 3518]
955	[1649, 1650]	1954	[2536, 1010]	2953	[1868, 2361]	3952	[3613, 1621]
956	[536, 1651]	1955	[373, 2933]	2954	[3449, 3609]	3953	[3769, 3681]
957	[1652, 1653]	1956	[2542, 2934]	2955	[1603, 3723]	3954	[599, 3672]
958	[1654, 756]	1957	[2917, 2935]	2956	[3724, 2440]	3955	[3729, 3510]
959	[1655, 1656]	1958	[2936, 2937]	2957	[3349, 1790]	3956	[2074, 3983]
960	[518, 574]	1959	[2938, 1283]	2958	[3725, 3726]	3957	[3675, 3570]
961	[753, 1657]	1960	[1047, 2939]	2959	[3727, 3685]	3958	[1735, 2171]
962	[1658, 1659]	1961	[288, 1158]	2960	[3728, 3540]	3959	[2151, 3975]
963	[1660, 1661]	1962	[2687, 2813]	2961	[1630, 167]	3960	[1619, 1658]
964	[1662, 1663]	1963	[2940, 1208]	2962	[3723, 1897]	3961	[3474, 208]
965	[665, 1664]	1964	[387, 2941]	2963	[3481, 1730]	3962	[3526, 1990]
966	[1665, 1666]	1965	[2942, 1213]	2964	[2150, 1732]	3963	[2436, 3598]
967	[1667, 1668]	1966	[2943, 2944]	2965	[2262, 3729]	3964	[3388, 3701]
968	[1669, 181]	1967	[946, 2799]	2966	[3730, 2430]	3965	[2214, 894]
969	[1670, 1671]	1968	[2737, 957]	2967	[3731, 3732]	3966	[3418, 3606]
970	[1672, 1673]	1969	[315, 1535]	2968	[3733, 57]	3967	[3710, 2071]
971	[1674, 1675]	1970	[2945, 2946]	2969	[736, 2427]	3968	[818, 3528]
972	[1676, 693]	1971	[2947, 2921]	2970	[2346, 3734]	3969	[3591, 3597]
973	[1677, 1678]	1972	[1374, 1148]	2971	[3556, 2360]	3970	[1815, 3610]
974	[1679, 1680]	1973	[1096, 2938]	2972	[3735, 47]	3971	[3487, 2329]
975	[745, 1681]	1974	[1000, 1442]	2973	[3395, 49]	3972	[148, 3759]
976	[881, 1645]	1975	[448, 1333]	2974	[3719, 1740]	3973	[3984, 322]
977	[1682, 1683]	1976	[2948, 1297]	2975	[1910, 592]	3974	[2903, 2660]
978	[884, 1684]	1977	[2642, 2949]	2976	[2204, 3736]	3975	[2517, 2755]
979	[1685, 1686]	1978	[2950, 2951]	2977	[3737, 3707]	3976	[2809, 1590]
980	[1687, 1688]	1979	[2952, 2953]	2978	[3716, 1810]	3977	[2990, 925]
981	[1689, 1690]	1980	[2954, 2612]	2979	[3738, 188]	3978	[2862, 279]
982	[1691, 529]	1981	[2955, 2667]	2980	[3378, 2215]	3979	[3961, 103]
983	[1692, 1693]	1982	[2956, 1546]	2981	[3739, 1839]	3980	[3885, 1120]
984	[1694, 1695]	1983	[2957, 1103]	2982	[3399, 1781]	3981	[3066, 2830]
985	[500, 1696]	1984	[2958, 2959]	2983	[1881, 1610]	3982	[3132, 3100]
986	[1697, 1698]	1985	[2960, 2526]	2984	[1642, 627]	3983	[3962, 1181]
987	[763, 1598]	1986	[2961, 2772]	2985	[588, 3740]	3984	[3985, 627]
988	[625, 1699]	1987	[2962, 2963]	2986	[3741, 3742]	3985	[3986, 1156]
989	[1700, 1701]	1988	[2964, 2965]	2987	[1769, 3724]	3986	[3987, 1939]
990	[1702, 1703]	1989	[2966, 2967]	2988	[2036, 639]	3987	[3988, 373]
991	[1704, 169]	1990	[2968, 2802]	2989	[3452, 2391]	3988	[3989, 3714]
992	[154, 1705]	1991	[2852, 2969]	2990	[3504, 1602]	3989	[3990, 3230]
993	[1706, 1707]	1992	[2970, 2971]	2991	[62, 2408]	3990	[3991, 3618]
994	[771, 1708]	1993	[2972, 2973]	2992	[1903, 3569]	3991	[3992, 1053]
995	[1709, 1710]	1994	[2848, 2974]	2993	[3743, 2144]	3992	[1, 1955]
996	[777, 543]	1995	[2975, 304]	2994	[3363, 3588]		
997	[1711, 1712]	1996	[1264, 2840]	2995	[759, 3680]		

998	[1713, 1714]	1997	[2976, 2758]	2996	[2308, 3524]		

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	666	1	1332	0	1998	1	2664	1	3330	0
1	0	667	0	1333	1	1999	1	2665	0	3331	1
2	1	668	0	1334	0	2000	1	2666	1	3332	1
3	0	669	0	1335	0	2001	1	2667	0	3333	0
4	1	670	0	1336	0	2002	1	2668	0	3334	1
5	1	671	1	1337	0	2003	0	2669	1	3335	0
6	0	672	1	1338	0	2004	0	2670	0	3336	0
7	0	673	0	1339	1	2005	1	2671	1	3337	0
8	0	674	1	1340	0	2006	0	2672	1	3338	1
9	1	675	0	1341	0	2007	0	2673	0	3339	1
10	1	676	1	1342	1	2008	0	2674	0	3340	1
11	1	677	1	1343	0	2009	0	2675	0	3341	1
12	1	678	0	1344	1	2010	1	2676	0	3342	0
13	0	679	0	1345	1	2011	1	2677	0	3343	1
14	0	680	0	1346	0	2012	1	2678	0	3344	0
15	0	681	0	1347	0	2013	1	2679	1	3345	0
16	0	682	1	1348	1	2014	0	2680	0	3346	0
17	0	683	0	1349	1	2015	0	2681	1	3347	0
18	0	684	1	1350	0	2016	0	2682	0	3348	0
19	1	685	1	1351	1	2017	0	2683	1	3349	1
20	0	686	0	1352	0	2018	1	2684	1	3350	1
21	1	687	1	1353	0	2019	0	2685	0	3351	1
22	1	688	1	1354	0	2020	0	2686	1	3352	0
23	1	689	0	1355	1	2021	0	2687	1	3353	1
24	0	690	0	1356	0	2022	1	2688	0	3354	0
25	1	691	0	1357	1	2023	1	2689	1	3355	1
26	1	692	1	1358	1	2024	1	2690	1	3356	0
27	0	693	1	1359	1	2025	1	2691	0	3357	0
28	0	694	0	1360	0	2026	1	2692	0	3358	1
29	0	695	0	1361	1	2027	1	2693	1	3359	0
30	1	696	1	1362	1	2028	1	2694	0	3360	1
31	0	697	1	1363	0	2029	1	2695	1	3361	0
32	1	698	0	1364	1	2030	1	2696	1	3362	1
33	0	699	0	1365	1	2031	1	2697	1	3363	0
34	1	700	1	1366	1	2032	1	2698	1	3364	0
35	0	701	0	1367	0	2033	0	2699	1	3365	1
36	1	702	1	1368	1	2034	1	2700	0	3366	0
37	0	703	1	1369	1	2035	0	2701	0	3367	1
38	1	704	0	1370	1	2036	0	2702	0	3368	1
39	1	705	1	1371	0	2037	1	2703	0	3369	0

40	1	706	1	1372	1	2038	1	2704	1	3370	1
41	0	707	1	1373	1	2039	1	2705	0	3371	0
42	1	708	0	1374	1	2040	0	2706	0	3372	0
43	1	709	0	1375	0	2041	1	2707	1	3373	0
44	1	710	1	1376	1	2042	1	2708	0	3374	1
45	1	711	0	1377	1	2043	1	2709	0	3375	1
46	0	712	0	1378	0	2044	1	2710	0	3376	0
47	1	713	1	1379	0	2045	1	2711	1	3377	1
48	1	714	0	1380	0	2046	1	2712	0	3378	1
49	0	715	0	1381	0	2047	0	2713	0	3379	0
50	1	716	1	1382	1	2048	1	2714	1	3380	1
51	1	717	1	1383	1	2049	1	2715	0	3381	0
52	1	718	1	1384	1	2050	1	2716	0	3382	1
53	1	719	1	1385	0	2051	0	2717	1	3383	1
54	0	720	1	1386	0	2052	0	2718	0	3384	0
55	0	721	0	1387	0	2053	1	2719	1	3385	1
56	0	722	1	1388	0	2054	0	2720	0	3386	0
57	0	723	1	1389	0	2055	0	2721	1	3387	0
58	0	724	0	1390	1	2056	1	2722	1	3388	0
59	0	725	1	1391	0	2057	1	2723	0	3389	1
60	1	726	0	1392	0	2058	0	2724	1	3390	0
61	1	727	1	1393	0	2059	1	2725	1	3391	1
62	0	728	1	1394	0	2060	1	2726	1	3392	1
63	0	729	1	1395	1	2061	0	2727	0	3393	1
64	0	730	0	1396	0	2062	0	2728	0	3394	1
65	1	731	1	1397	1	2063	1	2729	1	3395	0
66	1	732	0	1398	0	2064	1	2730	0	3396	1
67	0	733	0	1399	0	2065	0	2731	1	3397	1
68	1	734	1	1400	1	2066	1	2732	1	3398	1
69	1	735	1	1401	1	2067	1	2733	1	3399	0
70	0	736	1	1402	0	2068	1	2734	1	3400	1
71	0	737	1	1403	1	2069	0	2735	1	3401	0
72	1	738	0	1404	0	2070	0	2736	1	3402	1
73	1	739	0	1405	0	2071	1	2737	0	3403	1
74	1	740	0	1406	0	2072	1	2738	0	3404	1
75	0	741	1	1407	1	2073	1	2739	0	3405	1
76	1	742	1	1408	0	2074	0	2740	1	3406	1
77	1	743	1	1409	0	2075	1	2741	1	3407	1
78	1	744	0	1410	1	2076	1	2742	0	3408	0
79	1	745	0	1411	0	2077	0	2743	0	3409	0
80	1	746	0	1412	1	2078	1	2744	1	3410	1
81	1	747	0	1413	1	2079	1	2745	0	3411	1
82	0	748	1	1414	0	2080	0	2746	0	3412	0
83	0	749	0	1415	1	2081	1	2747	0	3413	0

84	0	750	1	1416	0	2082	0	2748	1	3414	1
85	1	751	0	1417	0	2083	0	2749	0	3415	0
86	1	752	0	1418	1	2084	0	2750	0	3416	1
87	1	753	0	1419	1	2085	1	2751	1	3417	1
88	0	754	1	1420	0	2086	1	2752	0	3418	1
89	1	755	0	1421	0	2087	0	2753	1	3419	0
90	0	756	1	1422	1	2088	1	2754	1	3420	1
91	1	757	0	1423	0	2089	1	2755	0	3421	0
92	1	758	1	1424	0	2090	1	2756	1	3422	1
93	0	759	0	1425	0	2091	1	2757	0	3423	0
94	1	760	1	1426	1	2092	0	2758	1	3424	1
95	1	761	0	1427	0	2093	1	2759	1	3425	0
96	1	762	1	1428	0	2094	0	2760	1	3426	1
97	1	763	0	1429	0	2095	1	2761	0	3427	0
98	0	764	1	1430	0	2096	0	2762	1	3428	1
99	0	765	0	1431	1	2097	0	2763	0	3429	0
100	0	766	1	1432	1	2098	0	2764	1	3430	0
101	1	767	0	1433	1	2099	1	2765	0	3431	1
102	1	768	1	1434	0	2100	0	2766	0	3432	0
103	1	769	0	1435	0	2101	0	2767	1	3433	1
104	0	770	1	1436	0	2102	1	2768	1	3434	0
105	1	771	1	1437	0	2103	1	2769	1	3435	0
106	0	772	0	1438	0	2104	0	2770	0	3436	1
107	1	773	0	1439	1	2105	1	2771	1	3437	1
108	1	774	1	1440	1	2106	1	2772	0	3438	0
109	0	775	0	1441	1	2107	0	2773	0	3439	1
110	0	776	0	1442	1	2108	1	2774	0	3440	0
111	0	777	1	1443	1	2109	1	2775	0	3441	0
112	1	778	1	1444	0	2110	0	2776	1	3442	0
113	0	779	0	1445	1	2111	1	2777	0	3443	1
114	1	780	1	1446	1	2112	1	2778	0	3444	0
115	0	781	0	1447	1	2113	1	2779	1	3445	1
116	1	782	1	1448	0	2114	0	2780	0	3446	1
117	0	783	0	1449	1	2115	0	2781	0	3447	0
118	0	784	0	1450	0	2116	0	2782	1	3448	1
119	0	785	1	1451	1	2117	1	2783	0	3449	1
120	0	786	1	1452	1	2118	0	2784	1	3450	1
121	1	787	0	1453	1	2119	1	2785	1	3451	0
122	1	788	1	1454	1	2120	1	2786	0	3452	0
123	1	789	0	1455	0	2121	0	2787	1	3453	1
124	0	790	1	1456	1	2122	0	2788	0	3454	1
125	0	791	1	1457	0	2123	1	2789	1	3455	0
126	1	792	0	1458	1	2124	1	2790	1	3456	0
127	0	793	0	1459	0	2125	1	2791	0	3457	1

128	0	794	1	1460	0	2126	1	2792	0	3458	0
129	0	795	1	1461	0	2127	1	2793	1	3459	0
130	1	796	0	1462	0	2128	1	2794	0	3460	1
131	1	797	1	1463	0	2129	0	2795	1	3461	1
132	1	798	0	1464	1	2130	0	2796	0	3462	1
133	1	799	0	1465	1	2131	0	2797	1	3463	1
134	1	800	0	1466	1	2132	1	2798	1	3464	0
135	0	801	0	1467	0	2133	1	2799	0	3465	0
136	1	802	0	1468	0	2134	0	2800	1	3466	0
137	1	803	0	1469	1	2135	0	2801	1	3467	1
138	0	804	1	1470	1	2136	0	2802	1	3468	0
139	1	805	0	1471	1	2137	0	2803	1	3469	1
140	0	806	0	1472	0	2138	0	2804	1	3470	1
141	0	807	0	1473	1	2139	1	2805	1	3471	1
142	1	808	1	1474	1	2140	0	2806	1	3472	1
143	0	809	1	1475	1	2141	1	2807	1	3473	0
144	0	810	0	1476	0	2142	0	2808	0	3474	0
145	1	811	1	1477	1	2143	1	2809	0	3475	0
146	1	812	1	1478	1	2144	0	2810	1	3476	0
147	1	813	1	1479	0	2145	1	2811	1	3477	1
148	1	814	1	1480	0	2146	1	2812	1	3478	1
149	1	815	0	1481	1	2147	1	2813	1	3479	1
150	1	816	1	1482	1	2148	1	2814	1	3480	0
151	0	817	1	1483	1	2149	0	2815	0	3481	0
152	0	818	1	1484	1	2150	0	2816	1	3482	1
153	1	819	1	1485	0	2151	1	2817	0	3483	0
154	1	820	0	1486	0	2152	1	2818	0	3484	0
155	1	821	0	1487	1	2153	0	2819	1	3485	0
156	1	822	0	1488	0	2154	1	2820	0	3486	1
157	1	823	0	1489	0	2155	0	2821	1	3487	0
158	1	824	0	1490	1	2156	1	2822	0	3488	0
159	1	825	1	1491	0	2157	1	2823	1	3489	0
160	0	826	1	1492	0	2158	0	2824	0	3490	0
161	1	827	1	1493	1	2159	1	2825	1	3491	0
162	0	828	0	1494	1	2160	0	2826	0	3492	1
163	1	829	0	1495	1	2161	0	2827	0	3493	1
164	1	830	0	1496	0	2162	1	2828	1	3494	0
165	0	831	0	1497	0	2163	1	2829	0	3495	0
166	1	832	1	1498	0	2164	0	2830	0	3496	1
167	0	833	0	1499	0	2165	0	2831	1	3497	0
168	1	834	1	1500	1	2166	1	2832	0	3498	1
169	0	835	0	1501	0	2167	1	2833	0	3499	0
170	0	836	1	1502	0	2168	1	2834	0	3500	0
171	1	837	1	1503	0	2169	1	2835	1	3501	1

172	0	838	0	1504	1	2170	0	2836	1	3502	0
173	1	839	1	1505	1	2171	1	2837	0	3503	1
174	0	840	1	1506	0	2172	1	2838	0	3504	0
175	1	841	1	1507	0	2173	0	2839	0	3505	1
176	1	842	0	1508	1	2174	0	2840	0	3506	0
177	0	843	0	1509	1	2175	1	2841	1	3507	1
178	1	844	0	1510	0	2176	0	2842	0	3508	1
179	1	845	1	1511	0	2177	0	2843	0	3509	0
180	0	846	0	1512	0	2178	0	2844	1	3510	0
181	0	847	1	1513	1	2179	1	2845	0	3511	0
182	0	848	1	1514	1	2180	0	2846	1	3512	0
183	1	849	1	1515	1	2181	0	2847	0	3513	1
184	0	850	0	1516	0	2182	0	2848	1	3514	1
185	1	851	0	1517	0	2183	0	2849	1	3515	0
186	0	852	0	1518	0	2184	1	2850	0	3516	1
187	0	853	0	1519	1	2185	1	2851	1	3517	0
188	1	854	1	1520	0	2186	1	2852	1	3518	0
189	1	855	0	1521	1	2187	1	2853	0	3519	1
190	1	856	1	1522	0	2188	0	2854	0	3520	0
191	0	857	0	1523	1	2189	0	2855	1	3521	1
192	1	858	0	1524	1	2190	0	2856	0	3522	0
193	1	859	1	1525	1	2191	0	2857	0	3523	0
194	1	860	1	1526	1	2192	0	2858	1	3524	0
195	0	861	1	1527	1	2193	0	2859	0	3525	0
196	0	862	0	1528	1	2194	0	2860	0	3526	0
197	1	863	0	1529	1	2195	1	2861	1	3527	1
198	0	864	0	1530	0	2196	0	2862	0	3528	0
199	1	865	1	1531	0	2197	1	2863	0	3529	1
200	0	866	1	1532	0	2198	0	2864	0	3530	0
201	1	867	0	1533	0	2199	1	2865	1	3531	1
202	1	868	1	1534	1	2200	0	2866	1	3532	1
203	1	869	0	1535	1	2201	0	2867	0	3533	0
204	1	870	1	1536	0	2202	1	2868	0	3534	1
205	0	871	1	1537	0	2203	1	2869	1	3535	0
206	1	872	1	1538	0	2204	1	2870	1	3536	1
207	0	873	0	1539	1	2205	0	2871	1	3537	1
208	0	874	1	1540	0	2206	1	2872	1	3538	1
209	1	875	0	1541	1	2207	1	2873	0	3539	0
210	1	876	1	1542	0	2208	0	2874	1	3540	0
211	1	877	1	1543	1	2209	1	2875	1	3541	0
212	0	878	0	1544	1	2210	1	2876	1	3542	0
213	0	879	0	1545	0	2211	0	2877	1	3543	0
214	1	880	1	1546	1	2212	1	2878	1	3544	0
215	0	881	0	1547	1	2213	1	2879	1	3545	0

216	1	882	1	1548	0	2214	1	2880	0	3546	1
217	1	883	1	1549	1	2215	0	2881	1	3547	0
218	0	884	1	1550	0	2216	1	2882	1	3548	0
219	0	885	1	1551	1	2217	0	2883	0	3549	1
220	0	886	1	1552	0	2218	0	2884	0	3550	1
221	1	887	1	1553	0	2219	1	2885	1	3551	0
222	0	888	1	1554	0	2220	1	2886	0	3552	0
223	0	889	1	1555	0	2221	1	2887	0	3553	0
224	1	890	0	1556	0	2222	1	2888	1	3554	0
225	0	891	0	1557	0	2223	1	2889	0	3555	1
226	0	892	0	1558	0	2224	1	2890	1	3556	0
227	0	893	0	1559	0	2225	1	2891	1	3557	1
228	1	894	1	1560	0	2226	0	2892	0	3558	1
229	0	895	0	1561	0	2227	0	2893	0	3559	0
230	1	896	0	1562	1	2228	1	2894	0	3560	1
231	1	897	1	1563	1	2229	1	2895	1	3561	1
232	0	898	1	1564	1	2230	0	2896	1	3562	1
233	0	899	0	1565	1	2231	1	2897	0	3563	1
234	0	900	1	1566	1	2232	1	2898	0	3564	1
235	0	901	0	1567	0	2233	0	2899	0	3565	1
236	1	902	1	1568	0	2234	1	2900	0	3566	0
237	0	903	0	1569	0	2235	1	2901	1	3567	1
238	1	904	0	1570	1	2236	1	2902	1	3568	1
239	0	905	1	1571	1	2237	1	2903	1	3569	0
240	1	906	1	1572	1	2238	0	2904	0	3570	0
241	1	907	0	1573	0	2239	1	2905	1	3571	0
242	1	908	1	1574	1	2240	1	2906	1	3572	0
243	1	909	1	1575	1	2241	1	2907	1	3573	1
244	0	910	1	1576	1	2242	1	2908	0	3574	0
245	1	911	1	1577	1	2243	0	2909	1	3575	1
246	1	912	0	1578	1	2244	1	2910	0	3576	0
247	0	913	1	1579	0	2245	1	2911	1	3577	0
248	1	914	1	1580	1	2246	1	2912	1	3578	0
249	0	915	1	1581	1	2247	0	2913	1	3579	0
250	1	916	0	1582	1	2248	1	2914	1	3580	1
251	1	917	0	1583	0	2249	1	2915	1	3581	1
252	0	918	0	1584	1	2250	1	2916	0	3582	0
253	0	919	0	1585	0	2251	0	2917	1	3583	1
254	1	920	1	1586	0	2252	1	2918	1	3584	1
255	0	921	0	1587	0	2253	0	2919	0	3585	0
256	0	922	0	1588	0	2254	0	2920	0	3586	0
257	0	923	0	1589	1	2255	0	2921	0	3587	1
258	0	924	0	1590	1	2256	0	2922	1	3588	0
259	1	925	1	1591	1	2257	1	2923	0	3589	1

260	0	926	0	1592	0	2258	1	2924	1	3590	1
261	1	927	0	1593	1	2259	0	2925	1	3591	0
262	0	928	1	1594	0	2260	0	2926	1	3592	0
263	1	929	0	1595	1	2261	1	2927	1	3593	0
264	0	930	0	1596	0	2262	0	2928	0	3594	1
265	1	931	0	1597	1	2263	0	2929	0	3595	0
266	1	932	0	1598	0	2264	0	2930	1	3596	0
267	1	933	0	1599	1	2265	1	2931	1	3597	1
268	1	934	1	1600	1	2266	0	2932	0	3598	0
269	0	935	0	1601	0	2267	0	2933	0	3599	0
270	0	936	1	1602	0	2268	0	2934	0	3600	1
271	1	937	0	1603	0	2269	0	2935	1	3601	0
272	1	938	0	1604	0	2270	0	2936	0	3602	0
273	1	939	0	1605	1	2271	1	2937	1	3603	0
274	1	940	0	1606	1	2272	0	2938	1	3604	1
275	0	941	0	1607	0	2273	1	2939	1	3605	0
276	0	942	0	1608	0	2274	0	2940	1	3606	0
277	1	943	1	1609	1	2275	0	2941	1	3607	0
278	1	944	1	1610	0	2276	0	2942	0	3608	1
279	0	945	1	1611	0	2277	1	2943	0	3609	1
280	0	946	0	1612	0	2278	0	2944	0	3610	1
281	0	947	0	1613	0	2279	1	2945	1	3611	1
282	1	948	1	1614	0	2280	0	2946	0	3612	1
283	1	949	0	1615	0	2281	0	2947	0	3613	0
284	0	950	0	1616	1	2282	1	2948	0	3614	1
285	0	951	1	1617	1	2283	0	2949	0	3615	1
286	1	952	0	1618	0	2284	0	2950	1	3616	1
287	0	953	0	1619	1	2285	0	2951	0	3617	1
288	0	954	1	1620	1	2286	0	2952	1	3618	0
289	1	955	0	1621	0	2287	1	2953	0	3619	1
290	0	956	1	1622	1	2288	1	2954	1	3620	0
291	1	957	0	1623	0	2289	1	2955	0	3621	1
292	1	958	1	1624	1	2290	1	2956	0	3622	0
293	0	959	1	1625	0	2291	0	2957	1	3623	1
294	1	960	1	1626	0	2292	1	2958	0	3624	1
295	0	961	0	1627	1	2293	1	2959	0	3625	1
296	1	962	0	1628	0	2294	1	2960	1	3626	0
297	0	963	0	1629	1	2295	1	2961	0	3627	1
298	1	964	0	1630	0	2296	0	2962	1	3628	0
299	0	965	1	1631	1	2297	1	2963	0	3629	1
300	0	966	1	1632	1	2298	0	2964	0	3630	0
301	1	967	1	1633	0	2299	1	2965	0	3631	0
302	0	968	1	1634	0	2300	0	2966	0	3632	1
303	0	969	1	1635	1	2301	1	2967	1	3633	1

304	1	970	1	1636	0	2302	0	2968	0	3634	0
305	0	971	1	1637	0	2303	1	2969	1	3635	1
306	1	972	1	1638	1	2304	0	2970	1	3636	1
307	0	973	1	1639	0	2305	0	2971	0	3637	0
308	1	974	0	1640	0	2306	0	2972	0	3638	0
309	0	975	0	1641	0	2307	0	2973	0	3639	0
310	1	976	0	1642	1	2308	0	2974	0	3640	1
311	0	977	0	1643	1	2309	0	2975	0	3641	1
312	1	978	1	1644	1	2310	0	2976	1	3642	0
313	0	979	0	1645	0	2311	1	2977	1	3643	1
314	1	980	0	1646	1	2312	0	2978	1	3644	1
315	0	981	0	1647	1	2313	0	2979	0	3645	0
316	1	982	0	1648	0	2314	0	2980	1	3646	0
317	0	983	1	1649	0	2315	1	2981	0	3647	0
318	0	984	1	1650	1	2316	1	2982	0	3648	0
319	0	985	0	1651	0	2317	1	2983	1	3649	0
320	1	986	1	1652	0	2318	0	2984	1	3650	1
321	0	987	0	1653	1	2319	0	2985	0	3651	1
322	0	988	1	1654	1	2320	0	2986	0	3652	1
323	1	989	0	1655	1	2321	1	2987	1	3653	1
324	1	990	0	1656	0	2322	0	2988	0	3654	0
325	1	991	0	1657	1	2323	0	2989	0	3655	0
326	1	992	1	1658	0	2324	1	2990	0	3656	0
327	0	993	0	1659	0	2325	1	2991	0	3657	0
328	0	994	1	1660	0	2326	1	2992	1	3658	0
329	1	995	0	1661	1	2327	1	2993	0	3659	1
330	0	996	1	1662	0	2328	1	2994	0	3660	1
331	0	997	1	1663	0	2329	0	2995	0	3661	0
332	1	998	1	1664	0	2330	1	2996	0	3662	0
333	1	999	0	1665	1	2331	1	2997	0	3663	1
334	1	1000	0	1666	0	2332	1	2998	0	3664	0
335	0	1001	1	1667	1	2333	0	2999	1	3665	1
336	1	1002	0	1668	0	2334	0	3000	0	3666	1
337	0	1003	0	1669	1	2335	0	3001	0	3667	1
338	0	1004	1	1670	1	2336	1	3002	0	3668	1
339	1	1005	1	1671	1	2337	1	3003	1	3669	1
340	1	1006	0	1672	1	2338	0	3004	1	3670	1
341	0	1007	0	1673	1	2339	0	3005	0	3671	1
342	1	1008	1	1674	1	2340	1	3006	1	3672	1
343	1	1009	0	1675	0	2341	1	3007	1	3673	1
344	0	1010	1	1676	1	2342	0	3008	1	3674	1
345	0	1011	0	1677	1	2343	1	3009	1	3675	0
346	1	1012	0	1678	0	2344	0	3010	1	3676	1
347	1	1013	1	1679	0	2345	0	3011	1	3677	0

348	0	1014	0	1680	1	2346	1	3012	0	3678	0
349	1	1015	1	1681	1	2347	0	3013	0	3679	0
350	1	1016	0	1682	0	2348	1	3014	1	3680	0
351	0	1017	0	1683	0	2349	0	3015	0	3681	0
352	1	1018	1	1684	0	2350	0	3016	0	3682	0
353	1	1019	0	1685	0	2351	0	3017	0	3683	0
354	0	1020	0	1686	0	2352	1	3018	1	3684	1
355	1	1021	0	1687	0	2353	0	3019	0	3685	0
356	0	1022	1	1688	1	2354	1	3020	1	3686	0
357	0	1023	1	1689	0	2355	0	3021	0	3687	0
358	1	1024	1	1690	1	2356	0	3022	1	3688	0
359	0	1025	1	1691	0	2357	0	3023	1	3689	0
360	1	1026	0	1692	1	2358	0	3024	0	3690	0
361	0	1027	0	1693	0	2359	1	3025	1	3691	1
362	0	1028	1	1694	1	2360	1	3026	1	3692	1
363	1	1029	1	1695	1	2361	1	3027	1	3693	1
364	1	1030	0	1696	1	2362	0	3028	0	3694	1
365	0	1031	0	1697	1	2363	1	3029	0	3695	0
366	1	1032	0	1698	0	2364	0	3030	1	3696	0
367	1	1033	1	1699	0	2365	0	3031	0	3697	0
368	0	1034	0	1700	0	2366	1	3032	0	3698	0
369	0	1035	0	1701	0	2367	0	3033	1	3699	0
370	1	1036	0	1702	0	2368	1	3034	0	3700	0
371	0	1037	0	1703	0	2369	1	3035	0	3701	0
372	1	1038	0	1704	0	2370	0	3036	0	3702	1
373	1	1039	0	1705	1	2371	0	3037	0	3703	0
374	1	1040	0	1706	0	2372	0	3038	0	3704	1
375	0	1041	0	1707	1	2373	1	3039	0	3705	0
376	1	1042	1	1708	0	2374	1	3040	1	3706	1
377	0	1043	1	1709	0	2375	1	3041	1	3707	0
378	0	1044	1	1710	0	2376	1	3042	1	3708	0
379	0	1045	0	1711	1	2377	1	3043	1	3709	1
380	1	1046	0	1712	1	2378	1	3044	1	3710	1
381	1	1047	0	1713	1	2379	0	3045	1	3711	1
382	1	1048	1	1714	1	2380	1	3046	0	3712	0
383	0	1049	1	1715	0	2381	0	3047	1	3713	0
384	1	1050	1	1716	1	2382	0	3048	1	3714	0
385	1	1051	1	1717	1	2383	1	3049	0	3715	0
386	0	1052	1	1718	0	2384	0	3050	0	3716	1
387	0	1053	0	1719	1	2385	0	3051	1	3717	1
388	0	1054	1	1720	0	2386	1	3052	1	3718	0
389	0	1055	0	1721	1	2387	1	3053	1	3719	0
390	1	1056	1	1722	1	2388	1	3054	1	3720	1
391	0	1057	0	1723	0	2389	0	3055	1	3721	0

392	0	1058	0	1724	0	2390	1	3056	1	3722	1
393	1	1059	1	1725	0	2391	0	3057	1	3723	1
394	1	1060	0	1726	0	2392	0	3058	1	3724	0
395	0	1061	1	1727	1	2393	1	3059	1	3725	0
396	1	1062	0	1728	0	2394	0	3060	1	3726	1
397	1	1063	0	1729	0	2395	0	3061	1	3727	0
398	1	1064	1	1730	0	2396	1	3062	1	3728	1
399	1	1065	0	1731	0	2397	0	3063	1	3729	0
400	1	1066	1	1732	0	2398	0	3064	1	3730	0
401	1	1067	1	1733	1	2399	1	3065	0	3731	1
402	1	1068	0	1734	1	2400	0	3066	0	3732	1
403	0	1069	0	1735	1	2401	0	3067	0	3733	0
404	0	1070	0	1736	0	2402	1	3068	0	3734	0
405	1	1071	0	1737	0	2403	0	3069	1	3735	0
406	0	1072	1	1738	1	2404	1	3070	0	3736	1
407	1	1073	0	1739	1	2405	1	3071	0	3737	1
408	0	1074	1	1740	0	2406	1	3072	1	3738	0
409	1	1075	1	1741	0	2407	1	3073	1	3739	0
410	1	1076	1	1742	0	2408	1	3074	1	3740	1
411	1	1077	0	1743	1	2409	1	3075	0	3741	0
412	1	1078	0	1744	0	2410	0	3076	1	3742	0
413	1	1079	1	1745	0	2411	1	3077	0	3743	0
414	0	1080	0	1746	0	2412	0	3078	0	3744	0
415	0	1081	1	1747	0	2413	1	3079	1	3745	1
416	1	1082	0	1748	1	2414	0	3080	1	3746	1
417	0	1083	0	1749	0	2415	1	3081	0	3747	0
418	1	1084	1	1750	1	2416	0	3082	1	3748	0
419	1	1085	1	1751	0	2417	1	3083	1	3749	1
420	0	1086	0	1752	1	2418	1	3084	1	3750	1
421	0	1087	1	1753	0	2419	1	3085	1	3751	0
422	0	1088	1	1754	1	2420	1	3086	1	3752	1
423	0	1089	0	1755	0	2421	0	3087	1	3753	1
424	1	1090	1	1756	1	2422	1	3088	1	3754	0
425	0	1091	0	1757	1	2423	1	3089	1	3755	0
426	0	1092	1	1758	1	2424	0	3090	1	3756	1
427	1	1093	1	1759	1	2425	0	3091	1	3757	1
428	0	1094	0	1760	1	2426	0	3092	0	3758	0
429	1	1095	0	1761	0	2427	1	3093	0	3759	1
430	0	1096	1	1762	1	2428	1	3094	1	3760	0
431	0	1097	0	1763	0	2429	0	3095	0	3761	1
432	1	1098	1	1764	0	2430	0	3096	0	3762	0
433	1	1099	1	1765	0	2431	1	3097	1	3763	0
434	0	1100	0	1766	0	2432	0	3098	0	3764	1
435	0	1101	0	1767	0	2433	1	3099	0	3765	1

436	0	1102	0	1768	0	2434	1	3100	0	3766	1
437	1	1103	0	1769	1	2435	1	3101	0	3767	0
438	0	1104	0	1770	0	2436	0	3102	0	3768	0
439	0	1105	1	1771	0	2437	0	3103	0	3769	0
440	0	1106	0	1772	1	2438	1	3104	1	3770	1
441	0	1107	0	1773	0	2439	0	3105	1	3771	1
442	0	1108	1	1774	0	2440	1	3106	1	3772	0
443	0	1109	0	1775	1	2441	0	3107	0	3773	0
444	1	1110	1	1776	0	2442	0	3108	1	3774	1
445	1	1111	0	1777	1	2443	1	3109	0	3775	0
446	1	1112	1	1778	0	2444	0	3110	0	3776	1
447	0	1113	1	1779	1	2445	1	3111	0	3777	1
448	0	1114	0	1780	0	2446	0	3112	0	3778	1
449	1	1115	0	1781	0	2447	0	3113	1	3779	1
450	1	1116	0	1782	1	2448	1	3114	1	3780	0
451	1	1117	0	1783	0	2449	0	3115	0	3781	0
452	0	1118	0	1784	1	2450	0	3116	0	3782	0
453	0	1119	1	1785	0	2451	0	3117	1	3783	0
454	1	1120	1	1786	0	2452	0	3118	1	3784	1
455	1	1121	0	1787	0	2453	1	3119	0	3785	0
456	0	1122	0	1788	1	2454	1	3120	0	3786	1
457	1	1123	0	1789	0	2455	1	3121	1	3787	0
458	0	1124	0	1790	1	2456	0	3122	1	3788	0
459	1	1125	0	1791	1	2457	1	3123	1	3789	0
460	1	1126	1	1792	0	2458	0	3124	1	3790	0
461	0	1127	1	1793	0	2459	1	3125	0	3791	0
462	1	1128	1	1794	1	2460	0	3126	0	3792	0
463	1	1129	0	1795	1	2461	1	3127	1	3793	1
464	1	1130	0	1796	0	2462	0	3128	1	3794	0
465	0	1131	1	1797	0	2463	0	3129	0	3795	0
466	0	1132	0	1798	1	2464	1	3130	1	3796	0
467	1	1133	0	1799	0	2465	1	3131	0	3797	0
468	0	1134	0	1800	0	2466	0	3132	1	3798	1
469	1	1135	0	1801	1	2467	1	3133	0	3799	0
470	1	1136	1	1802	1	2468	0	3134	1	3800	0
471	1	1137	1	1803	0	2469	1	3135	1	3801	0
472	1	1138	1	1804	0	2470	1	3136	1	3802	1
473	1	1139	1	1805	0	2471	1	3137	0	3803	0
474	1	1140	0	1806	1	2472	1	3138	1	3804	0
475	0	1141	1	1807	1	2473	1	3139	0	3805	0
476	0	1142	1	1808	0	2474	1	3140	0	3806	0
477	1	1143	1	1809	1	2475	0	3141	0	3807	1
478	1	1144	1	1810	0	2476	1	3142	0	3808	1
479	1	1145	1	1811	1	2477	0	3143	0	3809	0

480	0	1146	1	1812	1	2478	0	3144	0	3810	0
481	0	1147	1	1813	0	2479	1	3145	0	3811	0
482	1	1148	0	1814	1	2480	1	3146	1	3812	0
483	1	1149	0	1815	1	2481	0	3147	1	3813	0
484	1	1150	0	1816	1	2482	0	3148	1	3814	0
485	0	1151	1	1817	0	2483	1	3149	0	3815	1
486	0	1152	0	1818	0	2484	0	3150	0	3816	1
487	1	1153	1	1819	1	2485	1	3151	0	3817	0
488	1	1154	1	1820	0	2486	0	3152	1	3818	0
489	1	1155	1	1821	0	2487	0	3153	0	3819	0
490	1	1156	0	1822	1	2488	1	3154	1	3820	0
491	0	1157	1	1823	0	2489	1	3155	0	3821	0
492	0	1158	1	1824	1	2490	0	3156	0	3822	1
493	0	1159	0	1825	0	2491	1	3157	1	3823	1
494	0	1160	0	1826	0	2492	1	3158	0	3824	1
495	1	1161	1	1827	1	2493	0	3159	1	3825	0
496	0	1162	1	1828	1	2494	1	3160	1	3826	1
497	0	1163	0	1829	1	2495	0	3161	0	3827	1
498	0	1164	1	1830	1	2496	0	3162	0	3828	1
499	0	1165	0	1831	0	2497	0	3163	0	3829	0
500	0	1166	0	1832	1	2498	1	3164	0	3830	1
501	0	1167	0	1833	0	2499	1	3165	0	3831	1
502	0	1168	1	1834	1	2500	0	3166	0	3832	1
503	0	1169	1	1835	1	2501	1	3167	1	3833	0
504	1	1170	0	1836	0	2502	0	3168	0	3834	1
505	1	1171	0	1837	0	2503	1	3169	1	3835	0
506	1	1172	1	1838	1	2504	0	3170	1	3836	0
507	0	1173	1	1839	1	2505	0	3171	1	3837	1
508	0	1174	1	1840	1	2506	0	3172	0	3838	1
509	1	1175	0	1841	0	2507	0	3173	1	3839	1
510	0	1176	0	1842	1	2508	1	3174	1	3840	1
511	0	1177	1	1843	0	2509	1	3175	0	3841	1
512	0	1178	1	1844	1	2510	0	3176	1	3842	0
513	1	1179	0	1845	1	2511	0	3177	1	3843	0
514	0	1180	1	1846	1	2512	0	3178	1	3844	0
515	0	1181	0	1847	1	2513	1	3179	1	3845	0
516	0	1182	0	1848	0	2514	0	3180	0	3846	1
517	1	1183	1	1849	0	2515	0	3181	1	3847	0
518	1	1184	1	1850	1	2516	1	3182	1	3848	1
519	1	1185	1	1851	0	2517	1	3183	0	3849	0
520	1	1186	0	1852	0	2518	1	3184	1	3850	0
521	1	1187	1	1853	0	2519	0	3185	0	3851	1
522	0	1188	0	1854	1	2520	0	3186	1	3852	1
523	1	1189	1	1855	1	2521	1	3187	1	3853	0

524	1	1190	1	1856	1	2522	1	3188	1	3854	0
525	0	1191	1	1857	0	2523	0	3189	0	3855	1
526	0	1192	0	1858	0	2524	1	3190	1	3856	1
527	0	1193	0	1859	0	2525	0	3191	1	3857	1
528	0	1194	0	1860	0	2526	1	3192	1	3858	1
529	1	1195	1	1861	0	2527	0	3193	1	3859	1
530	1	1196	1	1862	1	2528	0	3194	1	3860	1
531	1	1197	1	1863	0	2529	1	3195	1	3861	0
532	0	1198	0	1864	0	2530	1	3196	0	3862	1
533	1	1199	0	1865	1	2531	1	3197	0	3863	0
534	1	1200	0	1866	1	2532	1	3198	0	3864	1
535	1	1201	0	1867	1	2533	1	3199	1	3865	1
536	1	1202	1	1868	0	2534	1	3200	1	3866	1
537	0	1203	0	1869	0	2535	1	3201	1	3867	0
538	1	1204	0	1870	0	2536	0	3202	0	3868	1
539	0	1205	1	1871	1	2537	1	3203	0	3869	1
540	1	1206	1	1872	0	2538	0	3204	0	3870	1
541	1	1207	1	1873	1	2539	0	3205	0	3871	1
542	0	1208	1	1874	0	2540	0	3206	0	3872	0
543	1	1209	1	1875	0	2541	1	3207	1	3873	0
544	1	1210	1	1876	0	2542	1	3208	0	3874	1
545	0	1211	1	1877	0	2543	0	3209	0	3875	0
546	0	1212	1	1878	1	2544	0	3210	1	3876	1
547	0	1213	0	1879	0	2545	0	3211	0	3877	1
548	1	1214	1	1880	0	2546	1	3212	0	3878	0
549	0	1215	1	1881	1	2547	1	3213	0	3879	0
550	1	1216	1	1882	0	2548	0	3214	1	3880	0
551	1	1217	1	1883	0	2549	0	3215	0	3881	1
552	0	1218	1	1884	0	2550	0	3216	0	3882	0
553	1	1219	1	1885	0	2551	1	3217	0	3883	1
554	0	1220	1	1886	0	2552	1	3218	0	3884	0
555	0	1221	0	1887	1	2553	1	3219	0	3885	1
556	1	1222	0	1888	0	2554	0	3220	1	3886	0
557	0	1223	0	1889	0	2555	0	3221	0	3887	0
558	1	1224	1	1890	1	2556	0	3222	0	3888	0
559	0	1225	0	1891	1	2557	1	3223	1	3889	0
560	0	1226	1	1892	1	2558	1	3224	1	3890	1
561	0	1227	0	1893	0	2559	0	3225	0	3891	1
562	1	1228	1	1894	1	2560	1	3226	1	3892	0
563	1	1229	1	1895	0	2561	1	3227	0	3893	0
564	0	1230	0	1896	1	2562	0	3228	0	3894	0
565	1	1231	1	1897	0	2563	1	3229	1	3895	0
566	1	1232	0	1898	0	2564	0	3230	0	3896	0
567	1	1233	1	1899	1	2565	1	3231	0	3897	0

568	1	1234	1	1900	1	2566	0	3232	0	3898	0
569	0	1235	1	1901	0	2567	1	3233	1	3899	0
570	0	1236	0	1902	1	2568	1	3234	0	3900	1
571	1	1237	1	1903	1	2569	0	3235	0	3901	0
572	1	1238	1	1904	0	2570	1	3236	0	3902	0
573	1	1239	1	1905	1	2571	0	3237	0	3903	1
574	0	1240	1	1906	0	2572	1	3238	0	3904	0
575	0	1241	1	1907	0	2573	0	3239	0	3905	0
576	1	1242	1	1908	1	2574	0	3240	1	3906	1
577	0	1243	0	1909	0	2575	0	3241	1	3907	0
578	0	1244	1	1910	0	2576	0	3242	0	3908	0
579	1	1245	1	1911	0	2577	0	3243	1	3909	1
580	1	1246	0	1912	1	2578	1	3244	0	3910	1
581	1	1247	0	1913	1	2579	1	3245	1	3911	1
582	0	1248	1	1914	1	2580	0	3246	0	3912	1
583	0	1249	0	1915	1	2581	1	3247	0	3913	0
584	0	1250	1	1916	0	2582	1	3248	1	3914	1
585	1	1251	0	1917	0	2583	0	3249	1	3915	0
586	0	1252	1	1918	1	2584	0	3250	0	3916	0
587	0	1253	1	1919	1	2585	1	3251	1	3917	1
588	0	1254	0	1920	0	2586	1	3252	1	3918	0
589	0	1255	1	1921	0	2587	1	3253	1	3919	1
590	1	1256	0	1922	0	2588	1	3254	1	3920	1
591	1	1257	0	1923	1	2589	1	3255	0	3921	0
592	0	1258	0	1924	1	2590	1	3256	1	3922	1
593	0	1259	0	1925	0	2591	0	3257	0	3923	0
594	1	1260	1	1926	1	2592	1	3258	1	3924	0
595	0	1261	1	1927	1	2593	1	3259	0	3925	1
596	0	1262	0	1928	1	2594	1	3260	1	3926	0
597	0	1263	1	1929	1	2595	1	3261	1	3927	1
598	1	1264	0	1930	0	2596	0	3262	0	3928	1
599	0	1265	0	1931	1	2597	1	3263	0	3929	0
600	0	1266	1	1932	1	2598	1	3264	1	3930	1
601	0	1267	0	1933	1	2599	0	3265	0	3931	1
602	1	1268	1	1934	0	2600	1	3266	0	3932	1
603	0	1269	1	1935	1	2601	1	3267	1	3933	1
604	0	1270	1	1936	1	2602	0	3268	1	3934	1
605	0	1271	0	1937	1	2603	0	3269	0	3935	0
606	1	1272	0	1938	1	2604	0	3270	1	3936	1
607	0	1273	0	1939	1	2605	0	3271	1	3937	1
608	0	1274	0	1940	1	2606	1	3272	1	3938	0
609	1	1275	0	1941	1	2607	0	3273	1	3939	1
610	1	1276	1	1942	0	2608	1	3274	0	3940	0
611	1	1277	0	1943	0	2609	1	3275	1	3941	0

612	0	1278	1	1944	1	2610	1	3276	1	3942	1
613	0	1279	1	1945	0	2611	0	3277	0	3943	1
614	1	1280	1	1946	1	2612	0	3278	0	3944	0
615	0	1281	1	1947	1	2613	1	3279	0	3945	0
616	0	1282	0	1948	0	2614	0	3280	1	3946	0
617	1	1283	0	1949	0	2615	1	3281	1	3947	1
618	0	1284	1	1950	1	2616	1	3282	0	3948	0
619	1	1285	0	1951	1	2617	1	3283	0	3949	1
620	0	1286	1	1952	1	2618	0	3284	1	3950	0
621	0	1287	0	1953	1	2619	1	3285	0	3951	0
622	1	1288	0	1954	0	2620	0	3286	0	3952	0
623	0	1289	0	1955	1	2621	0	3287	1	3953	0
624	0	1290	0	1956	1	2622	1	3288	0	3954	0
625	1	1291	1	1957	1	2623	0	3289	1	3955	0
626	0	1292	1	1958	0	2624	0	3290	1	3956	0
627	1	1293	0	1959	1	2625	0	3291	1	3957	0
628	0	1294	1	1960	0	2626	0	3292	0	3958	1
629	1	1295	0	1961	0	2627	1	3293	0	3959	1
630	1	1296	0	1962	1	2628	0	3294	1	3960	1
631	1	1297	1	1963	1	2629	0	3295	0	3961	0
632	0	1298	1	1964	0	2630	1	3296	0	3962	0
633	1	1299	0	1965	0	2631	0	3297	1	3963	0
634	0	1300	1	1966	0	2632	1	3298	1	3964	0
635	0	1301	0	1967	0	2633	0	3299	1	3965	1
636	1	1302	1	1968	0	2634	1	3300	0	3966	1
637	0	1303	0	1969	0	2635	0	3301	0	3967	1
638	1	1304	1	1970	1	2636	0	3302	0	3968	1
639	1	1305	1	1971	0	2637	1	3303	0	3969	0
640	0	1306	1	1972	1	2638	1	3304	1	3970	1
641	0	1307	0	1973	1	2639	1	3305	1	3971	0
642	1	1308	1	1974	0	2640	0	3306	0	3972	1
643	0	1309	0	1975	0	2641	1	3307	1	3973	0
644	0	1310	0	1976	0	2642	1	3308	1	3974	1
645	1	1311	1	1977	1	2643	0	3309	1	3975	1
646	1	1312	0	1978	1	2644	0	3310	0	3976	0
647	1	1313	1	1979	1	2645	0	3311	0	3977	0
648	1	1314	0	1980	1	2646	0	3312	1	3978	0
649	1	1315	1	1981	0	2647	1	3313	1	3979	0
650	0	1316	1	1982	0	2648	0	3314	1	3980	1
651	0	1317	1	1983	1	2649	1	3315	0	3981	0
652	1	1318	0	1984	0	2650	1	3316	0	3982	1
653	0	1319	1	1985	1	2651	1	3317	1	3983	0
654	0	1320	0	1986	0	2652	0	3318	0	3984	0
655	1	1321	1	1987	1	2653	0	3319	1	3985	0

656	0	1322	0	1988	0	2654	0	3320	0	3986	0
657	1	1323	1	1989	0	2655	1	3321	0	3987	0
658	1	1324	0	1990	0	2656	0	3322	0	3988	0
659	1	1325	1	1991	1	2657	0	3323	1	3989	0
660	1	1326	0	1992	1	2658	0	3324	0	3990	0
661	0	1327	1	1993	0	2659	0	3325	0	3991	0
662	0	1328	0	1994	1	2660	0	3326	1	3992	0
663	1	1329	1	1995	0	2661	1	3327	0		
664	1	1330	1	1996	0	2662	1	3328	1		
665	1	1331	0	1997	1	2663	0	3329	0		

Université de Strasbourg, CNRS, IRMA UMR 7501, F-67000 Strasbourg, France
Email address: `guoniu.han@unistra.fr`

School of Mathematics and Statistics, Huazhong University of Science and Technology, Wuhan, PR China
Email address: `huyining@hust.edu.cn`