PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a, b) = (z^3 + z, z^4 + z^3 + z^2 + 1)$

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Abstract. The continued fraction conjecture claims that the continued fraction defined by the (a, b)-Thue-Morse sequence is algebraic over $\mathbb{F}_2(x)$ for all pairs of distinct elements (a, b) in $\mathbb{F}_2[x] \setminus \mathbb{F}_2$. In this paper we prove the conjecture for $(a, b) = (z^3 + z, z^4 + z^3 + z^2 + 1)$.

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

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

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Theorem 1.1. *When* $(a,b) = (z^3+z, z^4+z^3+z^2+1)$*, 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 $\mathrm{CF}(a,b)$*,*

$$\begin{aligned}
p_0(z) &= z^{17} + z^{16} + z^{15} + z^{13} + z^{12} + z^{10} + z^8 + z^7 + z^2 + z + 1,\\
p_1(z) &= z^{21} + z^{20} + z^{14} + z^{13} + z^{11} + z^{10} + z^9 + z^8 + z^4 + z^3 + z^2 + z,\\
p_2(z) &= z^{24} + z^{18} + z^{16} + z^{12} + z^8 + z^2,\\
p_3(z) &= z^{21} + z^{20} + z^{14} + z^{13} + z^{11} + z^{10} + z^9 + z^8 + z^4 + z^3 + z^2 + z,\\
p_4(z) &= z^{18} + z^{17} + z^{15} + z^{13} + z^{10} + z^7 + z^4 + z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z) &= z^{17} + z^{16} + z^{15} + z^{13} + z^{10} + z^7 + z^2 + z,\\
p_1(z) &= z^{21} + z^{20} + z^{14} + z^{13} + z^{11} + z^{10} + z^9 + z^8 + z^4 + z^3 + z^2 + z,\\
p_2(z) &= z^{24} + z^{18} + z^{16} + z^{12} + z^8 + z^2,\\
p_3(z) &= z^{21} + z^{20} + z^{14} + z^{13} + z^{11} + z^{10} + z^9 + z^8 + z^4 + z^3 + z^2 + z,\\
p_4(z) &= z^{18} + z^{17} + z^{15} + z^{13} + z^{12} + z^{10} + z^8 + z^7 + z^4 + z + 1.
\end{aligned}$$

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

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

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

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

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

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

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

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

for some positive integer d_n. Hence,

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

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

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

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

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

of the vector

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

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

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

Lemma 2.1. *We have*

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

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

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

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

Proof. We give the proof of the identity

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

the proofs of the others being similar.

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

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

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

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

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

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

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

Define

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

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

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

$$+ x^{4u}W^e[:7u] + x^{5u}W^e[:6u] + x^{7u}W^e[:4u] + x^{10u}W^e[:4u] + (x^{7u} + x^{8u} + x^{9u} + x^{11u})R^e.$$

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

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

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

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

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

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

which can be rewritten as

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.8}$$

$$0 = T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1001w]_2], \tag{2.9}$$

$$0 = T[[w]_2] + T[[11w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.10}$$

$$0 = T[[1w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[10w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[11w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.15}$$

$$0 = T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1001w]_2], \tag{2.16}$$

$$0 = T[[w]_2] + T[[11w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.17}$$

$$0 = T[[1w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[10w]_2] + T[[1100w]_2], \tag{2.19}$$

$$0 = T[[11w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4823 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

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 111)), \tag{2.21}$$

$$\begin{aligned} 0 = {} & \tau(A(s, 1)) + \tau(A(s, 100)) + \tau(A(s, 101)) + \tau(A(s, 110)) \\ & + \tau(A(s, 1000)), \end{aligned} \tag{2.22}$$

$$0 = \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 101)) + \tau(A(s, 1001)), \tag{2.23}$$

$$\begin{aligned} 0 = {} & \tau(A(s, \epsilon)) + \tau(A(s, 11)) + \tau(A(s, 101)) + \tau(A(s, 110)) \\ & + \tau(A(s, 1010)), \end{aligned} \tag{2.24}$$

$$0 = \tau(A(s, 1)) + \tau(A(s, 1011)), \tag{2.25}$$

$$0 = \tau(A(s, 10)) + \tau(A(s, 1100)), \tag{2.26}$$

$$0 = \tau(A(s, 11)) + \tau(A(s, 1101)), \tag{2.27}$$

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

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 111)), \tag{2.28}$$

$$\begin{aligned} 0 = {} & \tau(A(s, 1)) + \tau(A(s, 100)) + \tau(A(s, 101)) + \tau(A(s, 110)) \\ & + \tau(A(s, 1000)), \end{aligned} \tag{2.29}$$

$$0 = \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 101)) + \tau(A(s, 1001)), \tag{2.30}$$

$$\begin{aligned} 0 = {} & \tau(A(s, \epsilon)) + \tau(A(s, 11)) + \tau(A(s, 101)) + \tau(A(s, 110)) \\ & + \tau(A(s, 1010)), \end{aligned} \tag{2.31}$$

$$0 = \tau(A(s, 1)) + \tau(A(s, 1011)), \tag{2.32}$$

$$0 = \tau(A(s, 10)) + \tau(A(s, 1100)), \tag{2.33}$$

$$0 = \tau(A(s, 11)) + \tau(A(s, 1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{24}), E_{24}) = (A(i, 0^{22}), E_{22})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \leq k \leq 12$, 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 $k \geq 2$, and $u = 2^{2k-1}$,*

$$M_{2k} = M^e[:7u] + x^u M^e[:6u] + x^{3u} M^e[:4u] + x^{7u} R^e,$$
$$W_{2k} = W^e[:7u] + x^u W^e[:6u] + x^{3u} W^e[:4u] + x^{7u} R^e.$$

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

$$M_{2k+1} = M^o[:7u] + x^u M^o[:6u] + x^{3u} M^o[:4u] + x^{7u} R^o,$$
$$W_{2k+1} = W^o[:7u] + x^u W^o[:6u] + x^{3u} W^o[:4u] + x^{7u} R^o.$$

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

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

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

$$W^e[:14v] M^e[:14v] + x^{2v} W^e[:12v] M^e[:12v] + x^{6v} W^e[:8v] M^e[:8v].$$

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

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

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

$$\lim_{n \to \infty} M_{2n,j,k} = M^e_{j,k},$$

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

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

$$q_0(x) = x^{24} + x^{23} + x^{22} + x^{17} + x^{16} + x^{14} + x^{12} + x^{11} + x^9 + x^8 + x^7,$$
$$q_1(x) = x^{23} + x^{22} + x^{21} + x^{20} + x^{16} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^4 + x^3,$$
$$q_2(x) = x^{22} + x^{16} + x^{12} + x^8 + x^6 + 1,$$
$$q_3(x) = x^{23} + x^{22} + x^{21} + x^{20} + x^{16} + x^{15} + x^{14} + x^{13} + x^{11} + x^{10} + x^4 + x^3,$$
$$q_4(x) = x^{23} + x^{20} + x^{17} + x^{14} + x^{11} + x^9 + x^7 + x^6.$$

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

3. Annexe

All 16 polynomials are of the form

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

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

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

$$\begin{aligned} p_0(x) = {} & x^{132} + x^{130} + x^{126} + x^{122} + x^{118} + x^{114} + x^{110} + x^{108} + x^{104} + x^{96} \\ & + x^{94} + x^{92} + x^{90} + x^{86} + x^{84} + x^{80} + x^{76} + x^{74} + x^{70} + x^{60} + x^{58} \\ & + x^{48} + x^{44} + x^{42} + x^{36}, \\ p_3(x) = {} & x^{122} + x^{120} + x^{114} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104} + x^{98} + x^{96} \\ & + x^{94} + x^{88} + x^{80} + x^{78} + x^{74} + x^{64} + x^{58} + x^{56} + x^{54} + x^{52} + x^{44} \\ & + x^{40} + x^{36} + x^{30} + x^{28} + x^{24} + x^{22} + x^{20}, \end{aligned}$$

$$\begin{aligned}
p_6(x) &= x^{128} + x^{126} + x^{124} + x^{122} + x^{118} + x^{114} + x^{102} + x^{96} + x^{86} + x^{78}\\
&\quad + x^{76} + x^{74} + x^{72} + x^{70} + x^{54} + x^{50} + x^{44} + x^{42} + x^{40} + x^{36} + x^{32}\\
&\quad + x^{28} + x^{24} + x^{22} + x^{14} + x^{12} + x^{8} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{130} + x^{126} + x^{124} + x^{118} + x^{116} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104}\\
&\quad + x^{100} + x^{98} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{72} + x^{70}\\
&\quad + x^{66} + x^{64} + x^{62} + x^{58} + x^{56} + x^{52} + x^{46} + x^{40} + x^{38} + x^{36} + x^{34}\\
&\quad + x^{30} + x^{24} + x^{16} + x^{12} + x^{10} + x^{6},\\
p_{12}(x) &= x^{130} + x^{128} + x^{106} + x^{104} + x^{90} + x^{88} + x^{82} + x^{80} + x^{34} + x^{32} + x^{18}\\
&\quad + x^{16} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{127} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118}\\
&\quad + x^{115} + x^{113} + x^{110} + x^{109} + x^{107} + x^{106} + x^{104} + x^{103} + x^{101}\\
&\quad + x^{100} + x^{99} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{86} + x^{82} + x^{81} + x^{80}\\
&\quad + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{66} + x^{64} + x^{63} + x^{62}\\
&\quad + x^{61} + x^{58} + x^{56} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44}\\
&\quad + x^{41} + x^{40} + x^{39},\\
p_3(x) &= x^{127} + x^{126} + x^{124} + x^{120} + x^{119} + x^{117} + x^{115} + x^{114} + x^{113} + x^{111}\\
&\quad + x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95}\\
&\quad + x^{85} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{75} + x^{69} + x^{68} + x^{66}\\
&\quad + x^{65} + x^{64} + x^{63} + x^{62} + x^{59} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{46}\\
&\quad + x^{45} + x^{42} + x^{41} + x^{38} + x^{36} + x^{32} + x^{30} + x^{27},\\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{120} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110}\\
&\quad + x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95}\\
&\quad + x^{94} + x^{93} + x^{91} + x^{87} + x^{85} + x^{84} + x^{76} + x^{73} + x^{71} + x^{70} + x^{66}\\
&\quad + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&\quad + x^{51} + x^{50} + x^{42} + x^{39} + x^{37} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27}\\
&\quad + x^{26} + x^{24} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{118} + x^{117} + x^{114} + x^{113} + x^{111}\\
&\quad + x^{105} + x^{104} + x^{103} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95} + x^{89} + x^{88}\\
&\quad + x^{86} + x^{83} + x^{81} + x^{80} + x^{78} + x^{74} + x^{72} + x^{71} + x^{70} + x^{66} + x^{64}\\
&\quad + x^{60} + x^{59} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{46} + x^{45}\\
&\quad + x^{44} + x^{41} + x^{37} + x^{36} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{22} + x^{20}\\
&\quad + x^{19} + x^{18} + x^{17} + x^{16} + x^{12} + x^{11} + x^{9},\\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}
\end{aligned}$$

$$+ x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81} + x^{80} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{127} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118}\\
&\quad + x^{115} + x^{113} + x^{110} + x^{109} + x^{107} + x^{106} + x^{104} + x^{103} + x^{101}\\
&\quad + x^{100} + x^{99} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{86} + x^{82} + x^{81} + x^{80}\\
&\quad + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{66} + x^{64} + x^{63} + x^{62}\\
&\quad + x^{61} + x^{58} + x^{56} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44}\\
&\quad + x^{41} + x^{40} + x^{39},\\
p_3(x) &= x^{127} + x^{126} + x^{124} + x^{120} + x^{119} + x^{117} + x^{115} + x^{114} + x^{113} + x^{111}\\
&\quad + x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95}\\
&\quad + x^{85} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{75} + x^{69} + x^{68} + x^{66}\\
&\quad + x^{65} + x^{64} + x^{63} + x^{62} + x^{59} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{46}\\
&\quad + x^{45} + x^{42} + x^{41} + x^{38} + x^{36} + x^{32} + x^{30} + x^{27},\\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{120} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110}\\
&\quad + x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95}\\
&\quad + x^{94} + x^{93} + x^{91} + x^{87} + x^{85} + x^{84} + x^{76} + x^{73} + x^{71} + x^{70} + x^{66}\\
&\quad + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&\quad + x^{51} + x^{50} + x^{42} + x^{39} + x^{37} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27}\\
&\quad + x^{26} + x^{24} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{118} + x^{117} + x^{114} + x^{113} + x^{111}\\
&\quad + x^{105} + x^{104} + x^{103} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95} + x^{89} + x^{88}\\
&\quad + x^{86} + x^{83} + x^{81} + x^{80} + x^{78} + x^{74} + x^{72} + x^{71} + x^{70} + x^{66} + x^{64}\\
&\quad + x^{60} + x^{59} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{46} + x^{45}\\
&\quad + x^{44} + x^{41} + x^{37} + x^{36} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{22} + x^{20}\\
&\quad + x^{19} + x^{18} + x^{17} + x^{16} + x^{12} + x^{11} + x^{9},\\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}\\
&\quad + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&\quad + x^{80} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5}\\
&\quad + x^{2} + x + 1,
\end{aligned}$$

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

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

$$p_0(x) = x^{126} + x^{122} + x^{118} + x^{116} + x^{96} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} + x^{76}$$

$$
\begin{aligned}
&+ x^{72} + x^{66} + x^{60} + x^{58} + x^{56} + x^{52} + x^{48} + x^{46} + x^{44} + x^{42},\\
p_3(x) &= x^{120} + x^{116} + x^{114} + x^{110} + x^{98} + x^{92} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80}\\
&+ x^{78} + x^{76} + x^{72} + x^{68} + x^{62} + x^{60} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46}\\
&+ x^{42} + x^{38} + x^{36} + x^{32} + x^{24} + x^{18},\\
p_6(x) &= x^{120} + x^{118} + x^{116} + x^{114} + x^{112} + x^{106} + x^{102} + x^{94} + x^{92} + x^{84}\\
&+ x^{82} + x^{78} + x^{76} + x^{70} + x^{64} + x^{62} + x^{58} + x^{56} + x^{50} + x^{46} + x^{44}\\
&+ x^{40} + x^{38} + x^{36} + x^{34} + x^{26} + x^{24} + x^{20} + x^{10} + x^{8} + x^{4} + 1,\\
p_9(x) &= x^{118} + x^{114} + x^{110} + x^{102} + x^{100} + x^{90} + x^{86} + x^{82} + x^{76} + x^{74} + x^{72}\\
&+ x^{64} + x^{60} + x^{58} + x^{56} + x^{54} + x^{48} + x^{44} + x^{36} + x^{34} + x^{24} + x^{22}\\
&+ x^{18} + x^{14} + x^{12} + x^{10} + x^{8} + x^{6},\\
p_{12}(x) &= x^{118} + x^{116} + x^{112} + x^{86} + x^{84} + x^{80} + x^{22} + x^{20} + x^{16} + x^{6} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{126} + x^{120} + x^{110} + x^{108} + x^{106} + x^{102} + x^{100} + x^{86} + x^{84} + x^{80}\\
&+ x^{78} + x^{76} + x^{70} + x^{62} + x^{56} + x^{52} + x^{46} + x^{38} + x^{36},\\
p_3(x) &= x^{120} + x^{114} + x^{112} + x^{108} + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94}\\
&+ x^{90} + x^{88} + x^{86} + x^{78} + x^{74} + x^{68} + x^{66} + x^{58} + x^{56} + x^{54} + x^{42}\\
&+ x^{40} + x^{38} + x^{34} + x^{32} + x^{20},\\
p_6(x) &= x^{120} + x^{118} + x^{112} + x^{108} + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94}\\
&+ x^{90} + x^{86} + x^{84} + x^{82} + x^{72} + x^{66} + x^{60} + x^{58} + x^{46} + x^{44} + x^{40}\\
&+ x^{36} + x^{34} + x^{28} + x^{26} + x^{22} + x^{20} + x^{12} + x^{10} + x^{8} + x^{4} + 1,\\
p_9(x) &= x^{118} + x^{114} + x^{110} + x^{102} + x^{100} + x^{90} + x^{86} + x^{82} + x^{76} + x^{74} + x^{72}\\
&+ x^{64} + x^{60} + x^{58} + x^{56} + x^{54} + x^{48} + x^{44} + x^{36} + x^{34} + x^{24} + x^{22}\\
&+ x^{18} + x^{14} + x^{12} + x^{10} + x^{8} + x^{6},\\
p_{12}(x) &= x^{118} + x^{116} + x^{112} + x^{86} + x^{84} + x^{80} + x^{22} + x^{20} + x^{16} + x^{6} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{126} + x^{123} + x^{122} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112} + x^{109}\\
&+ x^{108} + x^{107} + x^{106} + x^{104} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{91}\\
&+ x^{86} + x^{85} + x^{84} + x^{83} + x^{79} + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{62} + x^{60} + x^{57} + x^{54} + x^{53} + x^{52}\\
&+ x^{48} + x^{46} + x^{41} + x^{40} + x^{39},\\
p_3(x) &= x^{127} + x^{126} + x^{124} + x^{120} + x^{119} + x^{117} + x^{115} + x^{114} + x^{113} + x^{111}\\
&+ x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95}\\
&+ x^{85} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{75} + x^{69} + x^{68} + x^{66}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{65} + x^{64} + x^{63} + x^{62} + x^{59} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{46}\\
&+ x^{45} + x^{42} + x^{41} + x^{38} + x^{36} + x^{32} + x^{30} + x^{27},\\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{120} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110}\\
&+ x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95}\\
&+ x^{94} + x^{93} + x^{91} + x^{87} + x^{85} + x^{84} + x^{76} + x^{73} + x^{71} + x^{70} + x^{66}\\
&+ x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&+ x^{51} + x^{50} + x^{42} + x^{39} + x^{37} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27}\\
&+ x^{26} + x^{24} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{118} + x^{117} + x^{114} + x^{113} + x^{111}\\
&+ x^{105} + x^{104} + x^{103} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95} + x^{89} + x^{88}\\
&+ x^{86} + x^{83} + x^{81} + x^{80} + x^{78} + x^{74} + x^{72} + x^{71} + x^{70} + x^{66} + x^{64}\\
&+ x^{60} + x^{59} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{46} + x^{45}\\
&+ x^{44} + x^{41} + x^{37} + x^{36} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{22} + x^{20}\\
&+ x^{19} + x^{18} + x^{17} + x^{16} + x^{12} + x^{11} + x^{9},\\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}\\
&+ x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&+ x^{80} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5}\\
&+ x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{126} + x^{123} + x^{122} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112} + x^{109}\\
&+ x^{108} + x^{107} + x^{106} + x^{104} + x^{102} + x^{101} + x^{100} + x^{96} + x^{95} + x^{91}\\
&+ x^{86} + x^{85} + x^{84} + x^{83} + x^{79} + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{62} + x^{60} + x^{57} + x^{54} + x^{53} + x^{52}\\
&+ x^{48} + x^{46} + x^{41} + x^{40} + x^{39},\\
p_3(x) &= x^{127} + x^{126} + x^{124} + x^{120} + x^{119} + x^{117} + x^{115} + x^{114} + x^{113} + x^{111}\\
&+ x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95}\\
&+ x^{85} + x^{84} + x^{82} + x^{81} + x^{80} + x^{79} + x^{78} + x^{75} + x^{69} + x^{68} + x^{66}\\
&+ x^{65} + x^{64} + x^{63} + x^{62} + x^{59} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{46}\\
&+ x^{45} + x^{42} + x^{41} + x^{38} + x^{36} + x^{32} + x^{30} + x^{27},\\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{120} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{110}\\
&+ x^{108} + x^{106} + x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95}\\
&+ x^{94} + x^{93} + x^{91} + x^{87} + x^{85} + x^{84} + x^{76} + x^{73} + x^{71} + x^{70} + x^{66}\\
&+ x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53}\\
&+ x^{51} + x^{50} + x^{42} + x^{39} + x^{37} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{26} + x^{24} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{118} + x^{117} + x^{114} + x^{113} + x^{111}\\
&+ x^{105} + x^{104} + x^{103} + x^{101} + x^{99} + x^{98} + x^{97} + x^{95} + x^{89} + x^{88}\\
&+ x^{86} + x^{83} + x^{81} + x^{80} + x^{78} + x^{74} + x^{72} + x^{71} + x^{70} + x^{66} + x^{64}\\
&+ x^{60} + x^{59} + x^{57} + x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{46} + x^{45}\\
&+ x^{44} + x^{41} + x^{37} + x^{36} + x^{35} + x^{32} + x^{30} + x^{26} + x^{25} + x^{22} + x^{20}\\
&+ x^{19} + x^{18} + x^{17} + x^{16} + x^{12} + x^{11} + x^{9},\\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}\\
&+ x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&+ x^{80} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5}\\
&+ x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{132} + x^{120} + x^{118} + x^{116} + x^{106} + x^{104} + x^{102} + x^{100} + x^{96} + x^{94}\\
&+ x^{90} + x^{86} + x^{84} + x^{82} + x^{76} + x^{66} + x^{64} + x^{50} + x^{48} + x^{46} + x^{42},\\
p_3(x) &= x^{128} + x^{124} + x^{122} + x^{120} + x^{116} + x^{106} + x^{104} + x^{102} + x^{84} + x^{82}\\
&+ x^{80} + x^{78} + x^{76} + x^{70} + x^{64} + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{48}\\
&+ x^{46} + x^{40} + x^{38} + x^{36} + x^{34} + x^{32} + x^{28} + x^{24} + x^{22} + x^{20} + x^{18},\\
p_6(x) &= x^{124} + x^{120} + x^{114} + x^{106} + x^{104} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82}\\
&+ x^{78} + x^{74} + x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{38} + x^{36} + x^{32} + x^{26}\\
&+ x^{20} + x^{16} + x^{8} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{130} + x^{126} + x^{124} + x^{118} + x^{116} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104}\\
&+ x^{100} + x^{98} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{72} + x^{70}\\
&+ x^{66} + x^{64} + x^{62} + x^{58} + x^{56} + x^{52} + x^{46} + x^{40} + x^{38} + x^{36} + x^{34}\\
&+ x^{30} + x^{24} + x^{16} + x^{12} + x^{10} + x^{6},\\
p_{12}(x) &= x^{130} + x^{128} + x^{106} + x^{104} + x^{90} + x^{88} + x^{82} + x^{80} + x^{34} + x^{32} + x^{18}\\
&+ x^{16} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{118} + x^{111}\\
&+ x^{109} + x^{108} + x^{107} + x^{103} + x^{98} + x^{95} + x^{92} + x^{91} + x^{90} + x^{89}\\
&+ x^{86} + x^{82} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{70} + x^{68} + x^{67}\\
&+ x^{66} + x^{64} + x^{62} + x^{59} + x^{56} + x^{55} + x^{54} + x^{52} + x^{49} + x^{48} + x^{47}\\
&+ x^{46} + x^{45} + x^{43} + x^{42} + x^{39} + x^{37} + x^{36},\\
p_3(x) &= x^{128} + x^{127} + x^{124} + x^{123} + x^{118} + x^{117} + x^{116} + x^{115} + x^{109} + x^{107}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{93}\\
&+ x^{92} + x^{91} + x^{90} + x^{89} + x^{87} + x^{85} + x^{80} + x^{79} + x^{78} + x^{76} + x^{75}\\
&+ x^{74} + x^{69} + x^{67} + x^{65} + x^{63} + x^{62} + x^{59} + x^{58} + x^{57} + x^{52} + x^{45}\\
&+ x^{43} + x^{42} + x^{41} + x^{39} + x^{35} + x^{34} + x^{33} + x^{31} + x^{30} + x^{27} + x^{25}\\
&+ x^{24},\\
p_6(x) = {}& x^{128} + x^{127} + x^{124} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113}\\
&+ x^{111} + x^{109} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{91}\\
&+ x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78} + x^{76} + x^{75}\\
&+ x^{70} + x^{67} + x^{65} + x^{64} + x^{59} + x^{58} + x^{55} + x^{52} + x^{48} + x^{46} + x^{44}\\
&+ x^{43} + x^{42} + x^{41} + x^{39} + x^{38} + x^{37} + x^{33} + x^{32} + x^{29} + x^{27} + x^{26}\\
&+ x^{24} + x^{23} + x^{20} + x^{18} + x^{17} + x^{15} + x^{14} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) = {}& x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{108} + x^{106}\\
&+ x^{105} + x^{102} + x^{101} + x^{100} + x^{96} + x^{94} + x^{93} + x^{92} + x^{32} + x^{30}\\
&+ x^{29} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{14} + x^{13} + x^{12},\\
p_{12}(x) = {}& x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110}\\
&+ x^{109} + x^{108} + x^{100} + x^{98} + x^{97} + x^{96} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&+ x^{80} + x^{32} + x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{8} + x^{6} + x^{5}\\
&+ x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{132} + x^{129} + x^{127} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{117}\\
&+ x^{116} + x^{113} + x^{109} + x^{107} + x^{106} + x^{104} + x^{102} + x^{100} + x^{99} + x^{98}\\
&+ x^{97} + x^{93} + x^{92} + x^{91} + x^{90} + x^{87} + x^{84} + x^{83} + x^{82} + x^{80} + x^{79}\\
&+ x^{76} + x^{73} + x^{72} + x^{69} + x^{67} + x^{64} + x^{63} + x^{62} + x^{60} + x^{58} + x^{57}\\
&+ x^{54} + x^{51} + x^{49} + x^{48} + x^{47} + x^{45} + x^{39},\\
p_3(x) = {}& x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116} + x^{113}\\
&+ x^{108} + x^{107} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91}\\
&+ x^{90} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70}\\
&+ x^{68} + x^{66} + x^{64} + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{53} + x^{51} + x^{49}\\
&+ x^{45} + x^{42} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{33} + x^{28} + x^{27},\\
p_6(x) = {}& x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{112} + x^{110} + x^{108} + x^{102}\\
&+ x^{92} + x^{88} + x^{86} + x^{84} + x^{76} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} + x^{52}\\
&+ x^{50} + x^{42} + x^{40} + x^{38} + x^{36} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24} + x^{22}\\
&+ x^{20} + x^{18},\\
p_9(x) = {}& x^{127} + x^{126} + x^{123} + x^{122} + x^{121} + x^{118} + x^{116} + x^{110} + x^{108} + x^{102}
\end{aligned}
$$

$$+ x^{100} + x^{95} + x^{92} + x^{91} + x^{90} + x^{89} + x^{31} + x^{30} + x^{27} + x^{26} + x^{25}$$
$$+ x^{22} + x^{20} + x^{15} + x^{12} + x^{11} + x^{10} + x^{9},$$
$$p_{12}(x) = x^{128} + x^{124} + x^{120} + x^{116} + x^{112} + x^{108} + x^{100} + x^{96} + x^{88} + x^{80}$$
$$+ x^{32} + x^{28} + x^{24} + x^{20} + x^{8} + 1,$$

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

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

$$p_0(x) = x^{132} + x^{131} + x^{129} + x^{127} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{119}$$
$$+ x^{113} + x^{110} + x^{109} + x^{103} + x^{101} + x^{99} + x^{94} + x^{91} + x^{89} + x^{86}$$
$$+ x^{85} + x^{81} + x^{80} + x^{74} + x^{73} + x^{71} + x^{68} + x^{67} + x^{65} + x^{63} + x^{61}$$
$$+ x^{57} + x^{56} + x^{53} + x^{52} + x^{49} + x^{48} + x^{45} + x^{44} + x^{41} + x^{39},$$
$$p_3(x) = x^{131} + x^{130} + x^{127} + x^{126} + x^{125} + x^{122} + x^{120} + x^{117} + x^{116} + x^{115}$$
$$+ x^{113} + x^{110} + x^{109} + x^{108} + x^{106} + x^{103} + x^{102} + x^{101} + x^{99} + x^{96}$$
$$+ x^{95} + x^{94} + x^{92} + x^{89} + x^{88} + x^{87} + x^{85} + x^{83} + x^{81} + x^{80} + x^{79}$$
$$+ x^{77} + x^{75} + x^{73} + x^{72} + x^{71} + x^{69} + x^{67} + x^{65} + x^{64} + x^{63} + x^{61}$$
$$+ x^{58} + x^{57} + x^{56} + x^{54} + x^{51} + x^{50} + x^{49} + x^{47} + x^{44} + x^{43} + x^{42}$$
$$+ x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{29} + x^{28} + x^{27},$$
$$p_6(x) = x^{132} + x^{128} + x^{124} + x^{120} + x^{118} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104}$$
$$+ x^{96} + x^{94} + x^{92} + x^{90} + x^{84} + x^{82} + x^{78} + x^{72} + x^{70} + x^{60} + x^{58}$$
$$+ x^{56} + x^{52} + x^{46} + x^{42} + x^{38} + x^{32} + x^{18},$$
$$p_9(x) = x^{133} + x^{132} + x^{131} + x^{130} + x^{127} + x^{125} + x^{124} + x^{123} + x^{120} + x^{118}$$
$$+ x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104}$$
$$+ x^{102} + x^{101} + x^{100} + x^{97} + x^{95} + x^{94} + x^{93} + x^{90} + x^{89} + x^{37} + x^{36}$$
$$+ x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{17}$$
$$+ x^{15} + x^{14} + x^{13} + x^{10} + x^{9},$$
$$p_{12}(x) = x^{134} + x^{132} + x^{126} + x^{124} + x^{122} + x^{120} + x^{102} + x^{100} + x^{98} + x^{96}$$
$$+ x^{94} + x^{92} + x^{90} + x^{88} + x^{82} + x^{80} + x^{38} + x^{36} + x^{30} + x^{28} + x^{26}$$
$$+ x^{24} + x^{22} + x^{20} + x^{14} + x^{12} + x^{10} + x^{8} + x^{2} + 1,$$

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

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

$$p_0(x) = x^{129} + x^{127} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{115} + x^{114} + x^{113}$$
$$+ x^{111} + x^{108} + x^{107} + x^{103} + x^{100} + x^{99} + x^{97} + x^{96} + x^{95} + x^{94}$$
$$+ x^{92} + x^{91} + x^{90} + x^{89} + x^{86} + x^{84} + x^{82} + x^{80} + x^{77} + x^{76} + x^{74}$$
$$+ x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{61}$$
$$+ x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{51} + x^{49} + x^{46} + x^{45} + x^{43} + x^{42},$$
$$p_3(x) = x^{128} + x^{127} + x^{126} + x^{119} + x^{116} + x^{111} + x^{107} + x^{103} + x^{98} + x^{97}$$

$$+ x^{95} + x^{91} + x^{90} + x^{89} + x^{87} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} + x^{78} + x^{75} + x^{73} + x^{72} + x^{69} + x^{68} + x^{67} + x^{66} + x^{64} + x^{63} + x^{62} + x^{60} + x^{59} + x^{56} + x^{54} + x^{52} + x^{51} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{40} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} + x^{29} + x^{27} + x^{26},$$

$$p_6(x) = x^{128} + x^{127} + x^{126} + x^{123} + x^{121} + x^{118} + x^{116} + x^{115} + x^{110} + x^{109} + x^{107} + x^{105} + x^{104} + x^{101} + x^{100} + x^{98} + x^{96} + x^{95} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{82} + x^{80} + x^{77} + x^{76} + x^{75} + x^{73} + x^{71} + x^{68} + x^{67} + x^{64} + x^{63} + x^{57} + x^{52} + x^{51} + x^{49} + x^{48} + x^{45} + x^{43} + x^{41} + x^{40} + x^{37} + x^{36} + x^{31} + x^{30} + x^{24} + x^{23} + x^{22} + x^{19} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,$$

$$p_9(x) = x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{108} + x^{106} + x^{105} + x^{102} + x^{101} + x^{100} + x^{96} + x^{94} + x^{93} + x^{92} + x^{32} + x^{30} + x^{29} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{14} + x^{13} + x^{12},$$

$$p_{12}(x) = x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} + x^{109} + x^{108} + x^{100} + x^{98} + x^{97} + x^{96} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81} + x^{80} + x^{32} + x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,$$

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

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

$$p_0(x) = x^{129} + x^{128} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{118} + x^{111} + x^{109} + x^{108} + x^{107} + x^{103} + x^{98} + x^{95} + x^{92} + x^{91} + x^{90} + x^{89} + x^{86} + x^{82} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{70} + x^{68} + x^{67} + x^{66} + x^{64} + x^{62} + x^{59} + x^{56} + x^{55} + x^{54} + x^{52} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{43} + x^{42} + x^{39} + x^{37} + x^{36},$$

$$p_3(x) = x^{128} + x^{127} + x^{124} + x^{123} + x^{118} + x^{117} + x^{116} + x^{115} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{87} + x^{85} + x^{80} + x^{79} + x^{78} + x^{76} + x^{75} + x^{74} + x^{69} + x^{67} + x^{65} + x^{63} + x^{62} + x^{59} + x^{58} + x^{57} + x^{52} + x^{45} + x^{43} + x^{42} + x^{41} + x^{39} + x^{35} + x^{34} + x^{33} + x^{31} + x^{30} + x^{27} + x^{25} + x^{24},$$

$$p_6(x) = x^{128} + x^{127} + x^{124} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113} + x^{111} + x^{109} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{91} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78} + x^{76} + x^{75} + x^{70} + x^{67} + x^{65} + x^{64} + x^{59} + x^{58} + x^{55} + x^{52} + x^{48} + x^{46} + x^{44} + x^{43} + x^{42} + x^{41} + x^{39} + x^{38} + x^{37} + x^{33} + x^{32} + x^{29} + x^{27} + x^{26}$$

$$
\begin{aligned}
&+ x^{24} + x^{23} + x^{20} + x^{18} + x^{17} + x^{15} + x^{14} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) &= x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{108} + x^{106}\\
&\quad + x^{105} + x^{102} + x^{101} + x^{100} + x^{96} + x^{94} + x^{93} + x^{92} + x^{32} + x^{30}\\
&\quad + x^{29} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{14} + x^{13} + x^{12},\\
p_{12}(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110}\\
&\quad + x^{109} + x^{108} + x^{100} + x^{98} + x^{97} + x^{96} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&\quad + x^{80} + x^{32} + x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{8} + x^{6} + x^{5}\\
&\quad + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{132} + x^{131} + x^{129} + x^{127} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{119}\\
&\quad + x^{113} + x^{110} + x^{109} + x^{103} + x^{101} + x^{99} + x^{94} + x^{91} + x^{89} + x^{86}\\
&\quad + x^{85} + x^{81} + x^{80} + x^{74} + x^{73} + x^{71} + x^{68} + x^{67} + x^{65} + x^{63} + x^{61}\\
&\quad + x^{57} + x^{56} + x^{53} + x^{52} + x^{49} + x^{48} + x^{45} + x^{44} + x^{41} + x^{39},\\
p_3(x) &= x^{131} + x^{130} + x^{127} + x^{126} + x^{125} + x^{122} + x^{120} + x^{117} + x^{116} + x^{115}\\
&\quad + x^{113} + x^{110} + x^{109} + x^{108} + x^{106} + x^{103} + x^{102} + x^{101} + x^{99} + x^{96}\\
&\quad + x^{95} + x^{94} + x^{92} + x^{89} + x^{88} + x^{87} + x^{85} + x^{83} + x^{81} + x^{80} + x^{79}\\
&\quad + x^{77} + x^{75} + x^{73} + x^{72} + x^{71} + x^{69} + x^{67} + x^{65} + x^{64} + x^{63} + x^{61}\\
&\quad + x^{58} + x^{57} + x^{56} + x^{54} + x^{51} + x^{50} + x^{49} + x^{47} + x^{44} + x^{43} + x^{42}\\
&\quad + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{29} + x^{28} + x^{27},\\
p_6(x) &= x^{132} + x^{128} + x^{124} + x^{120} + x^{118} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104}\\
&\quad + x^{96} + x^{94} + x^{92} + x^{90} + x^{84} + x^{82} + x^{78} + x^{72} + x^{70} + x^{60} + x^{58}\\
&\quad + x^{56} + x^{52} + x^{46} + x^{42} + x^{38} + x^{32} + x^{18},\\
p_9(x) &= x^{133} + x^{132} + x^{131} + x^{130} + x^{127} + x^{125} + x^{124} + x^{123} + x^{120} + x^{118}\\
&\quad + x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104}\\
&\quad + x^{102} + x^{101} + x^{100} + x^{97} + x^{95} + x^{94} + x^{93} + x^{90} + x^{89} + x^{37} + x^{36}\\
&\quad + x^{35} + x^{34} + x^{31} + x^{29} + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{17}\\
&\quad + x^{15} + x^{14} + x^{13} + x^{10} + x^{9},\\
p_{12}(x) &= x^{134} + x^{132} + x^{126} + x^{124} + x^{122} + x^{120} + x^{102} + x^{100} + x^{98} + x^{96}\\
&\quad + x^{94} + x^{92} + x^{90} + x^{88} + x^{82} + x^{80} + x^{38} + x^{36} + x^{30} + x^{28} + x^{26}\\
&\quad + x^{24} + x^{22} + x^{20} + x^{14} + x^{12} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{132} + x^{129} + x^{127} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{117}\\
&\quad + x^{116} + x^{113} + x^{109} + x^{107} + x^{106} + x^{104} + x^{102} + x^{100} + x^{99} + x^{98}
\end{aligned}
$$

$$
\begin{aligned}
&+x^{97}+x^{93}+x^{92}+x^{91}+x^{90}+x^{87}+x^{84}+x^{83}+x^{82}+x^{80}+x^{79}\\
&+x^{76}+x^{73}+x^{72}+x^{69}+x^{67}+x^{64}+x^{63}+x^{62}+x^{60}+x^{58}+x^{57}\\
&+x^{54}+x^{51}+x^{49}+x^{48}+x^{47}+x^{45}+x^{39},\\
p_3(x)&=x^{125}+x^{124}+x^{123}+x^{122}+x^{121}+x^{120}+x^{118}+x^{117}+x^{116}+x^{113}\\
&+x^{108}+x^{107}+x^{101}+x^{100}+x^{99}+x^{98}+x^{97}+x^{96}+x^{94}+x^{91}\\
&+x^{90}+x^{88}+x^{86}+x^{84}+x^{82}+x^{80}+x^{78}+x^{76}+x^{74}+x^{72}+x^{70}\\
&+x^{68}+x^{66}+x^{64}+x^{62}+x^{60}+x^{58}+x^{56}+x^{54}+x^{53}+x^{51}+x^{49}\\
&+x^{45}+x^{42}+x^{41}+x^{40}+x^{38}+x^{37}+x^{36}+x^{33}+x^{28}+x^{27},\\
p_6(x)&=x^{126}+x^{124}+x^{122}+x^{120}+x^{118}+x^{116}+x^{112}+x^{110}+x^{108}+x^{102}\\
&+x^{92}+x^{88}+x^{86}+x^{84}+x^{76}+x^{74}+x^{72}+x^{70}+x^{66}+x^{64}+x^{52}\\
&+x^{50}+x^{42}+x^{40}+x^{38}+x^{36}+x^{34}+x^{32}+x^{28}+x^{26}+x^{24}+x^{22}\\
&+x^{20}+x^{18},\\
p_9(x)&=x^{127}+x^{126}+x^{123}+x^{122}+x^{121}+x^{118}+x^{116}+x^{110}+x^{108}+x^{102}\\
&+x^{100}+x^{95}+x^{92}+x^{91}+x^{90}+x^{89}+x^{31}+x^{30}+x^{27}+x^{26}+x^{25}\\
&+x^{22}+x^{20}+x^{15}+x^{12}+x^{11}+x^{10}+x^{9},\\
p_{12}(x)&=x^{128}+x^{124}+x^{120}+x^{116}+x^{112}+x^{108}+x^{100}+x^{96}+x^{88}+x^{80}\\
&+x^{32}+x^{28}+x^{24}+x^{20}+x^{8}+1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 1, 0, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0, 1].
For $\phi(W^o,1,1)$:

$$
\begin{aligned}
p_0(x)&=x^{129}+x^{127}+x^{125}+x^{124}+x^{123}+x^{122}+x^{120}+x^{115}+x^{114}+x^{113}\\
&+x^{111}+x^{108}+x^{107}+x^{103}+x^{100}+x^{99}+x^{97}+x^{96}+x^{95}+x^{94}\\
&+x^{92}+x^{91}+x^{90}+x^{89}+x^{86}+x^{84}+x^{82}+x^{80}+x^{77}+x^{76}+x^{74}\\
&+x^{73}+x^{72}+x^{71}+x^{70}+x^{69}+x^{68}+x^{67}+x^{64}+x^{63}+x^{62}+x^{61}\\
&+x^{60}+x^{57}+x^{56}+x^{55}+x^{54}+x^{51}+x^{49}+x^{46}+x^{45}+x^{43}+x^{42},\\
p_3(x)&=x^{128}+x^{127}+x^{126}+x^{119}+x^{116}+x^{111}+x^{107}+x^{103}+x^{98}+x^{97}\\
&+x^{95}+x^{91}+x^{90}+x^{89}+x^{87}+x^{85}+x^{84}+x^{82}+x^{81}+x^{79}+x^{78}\\
&+x^{75}+x^{73}+x^{72}+x^{69}+x^{68}+x^{67}+x^{66}+x^{64}+x^{63}+x^{62}+x^{60}\\
&+x^{59}+x^{56}+x^{54}+x^{52}+x^{51}+x^{50}+x^{49}+x^{48}+x^{47}+x^{46}+x^{44}\\
&+x^{40}+x^{38}+x^{37}+x^{34}+x^{33}+x^{30}+x^{29}+x^{27}+x^{26},\\
p_6(x)&=x^{128}+x^{127}+x^{126}+x^{123}+x^{121}+x^{118}+x^{116}+x^{115}+x^{110}+x^{109}\\
&+x^{107}+x^{105}+x^{104}+x^{101}+x^{100}+x^{98}+x^{96}+x^{95}+x^{88}+x^{86}\\
&+x^{85}+x^{84}+x^{83}+x^{82}+x^{80}+x^{77}+x^{76}+x^{75}+x^{73}+x^{71}+x^{68}\\
&+x^{67}+x^{64}+x^{63}+x^{57}+x^{52}+x^{51}+x^{49}+x^{48}+x^{45}+x^{43}+x^{41}\\
&+x^{40}+x^{37}+x^{36}+x^{31}+x^{30}+x^{24}+x^{23}+x^{22}+x^{19}+x^{17}+x^{16}\\
&+x^{15}+x^{13}+x^{12}+x^{8}+x^{6}+x^{5}+x^{2}+x+1,
\end{aligned}
$$

$$\begin{aligned}p_9(x) &= x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{108} + x^{106} \\ &+ x^{105} + x^{102} + x^{101} + x^{100} + x^{96} + x^{94} + x^{93} + x^{92} + x^{32} + x^{30} \\ &+ x^{29} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{16} + x^{14} + x^{13} + x^{12}, \\ p_{12}(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} \\ &+ x^{109} + x^{108} + x^{100} + x^{98} + x^{97} + x^{96} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81} \\ &+ x^{80} + x^{32} + x^{30} + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{20} + x^{8} + x^{6} + x^{5} \\ &+ x^2 + x + 1,\end{aligned}$$

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

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

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

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1206	[1780, 495]	2412	[2888, 645]	3618	[3876, 1870]
1	[3, 4]	1207	[1746, 230]	2413	[1567, 585]	3619	[4014, 31]
2	[5, 6]	1208	[1781, 1588]	2414	[648, 2911]	3620	[3044, 1448]
3	[7, 8]	1209	[1782, 1589]	2415	[3026, 2854]	3621	[4015, 687]
4	[9, 10]	1210	[579, 1783]	2416	[2996, 1549]	3622	[1766, 2791]
5	[11, 12]	1211	[240, 1659]	2417	[677, 50]	3623	[692, 1647]
6	[13, 14]	1212	[1784, 1785]	2418	[822, 3027]	3624	[2807, 1572]
7	[15, 16]	1213	[1786, 1747]	2419	[3028, 722]	3625	[4008, 1437]
8	[17, 18]	1214	[1787, 1648]	2420	[3029, 2766]	3626	[4016, 3846]
9	[19, 20]	1215	[1788, 1568]	2421	[1778, 3030]	3627	[2895, 3129]
10	[21, 22]	1216	[1789, 1790]	2422	[2768, 821]	3628	[4017, 1847]
11	[23, 24]	1217	[1791, 1668]	2423	[2769, 1731]	3629	[33, 3186]
12	[25, 26]	1218	[673, 794]	2424	[2925, 557]	3630	[3154, 486]
13	[27, 28]	1219	[1792, 1491]	2425	[2812, 705]	3631	[3860, 1549]
14	[29, 30]	1220	[1624, 1507]	2426	[1886, 2758]	3632	[3857, 3149]
15	[31, 32]	1221	[1793, 1794]	2427	[1761, 1498]	3633	[3895, 2854]
16	[33, 34]	1222	[1795, 774]	2428	[3031, 2783]	3634	[1937, 783]
17	[35, 36]	1223	[1796, 1797]	2429	[1539, 151]	3635	[3046, 1549]
18	[37, 38]	1224	[1798, 1727]	2430	[1703, 1444]	3636	[1461, 1933]
19	[39, 40]	1225	[1799, 1760]	2431	[2964, 1800]	3637	[4018, 4019]
20	[41, 42]	1226	[1486, 1800]	2432	[3032, 517]	3638	[3142, 1922]
21	[43, 44]	1227	[1633, 198]	2433	[1563, 181]	3639	[1898, 3030]
22	[45, 46]	1228	[1478, 1801]	2434	[789, 179]	3640	[2817, 249]
23	[47, 48]	1229	[1802, 143]	2435	[3033, 735]	3641	[4020, 2823]
24	[49, 50]	1230	[1801, 1803]	2436	[635, 140]	3642	[4021, 1753]
25	[51, 52]	1231	[1804, 1805]	2437	[1430, 1932]	3643	[4007, 186]
26	[53, 54]	1232	[786, 1806]	2438	[1811, 1578]	3644	[3155, 2918]
27	[55, 56]	1233	[1807, 1808]	2439	[3034, 3035]	3645	[1683, 702]
28	[57, 58]	1234	[232, 1649]	2440	[1654, 3004]	3646	[3834, 152]
29	[59, 60]	1235	[1809, 1810]	2441	[2795, 3027]	3647	[4022, 1544]

30	[61, 62]	1236	[1455, 1722]	2442	[249, 1879]	3648	[1716, 1669]
31	[63, 64]	1237	[1437, 575]	2443	[1705, 690]	3649	[3158, 812]
32	[65, 66]	1238	[1811, 1509]	2444	[1531, 660]	3650	[4023, 217]
33	[67, 68]	1239	[1812, 1653]	2445	[3036, 1571]	3651	[4012, 3001]
34	[69, 70]	1240	[748, 1813]	2446	[2855, 1743]	3652	[4024, 1653]
35	[71, 72]	1241	[1814, 1584]	2447	[1687, 1704]	3653	[3025, 1572]
36	[73, 74]	1242	[1718, 1815]	2448	[3037, 3038]	3654	[4025, 4026]
37	[75, 76]	1243	[1816, 1587]	2449	[2890, 3039]	3655	[4027, 3922]
38	[77, 78]	1244	[1817, 578]	2450	[226, 580]	3656	[4028, 3125]
39	[79, 80]	1245	[1818, 1589]	2451	[822, 751]	3657	[3953, 1515]
40	[81, 82]	1246	[1557, 549]	2452	[2853, 1527]	3658	[4029, 580]
41	[83, 84]	1247	[1819, 761]	2453	[1936, 695]	3659	[3958, 2880]
42	[85, 86]	1248	[1820, 1821]	2454	[3040, 2857]	3660	[1556, 3849]
43	[87, 88]	1249	[764, 196]	2455	[2775, 733]	3661	[3104, 533]
44	[89, 90]	1250	[766, 1433]	2456	[1525, 645]	3662	[3848, 2926]
45	[91, 92]	1251	[808, 522]	2457	[1484, 2911]	3663	[4030, 4031]
46	[93, 94]	1252	[1822, 42]	2458	[1685, 60]	3664	[34, 3187]
47	[95, 96]	1253	[730, 629]	2459	[2762, 1542]	3665	[3850, 4032]
48	[97, 98]	1254	[1823, 1824]	2460	[2844, 1749]	3666	[3868, 4033]
49	[99, 100]	1255	[1825, 641]	2461	[3041, 794]	3667	[4034, 4035]
50	[101, 102]	1256	[483, 614]	2462	[3042, 1634]	3668	[200, 1863]
51	[103, 104]	1257	[1826, 1655]	2463	[3043, 184]	3669	[4036, 1808]
52	[105, 106]	1258	[1827, 241]	2464	[3044, 195]	3670	[3117, 3175]
53	[107, 108]	1259	[1817, 757]	2465	[825, 1709]	3671	[4037, 3883]
54	[109, 110]	1260	[1828, 578]	2466	[827, 523]	3672	[4038, 4039]
55	[111, 112]	1261	[1829, 1830]	2467	[1838, 152]	3673	[146, 4040]
56	[113, 114]	1262	[688, 1575]	2468	[2944, 1497]	3674	[4041, 1442]
57	[115, 116]	1263	[1831, 1832]	2469	[3045, 1467]	3675	[1919, 1737]
58	[117, 118]	1264	[1833, 46]	2470	[3029, 565]	3676	[4042, 3100]
59	[119, 120]	1265	[1834, 595]	2471	[2939, 1439]	3677	[3861, 1459]
60	[121, 122]	1266	[1643, 1835]	2472	[3046, 1561]	3678	[729, 1698]
61	[123, 124]	1267	[1836, 1837]	2473	[2821, 1591]	3679	[4043, 3929]
62	[125, 126]	1268	[1838, 1839]	2474	[695, 1815]	3680	[4044, 147]
63	[42, 127]	1269	[1626, 1725]	2475	[1440, 3027]	3681	[4045, 1702]
64	[128, 129]	1270	[1840, 702]	2476	[3047, 783]	3682	[3150, 1614]
65	[130, 131]	1271	[1841, 1760]	2477	[1935, 559]	3683	[828, 524]
66	[132, 133]	1272	[1842, 523]	2478	[3048, 573]	3684	[4046, 1531]
67	[134, 135]	1273	[741, 1843]	2479	[227, 1647]	3685	[4047, 4026]
68	[136, 137]	1274	[1622, 1491]	2480	[1781, 1818]	3686	[3002, 3161]
69	[138, 139]	1275	[591, 1794]	2481	[1764, 1747]	3687	[1881, 2773]
70	[140, 141]	1276	[1844, 188]	2482	[1731, 1538]	3688	[4048, 3865]
71	[142, 143]	1277	[1845, 1846]	2483	[1441, 651]	3689	[3007, 3874]
72	[144, 145]	1278	[1847, 1848]	2484	[778, 1542]	3690	[4018, 602]
73	[146, 147]	1279	[1849, 1850]	2485	[1905, 2844]	3691	[4049, 3100]

74	[148, 149]	1280	[1851, 795]	2486	[643, 1617]	3692	[3909, 555]
75	[150, 151]	1281	[1852, 1853]	2487	[1949, 1491]	3693	[4050, 3878]
76	[152, 153]	1282	[1854, 1855]	2488	[1620, 1669]	3694	[4051, 4052]
77	[154, 155]	1283	[1856, 1857]	2489	[3049, 186]	3695	[3957, 680]
78	[156, 157]	1284	[527, 1858]	2490	[3050, 573]	3696	[1744, 145]
79	[158, 159]	1285	[1859, 130]	2491	[1896, 2918]	3697	[1523, 609]
80	[160, 161]	1286	[535, 684]	2492	[2945, 1533]	3698	[4053, 4054]
81	[162, 163]	1287	[1860, 502]	2493	[3051, 1801]	3699	[4055, 1592]
82	[164, 165]	1288	[1822, 824]	2494	[3052, 2862]	3700	[196, 1558]
83	[166, 167]	1289	[1861, 627]	2495	[152, 1757]	3701	[4056, 2821]
84	[168, 169]	1290	[1862, 32]	2496	[3053, 774]	3702	[1882, 2914]
85	[170, 171]	1291	[1517, 1605]	2497	[3054, 3055]	3703	[55, 1888]
86	[172, 173]	1292	[530, 664]	2498	[1579, 3056]	3704	[4057, 3853]
87	[174, 175]	1293	[197, 1489]	2499	[3057, 2773]	3705	[3963, 2950]
88	[176, 177]	1294	[1863, 505]	2500	[1828, 757]	3706	[3862, 2952]
89	[178, 179]	1295	[1862, 1864]	2501	[1857, 1661]	3707	[3830, 3929]
90	[180, 181]	1296	[1865, 1450]	2502	[1594, 2798]	3708	[4058, 2841]
91	[182, 183]	1297	[32, 803]	2503	[762, 3058]	3709	[4059, 595]
92	[184, 185]	1298	[1866, 1867]	2504	[3010, 1904]	3710	[2961, 822]
93	[186, 187]	1299	[516, 741]	2505	[3059, 152]	3711	[3084, 1645]
94	[188, 140]	1300	[209, 1824]	2506	[3060, 2783]	3712	[3944, 771]
95	[189, 190]	1301	[1868, 1869]	2507	[3061, 1706]	3713	[4060, 3878]
96	[191, 192]	1302	[215, 1870]	2508	[3062, 1504]	3714	[3872, 3035]
97	[193, 194]	1303	[1871, 1586]	2509	[32, 2867]	3715	[235, 1551]
98	[195, 196]	1304	[784, 1872]	2510	[767, 2972]	3716	[3939, 1591]
99	[197, 198]	1305	[236, 137]	2511	[3059, 1839]	3717	[4061, 2894]
100	[199, 200]	1306	[52, 1873]	2512	[814, 1743]	3718	[4062, 1848]
101	[201, 202]	1307	[1874, 36]	2513	[1701, 3063]	3719	[2970, 2900]
102	[203, 204]	1308	[1875, 1876]	2514	[1541, 779]	3720	[4063, 810]
103	[205, 206]	1309	[1877, 1569]	2515	[1435, 720]	3721	[4064, 1521]
104	[207, 208]	1310	[1878, 1879]	2516	[1740, 2810]	3722	[4065, 31]
105	[209, 210]	1311	[1880, 1881]	2517	[3064, 587]	3723	[2839, 1708]
106	[211, 212]	1312	[1882, 1883]	2518	[3041, 1707]	3724	[2907, 505]
107	[213, 163]	1313	[190, 178]	2519	[785, 812]	3725	[4066, 797]
108	[133, 214]	1314	[1699, 129]	2520	[1710, 1576]	3726	[4067, 1448]
109	[215, 216]	1315	[1884, 505]	2521	[3065, 706]	3727	[4068, 2831]
110	[217, 218]	1316	[625, 133]	2522	[3066, 60]	3728	[2897, 3875]
111	[219, 220]	1317	[1885, 1886]	2523	[2985, 3063]	3729	[3050, 498]
112	[221, 222]	1318	[1887, 1627]	2524	[2963, 656]	3730	[3999, 759]
113	[223, 224]	1319	[1756, 1888]	2525	[3067, 14]	3731	[4069, 3851]
114	[225, 226]	1320	[1889, 1630]	2526	[3068, 228]	3732	[4070, 33]
115	[227, 228]	1321	[711, 1854]	2527	[1798, 1947]	3733	[4071, 1488]
116	[229, 230]	1322	[1462, 593]	2528	[3069, 2758]	3734	[4072, 515]
117	[231, 232]	1323	[218, 518]	2529	[1601, 2758]	3735	[3090, 639]

118	[233, 234]	1324	[1890, 539]	2530	[3026, 633]	3736	[1864, 2867]
119	[235, 236]	1325	[1891, 546]	2531	[3070, 247]	3737	[4073, 198]
120	[237, 238]	1326	[1892, 188]	2532	[3071, 1818]	3738	[3891, 771]
121	[49, 239]	1327	[1893, 1894]	2533	[3057, 238]	3739	[1471, 4074]
122	[240, 241]	1328	[1895, 573]	2534	[2941, 2997]	3740	[3966, 210]
123	[242, 243]	1329	[582, 1647]	2535	[1474, 1659]	3741	[555, 672]
124	[244, 245]	1330	[1721, 571]	2536	[3072, 2857]	3742	[4047, 3197]
125	[246, 247]	1331	[1896, 1881]	2537	[1602, 1713]	3743	[4075, 3056]
126	[248, 249]	1332	[1897, 602]	2538	[3073, 1765]	3744	[3903, 2794]
127	[250, 251]	1333	[1497, 565]	2539	[2999, 1888]	3745	[3005, 581]
128	[252, 253]	1334	[1898, 1779]	2540	[3069, 1495]	3746	[4076, 4035]
129	[254, 255]	1335	[1899, 1438]	2541	[2946, 648]	3747	[743, 2841]
130	[256, 257]	1336	[1900, 546]	2542	[2854, 634]	3748	[4077, 1929]
131	[258, 259]	1337	[1894, 234]	2543	[3074, 3075]	3749	[522, 1574]
132	[260, 261]	1338	[1901, 645]	2544	[537, 2905]	3750	[4078, 4079]
133	[262, 263]	1339	[774, 779]	2545	[546, 676]	3751	[4080, 535]
134	[264, 265]	1340	[1902, 658]	2546	[3076, 1661]	3752	[4081, 537]
135	[266, 267]	1341	[1903, 741]	2547	[2954, 3077]	3753	[508, 516]
136	[268, 269]	1342	[1447, 664]	2548	[3078, 1856]	3754	[2872, 216]
137	[270, 271]	1343	[1708, 826]	2549	[1754, 138]	3755	[4082, 2870]
138	[272, 273]	1344	[526, 1904]	2550	[3079, 3080]	3756	[1912, 1768]
139	[274, 275]	1345	[1905, 1520]	2551	[3081, 3082]	3757	[3167, 4083]
140	[276, 277]	1346	[1884, 1906]	2552	[3083, 2755]	3758	[717, 1474]
141	[278, 279]	1347	[675, 547]	2553	[3084, 3085]	3759	[3140, 2765]
142	[280, 281]	1348	[1907, 560]	2554	[1845, 3086]	3760	[4049, 2827]
143	[282, 283]	1349	[573, 1465]	2555	[2968, 1944]	3761	[3907, 4011]
144	[284, 285]	1350	[171, 637]	2556	[3087, 3088]	3762	[4042, 2827]
145	[286, 287]	1351	[611, 1422]	2557	[3089, 1612]	3763	[4023, 2990]
146	[288, 289]	1352	[1745, 805]	2558	[2906, 40]	3764	[3157, 1687]
147	[290, 291]	1353	[1908, 672]	2559	[1521, 1502]	3765	[2933, 1648]
148	[292, 293]	1354	[1909, 1682]	2560	[201, 741]	3766	[174, 1460]
149	[294, 295]	1355	[642, 1507]	2561	[828, 1612]	3767	[4084, 633]
150	[296, 297]	1356	[1910, 1839]	2562	[44, 1666]	3768	[4085, 4054]
151	[298, 299]	1357	[704, 1693]	2563	[3090, 1673]	3769	[3089, 524]
152	[300, 301]	1358	[1911, 658]	2564	[527, 3091]	3770	[575, 2997]
153	[302, 303]	1359	[1800, 1555]	2565	[800, 512]	3771	[4086, 1853]
154	[304, 305]	1360	[694, 1753]	2566	[3092, 1858]	3772	[3095, 2892]
155	[306, 307]	1361	[633, 1470]	2567	[3093, 3094]	3773	[1717, 1828]
156	[308, 309]	1362	[1912, 1534]	2568	[3095, 1794]	3774	[4087, 684]
157	[310, 311]	1363	[1913, 1854]	2569	[3096, 1440]	3775	[2850, 185]
158	[312, 313]	1364	[1914, 1477]	2570	[1878, 3097]	3776	[4076, 3976]
159	[314, 315]	1365	[1915, 1916]	2571	[3098, 135]	3777	[1801, 1575]
160	[316, 317]	1366	[1753, 1816]	2572	[3099, 563]	3778	[4088, 708]
161	[318, 319]	1367	[736, 1917]	2573	[1725, 3100]	3779	[4089, 687]

162	[320, 321]	1368	[1918, 1537]	2574	[3101, 2929]	3780	[43, 2791]
163	[322, 285]	1369	[1919, 1920]	2575	[175, 671]	3781	[3899, 3858]
164	[323, 324]	1370	[1921, 1922]	2576	[700, 607]	3782	[3962, 1846]
165	[325, 326]	1371	[1923, 1924]	2577	[3102, 2884]	3783	[4090, 1519]
166	[327, 328]	1372	[542, 138]	2578	[3103, 803]	3784	[3938, 783]
167	[167, 167]	1373	[1697, 1806]	2579	[3104, 2894]	3785	[4091, 1428]
168	[329, 330]	1374	[1925, 1749]	2580	[3105, 1522]	3786	[4092, 1810]
169	[331, 332]	1375	[127, 788]	2581	[3106, 3107]	3787	[4016, 4093]
170	[333, 334]	1376	[1926, 563]	2582	[2983, 2797]	3788	[4094, 3898]
171	[335, 336]	1377	[1743, 604]	2583	[3108, 3109]	3789	[3996, 2967]
172	[337, 338]	1378	[1927, 1924]	2584	[3110, 3111]	3790	[4095, 3094]
173	[339, 335]	1379	[1739, 634]	2585	[554, 671]	3791	[4096, 44]
174	[340, 341]	1380	[1928, 1929]	2586	[3112, 632]	3792	[575, 2861]
175	[342, 343]	1381	[1930, 1816]	2587	[3113, 3114]	3793	[2977, 141]
176	[344, 345]	1382	[1931, 1932]	2588	[520, 1884]	3794	[1821, 3913]
177	[346, 347]	1383	[590, 1793]	2589	[812, 1904]	3795	[1427, 165]
178	[348, 327]	1384	[740, 714]	2590	[3115, 1464]	3796	[4097, 4098]
179	[349, 350]	1385	[686, 1621]	2591	[3116, 1649]	3797	[2967, 785]
180	[351, 352]	1386	[1933, 700]	2592	[3117, 3118]	3798	[4017, 2967]
181	[353, 354]	1387	[1887, 1725]	2593	[3119, 233]	3799	[2864, 1535]
182	[355, 356]	1388	[1762, 1499]	2594	[2998, 1525]	3800	[4099, 1554]
183	[357, 358]	1389	[1934, 496]	2595	[3120, 2765]	3801	[4100, 810]
184	[359, 360]	1390	[128, 1700]	2596	[2783, 222]	3802	[1856, 2838]
185	[361, 362]	1391	[1935, 1936]	2597	[1941, 546]	3803	[3136, 3097]
186	[363, 364]	1392	[1937, 232]	2598	[1795, 2762]	3804	[1649, 1872]
187	[365, 366]	1393	[1938, 1590]	2599	[3121, 1627]	3805	[763, 3849]
188	[367, 368]	1394	[1939, 722]	2600	[3122, 3001]	3806	[4057, 4101]
189	[369, 348]	1395	[1940, 222]	2601	[3123, 1511]	3807	[4090, 3875]
190	[370, 349]	1396	[1941, 1481]	2602	[3124, 3125]	3808	[2951, 3863]
191	[371, 372]	1397	[630, 1565]	2603	[3126, 2912]	3809	[4102, 759]
192	[80, 373]	1398	[246, 1473]	2604	[3127, 1501]	3810	[3866, 551]
193	[374, 375]	1399	[574, 1438]	2605	[1848, 526]	3811	[3078, 4103]
194	[376, 317]	1400	[646, 821]	2606	[3128, 607]	3812	[1823, 210]
195	[377, 378]	1401	[1568, 1835]	2607	[3129, 625]	3813	[4104, 143]
196	[379, 380]	1402	[1742, 1684]	2608	[3127, 609]	3814	[1535, 1697]
197	[381, 382]	1403	[655, 62]	2609	[3052, 243]	3815	[4020, 782]
198	[383, 384]	1404	[1942, 1602]	2610	[3130, 1830]	3816	[4105, 1568]
199	[385, 386]	1405	[769, 1574]	2611	[3131, 45]	3817	[2965, 4106]
200	[387, 388]	1406	[1534, 1943]	2612	[3132, 3133]	3818	[2834, 1944]
201	[389, 354]	1407	[195, 765]	2613	[1628, 1571]	3819	[4107, 2834]
202	[390, 391]	1408	[1944, 44]	2614	[703, 1757]	3820	[4108, 4006]
203	[392, 393]	1409	[1945, 1502]	2615	[154, 1759]	3821	[2761, 56]
204	[394, 395]	1410	[637, 614]	2616	[3134, 1881]	3822	[4109, 1754]
205	[396, 397]	1411	[1449, 1610]	2617	[3135, 1873]	3823	[2935, 655]

206	[398, 399]	1412	[1908, 488]	2618	[3136, 1879]	3824	[4110, 2606]
207	[400, 401]	1413	[160, 490]	2619	[2911, 1548]	3825	[4111, 2426]
208	[402, 403]	1414	[206, 588]	2620	[3137, 1531]	3826	[4112, 4113]
209	[404, 405]	1415	[1946, 1498]	2621	[3138, 1735]	3827	[2323, 4114]
210	[406, 407]	1416	[1726, 1947]	2622	[1475, 818]	3828	[4115, 372]
211	[408, 409]	1417	[1889, 157]	2623	[1785, 185]	3829	[4116, 4117]
212	[410, 411]	1418	[1948, 1689]	2624	[3139, 503]	3830	[4118, 4119]
213	[412, 413]	1419	[522, 770]	2625	[1785, 1748]	3831	[1392, 3396]
214	[261, 414]	1420	[1949, 1623]	2626	[176, 627]	3832	[4120, 3428]
215	[415, 259]	1421	[1950, 1765]	2627	[506, 685]	3833	[4121, 3611]
216	[416, 417]	1422	[1070, 1068]	2628	[3140, 3141]	3834	[4122, 4123]
217	[418, 419]	1423	[1951, 1952]	2629	[3142, 1694]	3835	[4124, 945]
218	[420, 421]	1424	[1953, 1954]	2630	[3143, 595]	3836	[2696, 4125]
219	[422, 423]	1425	[1955, 1956]	2631	[3144, 2992]	3837	[4126, 1342]
220	[424, 425]	1426	[1957, 1958]	2632	[3144, 2781]	3838	[2396, 2704]
221	[426, 427]	1427	[1959, 1960]	2633	[3145, 1843]	3839	[4127, 1293]
222	[428, 429]	1428	[1961, 937]	2634	[2881, 1744]	3840	[937, 4128]
223	[430, 431]	1429	[1962, 1963]	2635	[2865, 666]	3841	[4129, 1016]
224	[432, 433]	1430	[1964, 474]	2636	[190, 789]	3842	[4130, 1387]
225	[434, 435]	1431	[1965, 344]	2637	[514, 2909]	3843	[4131, 3413]
226	[436, 437]	1432	[1966, 1967]	2638	[2990, 517]	3844	[4132, 994]
227	[438, 439]	1433	[1968, 1969]	2639	[3146, 3147]	3845	[4133, 4134]
228	[440, 441]	1434	[1970, 1971]	2640	[663, 1521]	3846	[4135, 3488]
229	[442, 443]	1435	[1972, 1973]	2641	[3148, 236]	3847	[4136, 1315]
230	[444, 445]	1436	[1974, 1975]	2642	[2772, 3149]	3848	[4137, 3498]
231	[446, 447]	1437	[1976, 1977]	2643	[585, 3097]	3849	[4138, 4139]
232	[448, 449]	1438	[1978, 1979]	2644	[561, 2978]	3850	[4140, 1199]
233	[450, 451]	1439	[1980, 1291]	2645	[3150, 791]	3851	[4141, 2379]
234	[452, 453]	1440	[22, 1981]	2646	[593, 589]	3852	[4142, 4143]
235	[454, 455]	1441	[1982, 1983]	2647	[1433, 38]	3853	[4144, 2317]
236	[456, 457]	1442	[1984, 1985]	2648	[3151, 206]	3854	[72, 2669]
237	[458, 459]	1443	[1986, 1987]	2649	[3152, 1870]	3855	[3230, 4145]
238	[460, 461]	1444	[1988, 1989]	2650	[3153, 2870]	3856	[1288, 3677]
239	[461, 462]	1445	[1990, 1991]	2651	[3103, 2867]	3857	[4146, 4147]
240	[463, 464]	1446	[1992, 77]	2652	[3154, 163]	3858	[4148, 4149]
241	[465, 466]	1447	[328, 85]	2653	[1864, 803]	3859	[959, 4150]
242	[467, 468]	1448	[1375, 1993]	2654	[1481, 676]	3860	[4151, 3432]
243	[469, 470]	1449	[1994, 1995]	2655	[3119, 1894]	3861	[4152, 3566]
244	[471, 472]	1450	[1996, 1997]	2656	[242, 2862]	3862	[1033, 2665]
245	[473, 474]	1451	[1998, 1999]	2657	[1786, 230]	3863	[4153, 95]
246	[475, 476]	1452	[2000, 347]	2658	[3155, 1881]	3864	[4154, 3411]
247	[477, 478]	1453	[2001, 2002]	2659	[2918, 2773]	3865	[2642, 1305]
248	[479, 480]	1454	[2003, 2004]	2660	[2816, 567]	3866	[4155, 4156]
249	[481, 482]	1455	[116, 2005]	2661	[1899, 575]	3867	[4157, 3741]

250	[483, 484]	1456	[2006, 971]	2662	[1900, 1481]	3868	[969, 2397]
251	[485, 171]	1457	[836, 329]	2663	[3156, 243]	3869	[4158, 4159]
252	[162, 486]	1458	[2007, 2008]	2664	[3157, 1545]	3870	[4160, 4161]
253	[487, 488]	1459	[2009, 2010]	2665	[3158, 526]	3871	[4162, 2165]
254	[489, 490]	1460	[411, 2011]	2666	[3159, 662]	3872	[4163, 2647]
255	[491, 492]	1461	[2012, 1201]	2667	[1573, 1800]	3873	[4164, 3481]
256	[493, 494]	1462	[2013, 2014]	2668	[1607, 809]	3874	[4165, 3210]
257	[495, 496]	1463	[2015, 2016]	2669	[3129, 132]	3875	[4166, 2094]
258	[497, 138]	1464	[2017, 97]	2670	[3061, 808]	3876	[4167, 295]
259	[498, 499]	1465	[2018, 2019]	2671	[3054, 2793]	3877	[4168, 4169]
260	[500, 501]	1466	[2020, 2021]	2672	[3160, 3161]	3878	[4170, 3389]
261	[502, 503]	1467	[2022, 2023]	2673	[3162, 549]	3879	[4171, 2409]
262	[504, 505]	1468	[2024, 2025]	2674	[3163, 3008]	3880	[4172, 4173]
263	[506, 507]	1469	[2026, 2027]	2675	[2989, 690]	3881	[4174, 4175]
264	[508, 509]	1470	[2028, 2029]	2676	[1600, 1886]	3882	[3435, 995]
265	[510, 208]	1471	[2030, 2031]	2677	[3023, 60]	3883	[4176, 4177]
266	[511, 512]	1472	[2032, 1998]	2678	[1570, 1493]	3884	[4178, 4179]
267	[211, 513]	1473	[2033, 2034]	2679	[2921, 1545]	3885	[3221, 1103]
268	[213, 486]	1474	[2035, 2036]	2680	[3164, 1759]	3886	[4180, 2009]
269	[507, 513]	1475	[1330, 2037]	2681	[1755, 1800]	3887	[4181, 4182]
270	[514, 515]	1476	[2038, 2039]	2682	[1520, 1427]	3888	[4183, 1105]
271	[516, 202]	1477	[2040, 2041]	2683	[3165, 175]	3889	[4184, 4185]
272	[517, 518]	1478	[2042, 442]	2684	[1599, 1793]	3890	[4186, 2040]
273	[519, 520]	1479	[1269, 2043]	2685	[3166, 1806]	3891	[4187, 4188]
274	[521, 522]	1480	[2044, 1164]	2686	[3167, 1808]	3892	[4189, 276]
275	[523, 524]	1481	[2045, 2046]	2687	[1429, 1465]	3893	[2434, 3520]
276	[193, 525]	1482	[386, 2047]	2688	[3168, 574]	3894	[4190, 2541]
277	[526, 527]	1483	[2048, 2049]	2689	[2805, 1886]	3895	[4191, 3367]
278	[528, 529]	1484	[1011, 2050]	2690	[3169, 233]	3896	[4192, 30]
279	[530, 531]	1485	[2051, 101]	2691	[3170, 1484]	3897	[4193, 4194]
280	[532, 533]	1486	[2052, 2053]	2692	[1769, 61]	3898	[4195, 4196]
281	[534, 535]	1487	[2054, 2055]	2693	[3171, 705]	3899	[4197, 4198]
282	[536, 537]	1488	[2056, 1220]	2694	[696, 828]	3900	[4199, 4200]
283	[538, 539]	1489	[1140, 2057]	2695	[3172, 3080]	3901	[4201, 4202]
284	[540, 541]	1490	[2058, 1082]	2696	[3173, 1884]	3902	[4203, 4204]
285	[542, 543]	1491	[2059, 346]	2697	[2802, 2751]	3903	[4205, 4206]
286	[544, 545]	1492	[2060, 2061]	2698	[3166, 787]	3904	[4207, 2385]
287	[546, 547]	1493	[2062, 2063]	2699	[3174, 3175]	3905	[4208, 381]
288	[548, 549]	1494	[2064, 1972]	2700	[644, 1566]	3906	[4209, 4210]
289	[550, 551]	1495	[2065, 2066]	2701	[3176, 3177]	3907	[4211, 4212]
290	[552, 553]	1496	[2067, 2068]	2702	[3178, 3003]	3908	[4213, 4214]
291	[554, 555]	1497	[2069, 2070]	2703	[3179, 749]	3909	[4177, 4215]
292	[556, 557]	1498	[2071, 2072]	2704	[543, 139]	3910	[4216, 4217]
293	[558, 185]	1499	[2073, 2074]	2705	[2918, 238]	3911	[4218, 4219]

294	[559, 560]	1500	[834, 1077]	2706	[3180, 1593]	3912	[4220, 1375]
295	[188, 561]	1501	[2075, 2076]	2707	[1662, 3181]	3913	[4221, 4222]
296	[562, 563]	1502	[1361, 1366]	2708	[2745, 3058]	3914	[4223, 4224]
297	[564, 565]	1503	[2077, 2078]	2709	[3182, 3183]	3915	[2329, 4225]
298	[566, 567]	1504	[2079, 872]	2710	[3184, 3185]	3916	[4226, 2144]
299	[568, 234]	1505	[2049, 2080]	2711	[3186, 3187]	3917	[4227, 94]
300	[569, 243]	1506	[2081, 2082]	2712	[1819, 3188]	3918	[4228, 2059]
301	[570, 571]	1507	[2083, 2084]	2713	[3189, 3190]	3919	[4229, 4230]
302	[572, 573]	1508	[2085, 2086]	2714	[3191, 3192]	3920	[4231, 1008]
303	[574, 575]	1509	[2087, 2088]	2715	[824, 127]	3921	[4232, 1009]
304	[576, 236]	1510	[2089, 2090]	2716	[3193, 1605]	3922	[4233, 2564]
305	[577, 578]	1511	[2091, 108]	2717	[3194, 735]	3923	[4234, 4235]
306	[579, 580]	1512	[1262, 1191]	2718	[3174, 3118]	3924	[4236, 3286]
307	[48, 581]	1513	[2092, 2093]	2719	[1730, 2760]	3925	[4237, 868]
308	[582, 228]	1514	[2094, 2095]	2720	[3036, 1493]	3926	[4238, 4239]
309	[583, 584]	1515	[860, 2096]	2721	[3195, 699]	3927	[1076, 2343]
310	[572, 498]	1516	[2097, 2098]	2722	[792, 828]	3928	[4240, 4241]
311	[248, 585]	1517	[2099, 2100]	2723	[2848, 1520]	3929	[4242, 1198]
312	[586, 587]	1518	[2101, 918]	2724	[1529, 194]	3930	[4243, 4244]
313	[588, 589]	1519	[2102, 2103]	2725	[3024, 516]	3931	[4245, 4246]
314	[590, 591]	1520	[2104, 325]	2726	[3196, 3197]	3932	[2311, 2035]
315	[592, 593]	1521	[403, 2105]	2727	[3198, 3185]	3933	[4247, 262]
316	[594, 595]	1522	[2106, 2107]	2728	[249, 3097]	3934	[4248, 2083]
317	[596, 48]	1523	[2108, 1086]	2729	[813, 156]	3935	[279, 4249]
318	[597, 598]	1524	[2109, 2110]	2730	[3060, 654]	3936	[4250, 4251]
319	[599, 600]	1525	[2111, 2112]	2731	[3071, 1588]	3937	[4123, 885]
320	[601, 602]	1526	[2113, 1264]	2732	[1892, 635]	3938	[4252, 3460]
321	[603, 604]	1527	[2114, 2115]	2733	[1848, 812]	3939	[4253, 3560]
322	[605, 606]	1528	[2116, 2117]	2734	[3199, 676]	3940	[4254, 4255]
323	[607, 525]	1529	[1397, 2118]	2735	[2938, 2823]	3941	[4256, 2461]
324	[608, 133]	1530	[2119, 2120]	2736	[2994, 3014]	3942	[4257, 1303]
325	[609, 610]	1531	[2121, 383]	2737	[3200, 1572]	3943	[2531, 872]
326	[127, 190]	1532	[2122, 2123]	2738	[1770, 1759]	3944	[4258, 1326]
327	[485, 611]	1533	[1109, 2124]	2739	[3201, 1785]	3945	[4259, 1193]
328	[612, 172]	1534	[2125, 2126]	2740	[2846, 1601]	3946	[4260, 1118]
329	[613, 614]	1535	[2127, 2128]	2741	[3031, 654]	3947	[4261, 2732]
330	[615, 616]	1536	[1987, 2129]	2742	[2221, 3202]	3948	[4262, 4263]
331	[169, 617]	1537	[114, 2130]	2743	[3203, 3204]	3949	[4264, 2324]
332	[618, 172]	1538	[2131, 1975]	2744	[3205, 3206]	3950	[4265, 4266]
333	[619, 173]	1539	[2132, 2133]	2745	[873, 3207]	3951	[4267, 275]
334	[620, 172]	1540	[2134, 2135]	2746	[2096, 1106]	3952	[2588, 87]
335	[169, 485]	1541	[2136, 1189]	2747	[3208, 2615]	3953	[3349, 2504]
336	[621, 621]	1542	[2137, 851]	2748	[1074, 2345]	3954	[4268, 448]
337	[622, 617]	1543	[2138, 2139]	2749	[3209, 3210]	3955	[4269, 353]

338	[173, 617]	1544	[2140, 2141]	2750	[3211, 3212]	3956	[3722, 3277]
339	[623, 621]	1545	[2142, 2143]	2751	[3213, 324]	3957	[4270, 1170]
340	[624, 625]	1546	[2144, 2145]	2752	[1098, 1075]	3958	[2107, 1954]
341	[626, 627]	1547	[2146, 2027]	2753	[3214, 3215]	3959	[4271, 4272]
342	[628, 500]	1548	[2147, 2148]	2754	[3216, 3217]	3960	[4273, 88]
343	[609, 629]	1549	[2149, 2150]	2755	[3218, 1122]	3961	[4274, 2247]
344	[630, 245]	1550	[2151, 1117]	2756	[3219, 870]	3962	[4275, 4276]
345	[631, 632]	1551	[2152, 2153]	2757	[3220, 3221]	3963	[4277, 3263]
346	[633, 634]	1552	[2154, 435]	2758	[3222, 1237]	3964	[4214, 4136]
347	[635, 561]	1553	[2155, 2156]	2759	[3223, 3224]	3965	[4278, 4279]
348	[636, 173]	1554	[2157, 379]	2760	[3225, 3226]	3966	[4280, 4281]
349	[617, 171]	1555	[2053, 2158]	2761	[3227, 3228]	3967	[4282, 4283]
350	[637, 484]	1556	[2159, 2160]	2762	[3229, 3230]	3968	[4284, 4285]
351	[638, 639]	1557	[2161, 2162]	2763	[3231, 394]	3969	[4286, 3784]
352	[640, 641]	1558	[378, 2163]	2764	[3232, 3233]	3970	[4287, 4288]
353	[489, 161]	1559	[2164, 2165]	2765	[3234, 3235]	3971	[4289, 269]
354	[642, 643]	1560	[2166, 2151]	2766	[2533, 3236]	3972	[4290, 2224]
355	[583, 557]	1561	[2167, 2168]	2767	[3237, 3238]	3973	[4291, 3456]
356	[644, 645]	1562	[2169, 2170]	2768	[3239, 3240]	3974	[4292, 4293]
357	[646, 647]	1563	[2171, 958]	2769	[3241, 1404]	3975	[4294, 4295]
358	[648, 649]	1564	[2126, 2172]	2770	[3242, 3243]	3976	[4296, 4297]
359	[650, 651]	1565	[2135, 2173]	2771	[3244, 3245]	3977	[4298, 4299]
360	[652, 62]	1566	[2174, 2175]	2772	[3246, 3247]	3978	[4300, 2154]
361	[653, 654]	1567	[2176, 2177]	2773	[3248, 2348]	3979	[4301, 4302]
362	[655, 656]	1568	[2178, 2179]	2774	[3249, 310]	3980	[4303, 4304]
363	[657, 658]	1569	[2180, 2181]	2775	[3250, 3235]	3981	[4305, 3795]
364	[659, 660]	1570	[2182, 2183]	2776	[1050, 2659]	3982	[4306, 4307]
365	[517, 661]	1571	[2184, 1400]	2777	[3251, 461]	3983	[4308, 4309]
366	[662, 663]	1572	[2185, 374]	2778	[1128, 3252]	3984	[4310, 3692]
367	[664, 42]	1573	[2186, 2187]	2779	[2313, 410]	3985	[4311, 4312]
368	[665, 666]	1574	[1384, 2188]	2780	[3253, 3254]	3986	[4313, 4314]
369	[667, 485]	1575	[1368, 2189]	2781	[3255, 1189]	3987	[4315, 4316]
370	[668, 637]	1576	[2190, 889]	2782	[3256, 3257]	3988	[4317, 3368]
371	[669, 670]	1577	[2191, 2192]	2783	[3258, 3259]	3989	[4318, 1171]
372	[671, 672]	1578	[2193, 2194]	2784	[3260, 3261]	3990	[4319, 4320]
373	[159, 673]	1579	[2195, 2196]	2785	[3262, 3263]	3991	[4321, 4322]
374	[674, 557]	1580	[2197, 2170]	2786	[3264, 91]	3992	[4323, 4324]
375	[675, 676]	1581	[2198, 2199]	2787	[3265, 3266]	3993	[4325, 4326]
376	[186, 677]	1582	[2200, 1097]	2788	[3267, 3268]	3994	[4327, 4328]
377	[678, 679]	1583	[2201, 1249]	2789	[3269, 1420]	3995	[4329, 2715]
378	[680, 681]	1584	[2115, 962]	2790	[3270, 3271]	3996	[4330, 2605]
379	[682, 683]	1585	[2202, 2203]	2791	[3272, 3262]	3997	[4331, 4332]
380	[684, 685]	1586	[2204, 2205]	2792	[3273, 3274]	3998	[4333, 1409]
381	[686, 589]	1587	[96, 1313]	2793	[3275, 2203]	3999	[3583, 4334]

382	[687, 688]	1588	[2206, 2207]	2794	[3276, 1957]	4000	[4335, 1413]
383	[689, 492]	1589	[2208, 2177]	2795	[3277, 3278]	4001	[4336, 4337]
384	[690, 691]	1590	[2209, 2210]	2796	[3279, 3280]	4002	[4338, 4339]
385	[692, 228]	1591	[2211, 2212]	2797	[3281, 3282]	4003	[4340, 4341]
386	[693, 494]	1592	[2213, 2214]	2798	[3283, 3284]	4004	[4196, 3238]
387	[694, 596]	1593	[2215, 2216]	2799	[3285, 3203]	4005	[4342, 4343]
388	[559, 695]	1594	[2217, 1359]	2800	[3286, 3287]	4006	[4344, 3277]
389	[696, 523]	1595	[2218, 2219]	2801	[3288, 3289]	4007	[4345, 3475]
390	[697, 698]	1596	[2220, 2221]	2802	[3290, 3291]	4008	[4346, 1978]
391	[699, 700]	1597	[2222, 2223]	2803	[3292, 1999]	4009	[4347, 4348]
392	[701, 702]	1598	[2224, 2225]	2804	[932, 3293]	4010	[4349, 4350]
393	[703, 153]	1599	[2226, 2227]	2805	[3294, 3222]	4011	[4351, 3405]
394	[704, 705]	1600	[2228, 2229]	2806	[2518, 3289]	4012	[4352, 4353]
395	[706, 157]	1601	[2230, 355]	2807	[3295, 117]	4013	[4354, 4355]
396	[707, 708]	1602	[24, 2231]	2808	[3296, 3297]	4014	[4125, 2626]
397	[709, 710]	1603	[2232, 2233]	2809	[3298, 1115]	4015	[4356, 4357]
398	[711, 712]	1604	[2234, 2235]	2810	[3299, 1163]	4016	[4358, 4359]
399	[713, 714]	1605	[2236, 2014]	2811	[3300, 2476]	4017	[4285, 1345]
400	[715, 716]	1606	[2237, 2238]	2812	[3301, 2705]	4018	[4360, 4361]
401	[717, 240]	1607	[2239, 1414]	2813	[2274, 3302]	4019	[4362, 1049]
402	[718, 719]	1608	[2240, 2241]	2814	[3303, 3304]	4020	[4363, 2276]
403	[182, 720]	1609	[2242, 2243]	2815	[429, 3305]	4021	[4364, 408]
404	[721, 722]	1610	[2244, 1348]	2816	[3306, 3307]	4022	[4365, 3687]
405	[723, 724]	1611	[2245, 2246]	2817	[3308, 110]	4023	[4366, 420]
406	[725, 726]	1612	[1357, 2247]	2818	[3309, 2131]	4024	[4367, 3390]
407	[727, 695]	1613	[2248, 2249]	2819	[3310, 3311]	4025	[4368, 4369]
408	[145, 728]	1614	[2250, 1140]	2820	[3312, 3313]	4026	[4370, 100]
409	[729, 133]	1615	[2251, 125]	2821	[3314, 3315]	4027	[4371, 4372]
410	[730, 610]	1616	[1971, 2252]	2822	[3316, 3317]	4028	[3535, 3766]
411	[178, 731]	1617	[1061, 2253]	2823	[3318, 2204]	4029	[4373, 3799]
412	[721, 732]	1618	[2254, 2255]	2824	[3319, 3320]	4030	[3217, 3649]
413	[60, 733]	1619	[2256, 1165]	2825	[2724, 291]	4031	[4374, 1962]
414	[501, 501]	1620	[2257, 855]	2826	[3321, 3322]	4032	[4375, 2334]
415	[734, 735]	1621	[1029, 2258]	2827	[2267, 2139]	4033	[4376, 4377]
416	[736, 737]	1622	[2259, 2260]	2828	[3323, 3324]	4034	[4378, 4379]
417	[599, 545]	1623	[2261, 2262]	2829	[3263, 3325]	4035	[4380, 2277]
418	[738, 739]	1624	[2263, 1087]	2830	[3326, 3327]	4036	[4381, 4382]
419	[740, 673]	1625	[2264, 2265]	2831	[3328, 952]	4037	[4383, 3622]
420	[741, 742]	1626	[2266, 2267]	2832	[3329, 1158]	4038	[4384, 4385]
421	[587, 743]	1627	[2268, 2269]	2833	[3330, 2733]	4039	[4386, 2487]
422	[744, 745]	1628	[2270, 2271]	2834	[3331, 3272]	4040	[4387, 3461]
423	[746, 747]	1629	[2272, 1039]	2835	[3332, 417]	4041	[4388, 4389]
424	[748, 749]	1630	[2265, 473]	2836	[3333, 262]	4042	[4390, 980]
425	[750, 751]	1631	[2273, 2274]	2837	[3334, 3204]	4043	[4391, 4392]

426	[752, 139]	1632	[2275, 1022]	2838	[3335, 3336]	4044	[4393, 4394]
427	[753, 581]	1633	[2276, 2277]	2839	[3337, 2394]	4045	[4395, 4396]
428	[754, 755]	1634	[2278, 2279]	2840	[1072, 1067]	4046	[4397, 1141]
429	[756, 757]	1635	[2280, 2281]	2841	[2342, 3338]	4047	[4398, 4399]
430	[758, 759]	1636	[2282, 1219]	2842	[3339, 3340]	4048	[4400, 924]
431	[760, 761]	1637	[2283, 1997]	2843	[3341, 3342]	4049	[4401, 3472]
432	[762, 763]	1638	[319, 2284]	2844	[326, 3343]	4050	[4402, 4403]
433	[764, 765]	1639	[2285, 2286]	2845	[3344, 1227]	4051	[4404, 4405]
434	[766, 767]	1640	[2287, 2288]	2846	[3345, 3346]	4052	[4406, 4147]
435	[768, 660]	1641	[1351, 1410]	2847	[3347, 3242]	4053	[4407, 3696]
436	[769, 770]	1642	[2289, 2290]	2848	[3348, 3349]	4054	[4408, 4291]
437	[771, 772]	1643	[2291, 2292]	2849	[2143, 3350]	4055	[4409, 4410]
438	[773, 774]	1644	[2293, 2294]	2850	[3351, 1092]	4056	[4411, 4412]
439	[775, 654]	1645	[2295, 1128]	2851	[3352, 983]	4057	[4413, 4414]
440	[776, 777]	1646	[1039, 2296]	2852	[3353, 1185]	4058	[3346, 258]
441	[778, 779]	1647	[2297, 2298]	2853	[3354, 1373]	4059	[4415, 4416]
442	[780, 600]	1648	[2299, 2300]	2854	[3355, 3356]	4060	[4417, 4418]
443	[13, 781]	1649	[2301, 2302]	2855	[3357, 3236]	4061	[4419, 4420]
444	[782, 647]	1650	[2303, 2304]	2856	[3358, 3359]	4062	[4421, 841]
445	[783, 784]	1651	[2305, 2306]	2857	[3360, 2398]	4063	[4422, 395]
446	[785, 526]	1652	[2307, 2308]	2858	[3361, 2212]	4064	[3444, 2338]
447	[786, 787]	1653	[2309, 459]	2859	[3362, 2446]	4065	[4263, 2201]
448	[788, 789]	1654	[2310, 2311]	2860	[3363, 2211]	4066	[4423, 1110]
449	[790, 791]	1655	[2312, 2313]	2861	[1977, 3364]	4067	[3791, 4291]
450	[792, 523]	1656	[2292, 996]	2862	[3365, 3366]	4068	[4424, 4425]
451	[793, 218]	1657	[858, 2090]	2863	[3367, 3368]	4069	[4426, 4427]
452	[714, 794]	1658	[2314, 2315]	2864	[3369, 319]	4070	[2340, 3404]
453	[662, 795]	1659	[2034, 1035]	2865	[3370, 2219]	4071	[4428, 2164]
454	[796, 797]	1660	[2316, 2317]	2866	[3371, 3372]	4072	[4429, 2396]
455	[798, 799]	1661	[2318, 953]	2867	[3287, 3373]	4073	[4430, 4297]
456	[800, 801]	1662	[2319, 2320]	2868	[3374, 3375]	4074	[4431, 861]
457	[802, 803]	1663	[2321, 2322]	2869	[3376, 3377]	4075	[4432, 2561]
458	[804, 805]	1664	[881, 2323]	2870	[3378, 258]	4076	[4433, 4434]
459	[685, 212]	1665	[2324, 2325]	2871	[3311, 3379]	4077	[4435, 4436]
460	[806, 807]	1666	[2326, 2327]	2872	[3380, 3381]	4078	[4437, 4438]
461	[808, 809]	1667	[2002, 2328]	2873	[3382, 3383]	4079	[4439, 3580]
462	[712, 810]	1668	[1989, 2329]	2874	[2478, 1084]	4080	[4440, 874]
463	[811, 728]	1669	[2330, 2331]	2875	[3384, 3385]	4081	[4441, 3425]
464	[812, 527]	1670	[2332, 1090]	2876	[3386, 2080]	4082	[4442, 4443]
465	[191, 529]	1671	[2333, 2334]	2877	[3387, 3388]	4083	[4444, 3311]
466	[731, 530]	1672	[2335, 2336]	2878	[397, 3389]	4084	[4445, 2028]
467	[813, 706]	1673	[2337, 2338]	2879	[1094, 3390]	4085	[4446, 4447]
468	[814, 723]	1674	[2339, 2340]	2880	[1343, 367]	4086	[4448, 4449]
469	[815, 151]	1675	[2341, 2342]	2881	[3391, 1160]	4087	[4450, 74]

470	[816, 817]	1676	[2343, 2344]	2882	[3392, 903]	4088	[4451, 387]
471	[693, 818]	1677	[1350, 2101]	2883	[3393, 3394]	4089	[4452, 4453]
472	[819, 820]	1678	[2345, 369]	2884	[3395, 3396]	4090	[4454, 326]
473	[782, 821]	1679	[2255, 2346]	2885	[3397, 3398]	4091	[4455, 4383]
474	[541, 822]	1680	[2347, 2348]	2886	[3399, 3400]	4092	[4456, 4257]
475	[823, 175]	1681	[2349, 2350]	2887	[3401, 2190]	4093	[4457, 3793]
476	[607, 194]	1682	[2351, 1160]	2888	[3402, 2459]	4094	[4458, 887]
477	[41, 824]	1683	[2352, 2353]	2889	[891, 3403]	4095	[4459, 4460]
478	[825, 826]	1684	[2354, 2355]	2890	[3404, 3405]	4096	[4235, 3724]
479	[827, 828]	1685	[2356, 1245]	2891	[3406, 2283]	4097	[4461, 4462]
480	[829, 660]	1686	[2357, 2358]	2892	[1025, 3407]	4098	[4463, 4464]
481	[830, 661]	1687	[2359, 2360]	2893	[3408, 3409]	4099	[4465, 3721]
482	[831, 772]	1688	[2361, 2362]	2894	[3410, 3411]	4100	[4466, 3421]
483	[832, 83]	1689	[2363, 2364]	2895	[3412, 260]	4101	[4467, 3659]
484	[833, 834]	1690	[2344, 919]	2896	[3413, 2464]	4102	[4468, 2603]
485	[835, 836]	1691	[2365, 2366]	2897	[3414, 3415]	4103	[4469, 2318]
486	[837, 838]	1692	[2367, 2368]	2898	[3416, 471]	4104	[4470, 4471]
487	[839, 840]	1693	[2369, 2370]	2899	[3417, 3418]	4105	[4472, 2180]
488	[343, 841]	1694	[1209, 983]	2900	[3419, 2626]	4106	[4473, 4322]
489	[842, 843]	1695	[2371, 2372]	2901	[3420, 3407]	4107	[2031, 2485]
490	[844, 471]	1696	[2373, 2374]	2902	[2362, 3421]	4108	[4474, 4475]
491	[845, 846]	1697	[2375, 2376]	2903	[3422, 3423]	4109	[4476, 1218]
492	[847, 848]	1698	[1079, 2377]	2904	[3424, 2190]	4110	[2873, 143]
493	[849, 850]	1699	[2378, 2379]	2905	[3425, 65]	4111	[4041, 651]
494	[851, 852]	1700	[2380, 1182]	2906	[3426, 916]	4112	[2986, 3141]
495	[853, 854]	1701	[2381, 2382]	2907	[2657, 3427]	4113	[4477, 733]
496	[855, 856]	1702	[2383, 357]	2908	[2698, 3428]	4114	[1465, 1515]
497	[857, 858]	1703	[2384, 344]	2909	[3429, 992]	4115	[3111, 2796]
498	[859, 860]	1704	[2385, 2386]	2910	[1956, 1282]	4116	[3134, 2918]
499	[861, 862]	1705	[2387, 2388]	2911	[3430, 3431]	4117	[4003, 137]
500	[863, 864]	1706	[2389, 2390]	2912	[1121, 2114]	4118	[3074, 2831]
501	[864, 865]	1707	[315, 2391]	2913	[3432, 3240]	4119	[3965, 3847]
502	[866, 867]	1708	[2392, 2393]	2914	[3433, 2444]	4120	[3110, 4478]
503	[868, 869]	1709	[2394, 902]	2915	[3434, 3435]	4121	[3940, 1622]
504	[870, 871]	1710	[124, 2395]	2916	[3373, 2147]	4122	[2923, 1754]
505	[872, 873]	1711	[1180, 2396]	2917	[3240, 3436]	4123	[3932, 247]
506	[874, 875]	1712	[2397, 2398]	2918	[3437, 3438]	4124	[3013, 2995]
507	[74, 876]	1713	[2399, 2400]	2919	[3439, 3440]	4125	[535, 506]
508	[877, 390]	1714	[2401, 2402]	2920	[3441, 3442]	4126	[4000, 1708]
509	[878, 879]	1715	[2403, 2315]	2921	[3443, 3444]	4127	[4479, 771]
510	[880, 881]	1716	[2404, 2405]	2922	[3445, 3446]	4128	[3935, 507]
511	[882, 883]	1717	[2406, 1302]	2923	[3447, 1197]	4129	[3159, 1618]
512	[884, 885]	1718	[2407, 2408]	2924	[3448, 3449]	4130	[1946, 1762]
513	[886, 887]	1719	[1251, 2409]	2925	[2424, 3450]	4131	[4034, 3976]

514	[888, 889]	1720	[2410, 1114]	2926	[930, 2559]	4132	[4480, 1428]
515	[890, 891]	1721	[2411, 2412]	2927	[3451, 3452]	4133	[4481, 3871]
516	[892, 893]	1722	[2413, 2414]	2928	[3453, 3454]	4134	[4051, 4482]
517	[894, 895]	1723	[2415, 284]	2929	[3455, 3456]	4135	[3882, 4483]
518	[419, 896]	1724	[2416, 1260]	2930	[3457, 3458]	4136	[3933, 625]
519	[897, 898]	1725	[2417, 2418]	2931	[3415, 3459]	4137	[4484, 1613]
520	[899, 900]	1726	[2419, 2420]	2932	[3460, 3461]	4138	[647, 1586]
521	[901, 902]	1727	[2421, 2422]	2933	[3462, 481]	4139	[140, 2978]
522	[903, 904]	1728	[2423, 2424]	2934	[3463, 2452]	4140	[4485, 4486]
523	[905, 906]	1729	[2425, 2426]	2935	[3464, 1134]	4141	[4055, 3913]
524	[907, 908]	1730	[2427, 2428]	2936	[1217, 3465]	4142	[4487, 4026]
525	[885, 909]	1731	[2429, 2430]	2937	[3466, 3467]	4143	[3123, 4488]
526	[910, 911]	1732	[2431, 2432]	2938	[3468, 1405]	4144	[3952, 9]
527	[912, 913]	1733	[2433, 2434]	2939	[3469, 1232]	4145	[3199, 547]
528	[914, 915]	1734	[2435, 2436]	2940	[3470, 1006]	4146	[1609, 1450]
529	[916, 917]	1735	[2437, 849]	2941	[3340, 2306]	4147	[1698, 214]
530	[918, 333]	1736	[2438, 2439]	2942	[3471, 3472]	4148	[3153, 670]
531	[919, 920]	1737	[2440, 2441]	2943	[2400, 2705]	4149	[3840, 3091]
532	[921, 922]	1738	[2442, 1047]	2944	[3473, 3474]	4150	[784, 2880]
533	[923, 924]	1739	[2443, 2444]	2945	[3475, 3476]	4151	[4489, 217]
534	[925, 926]	1740	[2445, 2175]	2946	[3477, 1104]	4152	[4082, 670]
535	[927, 928]	1741	[2446, 2447]	2947	[3478, 3479]	4153	[4490, 1517]
536	[929, 930]	1742	[2448, 2449]	2948	[3480, 3481]	4154	[4491, 1719]
537	[931, 932]	1743	[2450, 2451]	2949	[3482, 1107]	4155	[4492, 4493]
538	[933, 849]	1744	[2452, 2453]	2950	[3483, 1294]	4156	[4494, 2813]
539	[934, 935]	1745	[2454, 2455]	2951	[3484, 3485]	4157	[553, 3859]
540	[936, 937]	1746	[1133, 2456]	2952	[3486, 1080]	4158	[4060, 3177]
541	[20, 938]	1747	[2355, 2457]	2953	[3487, 3488]	4159	[746, 1653]
542	[939, 940]	1748	[2458, 2459]	2954	[3489, 3490]	4160	[3869, 563]
543	[941, 942]	1749	[2103, 2460]	2955	[3491, 3492]	4161	[221, 2815]
544	[943, 944]	1750	[2461, 2462]	2956	[3342, 2643]	4162	[4107, 2968]
545	[945, 946]	1751	[2463, 1368]	2957	[3493, 3494]	4163	[4495, 4493]
546	[947, 948]	1752	[2464, 97]	2958	[3495, 2493]	4164	[560, 1719]
547	[949, 950]	1753	[2093, 2465]	2959	[3496, 3492]	4165	[1821, 1592]
548	[951, 952]	1754	[2466, 274]	2960	[3497, 2198]	4166	[3956, 812]
549	[953, 954]	1755	[2467, 2468]	2961	[3498, 3499]	4167	[2991, 4074]
550	[955, 956]	1756	[2469, 2470]	2962	[3500, 969]	4168	[4496, 3871]
551	[957, 958]	1757	[2471, 1014]	2963	[3501, 2481]	4169	[3879, 3056]
552	[445, 959]	1758	[2472, 2473]	2964	[3502, 3503]	4170	[4497, 4080]
553	[960, 961]	1759	[2474, 2475]	2965	[3504, 3505]	4171	[4498, 4499]
554	[962, 963]	1760	[2476, 1042]	2966	[3506, 3507]	4172	[4500, 4079]
555	[964, 965]	1761	[2477, 2478]	2967	[3508, 2291]	4173	[4501, 1944]
556	[966, 967]	1762	[2479, 1040]	2968	[3509, 3510]	4174	[3087, 4486]
557	[968, 969]	1763	[2480, 1244]	2969	[3511, 943]	4175	[4502, 204]

558	[970, 971]	1764	[2481, 2482]	2970	[3512, 3513]	4176	[4503, 180]
559	[972, 973]	1765	[2483, 2484]	2971	[3514, 2201]	4177	[2984, 1641]
560	[974, 975]	1766	[2485, 2326]	2972	[1318, 3515]	4178	[2842, 2990]
561	[976, 15]	1767	[2486, 2487]	2973	[3516, 3517]	4179	[4504, 1675]
562	[977, 978]	1768	[2488, 2375]	2974	[2490, 1348]	4180	[4505, 206]
563	[979, 980]	1769	[2489, 2490]	2975	[3518, 3519]	4181	[4506, 3187]
564	[981, 982]	1770	[2491, 2400]	2976	[1069, 1256]	4182	[550, 3867]
565	[983, 984]	1771	[2492, 2493]	2977	[1409, 988]	4183	[4507, 4478]
566	[985, 986]	1772	[2494, 891]	2978	[3520, 2033]	4184	[4508, 1454]
567	[987, 988]	1773	[2468, 2495]	2979	[3521, 3522]	4185	[4509, 799]
568	[989, 271]	1774	[2496, 2332]	2980	[3523, 3524]	4186	[3894, 687]
569	[990, 991]	1775	[2497, 2498]	2981	[3525, 2235]	4187	[1787, 248]
570	[992, 993]	1776	[1310, 1258]	2982	[3526, 954]	4188	[4510, 1753]
571	[118, 994]	1777	[2499, 2500]	2983	[3527, 3528]	4189	[3081, 1640]
572	[995, 323]	1778	[2501, 2502]	2984	[336, 1071]	4190	[4511, 2854]
573	[996, 997]	1779	[2503, 2504]	2985	[3529, 3530]	4191	[4015, 1478]
574	[998, 999]	1780	[2505, 2506]	2986	[3531, 3532]	4192	[3870, 1947]
575	[1000, 1001]	1781	[2507, 2208]	2987	[3533, 3278]	4193	[1897, 4019]
576	[1002, 1003]	1782	[2508, 2509]	2988	[3534, 3535]	4194	[1759, 2943]
577	[1004, 1005]	1783	[435, 2510]	2989	[3536, 3537]	4195	[4067, 195]
578	[1006, 940]	1784	[2511, 2512]	2990	[3538, 3539]	4196	[1863, 1906]
579	[1007, 1008]	1785	[2513, 2514]	2991	[3540, 3541]	4197	[1608, 1454]
580	[451, 1009]	1786	[2515, 2516]	2992	[3542, 292]	4198	[3992, 2909]
581	[1010, 1011]	1787	[2517, 2518]	2993	[3543, 3544]	4199	[4512, 4079]
582	[1012, 29]	1788	[2519, 2520]	2994	[3545, 3546]	4200	[4513, 174]
583	[1013, 6]	1789	[2521, 2522]	2995	[3547, 3548]	4201	[2896, 1850]
584	[1014, 1015]	1790	[2523, 2524]	2996	[3549, 3550]	4202	[4514, 1744]
585	[1016, 1017]	1791	[2260, 2525]	2997	[2212, 3551]	4203	[4515, 4486]
586	[1018, 934]	1792	[2526, 2002]	2998	[3552, 2174]	4204	[4100, 1855]
587	[1019, 256]	1793	[2527, 2528]	2999	[3553, 3554]	4205	[772, 145]
588	[1020, 1021]	1794	[2039, 2529]	3000	[3555, 3556]	4206	[823, 1460]
589	[1022, 1023]	1795	[2530, 2531]	3001	[3557, 2408]	4207	[3946, 2823]
590	[1024, 1025]	1796	[2532, 2533]	3002	[3558, 3364]	4208	[4516, 687]
591	[1026, 1027]	1797	[2534, 2535]	3003	[3559, 3560]	4209	[3040, 4011]
592	[1028, 1029]	1798	[2536, 2537]	3004	[3561, 477]	4210	[1738, 724]
593	[1030, 1031]	1799	[2538, 2232]	3005	[2235, 3548]	4211	[4496, 745]
594	[1032, 1033]	1800	[2539, 2540]	3006	[3562, 3563]	4212	[3178, 3161]
595	[1034, 447]	1801	[2541, 2542]	3007	[3564, 1023]	4213	[3987, 4517]
596	[1035, 1010]	1802	[2543, 2544]	3008	[3565, 3566]	4214	[3943, 1884]
597	[1036, 1037]	1803	[1178, 2545]	3009	[3567, 3568]	4215	[2749, 681]
598	[1038, 1039]	1804	[2546, 2547]	3010	[2148, 3569]	4216	[3172, 4039]
599	[1040, 1041]	1805	[2548, 409]	3011	[3570, 3571]	4217	[2974, 1697]
600	[1042, 1043]	1806	[2549, 2436]	3012	[3572, 2622]	4218	[4481, 745]
601	[1044, 1045]	1807	[2550, 1285]	3013	[3573, 3574]	4219	[4518, 3922]

602	[1046, 1047]	1808	[2551, 463]	3014	[3575, 1295]	4220	[3925, 180]
603	[1048, 1049]	1809	[2552, 1401]	3015	[3576, 1061]	4221	[647, 2917]
604	[984, 1050]	1810	[2553, 2232]	3016	[1314, 89]	4222	[499, 3954]
605	[1051, 1052]	1811	[2554, 2555]	3017	[3577, 3578]	4223	[4519, 3998]
606	[1053, 1054]	1812	[2556, 2557]	3018	[3579, 3580]	4224	[3961, 2892]
607	[1055, 1056]	1813	[2558, 2178]	3019	[3581, 3582]	4225	[3017, 2879]
608	[466, 1057]	1814	[2559, 1054]	3020	[347, 3583]	4226	[707, 519]
609	[1058, 1059]	1815	[2560, 2561]	3021	[3584, 3585]	4227	[594, 4520]
610	[1060, 1061]	1816	[1192, 2562]	3022	[3586, 3587]	4228	[4511, 633]
611	[1062, 1063]	1817	[2563, 2564]	3023	[3588, 1259]	4229	[4521, 1846]
612	[1064, 339]	1818	[2565, 2566]	3024	[3589, 1273]	4230	[2952, 624]
613	[84, 1065]	1819	[2567, 2568]	3025	[3590, 1398]	4231	[3854, 4080]
614	[1063, 1066]	1820	[2569, 2570]	3026	[3591, 1175]	4232	[3997, 4493]
615	[1067, 337]	1821	[2571, 2215]	3027	[3499, 1980]	4233	[3986, 758]
616	[1068, 1069]	1822	[1099, 250]	3028	[3592, 3593]	4234	[4522, 1861]
617	[330, 1070]	1823	[2572, 2573]	3029	[3594, 2023]	4235	[4065, 2804]
618	[1065, 331]	1824	[2574, 1084]	3030	[3595, 2095]	4236	[4503, 502]
619	[1066, 835]	1825	[88, 2575]	3031	[3596, 3597]	4237	[2845, 1454]
620	[1071, 1072]	1826	[2576, 475]	3032	[3598, 2010]	4238	[4523, 1531]
621	[1073, 1074]	1827	[2117, 433]	3033	[3599, 3600]	4239	[4524, 3012]
622	[1075, 1076]	1828	[2577, 2578]	3034	[3601, 3602]	4240	[3911, 3086]
623	[1077, 1073]	1829	[2579, 2580]	3035	[3603, 3522]	4241	[4525, 2926]
624	[1078, 1079]	1830	[2581, 1324]	3036	[3604, 3605]	4242	[4081, 3848]
625	[1080, 1081]	1831	[2582, 2583]	3037	[3606, 3607]	4243	[3028, 732]
626	[1082, 1083]	1832	[2584, 2585]	3038	[3608, 982]	4244	[4526, 1777]
627	[1084, 1085]	1833	[1207, 2586]	3039	[2139, 2473]	4245	[3151, 1632]
628	[332, 863]	1834	[2587, 2588]	3040	[3609, 3610]	4246	[4509, 1867]
629	[1086, 1087]	1835	[2520, 2589]	3041	[3611, 3612]	4247	[4087, 506]
630	[309, 1088]	1836	[2590, 2591]	3042	[3613, 992]	4248	[4527, 1933]
631	[1089, 1090]	1837	[2592, 1972]	3043	[3614, 2458]	4249	[1671, 1700]
632	[1091, 1092]	1838	[2593, 2471]	3044	[1286, 379]	4250	[4528, 4106]
633	[1093, 1094]	1839	[2594, 966]	3045	[3615, 3616]	4251	[4529, 2926]
634	[1095, 1096]	1840	[2595, 2596]	3046	[3617, 3618]	4252	[3898, 1460]
635	[1097, 278]	1841	[2597, 1171]	3047	[3619, 2301]	4253	[2885, 639]
636	[251, 1098]	1842	[2598, 2599]	3048	[3620, 861]	4254	[4530, 1437]
637	[334, 1099]	1843	[869, 2320]	3049	[3621, 2122]	4255	[4531, 1484]
638	[1100, 1101]	1844	[2199, 976]	3050	[3622, 2018]	4256	[4532, 1622]
639	[1102, 1103]	1845	[2600, 2601]	3051	[3623, 2515]	4257	[3116, 784]
640	[1104, 1105]	1846	[2602, 2603]	3052	[3624, 2006]	4258	[4533, 186]
641	[1106, 1107]	1847	[2604, 910]	3053	[3625, 2137]	4259	[4534, 1768]
642	[1108, 1109]	1848	[2605, 1289]	3054	[3626, 3627]	4260	[4088, 519]
643	[1110, 1111]	1849	[2606, 2607]	3055	[3628, 2634]	4261	[4535, 1754]
644	[1112, 1113]	1850	[2608, 2104]	3056	[3629, 3440]	4262	[1623, 1861]
645	[1114, 1115]	1851	[2609, 403]	3057	[3630, 1284]	4263	[4096, 2791]

646	[1116, 1117]	1852	[2610, 2611]	3058	[3631, 3632]	4264	[2975, 2787]
647	[1118, 1119]	1853	[2612, 2117]	3059	[3633, 3634]	4265	[4536, 4093]
648	[1120, 1121]	1854	[2613, 2614]	3060	[3635, 3305]	4266	[4537, 1766]
649	[1122, 1123]	1855	[2615, 76]	3061	[3636, 1385]	4267	[4538, 4499]
650	[1124, 1125]	1856	[2616, 2617]	3062	[3637, 3638]	4268	[3981, 1614]
651	[1126, 968]	1857	[2618, 2619]	3063	[3639, 3640]	4269	[4066, 642]
652	[1127, 1128]	1858	[1390, 260]	3064	[3641, 3642]	4270	[4539, 1488]
653	[1129, 428]	1859	[2229, 1156]	3065	[3643, 3424]	4271	[3146, 3190]
654	[1130, 1131]	1860	[2620, 2621]	3066	[3644, 1050]	4272	[772, 45]
655	[1132, 1133]	1861	[2622, 2623]	3067	[3645, 950]	4273	[4044, 4040]
656	[1134, 444]	1862	[1292, 2624]	3068	[3646, 3647]	4274	[4540, 1442]
657	[1135, 1136]	1863	[417, 2625]	3069	[3648, 870]	4275	[4541, 3055]
658	[1137, 1138]	1864	[2626, 2627]	3070	[3649, 463]	4276	[4542, 4543]
659	[1139, 1140]	1865	[2628, 2629]	3071	[3650, 109]	4277	[4544, 40]
660	[1141, 1142]	1866	[2630, 1173]	3072	[3651, 3652]	4278	[4490, 665]
661	[1143, 1144]	1867	[2631, 2515]	3073	[3653, 3299]	4279	[3927, 500]
662	[1145, 1146]	1868	[476, 2288]	3074	[3654, 3655]	4280	[601, 4019]
663	[1147, 1148]	1869	[1253, 63]	3075	[3656, 3657]	4281	[4477, 2776]
664	[350, 832]	1870	[2632, 386]	3076	[3658, 3659]	4282	[3845, 4093]
665	[1149, 1150]	1871	[2633, 2634]	3077	[3660, 3215]	4283	[3848, 2905]
666	[1151, 1029]	1872	[2635, 2636]	3078	[3381, 3250]	4284	[4104, 2801]
667	[1152, 1062]	1873	[2637, 2638]	3079	[3661, 3662]	4285	[200, 1884]
668	[865, 833]	1874	[2639, 2640]	3080	[3663, 3612]	4286	[4109, 1732]
669	[1153, 1154]	1875	[2641, 2642]	3081	[3664, 3665]	4287	[4010, 36]
670	[1155, 1156]	1876	[2643, 2644]	3082	[3666, 3379]	4288	[4545, 1612]
671	[341, 1157]	1877	[1158, 2645]	3083	[3667, 3668]	4289	[2837, 1857]
672	[963, 1158]	1878	[2646, 2088]	3084	[3669, 2457]	4290	[4546, 2787]
673	[313, 1159]	1879	[110, 2647]	3085	[3670, 2481]	4291	[3855, 149]
674	[1160, 1161]	1880	[2648, 2649]	3086	[3671, 3563]	4292	[3065, 156]
675	[1162, 1163]	1881	[2650, 2651]	3087	[3672, 2576]	4293	[4022, 1602]
676	[1164, 28]	1882	[2652, 2653]	3088	[3673, 1959]	4294	[4547, 4093]
677	[1165, 1166]	1883	[265, 1956]	3089	[3674, 2158]	4295	[534, 2950]
678	[338, 370]	1884	[898, 2654]	3090	[3675, 3676]	4296	[3106, 4031]
679	[920, 1167]	1885	[2655, 2065]	3091	[3677, 2715]	4297	[1792, 1623]
680	[1168, 1169]	1886	[2656, 2657]	3092	[3449, 3678]	4298	[4548, 2797]
681	[1170, 1143]	1887	[2658, 2659]	3093	[3679, 929]	4299	[4549, 3077]
682	[1171, 1172]	1888	[2660, 2661]	3094	[3680, 912]	4300	[4046, 768]
683	[1103, 1173]	1889	[2662, 1236]	3095	[3681, 908]	4301	[4550, 1618]
684	[1107, 886]	1890	[2663, 2342]	3096	[414, 3682]	4302	[4073, 1489]
685	[928, 1174]	1891	[2664, 949]	3097	[480, 3683]	4303	[3910, 4551]
686	[1175, 1176]	1892	[2665, 276]	3098	[3684, 3433]	4304	[3893, 140]
687	[1177, 1178]	1893	[2666, 452]	3099	[3685, 3686]	4305	[3826, 801]
688	[1179, 1180]	1894	[2667, 2668]	3100	[2659, 3687]	4306	[4552, 2948]
689	[1181, 1182]	1895	[2669, 1998]	3101	[3688, 3689]	4307	[4529, 2905]

690	[1183, 1184]	1896	[2670, 460]	3102	[3690, 3691]	4308	[1876, 3865]
691	[1185, 1186]	1897	[2671, 2672]	3103	[1264, 3692]	4309	[4069, 4032]
692	[1187, 1188]	1898	[2673, 2674]	3104	[3693, 3694]	4310	[3915, 4103]
693	[1189, 1190]	1899	[2675, 1299]	3105	[3695, 377]	4311	[4071, 491]
694	[1191, 1192]	1900	[2676, 2677]	3106	[3696, 3310]	4312	[3917, 208]
695	[1193, 1194]	1901	[2678, 362]	3107	[3697, 342]	4313	[4002, 2821]
696	[1195, 1196]	1902	[2679, 2680]	3108	[3698, 384]	4314	[3135, 3149]
697	[1197, 1198]	1903	[2681, 869]	3109	[3699, 3700]	4315	[4553, 4106]
698	[1182, 1199]	1904	[1346, 2682]	3110	[358, 3279]	4316	[2949, 535]
699	[1200, 1055]	1905	[2683, 1959]	3111	[3701, 3702]	4317	[4554, 3965]
700	[1201, 376]	1906	[388, 2350]	3112	[3703, 856]	4318	[4092, 3989]
701	[1202, 1203]	1907	[2684, 2638]	3113	[3704, 3705]	4319	[3994, 3075]
702	[1204, 1205]	1908	[2685, 2585]	3114	[3706, 2462]	4320	[4513, 3898]
703	[1206, 1207]	1909	[2686, 2687]	3115	[3707, 3708]	4321	[187, 50]
704	[1208, 1209]	1910	[2688, 302]	3116	[2163, 2635]	4322	[4004, 2978]
705	[1210, 1211]	1911	[2689, 2425]	3117	[3709, 3710]	4323	[2988, 4551]
706	[1212, 1213]	1912	[2690, 2691]	3118	[3711, 3242]	4324	[4555, 499]
707	[1214, 1215]	1913	[2692, 2693]	3119	[3712, 436]	4325	[3196, 4026]
708	[1216, 1217]	1914	[2694, 255]	3120	[3713, 3714]	4326	[4024, 747]
709	[1218, 1219]	1915	[2695, 2696]	3121	[3715, 3716]	4327	[4556, 1578]
710	[1220, 1221]	1916	[2697, 2698]	3122	[3717, 3718]	4328	[4557, 4052]
711	[1222, 1223]	1917	[2699, 2424]	3123	[3719, 3720]	4329	[4558, 40]
712	[1224, 1225]	1918	[2360, 2700]	3124	[3721, 3722]	4330	[2874, 1861]
713	[1226, 917]	1919	[2701, 2702]	3125	[3723, 1120]	4331	[3928, 1636]
714	[1227, 1228]	1920	[2703, 427]	3126	[3724, 2374]	4332	[1634, 2889]
715	[1229, 1230]	1921	[2704, 425]	3127	[3725, 1060]	4333	[3132, 4559]
716	[1231, 1232]	1922	[2705, 2068]	3128	[3634, 1372]	4334	[561, 141]
717	[926, 465]	1923	[2706, 2707]	3129	[3726, 2314]	4335	[4560, 206]
718	[1233, 1234]	1924	[2708, 1290]	3130	[3727, 3728]	4336	[4561, 3080]
719	[1235, 1236]	1925	[2636, 2433]	3131	[3729, 838]	4337	[663, 1679]
720	[1237, 1234]	1926	[2709, 2710]	3132	[3730, 3731]	4338	[3916, 797]
721	[1238, 1239]	1927	[2711, 2712]	3133	[3732, 3678]	4339	[4072, 2909]
722	[1240, 1241]	1928	[2713, 2310]	3134	[3733, 3734]	4340	[3062, 805]
723	[1242, 1243]	1929	[2714, 2685]	3135	[3735, 3736]	4341	[1904, 3091]
724	[1244, 1245]	1930	[2715, 2716]	3136	[3737, 2194]	4342	[4562, 3976]
725	[1246, 1247]	1931	[2717, 2220]	3137	[3738, 2202]	4343	[3128, 2889]
726	[1248, 1249]	1932	[2718, 1987]	3138	[3739, 1349]	4344	[4563, 3984]
727	[1250, 1251]	1933	[2719, 2411]	3139	[3740, 3741]	4345	[4009, 1434]
728	[838, 881]	1934	[2720, 1339]	3140	[3742, 3743]	4346	[3947, 1768]
729	[1252, 1253]	1935	[2721, 2486]	3141	[3744, 3745]	4347	[4564, 1648]
730	[1254, 1255]	1936	[2722, 2560]	3142	[2570, 2368]	4348	[4531, 648]
731	[1256, 1064]	1937	[2723, 2724]	3143	[3746, 3747]	4349	[4565, 4517]
732	[1257, 1258]	1938	[2725, 1298]	3144	[3748, 2329]	4350	[1491, 626]
733	[1259, 1260]	1939	[2726, 2727]	3145	[3749, 283]	4351	[3836, 3949]

734	[1261, 1262]	1940	[2728, 2441]	3146	[3750, 3751]	4352	[4097, 2948]
735	[1263, 1264]	1941	[2729, 2730]	3147	[3752, 3476]	4353	[2834, 1766]
736	[1265, 1266]	1942	[2731, 2399]	3148	[3753, 270]	4354	[4497, 534]
737	[1267, 1207]	1943	[2732, 2549]	3149	[3754, 1251]	4355	[4514, 772]
738	[1268, 1269]	1944	[2733, 2146]	3150	[3755, 2322]	4356	[4566, 233]
739	[1270, 1271]	1945	[2072, 2734]	3151	[3756, 3577]	4357	[4105, 1527]
740	[1272, 373]	1946	[2735, 2073]	3152	[3757, 3758]	4358	[4567, 1651]
741	[1273, 1274]	1947	[2736, 2413]	3153	[3759, 3760]	4359	[3921, 4568]
742	[893, 1275]	1948	[2737, 2738]	3154	[3761, 3762]	4360	[3000, 4013]
743	[1276, 294]	1949	[2739, 2622]	3155	[3763, 3248]	4361	[4075, 1580]
744	[1277, 1278]	1950	[2740, 2741]	3156	[3764, 1091]	4362	[3179, 1813]
745	[1279, 1280]	1951	[2742, 2743]	3157	[3765, 1988]	4363	[4532, 1490]
746	[1281, 1282]	1952	[2744, 1595]	3158	[3766, 912]	4364	[1604, 684]
747	[1283, 1284]	1953	[2745, 763]	3159	[3767, 1360]	4365	[2820, 3858]
748	[1285, 1286]	1954	[2746, 1666]	3160	[3768, 3769]	4366	[4569, 587]
749	[1287, 1288]	1955	[2747, 1854]	3161	[16, 1297]	4367	[4538, 3960]
750	[1289, 1290]	1956	[509, 202]	3162	[3770, 3657]	4368	[4570, 3853]
751	[1291, 1292]	1957	[2748, 664]	3163	[3771, 3772]	4369	[4031, 3898]
752	[1293, 1280]	1958	[2749, 1459]	3164	[3773, 2499]	4370	[1849, 2897]
753	[1294, 1295]	1959	[504, 1906]	3165	[3774, 964]	4371	[35, 2981]
754	[1296, 1297]	1960	[175, 555]	3166	[1236, 3775]	4372	[4063, 1855]
755	[1298, 1299]	1961	[2750, 2751]	3167	[3776, 3777]	4373	[3145, 742]
756	[1300, 1301]	1962	[2752, 679]	3168	[3778, 1000]	4374	[4484, 790]
757	[1302, 858]	1963	[2753, 1709]	3169	[3779, 1323]	4375	[3111, 2983]
758	[1303, 1304]	1964	[2754, 2755]	3170	[3780, 3430]	4376	[4056, 1590]
759	[1305, 1306]	1965	[1836, 2756]	3171	[3781, 2500]	4377	[2919, 1550]
760	[1307, 896]	1966	[2757, 1545]	3172	[3782, 3783]	4378	[4553, 2966]
761	[1308, 1255]	1967	[1796, 1497]	3173	[3784, 1379]	4379	[4571, 1519]
762	[1309, 1310]	1968	[1840, 1684]	3174	[3785, 946]	4380	[3964, 3105]
763	[1311, 1312]	1969	[1494, 2758]	3175	[3786, 1397]	4381	[3113, 2789]
764	[1313, 1314]	1970	[2759, 1731]	3176	[3787, 3788]	4382	[1943, 1697]
765	[1315, 1316]	1971	[780, 545]	3177	[3789, 3578]	4383	[1943, 1638]
766	[1317, 1318]	1972	[1646, 1565]	3178	[3790, 3551]	4384	[4552, 4098]
767	[1319, 1320]	1973	[2760, 1538]	3179	[2640, 3791]	4385	[4572, 3847]
768	[1321, 1322]	1974	[2761, 1888]	3180	[3792, 3793]	4386	[4554, 3105]
769	[1323, 1324]	1975	[2762, 779]	3181	[3794, 3795]	4387	[4070, 4033]
770	[902, 956]	1976	[2763, 1689]	3182	[3796, 3797]	4388	[3993, 1737]
771	[1325, 286]	1977	[793, 517]	3183	[3798, 3799]	4389	[654, 2815]
772	[1326, 93]	1978	[830, 518]	3184	[3800, 3801]	4390	[1470, 2910]
773	[1327, 1328]	1979	[1768, 1943]	3185	[3802, 2653]	4391	[532, 2894]
774	[1329, 1330]	1980	[179, 530]	3186	[3803, 3804]	4392	[1850, 1519]
775	[1331, 429]	1981	[44, 1825]	3187	[3282, 2642]	4393	[2838, 1661]
776	[1332, 1333]	1982	[2764, 2765]	3188	[3805, 3442]	4394	[3914, 3109]
777	[1334, 1335]	1983	[1497, 2766]	3189	[3806, 3807]	4395	[3120, 3141]

778	[1336, 292]	1984	[566, 2767]	3190	[3808, 2123]	4396	[1544, 1713]
779	[1328, 1337]	1985	[2768, 647]	3191	[3809, 3810]	4397	[4569, 1434]
780	[1146, 1338]	1986	[2769, 2760]	3192	[3811, 840]	4398	[4512, 4573]
781	[439, 1339]	1987	[2770, 1722]	3193	[3812, 3284]	4399	[3995, 624]
782	[1340, 1341]	1988	[10, 541]	3194	[3813, 3814]	4400	[234, 1783]
783	[1342, 1343]	1989	[1648, 249]	3195	[3815, 3816]	4401	[1585, 2917]
784	[447, 1344]	1990	[2771, 2772]	3196	[3817, 3818]	4402	[4574, 2966]
785	[1345, 1346]	1991	[237, 2773]	3197	[3819, 2145]	4403	[3863, 624]
786	[1213, 1347]	1992	[2774, 156]	3198	[3820, 3683]	4404	[2899, 2971]
787	[1348, 1349]	1993	[180, 503]	3199	[3821, 2447]	4405	[4545, 524]
788	[86, 1350]	1994	[1736, 1920]	3200	[3822, 3729]	4406	[4575, 34]
789	[1167, 1351]	1995	[2775, 2776]	3201	[3823, 361]	4407	[4576, 3988]
790	[1352, 1353]	1996	[605, 726]	3202	[649, 1548]	4408	[3977, 4559]
791	[1354, 1355]	1997	[2777, 677]	3203	[136, 1552]	4409	[4577, 2772]
792	[1356, 1357]	1998	[2778, 1576]	3204	[1561, 2913]	4410	[2772, 1873]
793	[1358, 1143]	1999	[2779, 685]	3205	[3824, 2836]	4411	[4508, 159]
794	[917, 1359]	2000	[1915, 1464]	3206	[3825, 2813]	4412	[3152, 216]
795	[1360, 1361]	2001	[2780, 2781]	3207	[543, 1657]	4413	[1508, 1578]
796	[1362, 99]	2002	[1603, 600]	3208	[1910, 152]	4414	[4542, 3971]
797	[1363, 1364]	2003	[2782, 767]	3209	[3826, 512]	4415	[3079, 4039]
798	[1365, 1366]	2004	[1914, 492]	3210	[555, 488]	4416	[2904, 1803]
799	[1367, 1368]	2005	[228, 781]	3211	[3827, 2743]	4417	[3852, 4101]
800	[1369, 1370]	2006	[653, 2783]	3212	[3108, 3828]	4418	[1847, 785]
801	[1371, 1372]	2007	[2784, 163]	3213	[2956, 3829]	4419	[4487, 3197]
802	[1373, 1374]	2008	[640, 2785]	3214	[2886, 2884]	4420	[4578, 4543]
803	[64, 1375]	2009	[1681, 2786]	3215	[1666, 2785]	4421	[4579, 128]
804	[1376, 1377]	2010	[206, 593]	3216	[3830, 1636]	4422	[4540, 651]
805	[1378, 1379]	2011	[2787, 129]	3217	[3831, 1575]	4423	[4580, 1490]
806	[1380, 1381]	2012	[1619, 186]	3218	[1804, 3832]	4424	[4581, 3183]
807	[1382, 943]	2013	[1948, 203]	3219	[2962, 2756]	4425	[4582, 4543]
808	[1383, 1384]	2014	[491, 1477]	3220	[3833, 559]	4426	[4583, 4499]
809	[1385, 1386]	2015	[2788, 2789]	3221	[3070, 1473]	4427	[4494, 1729]
810	[1387, 1388]	2016	[688, 1803]	3222	[3047, 232]	4428	[2927, 662]
811	[301, 1389]	2017	[2790, 1805]	3223	[3834, 1839]	4429	[3033, 4584]
812	[841, 1390]	2018	[1638, 1806]	3224	[3066, 1686]	4430	[218, 661]
813	[1391, 1392]	2019	[2791, 1666]	3225	[2808, 3835]	4431	[2790, 3832]
814	[1393, 984]	2020	[2792, 2793]	3226	[2847, 58]	4432	[4585, 2836]
815	[1394, 1395]	2021	[1812, 747]	3227	[2764, 3141]	4433	[4586, 4079]
816	[1396, 1397]	2022	[1581, 2794]	3228	[1759, 1777]	4434	[537, 2926]
817	[1398, 1399]	2023	[2795, 751]	3229	[1784, 184]	4435	[4587, 3988]
818	[1400, 1401]	2024	[2796, 2797]	3230	[244, 1565]	4436	[3831, 1803]
819	[1402, 1403]	2025	[2744, 2798]	3231	[2774, 706]	4437	[3950, 3901]
820	[1404, 1403]	2026	[1664, 2799]	3232	[1577, 1509]	4438	[4582, 3971]
821	[1405, 1406]	2027	[2800, 32]	3233	[3160, 3003]	4439	[1512, 4588]

822	[1232, 1407]	2028	[1767, 794]	3234	[3836, 3837]	4440	[3886, 1458]
823	[1408, 1409]	2029	[831, 1744]	3235	[750, 3027]	4441	[4058, 130]
824	[1410, 1152]	2030	[1802, 2801]	3236	[1818, 54]	4442	[3877, 3038]
825	[1411, 1412]	2031	[743, 130]	3237	[3838, 1821]	4443	[705, 1922]
826	[1413, 1414]	2032	[2802, 2803]	3238	[2746, 1825]	4444	[3191, 1832]
827	[1415, 907]	2033	[179, 1641]	3239	[2747, 712]	4445	[2934, 831]
828	[1416, 1417]	2034	[1613, 791]	3240	[217, 517]	4446	[4589, 3190]
829	[1418, 1355]	2035	[1638, 787]	3241	[1615, 655]	4447	[700, 2889]
830	[1419, 1420]	2036	[2804, 32]	3242	[2770, 571]	4448	[4576, 4517]
831	[1421, 1013]	2037	[1647, 14]	3243	[1790, 2810]	4449	[795, 1679]
832	[171, 1422]	2038	[2805, 1601]	3244	[3839, 1488]	4450	[3165, 1460]
833	[620, 619]	2039	[1758, 155]	3245	[798, 1867]	4451	[3945, 559]
834	[484, 616]	2040	[2806, 742]	3246	[3102, 2887]	4452	[4530, 574]
835	[616, 619]	2041	[687, 1801]	3247	[3840, 1858]	4453	[4590, 188]
836	[621, 167]	2042	[1789, 1765]	3248	[1866, 799]	4454	[4579, 2787]
837	[1423, 1424]	2043	[1839, 1757]	3249	[3841, 248]	4455	[2957, 1830]
838	[1425, 634]	2044	[2807, 57]	3250	[821, 1586]	4456	[4591, 735]
839	[145, 46]	2045	[2808, 777]	3251	[3842, 712]	4457	[4028, 3972]
840	[1426, 1427]	2046	[652, 656]	3252	[3112, 1456]	4458	[4592, 1708]
841	[500, 500]	2047	[2809, 2810]	3253	[3843, 1464]	4459	[4593, 2789]
842	[715, 1428]	2048	[1528, 132]	3254	[2916, 2911]	4460	[3131, 145]
843	[1429, 499]	2049	[1833, 728]	3255	[1644, 3085]	4461	[4594, 3871]
844	[1430, 1431]	2050	[790, 1614]	3256	[3200, 57]	4462	[3970, 4543]
845	[1432, 1433]	2051	[2763, 203]	3257	[3171, 1693]	4463	[4595, 1513]
846	[713, 673]	2052	[2811, 1762]	3258	[226, 1783]	4464	[1547, 2912]
847	[492, 710]	2053	[2812, 1693]	3259	[1835, 1584]	4465	[3130, 2958]
848	[1434, 539]	2054	[701, 1684]	3260	[3099, 2942]	4466	[4045, 3063]
849	[1435, 183]	2055	[1629, 157]	3261	[1693, 1922]	4467	[4595, 4588]
850	[1436, 820]	2056	[1476, 1793]	3262	[680, 1459]	4468	[4596, 2997]
851	[1437, 1438]	2057	[1606, 2813]	3263	[501, 500]	4469	[1560, 1549]
852	[1439, 1440]	2058	[1891, 1481]	3264	[3844, 1917]	4470	[2947, 4098]
853	[1441, 1442]	2059	[1844, 635]	3265	[1503, 805]	4471	[4571, 3875]
854	[1443, 1444]	2060	[2814, 602]	3266	[2825, 3016]	4472	[4014, 2804]
855	[1445, 723]	2061	[2783, 2815]	3267	[3845, 3846]	4473	[4037, 4483]
856	[61, 656]	2062	[2816, 2767]	3268	[3105, 3847]	4474	[4038, 3080]
857	[1446, 767]	2063	[2817, 585]	3269	[536, 3848]	4475	[1623, 626]
858	[509, 741]	2064	[2818, 2760]	3270	[3849, 549]	4476	[3195, 1933]
859	[1447, 531]	2065	[2819, 1473]	3271	[3850, 3851]	4477	[4225, 3745]
860	[528, 192]	2066	[1894, 226]	3272	[628, 501]	4478	[4597, 3281]
861	[811, 46]	2067	[2820, 135]	3273	[3852, 3853]	4479	[4598, 4599]
862	[1448, 196]	2068	[2821, 755]	3274	[2968, 1766]	4480	[4600, 4601]
863	[668, 1422]	2069	[677, 239]	3275	[3854, 534]	4481	[4602, 4603]
864	[172, 169]	2070	[1835, 1656]	3276	[1860, 180]	4482	[4604, 3736]
865	[1422, 484]	2071	[2822, 184]	3277	[3855, 131]	4483	[4605, 859]

866	[1449, 1450]	2072	[570, 1722]	3278	[3856, 527]	4484	[4606, 4607]
867	[1451, 165]	2073	[2819, 247]	3279	[1559, 1657]	4485	[4608, 4330]
868	[1452, 1453]	2074	[2823, 821]	3280	[649, 2912]	4486	[4609, 3349]
869	[1454, 714]	2075	[2824, 1610]	3281	[3857, 1873]	4487	[4610, 4611]
870	[1455, 571]	2076	[2825, 1558]	3282	[3858, 1883]	4488	[4612, 2509]
871	[631, 1456]	2077	[2826, 722]	3283	[1875, 3859]	4489	[4613, 894]
872	[497, 543]	2078	[1627, 2827]	3284	[196, 3016]	4490	[4614, 4615]
873	[247, 240]	2079	[1695, 1469]	3285	[3860, 1561]	4491	[2241, 4355]
874	[1457, 788]	2080	[2779, 507]	3286	[2976, 789]	4492	[4616, 4617]
875	[1458, 1459]	2081	[2828, 1929]	3287	[3861, 681]	4493	[4618, 964]
876	[1460, 555]	2082	[2829, 1474]	3288	[3862, 3863]	4494	[4619, 3302]
877	[1461, 699]	2083	[2806, 1843]	3289	[1751, 1801]	4495	[4620, 3330]
878	[1432, 767]	2084	[1933, 1634]	3290	[3864, 3865]	4496	[4621, 4622]
879	[1462, 588]	2085	[2830, 2831]	3291	[3866, 3867]	4497	[3777, 3620]
880	[1463, 1464]	2086	[2832, 785]	3292	[3868, 33]	4498	[4623, 4624]
881	[498, 1465]	2087	[2833, 2834]	3293	[1501, 629]	4499	[4625, 3724]
882	[1466, 1467]	2088	[2835, 520]	3294	[3168, 1437]	4500	[4626, 4627]
883	[723, 604]	2089	[1852, 2836]	3295	[1893, 233]	4501	[4628, 89]
884	[1468, 1469]	2090	[767, 38]	3296	[3869, 2942]	4502	[4629, 2529]
885	[1425, 1470]	2091	[2837, 2838]	3297	[1712, 3039]	4503	[4630, 4631]
886	[502, 181]	2092	[2839, 825]	3298	[3870, 1727]	4504	[4632, 4633]
887	[679, 788]	2093	[2840, 789]	3299	[1942, 1544]	4505	[4634, 1030]
888	[1471, 1472]	2094	[2841, 131]	3300	[3841, 1648]	4506	[4635, 4464]
889	[1473, 1474]	2095	[2800, 1864]	3301	[1938, 2821]	4507	[4636, 3527]
890	[718, 598]	2096	[531, 42]	3302	[156, 1630]	4508	[4637, 2407]
891	[1475, 494]	2097	[2842, 217]	3303	[744, 3871]	4509	[4638, 4636]
892	[1476, 591]	2098	[2843, 161]	3304	[3872, 3185]	4510	[2607, 2698]
893	[689, 1477]	2099	[2824, 1450]	3305	[1881, 238]	4511	[4639, 1095]
894	[697, 710]	2100	[1505, 2785]	3306	[3873, 3187]	4512	[4640, 4641]
895	[1478, 688]	2101	[612, 619]	3307	[3163, 3874]	4513	[4642, 411]
896	[739, 1479]	2102	[1519, 2844]	3308	[1446, 1433]	4514	[4643, 91]
897	[1480, 1481]	2103	[1679, 1502]	3309	[773, 2762]	4515	[4644, 4645]
898	[1482, 183]	2104	[678, 127]	3310	[3875, 2844]	4516	[4646, 1179]
899	[1483, 1484]	2105	[243, 1456]	3311	[2778, 1711]	4517	[4647, 1176]
900	[1485, 187]	2106	[1522, 195]	3312	[796, 642]	4518	[4648, 4649]
901	[1486, 1487]	2107	[1861, 177]	3313	[3876, 216]	4519	[4650, 4205]
902	[1488, 1477]	2108	[2845, 159]	3314	[2866, 210]	4520	[4651, 2724]
903	[660, 1489]	2109	[2846, 1886]	3315	[3092, 3091]	4521	[4652, 4653]
904	[1490, 1491]	2110	[1763, 723]	3316	[3022, 1498]	4522	[3587, 407]
905	[1492, 1493]	2111	[650, 1442]	3317	[12, 1544]	4523	[4654, 2633]
906	[1494, 1495]	2112	[2847, 817]	3318	[1688, 203]	4524	[4655, 1085]
907	[1496, 1497]	2113	[2848, 2844]	3319	[3877, 1467]	4525	[4656, 414]
908	[1498, 1499]	2114	[1641, 531]	3320	[1627, 3100]	4526	[3207, 1241]
909	[247, 1474]	2115	[1517, 666]	3321	[3176, 3878]	4527	[4657, 2278]

910	[1500, 731]	2116	[1944, 2791]	3322	[3879, 1580]	4528	[4658, 4659]
911	[1501, 610]	2117	[2849, 177]	3323	[1829, 2958]	4529	[4660, 63]
912	[682, 1502]	2118	[2850, 1748]	3324	[539, 2841]	4530	[4661, 1419]
913	[1460, 671]	2119	[1723, 1572]	3325	[3193, 666]	4531	[4662, 1122]
914	[1503, 1504]	2120	[2851, 1497]	3326	[3880, 3177]	4532	[4663, 4664]
915	[1505, 641]	2121	[2852, 690]	3327	[3881, 1511]	4533	[4665, 365]
916	[1506, 1453]	2122	[673, 1707]	3328	[3882, 3883]	4534	[4666, 2127]
917	[797, 1507]	2123	[1890, 743]	3329	[3884, 825]	4535	[4667, 272]
918	[636, 169]	2124	[690, 1479]	3330	[3885, 1521]	4536	[4668, 4669]
919	[170, 611]	2125	[2759, 2760]	3331	[3886, 680]	4537	[4670, 2163]
920	[617, 611]	2126	[1791, 1537]	3332	[3043, 1785]	4538	[4671, 3484]
921	[1508, 1509]	2127	[2853, 1568]	3333	[3887, 3888]	4539	[4672, 847]
922	[1510, 1511]	2128	[2854, 1470]	3334	[3889, 756]	4540	[4673, 4674]
923	[1512, 1513]	2129	[2760, 820]	3335	[138, 1657]	4541	[4675, 4676]
924	[1514, 1515]	2130	[1527, 1835]	3336	[499, 1515]	4542	[4677, 3436]
925	[1516, 1517]	2131	[2855, 723]	3337	[3890, 1488]	4543	[4678, 4341]
926	[1518, 731]	2132	[2856, 2857]	3338	[243, 632]	4544	[4679, 4680]
927	[1519, 1520]	2133	[155, 1777]	3339	[3891, 831]	4545	[4681, 2495]
928	[626, 177]	2134	[1714, 224]	3340	[593, 1621]	4546	[4682, 4683]
929	[795, 1521]	2135	[2858, 1438]	3341	[1928, 3892]	4547	[4684, 4685]
930	[1522, 1448]	2136	[2859, 1765]	3342	[3893, 561]	4548	[4686, 4687]
931	[1523, 1501]	2137	[10, 1439]	3343	[2787, 1700]	4549	[4688, 2124]
932	[1457, 190]	2138	[2860, 2821]	3344	[3894, 1478]	4550	[4689, 4690]
933	[1524, 1525]	2139	[756, 578]	3345	[3895, 633]	4551	[4691, 2049]
934	[1526, 1527]	2140	[1438, 2861]	3346	[3048, 498]	4552	[4692, 4693]
935	[1485, 677]	2141	[1440, 751]	3347	[3073, 1790]	4553	[4694, 4695]
936	[1528, 625]	2142	[569, 2862]	3348	[2926, 2804]	4554	[3418, 2106]
937	[1529, 525]	2143	[674, 584]	3349	[2849, 627]	4555	[887, 4268]
938	[40, 192]	2144	[2863, 589]	3350	[3896, 496]	4556	[4696, 4697]
939	[1530, 591]	2145	[2864, 1943]	3351	[3897, 1727]	4557	[4698, 462]
940	[1531, 197]	2146	[1521, 683]	3352	[2860, 1590]	4558	[4699, 4700]
941	[1532, 1533]	2147	[2865, 1605]	3353	[2811, 1498]	4559	[4701, 4128]
942	[1534, 1535]	2148	[731, 1641]	3354	[3898, 175]	4560	[4702, 1020]
943	[1536, 1537]	2149	[2866, 1824]	3355	[1902, 1606]	4561	[4703, 4704]
944	[1436, 1538]	2150	[802, 2867]	3356	[3032, 218]	4562	[4705, 4706]
945	[225, 234]	2151	[2868, 799]	3357	[3899, 135]	4563	[4707, 4708]
946	[1484, 649]	2152	[2869, 2870]	3358	[3900, 3901]	4564	[4709, 3749]
947	[1539, 1540]	2153	[2871, 1869]	3359	[3902, 1580]	4565	[4710, 4711]
948	[1541, 1542]	2154	[2872, 1870]	3360	[3903, 1582]	4566	[4712, 2492]
949	[1543, 1544]	2155	[2873, 2801]	3361	[3842, 1854]	4567	[4713, 4714]
950	[1545, 1444]	2156	[2874, 626]	3362	[3904, 1687]	4568	[4715, 1005]
951	[1546, 239]	2157	[2875, 2876]	3363	[3905, 768]	4569	[4716, 1276]
952	[1547, 1548]	2158	[1762, 1760]	3364	[1689, 204]	4570	[4717, 4718]
953	[1549, 1550]	2159	[2877, 756]	3365	[776, 3835]	4571	[4719, 2434]

954	[1551, 1552]	2160	[1551, 137]	3366	[1443, 1704]	4572	[4720, 3373]
955	[1553, 1554]	2161	[2878, 2879]	3367	[643, 1533]	4573	[4721, 4687]
956	[1487, 1555]	2162	[1649, 2880]	3368	[538, 743]	4574	[4722, 4723]
957	[1556, 1557]	2163	[679, 190]	3369	[3156, 2862]	4575	[4724, 3282]
958	[765, 1558]	2164	[2863, 1621]	3370	[3906, 2887]	4576	[4725, 4726]
959	[1559, 139]	2165	[2881, 772]	3371	[3907, 2857]	4577	[4727, 2637]
960	[1560, 1561]	2166	[2882, 1706]	3372	[1921, 1694]	4578	[4728, 4729]
961	[1562, 1550]	2167	[2883, 2884]	3373	[789, 731]	4579	[4730, 2380]
962	[531, 824]	2168	[2871, 214]	3374	[3908, 1428]	4580	[4731, 2261]
963	[1563, 503]	2169	[2885, 1673]	3375	[2931, 140]	4581	[4732, 4733]
964	[148, 131]	2170	[507, 212]	3376	[2928, 1692]	4582	[4734, 2205]
965	[684, 507]	2171	[2886, 2887]	3377	[1686, 733]	4583	[4735, 4234]
966	[1564, 1565]	2172	[2888, 1566]	3378	[3101, 1424]	4584	[4736, 2520]
967	[1525, 1566]	2173	[1527, 1569]	3379	[3909, 671]	4585	[4737, 4262]
968	[1567, 249]	2174	[775, 2783]	3380	[3910, 2755]	4586	[4738, 4739]
969	[1568, 1569]	2175	[1545, 1704]	3381	[1930, 48]	4587	[4740, 4741]
970	[1570, 1571]	2176	[1530, 1793]	3382	[3911, 1846]	4588	[4742, 1252]
971	[1572, 58]	2177	[1706, 809]	3383	[3912, 1522]	4589	[4743, 4744]
972	[1573, 1487]	2178	[2840, 178]	3384	[3913, 1593]	4590	[3485, 2685]
973	[659, 197]	2179	[40, 529]	3385	[3914, 3828]	4591	[4745, 4441]
974	[809, 1574]	2180	[2889, 525]	3386	[3915, 1856]	4592	[4746, 4747]
975	[708, 520]	2181	[2804, 1864]	3387	[3916, 642]	4593	[4748, 4749]
976	[1575, 1576]	2182	[1939, 732]	3388	[3917, 807]	4594	[4750, 4751]
977	[1577, 1578]	2183	[2890, 1713]	3389	[2898, 1943]	4595	[4460, 4364]
978	[1579, 1580]	2184	[223, 1715]	3390	[1689, 2902]	4596	[4302, 4202]
979	[1581, 1582]	2185	[2822, 1785]	3391	[3068, 1647]	4597	[134, 3858]
980	[1583, 1584]	2186	[2891, 61]	3392	[3918, 1490]	4598	[4752, 782]
981	[1585, 1586]	2187	[1724, 1627]	3393	[1926, 2942]	4599	[3170, 648]
982	[753, 1587]	2188	[1793, 2892]	3394	[1686, 2776]	4600	[3967, 3147]
983	[1588, 1589]	2189	[184, 1748]	3395	[1923, 2987]	4601	[1859, 2841]
984	[1590, 1591]	2190	[1907, 695]	3396	[2777, 187]	4602	[4753, 4098]
985	[1592, 1593]	2191	[2893, 2894]	3397	[1466, 3038]	4603	[3863, 3129]
986	[1594, 1595]	2192	[2895, 624]	3398	[60, 2776]	4604	[3986, 3999]
987	[1596, 1597]	2193	[2896, 2897]	3399	[2826, 732]	4605	[39, 528]
988	[1598, 765]	2194	[2898, 1535]	3400	[705, 1694]	4606	[4754, 509]
989	[1599, 591]	2195	[2899, 2900]	3401	[1468, 1696]	4607	[2843, 490]
990	[1600, 1601]	2196	[2901, 2902]	3402	[3897, 1947]	4608	[4562, 4035]
991	[12, 1602]	2197	[2903, 758]	3403	[2862, 1456]	4609	[3983, 4755]
992	[1603, 545]	2198	[2904, 1575]	3404	[821, 2917]	4610	[4536, 3846]
993	[819, 1538]	2199	[2905, 31]	3405	[1814, 1656]	4611	[4062, 785]
994	[232, 784]	2200	[2906, 528]	3406	[3833, 1936]	4612	[2799, 3827]
995	[1604, 506]	2201	[2907, 1906]	3407	[706, 1630]	4613	[4516, 1478]
996	[788, 178]	2202	[1477, 698]	3408	[3919, 3920]	4614	[4756, 1706]
997	[665, 1605]	2203	[1851, 663]	3409	[3921, 3922]	4615	[4524, 1453]

998	[657, 1606]	2204	[829, 197]	3410	[3923, 3924]	4616	[3936, 3114]
999	[1607, 522]	2205	[203, 2902]	3411	[3126, 1548]	4617	[4522, 626]
1000	[1507, 1533]	2206	[2869, 670]	3412	[3925, 502]	4618	[3887, 2876]
1001	[708, 200]	2207	[2908, 212]	3413	[1535, 1638]	4619	[4757, 3063]
1002	[1608, 159]	2208	[1611, 2909]	3414	[3926, 790]	4620	[3975, 4035]
1003	[207, 807]	2209	[2883, 2887]	3415	[3927, 501]	4621	[2893, 533]
1004	[1609, 1610]	2210	[2908, 513]	3416	[1524, 644]	4622	[4094, 174]
1005	[685, 513]	2211	[806, 208]	3417	[3928, 3929]	4623	[142, 2801]
1006	[1611, 515]	2212	[768, 197]	3418	[1491, 1861]	4624	[3885, 1679]
1007	[1477, 710]	2213	[2878, 2910]	3419	[2875, 3888]	4625	[4563, 4755]
1008	[199, 520]	2214	[2911, 2912]	3420	[3930, 777]	4626	[4594, 745]
1009	[523, 1612]	2215	[1562, 2913]	3421	[1601, 1495]	4627	[3881, 4488]
1010	[1613, 1614]	2216	[135, 2914]	3422	[3931, 1588]	4628	[3955, 180]
1011	[664, 824]	2217	[2915, 2900]	3423	[1561, 1550]	4629	[4758, 1540]
1012	[1615, 61]	2218	[763, 1557]	3424	[3932, 1473]	4630	[4759, 509]
1013	[1616, 494]	2219	[671, 488]	3425	[3933, 132]	4631	[3980, 2786]
1014	[233, 226]	2220	[2916, 649]	3426	[3934, 797]	4632	[2930, 4083]
1015	[1439, 822]	2221	[1871, 2917]	3427	[3896, 1670]	4633	[47, 1816]
1016	[1507, 1617]	2222	[1880, 2918]	3428	[3935, 685]	4634	[4527, 699]
1017	[1618, 795]	2223	[2919, 2913]	3429	[1931, 1431]	4635	[4029, 1783]
1018	[1619, 1485]	2224	[2748, 531]	3430	[2889, 194]	4636	[4555, 1465]
1019	[1620, 495]	2225	[2920, 629]	3431	[2791, 1825]	4637	[4479, 831]
1020	[588, 1621]	2226	[2921, 1687]	3432	[510, 807]	4638	[2828, 3892]
1021	[1622, 1623]	2227	[2922, 1693]	3433	[2868, 1867]	4639	[4760, 1618]
1022	[1624, 643]	2228	[2923, 1732]	3434	[3936, 2789]	4640	[4761, 3055]
1023	[739, 691]	2229	[2924, 541]	3435	[3937, 607]	4641	[4557, 4482]
1024	[1625, 706]	2230	[1720, 644]	3436	[712, 1855]	4642	[4762, 2787]
1025	[1626, 1627]	2231	[48, 1587]	3437	[511, 801]	4643	[3201, 184]
1026	[1628, 1493]	2232	[2925, 584]	3438	[1868, 214]	4644	[4593, 3114]
1027	[1629, 1630]	2233	[1765, 2810]	3439	[1865, 1610]	4645	[4064, 1679]
1028	[1631, 658]	2234	[2926, 31]	3440	[1904, 1858]	4646	[4763, 1754]
1029	[1632, 588]	2235	[1945, 683]	3441	[3906, 2884]	4647	[4030, 3107]
1030	[1633, 1489]	2236	[1909, 2786]	3442	[1749, 165]	4648	[4085, 1554]
1031	[699, 1634]	2237	[1492, 1571]	3443	[3049, 1485]	4649	[4502, 2902]
1032	[1635, 1636]	2238	[1841, 1499]	3444	[3938, 232]	4650	[4561, 4039]
1033	[1637, 1638]	2239	[1842, 828]	3445	[2771, 52]	4651	[1831, 3192]
1034	[1639, 1640]	2240	[2927, 1618]	3446	[3939, 755]	4652	[4567, 3901]
1035	[1641, 664]	2241	[709, 698]	3447	[3940, 1490]	4653	[4764, 4052]
1036	[1642, 1472]	2242	[2928, 220]	3448	[2950, 684]	4654	[4550, 662]
1037	[1643, 1569]	2243	[1743, 724]	3449	[1803, 1576]	4655	[3143, 4520]
1038	[1644, 1645]	2244	[1423, 2929]	3450	[1731, 820]	4656	[4592, 825]
1039	[1646, 245]	2245	[2930, 1808]	3451	[3941, 1437]	4657	[4765, 1936]
1040	[1564, 245]	2246	[2931, 561]	3452	[1788, 1527]	4658	[4025, 3197]
1041	[1647, 781]	2247	[1839, 153]	3453	[1650, 3901]	4659	[4766, 4482]

1042	[1648, 585]	2248	[2784, 486]	3454	[3184, 3035]	4660	[4762, 128]
1043	[783, 1649]	2249	[2932, 1558]	3455	[3942, 3021]	4661	[4767, 699]
1044	[1650, 1651]	2250	[1734, 1675]	3456	[1598, 196]	4662	[3847, 1448]
1045	[1652, 1653]	2251	[2933, 248]	3457	[1635, 3929]	4663	[4566, 1894]
1046	[1654, 1655]	2252	[1901, 1566]	3458	[3943, 1863]	4664	[4021, 596]
1047	[1583, 1656]	2253	[1606, 1729]	3459	[2753, 826]	4665	[4760, 662]
1048	[752, 1657]	2254	[1774, 495]	3460	[1803, 1711]	4666	[4084, 2854]
1049	[1658, 1659]	2255	[544, 600]	3461	[1426, 1749]	4667	[4768, 519]
1050	[1590, 755]	2256	[2934, 771]	3462	[3944, 831]	4668	[3122, 4013]
1051	[1660, 1661]	2257	[2935, 61]	3463	[3945, 1936]	4669	[4578, 3971]
1052	[1662, 1663]	2258	[658, 2813]	3464	[3946, 782]	4670	[4544, 528]
1053	[1664, 1597]	2259	[1950, 1790]	3465	[3067, 781]	4671	[4565, 3988]
1054	[1665, 1666]	2260	[2936, 720]	3466	[2757, 1687]	4672	[586, 1434]
1055	[1667, 1668]	2261	[1526, 1568]	3467	[3121, 1725]	4673	[3045, 3038]
1056	[1669, 1670]	2262	[1732, 543]	3468	[3947, 1534]	4674	[4526, 2943]
1057	[1671, 129]	2263	[2937, 1689]	3469	[3847, 195]	4675	[4500, 4573]
1058	[1672, 1673]	2264	[2938, 782]	3470	[3905, 1531]	4676	[2832, 1848]
1059	[487, 672]	2265	[2939, 541]	3471	[3948, 3949]	4677	[4495, 3998]
1060	[1674, 1675]	2266	[2940, 756]	3472	[1658, 241]	4678	[2799, 2742]
1061	[797, 643]	2267	[1782, 54]	3473	[51, 2772]	4679	[4523, 768]
1062	[623, 167]	2268	[2941, 2861]	3474	[577, 757]	4680	[4769, 2786]
1063	[614, 616]	2269	[1816, 581]	3475	[1771, 1574]	4681	[4757, 1702]
1064	[619, 169]	2270	[562, 2942]	3476	[3051, 688]	4682	[4770, 1706]
1065	[615, 618]	2271	[1776, 2943]	3477	[2950, 506]	4683	[3138, 1675]
1066	[167, 621]	2272	[2859, 1790]	3478	[3950, 1651]	4684	[4541, 2793]
1067	[168, 173]	2273	[1625, 156]	3479	[3951, 1511]	4685	[1510, 4488]
1068	[616, 172]	2274	[2944, 1797]	3480	[3952, 3924]	4686	[4491, 1815]
1069	[618, 619]	2275	[2852, 739]	3481	[3953, 3954]	4687	[3973, 1872]
1070	[614, 618]	2276	[2945, 1617]	3482	[3955, 502]	4688	[4771, 3088]
1071	[1676, 1422]	2277	[1772, 1634]	3483	[3956, 526]	4689	[3169, 1894]
1072	[1677, 616]	2278	[2946, 1484]	3484	[1634, 607]	4690	[4772, 188]
1073	[622, 485]	2279	[1936, 560]	3485	[3875, 1520]	4691	[2750, 2803]
1074	[484, 618]	2280	[2947, 2948]	3486	[3957, 1458]	4692	[4773, 4013]
1075	[1678, 171]	2281	[2949, 2950]	3487	[1546, 50]	4693	[4766, 4052]
1076	[1677, 618]	2282	[2951, 2952]	3488	[3958, 1872]	4694	[4581, 3920]
1077	[613, 484]	2283	[540, 1439]	3489	[3959, 3960]	4695	[3951, 4488]
1078	[624, 132]	2284	[2862, 632]	3490	[3961, 1794]	4696	[4753, 2948]
1079	[1679, 683]	2285	[2953, 1593]	3491	[553, 1876]	4697	[3107, 3898]
1080	[1500, 179]	2286	[2954, 2955]	3492	[1427, 1733]	4698	[4498, 3960]
1081	[1458, 681]	2287	[2956, 553]	3493	[3962, 3086]	4699	[4754, 516]
1082	[1667, 1537]	2288	[1925, 1427]	3494	[3963, 535]	4700	[4504, 1735]
1083	[1481, 547]	2289	[2957, 2958]	3495	[3964, 3965]	4701	[552, 3829]
1084	[1680, 187]	2290	[520, 1863]	3496	[3966, 1824]	4702	[4580, 1622]
1085	[573, 499]	2291	[189, 788]	3497	[3967, 3190]	4703	[4068, 3075]

1086	[1681, 1682]	2292	[2959, 826]	3498	[1518, 179]	4704	[4080, 2950]
1087	[159, 714]	2293	[2960, 1472]	3499	[2959, 1709]	4705	[4774, 4101]
1088	[228, 14]	2294	[2961, 1440]	3500	[3968, 1929]	4706	[3912, 3847]
1089	[1683, 1684]	2295	[2962, 1837]	3501	[2818, 1731]	4707	[4775, 2743]
1090	[774, 1542]	2296	[1790, 1741]	3502	[3969, 774]	4708	[4549, 2955]
1091	[1685, 1686]	2297	[815, 1540]	3503	[3164, 155]	4709	[4089, 1478]
1092	[1687, 1444]	2298	[2963, 62]	3504	[3880, 3878]	4710	[4774, 3853]
1093	[1688, 1689]	2299	[2964, 1487]	3505	[3970, 3971]	4711	[4525, 2905]
1094	[521, 809]	2300	[1903, 202]	3506	[3124, 3972]	4712	[3064, 1434]
1095	[809, 770]	2301	[45, 728]	3507	[3973, 2880]	4713	[4570, 4101]
1096	[1618, 663]	2302	[31, 1864]	3508	[3926, 1613]	4714	[2952, 3129]
1097	[1690, 530]	2303	[2965, 2966]	3509	[1516, 665]	4715	[4575, 3186]
1098	[166, 621]	2304	[2967, 1848]	3510	[2752, 127]	4716	[4765, 559]
1099	[173, 485]	2305	[2833, 2968]	3511	[3974, 1525]	4717	[3919, 3183]
1100	[1691, 1692]	2306	[2969, 663]	3512	[3975, 3976]	4718	[4764, 4482]
1101	[1693, 1694]	2307	[2970, 2971]	3513	[144, 45]	4719	[3884, 1708]
1102	[1695, 1696]	2308	[37, 2972]	3514	[3977, 3133]	4720	[4558, 528]
1103	[1680, 677]	2309	[2973, 2742]	3515	[1886, 1495]	4721	[3923, 9]
1104	[1697, 787]	2310	[2974, 1638]	3516	[3978, 236]	4722	[4556, 1509]
1105	[608, 1698]	2311	[2905, 2804]	3517	[3858, 2914]	4723	[4776, 4568]
1106	[1699, 1700]	2312	[2975, 128]	3518	[3979, 217]	4724	[4777, 2772]
1107	[42, 679]	2313	[2976, 178]	3519	[3980, 1682]	4725	[4547, 3846]
1108	[738, 690]	2314	[2841, 149]	3520	[3981, 791]	4726	[1850, 3875]
1109	[592, 588]	2315	[1665, 1825]	3521	[804, 1504]	4727	[4489, 2990]
1110	[492, 698]	2316	[560, 1815]	3522	[1698, 1869]	4728	[4099, 4054]
1111	[1490, 1623]	2317	[2977, 2978]	3523	[3982, 1830]	4729	[4778, 2972]
1112	[1701, 1702]	2318	[2979, 2914]	3524	[3937, 2889]	4730	[4505, 1632]
1113	[1703, 1704]	2319	[2980, 2981]	3525	[3983, 3984]	4731	[4763, 1732]
1114	[59, 1686]	2320	[1800, 1773]	3526	[3985, 1588]	4732	[4061, 533]
1115	[57, 817]	2321	[2982, 2983]	3527	[585, 1879]	4733	[4537, 1944]
1116	[1705, 739]	2322	[1666, 641]	3528	[1465, 3954]	4734	[4108, 3094]
1117	[1706, 522]	2323	[634, 2910]	3529	[3037, 1467]	4735	[3982, 2958]
1118	[714, 1707]	2324	[2984, 530]	3530	[1940, 2815]	4736	[1639, 3082]
1119	[519, 200]	2325	[2920, 610]	3531	[3182, 3920]	4737	[4589, 3147]
1120	[1690, 1641]	2326	[130, 149]	3532	[1652, 747]	4738	[4773, 3001]
1121	[1708, 1709]	2327	[2844, 1427]	3533	[3942, 3986]	4739	[4027, 4568]
1122	[1710, 1711]	2328	[2809, 1741]	3534	[2788, 3114]	4740	[4586, 4573]
1123	[1448, 765]	2329	[541, 1440]	3535	[539, 130]	4741	[3965, 1522]
1124	[219, 1692]	2330	[2985, 1702]	3536	[3969, 2762]	4742	[4546, 128]
1125	[1712, 1713]	2331	[816, 58]	3537	[2922, 705]	4743	[4528, 2966]
1126	[1714, 1715]	2332	[1543, 1602]	3538	[1913, 712]	4744	[4572, 1522]
1127	[1716, 495]	2333	[669, 2870]	3539	[3015, 1507]	4745	[4587, 4517]
1128	[556, 584]	2334	[1749, 1733]	3540	[3987, 3988]	4746	[4756, 808]
1129	[1717, 756]	2335	[2986, 2765]	3541	[1637, 1697]	4747	[4769, 1682]

1130	[1718, 1719]	2336	[603, 724]	3542	[1809, 3989]	4748	[4078, 4573]
1131	[1474, 241]	2337	[1927, 2987]	3543	[3990, 3183]	4749	[2897, 1519]
1132	[1720, 1525]	2338	[727, 560]	3544	[3902, 3056]	4750	[2830, 3075]
1133	[1721, 1722]	2339	[2988, 2755]	3545	[3991, 2743]	4751	[4501, 1766]
1134	[231, 783]	2340	[2829, 240]	3546	[3019, 3181]	4752	[4779, 4430]
1135	[1723, 57]	2341	[597, 719]	3547	[1596, 2799]	4753	[4780, 4781]
1136	[1724, 1725]	2342	[1918, 1668]	3548	[3856, 1904]	4754	[4782, 2646]
1137	[1726, 1727]	2343	[1678, 611]	3549	[205, 1632]	4755	[4783, 1374]
1138	[1728, 153]	2344	[667, 617]	3550	[3992, 515]	4756	[4784, 4373]
1139	[1631, 1606]	2345	[1676, 637]	3551	[1854, 810]	4757	[4785, 4786]
1140	[1454, 673]	2346	[495, 1670]	3552	[3904, 1545]	4758	[4787, 4788]
1141	[660, 198]	2347	[2989, 739]	3553	[3993, 1920]	4759	[4789, 3737]
1142	[1434, 743]	2348	[2990, 218]	3554	[1602, 3039]	4760	[4790, 1147]
1143	[1488, 492]	2349	[2991, 1472]	3555	[3994, 2831]	4761	[4791, 4792]
1144	[658, 1729]	2350	[596, 1816]	3556	[3995, 3129]	4762	[4793, 254]
1145	[1730, 1731]	2351	[2780, 2992]	3557	[3996, 1847]	4763	[4794, 941]
1146	[1616, 818]	2352	[2993, 1737]	3558	[3997, 3998]	4764	[4795, 102]
1147	[1483, 648]	2353	[1797, 565]	3559	[2903, 3999]	4765	[4796, 974]
1148	[1732, 138]	2354	[2994, 2995]	3560	[133, 1869]	4766	[4797, 4798]
1149	[1672, 639]	2355	[2858, 575]	3561	[4000, 825]	4767	[4799, 4800]
1150	[164, 1733]	2356	[2996, 1561]	3562	[187, 239]	4768	[4801, 899]
1151	[1734, 1735]	2357	[1438, 2997]	3563	[1514, 3954]	4769	[4802, 873]
1152	[1422, 614]	2358	[1569, 1584]	3564	[4001, 2971]	4770	[4803, 1007]
1153	[1736, 1737]	2359	[2998, 644]	3565	[2982, 2796]	4771	[4804, 4805]
1154	[1738, 604]	2360	[229, 1747]	3566	[765, 3016]	4772	[4206, 839]
1155	[725, 606]	2361	[1885, 1601]	3567	[4002, 1590]	4773	[4806, 4807]
1156	[1739, 1470]	2362	[1496, 1797]	3568	[4003, 1552]	4774	[4808, 4809]
1157	[625, 1698]	2363	[2999, 56]	3569	[3139, 181]	4775	[4810, 3507]
1158	[824, 679]	2364	[1799, 1499]	3570	[1691, 220]	4776	[4811, 2510]
1159	[587, 539]	2365	[3000, 3001]	3571	[1725, 2827]	4777	[4812, 3754]
1160	[1536, 1668]	2366	[3002, 3003]	3572	[3844, 737]	4778	[4813, 1388]
1161	[1740, 1741]	2367	[1826, 3004]	3573	[3859, 3865]	4779	[4767, 1933]
1162	[1742, 702]	2368	[3005, 1587]	3574	[760, 3188]	4780	[4761, 2793]
1163	[1572, 817]	2369	[695, 1719]	3575	[3838, 3009]	4781	[4776, 3922]
1164	[1445, 1743]	2370	[1569, 1656]	3576	[1911, 1606]	4782	[4814, 1768]
1165	[1532, 1617]	2371	[3006, 759]	3577	[202, 742]	4783	[4507, 3111]
1166	[771, 1744]	2372	[3007, 3008]	3578	[2835, 200]	4784	[4815, 519]
1167	[611, 637]	2373	[1820, 3009]	3579	[234, 580]	4785	[1775, 220]
1168	[1745, 1504]	2374	[3010, 527]	3580	[4004, 141]	4786	[564, 2766]
1169	[1451, 1733]	2375	[1482, 720]	3581	[4005, 4006]	4787	[2814, 4019]
1170	[1674, 1735]	2376	[1669, 496]	3582	[3825, 1729]	4788	[1544, 3039]
1171	[1746, 1747]	2377	[132, 1698]	3583	[634, 2879]	4789	[4815, 708]
1172	[558, 1748]	2378	[3011, 801]	3584	[3098, 3858]	4790	[4535, 1732]
1173	[1473, 240]	2379	[1825, 2785]	3585	[2979, 1883]	4791	[4574, 4106]

1174	[1520, 1749]	2380	[1452, 3012]	3586	[4007, 1485]	4792	[3107, 174]
1175	[1750, 518]	2381	[2993, 1920]	3587	[2924, 1439]	4793	[4539, 491]
1176	[1751, 688]	2382	[155, 2943]	3588	[2940, 1828]	4794	[4534, 1534]
1177	[1480, 546]	2383	[3013, 3014]	3589	[3918, 1622]	4795	[4585, 1853]
1178	[493, 818]	2384	[1780, 1669]	3590	[4008, 574]	4796	[4768, 708]
1179	[1752, 1753]	2385	[1895, 498]	3591	[4009, 587]	4797	[4515, 3088]
1180	[1754, 543]	2386	[2823, 647]	3592	[3990, 3920]	4798	[4778, 38]
1181	[1755, 1487]	2387	[2891, 655]	3593	[8, 3161]	4799	[4564, 248]
1182	[1632, 593]	2388	[2851, 1797]	3594	[1470, 2879]	4800	[4590, 635]
1183	[1756, 56]	2389	[2782, 1433]	3595	[3020, 3986]	4801	[4533, 1485]
1184	[1728, 1757]	2390	[3015, 643]	3596	[576, 1551]	4802	[734, 4584]
1185	[1758, 1759]	2391	[591, 2892]	3597	[53, 1589]	4803	[4814, 1534]
1186	[1498, 1760]	2392	[638, 1673]	3598	[2937, 203]	4804	[4043, 1636]
1187	[1761, 1762]	2393	[2932, 3016]	3599	[3189, 3147]	4805	[1744, 45]
1188	[1763, 1743]	2394	[1506, 3012]	3600	[3173, 1863]	4806	[4521, 3086]
1189	[1764, 230]	2395	[1934, 1670]	3601	[4010, 2981]	4807	[4031, 174]
1190	[1765, 1741]	2396	[1753, 48]	3602	[2901, 204]	4808	[4050, 3177]
1191	[1766, 44]	2397	[3017, 2910]	3603	[2973, 3827]	4809	[4518, 4568]
1192	[1575, 1711]	2398	[1827, 1659]	3604	[2856, 4011]	4810	[4596, 2861]
1193	[1767, 1707]	2399	[754, 1591]	3605	[1797, 2766]	4811	[4095, 4006]
1194	[1768, 1535]	2400	[1588, 54]	3606	[4012, 4013]	4812	[2882, 808]
1195	[1769, 655]	2401	[3018, 2797]	3607	[3198, 3035]	4813	[4816, 3835]
1196	[1770, 155]	2402	[3019, 1663]	3608	[3948, 3837]	4814	[4817, 4818]
1197	[1771, 770]	2403	[3020, 3021]	3609	[2792, 3055]	4815	[4819, 4820]
1198	[1772, 700]	2404	[3022, 1762]	3610	[3034, 3185]	4816	[4821, 4822]
1199	[1487, 1773]	2405	[3023, 1686]	3611	[1750, 661]	4817	[3941, 574]
1200	[1774, 1669]	2406	[3024, 509]	3612	[3042, 700]	4818	[4510, 596]
1201	[1752, 596]	2407	[202, 1843]	3613	[3974, 644]	4819	[4752, 2823]
1202	[1775, 1692]	2408	[2969, 795]	3614	[3053, 2762]	4820	[4772, 635]
1203	[1776, 1777]	2409	[1433, 2972]	3615	[3900, 1651]	4821	[3072, 4011]
1204	[1778, 1779]	2410	[3025, 57]	3616	[8, 3003]	4822	[654, 222]
1205	[568, 226]	2411	[2936, 183]	3617	[3839, 491]		

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	804	1	1608	1	2412	0	3216	0	4020	1
1	0	805	0	1609	1	2413	1	3217	1	4021	1
2	0	806	1	1610	1	2414	0	3218	1	4022	1
3	0	807	0	1611	0	2415	1	3219	0	4023	0
4	0	808	0	1612	0	2416	1	3220	1	4024	1
5	0	809	0	1613	1	2417	0	3221	0	4025	0
6	0	810	0	1614	1	2418	0	3222	0	4026	1
7	0	811	1	1615	0	2419	1	3223	1	4027	1
8	1	812	0	1616	1	2420	1	3224	0	4028	1

9	0	813	1	1617	1	2421	0	3225	0	4029	1
10	0	814	0	1618	0	2422	0	3226	0	4030	1
11	0	815	1	1619	0	2423	0	3227	0	4031	1
12	1	816	1	1620	0	2424	1	3228	1	4032	1
13	0	817	1	1621	0	2425	0	3229	1	4033	1
14	1	818	1	1622	1	2426	1	3230	1	4034	0
15	0	819	1	1623	1	2427	1	3231	0	4035	0
16	0	820	0	1624	1	2428	1	3232	0	4036	1
17	1	821	0	1625	0	2429	1	3233	0	4037	0
18	0	822	0	1626	0	2430	1	3234	1	4038	0
19	0	823	1	1627	1	2431	1	3235	0	4039	0
20	1	824	1	1628	0	2432	1	3236	0	4040	1
21	0	825	0	1629	0	2433	0	3237	1	4041	1
22	1	826	0	1630	0	2434	0	3238	0	4042	1
23	0	827	0	1631	0	2435	1	3239	0	4043	1
24	0	828	1	1632	0	2436	0	3240	0	4044	1
25	1	829	1	1633	1	2437	0	3241	0	4045	0
26	0	830	1	1634	1	2438	0	3242	0	4046	0
27	0	831	1	1635	0	2439	1	3243	1	4047	1
28	0	832	1	1636	1	2440	0	3244	1	4048	1
29	1	833	1	1637	1	2441	1	3245	1	4049	0
30	1	834	1	1638	0	2442	1	3246	1	4050	1
31	0	835	1	1639	1	2443	1	3247	1	4051	1
32	0	836	1	1640	0	2444	0	3248	0	4052	0
33	0	837	1	1641	0	2445	1	3249	0	4053	1
34	1	838	0	1642	1	2446	1	3250	0	4054	0
35	1	839	0	1643	0	2447	0	3251	0	4055	0
36	1	840	1	1644	1	2448	1	3252	0	4056	1
37	0	841	0	1645	0	2449	0	3253	0	4057	1
38	1	842	0	1646	0	2450	0	3254	0	4058	0
39	0	843	1	1647	1	2451	0	3255	1	4059	1
40	1	844	0	1648	1	2452	1	3256	1	4060	0
41	1	845	1	1649	1	2453	0	3257	1	4061	0
42	0	846	0	1650	1	2454	0	3258	0	4062	0
43	0	847	1	1651	0	2455	0	3259	1	4063	1
44	1	848	1	1652	1	2456	0	3260	1	4064	1
45	1	849	0	1653	0	2457	1	3261	1	4065	1
46	1	850	0	1654	0	2458	1	3262	0	4066	0
47	0	851	0	1655	1	2459	1	3263	1	4067	1
48	0	852	0	1656	1	2460	1	3264	1	4068	0
49	0	853	0	1657	1	2461	0	3265	0	4069	0
50	1	854	0	1658	1	2462	1	3266	1	4070	1
51	1	855	1	1659	1	2463	0	3267	1	4071	1
52	0	856	1	1660	0	2464	0	3268	0	4072	1

53	0	857	0	1661	1	2465	0	3269	0	4073	0
54	1	858	1	1662	0	2466	0	3270	1	4074	1
55	0	859	0	1663	1	2467	0	3271	1	4075	0
56	1	860	0	1664	0	2468	1	3272	0	4076	0
57	0	861	1	1665	1	2469	1	3273	0	4077	0
58	0	862	1	1666	0	2470	1	3274	1	4078	0
59	1	863	0	1667	1	2471	0	3275	1	4079	0
60	0	864	1	1668	1	2472	1	3276	1	4080	0
61	1	865	0	1669	1	2473	0	3277	1	4081	0
62	1	866	0	1670	0	2474	1	3278	0	4082	0
63	0	867	0	1671	0	2475	1	3279	1	4083	0
64	1	868	1	1672	1	2476	0	3280	1	4084	0
65	0	869	1	1673	0	2477	1	3281	1	4085	0
66	0	870	1	1674	1	2478	0	3282	1	4086	1
67	0	871	1	1675	1	2479	0	3283	0	4087	0
68	0	872	0	1676	1	2480	0	3284	0	4088	0
69	1	873	1	1677	1	2481	1	3285	0	4089	1
70	0	874	1	1678	1	2482	1	3286	0	4090	0
71	1	875	1	1679	0	2483	0	3287	0	4091	1
72	1	876	1	1680	1	2484	1	3288	1	4092	0
73	1	877	0	1681	0	2485	0	3289	0	4093	1
74	0	878	1	1682	0	2486	1	3290	0	4094	1
75	0	879	1	1683	1	2487	0	3291	0	4095	0
76	1	880	1	1684	1	2488	0	3292	1	4096	1
77	1	881	0	1685	1	2489	1	3293	0	4097	1
78	0	882	0	1686	1	2490	0	3294	0	4098	0
79	0	883	1	1687	0	2491	0	3295	0	4099	0
80	0	884	1	1688	0	2492	1	3296	0	4100	0
81	1	885	0	1689	1	2493	1	3297	1	4101	0
82	1	886	0	1690	0	2494	0	3298	0	4102	0
83	1	887	0	1691	1	2495	1	3299	0	4103	0
84	0	888	0	1692	0	2496	0	3300	0	4104	0
85	0	889	0	1693	1	2497	0	3301	0	4105	0
86	1	890	1	1694	1	2498	1	3302	0	4106	0
87	0	891	0	1695	1	2499	0	3303	0	4107	0
88	1	892	0	1696	1	2500	1	3304	1	4108	0
89	1	893	0	1697	1	2501	0	3305	1	4109	1
90	1	894	1	1698	0	2502	0	3306	0	4110	1
91	1	895	1	1699	1	2503	1	3307	1	4111	1
92	0	896	0	1700	1	2504	1	3308	0	4112	1
93	1	897	0	1701	1	2505	1	3309	0	4113	1
94	1	898	1	1702	1	2506	1	3310	1	4114	0
95	0	899	1	1703	1	2507	0	3311	0	4115	1
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109	1	913	1	1717	0	2521	1	3325	1	4129	0
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115	0	919	0	1723	1	2527	1	3331	0	4135	0
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118	0	922	0	1726	1	2530	1	3334	1	4138	1
119	1	923	0	1727	0	2531	0	3335	1	4139	0
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121	0	925	1	1729	0	2533	0	3337	0	4141	0
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124	1	928	1	1732	1	2536	1	3340	1	4144	1
125	1	929	0	1733	0	2537	0	3341	1	4145	0
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127	1	931	0	1735	0	2539	1	3343	0	4147	0
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129	0	933	1	1737	0	2541	1	3345	1	4149	1
130	0	934	1	1738	1	2542	1	3346	0	4150	0
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134	0	938	1	1742	1	2546	1	3350	0	4154	0
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136	0	940	0	1744	1	2548	1	3352	0	4156	0
137	0	941	0	1745	0	2549	0	3353	0	4157	0
138	1	942	1	1746	0	2550	1	3354	1	4158	0
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141	0	945	0	1749	0	2553	1	3357	1	4161	0
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143	0	947	1	1751	0	2555	1	3359	0	4163	1
144	1	948	0	1752	0	2556	0	3360	0	4164	0
145	0	949	0	1753	1	2557	1	3361	0	4165	0
146	1	950	1	1754	0	2558	0	3362	0	4166	1
147	0	951	1	1755	0	2559	1	3363	0	4167	0
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150	0	954	1	1758	1	2562	1	3366	0	4170	1
151	0	955	1	1759	1	2563	0	3367	1	4171	1
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153	1	957	1	1761	1	2565	0	3369	0	4173	0
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157	1	961	0	1765	0	2569	1	3373	0	4177	1
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159	0	963	0	1767	1	2571	0	3375	1	4179	0
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161	1	965	0	1769	1	2573	0	3377	1	4181	1
162	1	966	0	1770	0	2574	1	3378	1	4182	1
163	0	967	0	1771	1	2575	0	3379	1	4183	0
164	1	968	1	1772	0	2576	0	3380	1	4184	1
165	1	969	1	1773	1	2577	1	3381	1	4185	1
166	1	970	1	1774	0	2578	0	3382	1	4186	0
167	0	971	1	1775	0	2579	1	3383	0	4187	1
168	0	972	1	1776	1	2580	0	3384	1	4188	1
169	1	973	0	1777	0	2581	1	3385	0	4189	1
170	0	974	0	1778	0	2582	0	3386	1	4190	0
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172	1	976	1	1780	1	2584	0	3388	0	4192	0
173	0	977	0	1781	0	2585	0	3389	1	4193	0
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175	0	979	0	1783	1	2587	1	3391	1	4195	1
176	1	980	0	1784	1	2588	1	3392	0	4196	0
177	0	981	0	1785	1	2589	0	3393	1	4197	1
178	1	982	0	1786	0	2590	0	3394	1	4198	1
179	0	983	1	1787	1	2591	0	3395	0	4199	1
180	1	984	1	1788	0	2592	1	3396	0	4200	0
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182	1	986	0	1790	1	2594	0	3398	0	4202	0
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187	1	991	1	1795	1	2599	1	3403	0	4207	0
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191	0	995	1	1799	0	2603	0	3407	1	4211	0
192	0	996	1	1800	1	2604	0	3408	0	4212	0
193	0	997	1	1801	1	2605	1	3409	1	4213	0
194	1	998	1	1802	0	2606	1	3410	1	4214	0
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196	0	1000	0	1804	1	2608	0	3412	0	4216	1
197	0	1001	1	1805	1	2609	0	3413	1	4217	0
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199	1	1003	0	1807	1	2611	0	3415	1	4219	0
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201	1	1005	1	1809	0	2613	0	3417	1	4221	1
202	1	1006	0	1810	1	2614	1	3418	0	4222	1
203	0	1007	0	1811	0	2615	1	3419	1	4223	0
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207	0	1011	1	1815	1	2619	0	3423	1	4227	0
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224	1	1028	0	1832	0	2636	0	3440	1	4244	0
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226	0	1030	1	1834	1	2638	1	3442	0	4246	1
227	0	1031	0	1835	1	2639	0	3443	1	4247	0
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229	1	1033	1	1837	1	2641	0	3445	1	4249	0
230	1	1034	1	1838	0	2642	1	3446	0	4250	0
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233	0	1037	0	1841	1	2645	0	3449	0	4253	0
234	1	1038	1	1842	1	2646	1	3450	1	4254	1
235	1	1039	0	1843	1	2647	0	3451	1	4255	0
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237	1	1041	1	1845	0	2649	0	3453	1	4257	0
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243	1	1047	0	1851	0	2655	0	3459	0	4263	1
244	1	1048	0	1852	0	2656	1	3460	0	4264	1
245	1	1049	1	1853	0	2657	0	3461	1	4265	0
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267	0	1071	1	1875	0	2679	1	3483	1	4287	1
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271	0	1075	1	1879	0	2683	0	3487	1	4291	1
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277	1	1081	1	1885	0	2689	0	3493	1	4297	1
278	0	1082	1	1886	1	2690	1	3494	1	4298	0
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291	0	1095	0	1899	1	2703	1	3507	1	4311	1
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294	1	1098	1	1902	1	2706	0	3510	1	4314	0
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296	0	1100	1	1904	1	2708	1	3512	1	4316	0
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306	0	1110	1	1914	1	2718	1	3522	0	4326	1
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309	1	1113	1	1917	1	2721	1	3525	0	4329	1
310	1	1114	1	1918	1	2722	0	3526	1	4330	0
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312	0	1116	1	1920	1	2724	1	3528	0	4332	1
313	0	1117	1	1921	0	2725	0	3529	1	4333	0
314	0	1118	1	1922	0	2726	1	3530	1	4334	1
315	0	1119	0	1923	0	2727	0	3531	1	4335	0
316	0	1120	0	1924	1	2728	1	3532	1	4336	0

317	0	1121	1	1925	0	2729	1	3533	0	4337	1
318	1	1122	1	1926	1	2730	1	3534	1	4338	1
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320	1	1124	0	1928	1	2732	0	3536	1	4340	1
321	0	1125	1	1929	0	2733	1	3537	1	4341	1
322	0	1126	1	1930	1	2734	0	3538	1	4342	1
323	1	1127	1	1931	0	2735	0	3539	0	4343	1
324	1	1128	0	1932	1	2736	1	3540	0	4344	0
325	1	1129	0	1933	1	2737	1	3541	1	4345	1
326	1	1130	1	1934	1	2738	0	3542	0	4346	0
327	1	1131	0	1935	1	2739	0	3543	1	4347	1
328	0	1132	0	1936	0	2740	1	3544	0	4348	0
329	0	1133	0	1937	1	2741	1	3545	1	4349	1
330	0	1134	0	1938	0	2742	1	3546	1	4350	0
331	1	1135	1	1939	1	2743	0	3547	0	4351	1
332	0	1136	1	1940	1	2744	1	3548	0	4352	1
333	0	1137	1	1941	1	2745	1	3549	1	4353	0
334	1	1138	0	1942	0	2746	0	3550	1	4354	1
335	1	1139	0	1943	0	2747	0	3551	0	4355	0
336	1	1140	1	1944	1	2748	1	3552	0	4356	1
337	1	1141	1	1945	1	2749	1	3553	1	4357	0
338	0	1142	1	1946	0	2750	0	3554	0	4358	0
339	0	1143	0	1947	1	2751	0	3555	1	4359	1
340	0	1144	1	1948	1	2752	1	3556	1	4360	1
341	1	1145	1	1949	0	2753	0	3557	0	4361	0
342	0	1146	1	1950	1	2754	0	3558	1	4362	1
343	1	1147	1	1951	1	2755	1	3559	1	4363	1
344	1	1148	1	1952	1	2756	0	3560	1	4364	1
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346	0	1150	1	1954	0	2758	0	3562	1	4366	0
347	0	1151	1	1955	0	2759	1	3563	1	4367	1
348	1	1152	0	1956	1	2760	0	3564	0	4368	0
349	0	1153	0	1957	1	2761	0	3565	1	4369	1
350	1	1154	1	1958	1	2762	1	3566	1	4370	1
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352	1	1156	1	1960	0	2764	0	3568	1	4372	1
353	0	1157	1	1961	0	2765	1	3569	1	4373	1
354	0	1158	1	1962	1	2766	0	3570	1	4374	1
355	1	1159	0	1963	0	2767	1	3571	0	4375	1
356	1	1160	0	1964	0	2768	0	3572	1	4376	1
357	1	1161	1	1965	0	2769	0	3573	1	4377	1
358	0	1162	1	1966	1	2770	0	3574	0	4378	0
359	0	1163	1	1967	0	2771	1	3575	1	4379	1
360	1	1164	1	1968	0	2772	1	3576	0	4380	0

361	0	1165	0	1969	0	2773	0	3577	1	4381	1
362	0	1166	0	1970	1	2774	0	3578	0	4382	0
363	1	1167	0	1971	1	2775	0	3579	1	4383	0
364	0	1168	0	1972	0	2776	1	3580	0	4384	0
365	1	1169	0	1973	0	2777	0	3581	1	4385	1
366	1	1170	1	1974	0	2778	0	3582	1	4386	0
367	1	1171	0	1975	1	2779	0	3583	0	4387	1
368	1	1172	1	1976	0	2780	0	3584	0	4388	1
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371	0	1175	0	1979	0	2783	0	3587	1	4391	1
372	1	1176	0	1980	0	2784	1	3588	0	4392	0
373	0	1177	0	1981	1	2785	0	3589	0	4393	1
374	0	1178	0	1982	0	2786	1	3590	0	4394	0
375	1	1179	0	1983	0	2787	0	3591	1	4395	0
376	1	1180	0	1984	0	2788	1	3592	1	4396	1
377	0	1181	0	1985	0	2789	0	3593	1	4397	0
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379	0	1183	1	1987	0	2791	0	3595	0	4399	1
380	0	1184	0	1988	0	2792	0	3596	1	4400	1
381	0	1185	1	1989	1	2793	1	3597	0	4401	0
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383	0	1187	1	1991	1	2795	1	3599	1	4403	1
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385	1	1189	1	1993	1	2797	1	3601	1	4405	0
386	1	1190	0	1994	0	2798	0	3602	1	4406	0
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388	1	1192	1	1996	0	2800	0	3604	1	4408	0
389	1	1193	1	1997	0	2801	1	3605	1	4409	0
390	1	1194	0	1998	0	2802	0	3606	1	4410	1
391	0	1195	1	1999	0	2803	1	3607	0	4411	1
392	0	1196	0	2000	1	2804	1	3608	1	4412	0
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394	0	1198	0	2002	1	2806	0	3610	1	4414	1
395	1	1199	0	2003	1	2807	0	3611	0	4415	1
396	1	1200	0	2004	1	2808	0	3612	1	4416	0
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403	1	1207	0	2011	0	2815	0	3619	0	4423	0
404	0	1208	0	2012	0	2816	0	3620	0	4424	0

405	1	1209	1	2013	1	2817	0	3621	1	4425	0
406	0	1210	0	2014	1	2818	0	3622	0	4426	0
407	0	1211	1	2015	1	2819	1	3623	1	4427	0
408	0	1212	1	2016	0	2820	1	3624	0	4428	1
409	0	1213	0	2017	1	2821	0	3625	0	4429	1
410	1	1214	1	2018	0	2822	1	3626	0	4430	0
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412	0	1216	1	2020	0	2824	0	3628	0	4432	0
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417	0	1221	1	2025	1	2829	1	3633	1	4437	0
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420	0	1224	1	2028	1	2832	1	3636	0	4440	0
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423	0	1227	1	2031	0	2835	0	3639	0	4443	0
424	1	1228	1	2032	0	2836	1	3640	0	4444	0
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428	1	1232	0	2036	1	2840	1	3644	0	4448	1
429	0	1233	1	2037	1	2841	1	3645	1	4449	0
430	1	1234	1	2038	0	2842	1	3646	1	4450	0
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433	0	1237	0	2041	0	2845	0	3649	0	4453	1
434	0	1238	0	2042	1	2846	1	3650	0	4454	0
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436	0	1240	1	2044	0	2848	1	3652	1	4456	0
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438	0	1242	1	2046	1	2850	0	3654	0	4458	1
439	0	1243	1	2047	0	2851	0	3655	1	4459	0
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441	1	1245	0	2049	0	2853	1	3657	0	4461	1
442	1	1246	0	2050	0	2854	1	3658	1	4462	1
443	0	1247	1	2051	0	2855	1	3659	0	4463	0
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445	0	1249	0	2053	0	2857	0	3661	1	4465	0
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447	0	1251	0	2055	0	2859	0	3663	1	4467	0
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453	1	1257	0	2061	0	2865	0	3669	1	4473	0
454	1	1258	0	2062	0	2866	0	3670	1	4474	0
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470	1	1274	1	2078	1	2882	0	3686	1	4490	1
471	1	1275	0	2079	1	2883	1	3687	1	4491	0
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474	1	1278	0	2082	1	2886	0	3690	1	4494	0
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496	1	1300	0	2104	0	2908	1	3712	0	4516	0
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518	1	1322	1	2126	0	2930	0	3734	1	4538	1
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521	0	1325	0	2129	0	2933	0	3737	0	4541	1
522	1	1326	0	2130	0	2934	0	3738	1	4542	1
523	0	1327	0	2131	1	2935	0	3739	0	4543	0
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525	0	1329	0	2133	0	2937	1	3741	0	4545	0
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528	0	1332	0	2136	0	2940	0	3744	0	4548	0
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530	1	1334	0	2138	0	2942	1	3746	0	4550	1
531	0	1335	1	2139	0	2943	1	3747	0	4551	0
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547	0	1351	0	2155	1	2959	1	3763	0	4567	0
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554	0	1358	0	2162	1	2966	1	3770	0	4574	1
555	0	1359	1	2163	0	2967	1	3771	1	4575	0
556	0	1360	0	2164	1	2968	1	3772	0	4576	1
557	1	1361	0	2165	1	2969	1	3773	0	4577	0
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563	0	1367	1	2171	0	2975	1	3779	1	4583	0
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565	1	1369	0	2173	0	2977	1	3781	1	4585	0
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613	0	1417	1	2221	1	3025	0	3829	1	4633	0
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