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

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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 $(a,b) = (z^4 + z^3, z^3 + z^2 + 1)$.

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

$$\begin{aligned}
p_0(z)&=z^{21}+z^{19}+z^{18}+z^{15}+z^{12}+z^8+z^6+z^5+z^4+z^3+1,\\
p_1(z)&=z^{25}+z^{22}+z^{20}+z^{17}+z^{16}+z^{15}+z^9+z^6+z^4+z^3,\\
p_2(z)&=z^{28}+z^{22}+z^{20}+z^{14}+z^8+z^6,\\
p_3(z)&=z^{25}+z^{22}+z^{20}+z^{17}+z^{16}+z^{15}+z^9+z^6+z^4+z^3,\\
p_4(z)&=z^{22}+z^{21}+z^{19}+z^{18}+z^{15}+z^{14}+z^8+z^5+z^4+z^3,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{21}+z^{19}+z^{18}+z^{16}+z^{15}+z^{12}+z^6+z^5+z^4+z^3,\\
p_1(z)&=z^{25}+z^{22}+z^{20}+z^{17}+z^{16}+z^{15}+z^9+z^6+z^4+z^3,\\
p_2(z)&=z^{28}+z^{22}+z^{20}+z^{14}+z^8+z^6,\\
p_3(z)&=z^{25}+z^{22}+z^{20}+z^{17}+z^{16}+z^{15}+z^9+z^6+z^4+z^3,\\
p_4(z)&=z^{22}+z^{21}+z^{19}+z^{18}+z^{16}+z^{15}+z^{14}+z^5+z^4+z^3+1.
\end{aligned}$$

2. Proof

Define the sequences of polynomials $(P_n(z))_{n\ge0}$ and $(Q_n(z))_{n\ge0}$ by

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

By the basic properties of continued fractions, we have

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

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

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

where $\bar{\mathbf{t}}$ is the (b,a)-Thue-Morse sequence. By the properties of the Thue-Morse sequence, we have for $n\ge0$

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

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.*

$$\begin{aligned} M^e[:14u] = {} & M^e[:7u] + x^{2u}M^e[:5u] + x^{3u}M^e[:4u] + x^{4u}M^e[:3u] + x^{6u}M^e[:u] \\ & + x^{2u}M^e[:7u] + x^{4u}M^e[:5u] + x^{5u}M^e[:4u] + x^{6u}M^e[:3u] \\ & + x^{8u}M^e[:u] + x^{3u}M^e[:7u] + x^{5u}M^e[:5u] + x^{6u}M^e[:4u] \\ & + x^{7u}M^e[:3u] + x^{9u}M^e[:u] + x^{6u}M^e[:7u] + x^{8u}M^e[:5u] \\ & + x^{9u}M^e[:4u] + x^{10u}M^e[:3u] + x^{12u}M^e[:u] + x^{7u}M^e[:7u] \\ & + x^{9u}M^e[:5u] + x^{8u}M^e[:6u] + x^{10u}M^e[:4u] + x^{12u}M^e[:2u] \end{aligned}$$

$$
\begin{aligned}
&+ x^{13u}M^e[:u] + (x^{7u} + x^{9u} + x^{10u} + x^{13u})R^e,\\
W^e[:14u] &= W^e[:7u] + x^{2u}W^e[:5u] + x^{3u}W^e[:4u] + x^{4u}W^e[:3u] + x^{6u}W^e[:u]\\
&+ x^{2u}W^e[:7u] + x^{4u}W^e[:5u] + x^{5u}W^e[:4u] + x^{6u}W^e[:3u]\\
&+ x^{8u}W^e[:u] + x^{3u}W^e[:7u] + x^{5u}W^e[:5u] + x^{6u}W^e[:4u]\\
&+ x^{7u}W^e[:3u] + x^{9u}W^e[:u] + x^{6u}W^e[:7u] + x^{8u}W^e[:5u]\\
&+ x^{9u}W^e[:4u] + x^{10u}W^e[:3u] + x^{12u}W^e[:u] + x^{7u}W^e[:7u]\\
&+ x^{9u}W^e[:5u] + x^{8u}W^e[:6u] + x^{10u}W^e[:4u] + x^{12u}W^e[:2u]\\
&+ x^{13u}W^e[:u] + (x^{7u} + x^{9u} + x^{10u} + x^{13u})R^e.
\end{aligned}
$$

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

$$
\begin{aligned}
M^o[:14u] &= M^o[:7u] + x^{2u}M^o[:5u] + x^{3u}M^o[:4u] + x^{4u}M^o[:3u] + x^{6u}M^o[:u]\\
&+ x^{2u}M^o[:7u] + x^{4u}M^o[:5u] + x^{5u}M^o[:4u] + x^{6u}M^o[:3u]\\
&+ x^{8u}M^o[:u] + x^{3u}M^o[:7u] + x^{5u}M^o[:5u] + x^{6u}M^o[:4u]\\
&+ x^{7u}M^o[:3u] + x^{9u}M^o[:u] + x^{6u}M^o[:7u] + x^{8u}M^o[:5u]\\
&+ x^{9u}M^o[:4u] + x^{10u}M^o[:3u] + x^{12u}M^o[:u] + x^{7u}M^o[:7u]\\
&+ x^{9u}M^o[:5u] + x^{8u}M^o[:6u] + x^{10u}M^o[:4u] + x^{12u}M^o[:2u]\\
&+ x^{13u}M^o[:u] + (x^{7u} + x^{9u} + x^{10u} + x^{13u})R^o,\\
W^o[:14u] &= W^o[:7u] + x^{2u}W^o[:5u] + x^{3u}W^o[:4u] + x^{4u}W^o[:3u] + x^{6u}W^o[:u]\\
&+ x^{2u}W^o[:7u] + x^{4u}W^o[:5u] + x^{5u}W^o[:4u] + x^{6u}W^o[:3u]\\
&+ x^{8u}W^o[:u] + x^{3u}W^o[:7u] + x^{5u}W^o[:5u] + x^{6u}W^o[:4u]\\
&+ x^{7u}W^o[:3u] + x^{9u}W^o[:u] + x^{6u}W^o[:7u] + x^{8u}W^o[:5u]\\
&+ x^{9u}W^o[:4u] + x^{10u}W^o[:3u] + x^{12u}W^o[:u] + x^{7u}W^o[:7u]\\
&+ x^{9u}W^o[:5u] + x^{8u}W^o[:6u] + x^{10u}W^o[:4u] + x^{12u}W^o[:2u]\\
&+ x^{13u}W^o[:u] + (x^{7u} + x^{9u} + x^{10u} + x^{13u})R^o.
\end{aligned}
$$

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 $u = 2^{2k}$,

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

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

$$
\begin{aligned}
0 &= x^{6u}T[u:2u] + x^{4u}T[3u:4u] + x^{3u}T[4u:5u] + x^{2u}T[5u:6u]\\
&+ T[7u:8u],
\end{aligned}
$$

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

which can be rewritten as

$$0 = T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[111w]_2], \tag{2.7}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2]\\ &\quad + T[[1000w]_2],\end{aligned} \tag{2.8}$$

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.9}$$

$$0 = T[[11w]_2] + T[[100w]_2] + T[[1010w]_2], \tag{2.10}$$

$$0 = T[[100w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[101w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.12}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2]\\ &\quad + T[[110w]_2] + T[[1101w]_2],\end{aligned} \tag{2.13}$$

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

$$0 = T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[111w]_2], \tag{2.14}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2]\\ &\quad + T[[1000w]_2],\end{aligned} \tag{2.15}$$

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.16}$$

$$0 = T[[11w]_2] + T[[100w]_2] + T[[1010w]_2], \tag{2.17}$$

$$0 = T[[100w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[101w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.19}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2]\\ &\quad + T[[110w]_2] + T[[1101w]_2],\end{aligned} \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 5118 states; its transition function and output function can be found in the annex. Let $A(s, w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

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

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

$$\begin{aligned}0 &= \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,101))\\ &\quad + \tau(A(s,111)),\end{aligned} \tag{2.21}$$

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

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

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

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{46}), E_{46}) = (A(i, 0^{18}), E_{18})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 23$, which turns out to be true. $\square$

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

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

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

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

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

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

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

We give the proof of

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Define

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

where

$$\begin{aligned}
q_0(x) &= x^{28} + x^{25} + x^{24} + x^{23} + x^{22} + x^{20} + x^{16} + x^{13} + x^{10} + x^9 + x^7,\\
q_1(x) &= x^{25} + x^{24} + x^{22} + x^{19} + x^{13} + x^{12} + x^{11} + x^8 + x^6 + x^3,\\
q_2(x) &= x^{22} + x^{20} + x^{14} + x^8 + x^6 + 1,\\
q_3(x) &= x^{25} + x^{24} + x^{22} + x^{19} + x^{13} + x^{12} + x^{11} + x^8 + x^6 + x^3,\\
q_4(x) &= x^{25} + x^{24} + x^{23} + x^{20} + x^{14} + x^{13} + x^{10} + x^9 + x^7 + x^6.
\end{aligned}$$

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

3. Annexe

All 16 polynomials are of the form

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

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

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

$$\begin{aligned}
p_0(x) = {} & x^{144} + x^{140} + x^{138} + x^{130} + x^{128} + x^{126} + x^{120} + x^{110} + x^{108} + x^{102}\\
& + x^{98} + x^{94} + x^{84} + x^{80} + x^{76} + x^{72} + x^{70} + x^{68} + x^{66} + x^{62} + x^{54}\\
& + x^{50} + x^{48} + x^{42} + x^{36},\\
p_3(x) = {} & x^{134} + x^{128} + x^{126} + x^{122} + x^{120} + x^{116} + x^{114} + x^{112} + x^{110} + x^{106}\\
& + x^{102} + x^{98} + x^{96} + x^{92} + x^{90} + x^{88} + x^{86} + x^{80} + x^{78} + x^{76} + x^{72}\\
& + x^{70} + x^{68} + x^{66} + x^{64} + x^{62} + x^{54} + x^{52} + x^{46} + x^{42} + x^{36} + x^{28}\\
& + x^{22} + x^{20},\\
p_6(x) = {} & x^{134} + x^{132} + x^{128} + x^{120} + x^{116} + x^{114} + x^{110} + x^{102} + x^{98} + x^{86}\\
& + x^{84} + x^{80} + x^{76} + x^{70} + x^{68} + x^{64} + x^{62} + x^{52} + x^{40} + x^{38} + x^{32}\\
& + x^{30} + x^{26} + x^{22} + x^{18} + x^{16} + x^{10} + x^6 + x^2 + 1,\\
p_9(x) = {} & x^{138} + x^{136} + x^{132} + x^{128} + x^{120} + x^{118} + x^{114} + x^{112} + x^{110} + x^{106}\\
& + x^{104} + x^{102} + x^{100} + x^{96} + x^{92} + x^{90} + x^{84} + x^{82} + x^{80} + x^{72} + x^{70}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{68} + x^{66} + x^{60} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46} + x^{42} + x^{40} + x^{26} \\
&+ x^{18} + x^{14} + x^{8} + x^{6}, \\
p_{12}(x) = {}& x^{138} + x^{136} + x^{122} + x^{120} + x^{114} + x^{112} + x^{106} + x^{104} + x^{82} + x^{80} \\
&+ x^{74} + x^{72} + x^{66} + x^{64} + x^{58} + x^{56} + x^{42} + x^{40} + x^{34} + x^{32} + x^{26} \\
&+ x^{24} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{147} + x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{134} + x^{133} + x^{129} \\
&+ x^{122} + x^{119} + x^{118} + x^{116} + x^{114} + x^{113} + x^{112} + x^{109} + x^{108} \\
&+ x^{107} + x^{106} + x^{104} + x^{103} + x^{102} + x^{98} + x^{94} + x^{92} + x^{89} + x^{88} \\
&+ x^{87} + x^{83} + x^{79} + x^{77} + x^{76} + x^{75} + x^{73} + x^{72} + x^{69} + x^{66} + x^{65} \\
&+ x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{48} + x^{46} + x^{45} + x^{41} \\
&+ x^{40} + x^{39}, \\
p_3(x) = {}& x^{141} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{121} + x^{119} + x^{115} + x^{111} \\
&+ x^{109} + x^{107} + x^{105} + x^{103} + x^{97} + x^{95} + x^{91} + x^{87} + x^{83} + x^{81} \\
&+ x^{77} + x^{75} + x^{69} + x^{67} + x^{65} + x^{63} + x^{61} + x^{59} + x^{53} + x^{47} + x^{45} \\
&+ x^{43} + x^{41} + x^{39} + x^{33} + x^{31} + x^{29} + x^{27}, \\
p_6(x) = {}& x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} \\
&+ x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&+ x^{105} + x^{104} + x^{101} + x^{99} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} \\
&+ x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{71} \\
&+ x^{67} + x^{66} + x^{64} + x^{60} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} + x^{51} + x^{50} \\
&+ x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{41} + x^{40} + x^{37} + x^{35} + x^{31} + x^{29} \\
&+ x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_9(x) = {}& x^{135} + x^{133} + x^{121} + x^{119} + x^{117} + x^{115} + x^{113} + x^{111} + x^{107} + x^{105} \\
&+ x^{101} + x^{99} + x^{97} + x^{89} + x^{87} + x^{85} + x^{83} + x^{81} + x^{77} + x^{75} + x^{73} \\
&+ x^{69} + x^{65} + x^{63} + x^{61} + x^{59} + x^{55} + x^{53} + x^{47} + x^{45} + x^{43} + x^{41} \\
&+ x^{39} + x^{37} + x^{33} + x^{31} + x^{27} + x^{21} + x^{17} + x^{13} + x^{11} + x^{9}, \\
p_{12}(x) = {}& x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} \\
&+ x^{114} + x^{112} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{88} + x^{80} \\
&+ x^{79} + x^{78} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{64} + x^{52} + x^{51} \\
&+ x^{50} + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} \\
&+ x^{19} + x^{18} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{135} + x^{134} + x^{133} + x^{129} \\
&\quad + x^{122} + x^{119} + x^{118} + x^{116} + x^{114} + x^{113} + x^{112} + x^{109} + x^{108} \\
&\quad + x^{107} + x^{106} + x^{104} + x^{103} + x^{102} + x^{98} + x^{94} + x^{92} + x^{89} + x^{88} \\
&\quad + x^{87} + x^{83} + x^{79} + x^{77} + x^{76} + x^{75} + x^{73} + x^{72} + x^{69} + x^{66} + x^{65} \\
&\quad + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{55} + x^{52} + x^{48} + x^{46} + x^{45} + x^{41} \\
&\quad + x^{40} + x^{39}, \\
p_3(x) &= x^{141} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{121} + x^{119} + x^{115} + x^{111} \\
&\quad + x^{109} + x^{107} + x^{105} + x^{103} + x^{97} + x^{95} + x^{91} + x^{87} + x^{83} + x^{81} \\
&\quad + x^{77} + x^{75} + x^{69} + x^{67} + x^{65} + x^{63} + x^{61} + x^{59} + x^{53} + x^{47} + x^{45} \\
&\quad + x^{43} + x^{41} + x^{39} + x^{33} + x^{31} + x^{29} + x^{27}, \\
p_6(x) &= x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} \\
&\quad + x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&\quad + x^{105} + x^{104} + x^{101} + x^{99} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} \\
&\quad + x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{71} \\
&\quad + x^{67} + x^{66} + x^{64} + x^{60} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} + x^{51} + x^{50} \\
&\quad + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{41} + x^{40} + x^{37} + x^{35} + x^{31} + x^{29} \\
&\quad + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_9(x) &= x^{135} + x^{133} + x^{121} + x^{119} + x^{117} + x^{115} + x^{113} + x^{111} + x^{107} + x^{105} \\
&\quad + x^{101} + x^{99} + x^{97} + x^{89} + x^{87} + x^{85} + x^{83} + x^{81} + x^{77} + x^{75} + x^{73} \\
&\quad + x^{69} + x^{65} + x^{63} + x^{61} + x^{59} + x^{55} + x^{53} + x^{47} + x^{45} + x^{43} + x^{41} \\
&\quad + x^{39} + x^{37} + x^{33} + x^{31} + x^{27} + x^{21} + x^{17} + x^{13} + x^{11} + x^{9}, \\
p_{12}(x) &= x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} \\
&\quad + x^{114} + x^{112} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{88} + x^{80} \\
&\quad + x^{79} + x^{78} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{64} + x^{52} + x^{51} \\
&\quad + x^{50} + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} \\
&\quad + x^{19} + x^{18} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{150} + x^{146} + x^{142} + x^{132} + x^{130} + x^{128} + x^{126} + x^{120} + x^{110} + x^{104} \\
&\quad + x^{100} + x^{96} + x^{94} + x^{84} + x^{80} + x^{74} + x^{72} + x^{70} + x^{68} + x^{62} + x^{60} \\
&\quad + x^{58} + x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42}, \\
p_3(x) &= x^{132} + x^{130} + x^{122} + x^{120} + x^{116} + x^{114} + x^{112} + x^{110} + x^{106} + x^{104} \\
&\quad + x^{102} + x^{98} + x^{86} + x^{82} + x^{80} + x^{78} + x^{76} + x^{70} + x^{66} + x^{62} + x^{60} \\
&\quad + x^{56} + x^{54} + x^{52} + x^{48} + x^{44} + x^{42} + x^{34} + x^{32} + x^{30} + x^{28} + x^{26}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{22} + x^{18},\\
p_6(x) &= x^{132} + x^{130} + x^{126} + x^{120} + x^{116} + x^{114} + x^{112} + x^{106} + x^{102} + x^{96}\\
&+ x^{90} + x^{88} + x^{86} + x^{76} + x^{74} + x^{72} + x^{66} + x^{60} + x^{58} + x^{54} + x^{52}\\
&+ x^{50} + x^{46} + x^{44} + x^{40} + x^{34} + x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{18}\\
&+ x^{16} + x^{10} + x^{2} + 1,\\
p_9(x) &= x^{126} + x^{122} + x^{116} + x^{114} + x^{112} + x^{106} + x^{102} + x^{94} + x^{90} + x^{88}\\
&+ x^{70} + x^{68} + x^{62} + x^{58} + x^{56} + x^{52} + x^{50} + x^{48} + x^{44} + x^{42} + x^{40}\\
&+ x^{38} + x^{34} + x^{30} + x^{26} + x^{22} + x^{20} + x^{18} + x^{14} + x^{12} + x^{8} + x^{6},\\
p_{12}(x) &= x^{126} + x^{122} + x^{120} + x^{118} + x^{114} + x^{112} + x^{94} + x^{90} + x^{88} + x^{86}\\
&+ x^{82} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} + x^{46} + x^{42} + x^{40}\\
&+ x^{38} + x^{34} + x^{32} + x^{14} + x^{10} + x^{8} + x^{6} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{150} + x^{146} + x^{142} + x^{138} + x^{122} + x^{120} + x^{114} + x^{104} + x^{94} + x^{86}\\
&+ x^{74} + x^{70} + x^{66} + x^{64} + x^{62} + x^{60} + x^{56} + x^{52} + x^{46} + x^{44} + x^{36},\\
p_3(x) &= x^{132} + x^{130} + x^{122} + x^{118} + x^{112} + x^{110} + x^{106} + x^{98} + x^{86} + x^{84}\\
&+ x^{80} + x^{78} + x^{76} + x^{72} + x^{68} + x^{64} + x^{58} + x^{52} + x^{48} + x^{40} + x^{38}\\
&+ x^{34} + x^{32} + x^{30} + x^{28} + x^{26} + x^{22} + x^{20},\\
p_6(x) &= x^{132} + x^{130} + x^{126} + x^{118} + x^{114} + x^{112} + x^{108} + x^{106} + x^{102} + x^{100}\\
&+ x^{96} + x^{94} + x^{90} + x^{78} + x^{74} + x^{70} + x^{68} + x^{66} + x^{64} + x^{62} + x^{60}\\
&+ x^{58} + x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{44} + x^{40} + x^{38} + x^{34} + x^{28}\\
&+ x^{26} + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{2} + 1,\\
p_9(x) &= x^{126} + x^{122} + x^{116} + x^{114} + x^{112} + x^{106} + x^{102} + x^{94} + x^{90} + x^{88}\\
&+ x^{70} + x^{68} + x^{62} + x^{58} + x^{56} + x^{52} + x^{50} + x^{48} + x^{44} + x^{42} + x^{40}\\
&+ x^{38} + x^{34} + x^{30} + x^{26} + x^{22} + x^{20} + x^{18} + x^{14} + x^{12} + x^{8} + x^{6},\\
p_{12}(x) &= x^{126} + x^{122} + x^{120} + x^{118} + x^{114} + x^{112} + x^{94} + x^{90} + x^{88} + x^{86}\\
&+ x^{82} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} + x^{46} + x^{42} + x^{40}\\
&+ x^{38} + x^{34} + x^{32} + x^{14} + x^{10} + x^{8} + x^{6} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{139} + x^{138} + x^{137} + x^{131} + x^{130} + x^{129} + x^{126} + x^{125}\\
&+ x^{124} + x^{123} + x^{119} + x^{116} + x^{113} + x^{111} + x^{109} + x^{108} + x^{105}\\
&+ x^{103} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{85}\\
&+ x^{84} + x^{82} + x^{81} + x^{78} + x^{77} + x^{76} + x^{75} + x^{73} + x^{70} + x^{69} + x^{67}\\
&+ x^{66} + x^{64} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{54} + x^{53} + x^{52}
\end{aligned}
$$

$$+ x^{51} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{41} + x^{40} + x^{39},$$

$$\begin{aligned}
p_3(x) &= x^{141} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{121} + x^{119} + x^{115} + x^{111} \\
&+ x^{109} + x^{107} + x^{105} + x^{103} + x^{97} + x^{95} + x^{91} + x^{87} + x^{83} + x^{81} \\
&+ x^{77} + x^{75} + x^{69} + x^{67} + x^{65} + x^{63} + x^{61} + x^{59} + x^{53} + x^{47} + x^{45} \\
&+ x^{43} + x^{41} + x^{39} + x^{33} + x^{31} + x^{29} + x^{27}, \\
p_6(x) &= x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} \\
&+ x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&+ x^{105} + x^{104} + x^{101} + x^{99} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} \\
&+ x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{71} \\
&+ x^{67} + x^{66} + x^{64} + x^{60} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} + x^{51} + x^{50} \\
&+ x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{41} + x^{40} + x^{37} + x^{35} + x^{31} + x^{29} \\
&+ x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_9(x) &= x^{135} + x^{133} + x^{121} + x^{119} + x^{117} + x^{115} + x^{113} + x^{111} + x^{107} + x^{105} \\
&+ x^{101} + x^{99} + x^{97} + x^{89} + x^{87} + x^{85} + x^{83} + x^{81} + x^{77} + x^{75} + x^{73} \\
&+ x^{69} + x^{65} + x^{63} + x^{61} + x^{59} + x^{55} + x^{53} + x^{47} + x^{45} + x^{43} + x^{41} \\
&+ x^{39} + x^{37} + x^{33} + x^{31} + x^{27} + x^{21} + x^{17} + x^{13} + x^{11} + x^{9}, \\
p_{12}(x) &= x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} \\
&+ x^{114} + x^{112} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{88} + x^{80} \\
&+ x^{79} + x^{78} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{64} + x^{52} + x^{51} \\
&+ x^{50} + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} \\
&+ x^{19} + x^{18} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{139} + x^{138} + x^{137} + x^{131} + x^{130} + x^{129} + x^{126} + x^{125} \\
&+ x^{124} + x^{123} + x^{119} + x^{116} + x^{113} + x^{111} + x^{109} + x^{108} + x^{105} \\
&+ x^{103} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{85} \\
&+ x^{84} + x^{82} + x^{81} + x^{78} + x^{77} + x^{76} + x^{75} + x^{73} + x^{70} + x^{69} + x^{67} \\
&+ x^{66} + x^{64} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} + x^{54} + x^{53} + x^{52} \\
&+ x^{51} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{41} + x^{40} + x^{39}, \\
p_3(x) &= x^{141} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{121} + x^{119} + x^{115} + x^{111} \\
&+ x^{109} + x^{107} + x^{105} + x^{103} + x^{97} + x^{95} + x^{91} + x^{87} + x^{83} + x^{81} \\
&+ x^{77} + x^{75} + x^{69} + x^{67} + x^{65} + x^{63} + x^{61} + x^{59} + x^{53} + x^{47} + x^{45} \\
&+ x^{43} + x^{41} + x^{39} + x^{33} + x^{31} + x^{29} + x^{27}, \\
p_6(x) &= x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} \\
&+ x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{105} + x^{104} + x^{101} + x^{99} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88}\\
&+ x^{87} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{71}\\
&+ x^{67} + x^{66} + x^{64} + x^{60} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} + x^{51} + x^{50}\\
&+ x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{41} + x^{40} + x^{37} + x^{35} + x^{31} + x^{29}\\
&+ x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18},\\
p_9(x) &= x^{135} + x^{133} + x^{121} + x^{119} + x^{117} + x^{115} + x^{113} + x^{111} + x^{107} + x^{105}\\
&+ x^{101} + x^{99} + x^{97} + x^{89} + x^{87} + x^{85} + x^{83} + x^{81} + x^{77} + x^{75} + x^{73}\\
&+ x^{69} + x^{65} + x^{63} + x^{61} + x^{59} + x^{55} + x^{53} + x^{47} + x^{45} + x^{43} + x^{41}\\
&+ x^{39} + x^{37} + x^{33} + x^{31} + x^{27} + x^{21} + x^{17} + x^{13} + x^{11} + x^{9},\\
p_{12}(x) &= x^{132} + x^{131} + x^{130} + x^{127} + x^{126} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115}\\
&+ x^{114} + x^{112} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{88} + x^{80}\\
&+ x^{79} + x^{78} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{64} + x^{52} + x^{51}\\
&+ x^{50} + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20}\\
&+ x^{19} + x^{18} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{140} + x^{136} + x^{132} + x^{126} + x^{124} + x^{122} + x^{114} + x^{112} + x^{104}\\
&+ x^{102} + x^{96} + x^{92} + x^{90} + x^{88} + x^{82} + x^{80} + x^{74} + x^{70} + x^{66} + x^{64}\\
&+ x^{60} + x^{58} + x^{54} + x^{52} + x^{50} + x^{46} + x^{44} + x^{42},\\
p_3(x) &= x^{134} + x^{132} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{112} + x^{108} + x^{104}\\
&+ x^{102} + x^{94} + x^{92} + x^{90} + x^{86} + x^{82} + x^{76} + x^{70} + x^{64} + x^{62} + x^{54}\\
&+ x^{48} + x^{42} + x^{40} + x^{36} + x^{34} + x^{32} + x^{30} + x^{28} + x^{24} + x^{22} + x^{18},\\
p_6(x) &= x^{134} + x^{122} + x^{118} + x^{116} + x^{114} + x^{112} + x^{110} + x^{102} + x^{96} + x^{94}\\
&+ x^{90} + x^{82} + x^{78} + x^{76} + x^{74} + x^{68} + x^{66} + x^{64} + x^{60} + x^{48} + x^{44}\\
&+ x^{42} + x^{40} + x^{36} + x^{34} + x^{16} + x^{14} + x^{12} + x^{10} + x^{6} + x^{2} + 1,\\
p_9(x) &= x^{138} + x^{136} + x^{132} + x^{128} + x^{120} + x^{118} + x^{114} + x^{112} + x^{110} + x^{106}\\
&+ x^{104} + x^{102} + x^{100} + x^{96} + x^{92} + x^{90} + x^{84} + x^{82} + x^{80} + x^{72} + x^{70}\\
&+ x^{68} + x^{66} + x^{60} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46} + x^{42} + x^{40} + x^{26}\\
&+ x^{18} + x^{14} + x^{8} + x^{6},\\
p_{12}(x) &= x^{138} + x^{136} + x^{122} + x^{120} + x^{114} + x^{112} + x^{106} + x^{104} + x^{82} + x^{80}\\
&+ x^{74} + x^{72} + x^{66} + x^{64} + x^{58} + x^{56} + x^{42} + x^{40} + x^{34} + x^{32} + x^{26}\\
&+ x^{24} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
p_0(x) = x^{147} + x^{144} + x^{142} + x^{138} + x^{137} + x^{133} + x^{130} + x^{128} + x^{125} + x^{122}
$$

$$+ x^{121} + x^{120} + x^{119} + x^{114} + x^{112} + x^{111} + x^{110} + x^{108} + x^{107}$$
$$+ x^{106} + x^{102} + x^{100} + x^{98} + x^{87} + x^{86} + x^{83} + x^{82} + x^{79} + x^{78} + x^{77}$$
$$+ x^{76} + x^{69} + x^{68} + x^{67} + x^{66} + x^{60} + x^{59} + x^{55} + x^{52} + x^{50} + x^{47}$$
$$+ x^{45} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36},$$

$$\begin{aligned}
p_3(x) = {} & x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{134} \\
& + x^{133} + x^{130} + x^{129} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} \\
& + x^{116} + x^{113} + x^{112} + x^{111} + x^{110} + x^{106} + x^{104} + x^{98} + x^{96} + x^{92} \\
& + x^{90} + x^{89} + x^{88} + x^{87} + x^{84} + x^{83} + x^{80} + x^{77} + x^{74} + x^{70} + x^{67} \\
& + x^{66} + x^{65} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57} + x^{52} + x^{51} + x^{49} + x^{47} \\
& + x^{46} + x^{42} + x^{40} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27} + x^{24},
\end{aligned}$$

$$\begin{aligned}
p_6(x) = {} & x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{134} \\
& + x^{133} + x^{130} + x^{127} + x^{122} + x^{121} + x^{116} + x^{113} + x^{112} + x^{111} \\
& + x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} \\
& + x^{93} + x^{90} + x^{88} + x^{85} + x^{83} + x^{82} + x^{80} + x^{79} + x^{78} + x^{75} + x^{74} \\
& + x^{71} + x^{70} + x^{69} + x^{63} + x^{61} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{52} \\
& + x^{51} + x^{49} + x^{45} + x^{43} + x^{38} + x^{36} + x^{35} + x^{30} + x^{28} + x^{22} + x^{20} \\
& + x^{17} + x^{14} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

$$\begin{aligned}
p_9(x) = {} & x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{132} + x^{128} + x^{127} \\
& + x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102} \\
& + x^{100} + x^{88} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{64} + x^{63} \\
& + x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{44} + x^{32} \\
& + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12},
\end{aligned}$$

$$\begin{aligned}
p_{12}(x) = {} & x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{131} + x^{130} + x^{128} \\
& + x^{124} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114} + x^{111} + x^{110} \\
& + x^{108} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} \\
& + x^{87} + x^{86} + x^{84} + x^{76} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{63} \\
& + x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42} \\
& + x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{19} \\
& + x^{18} + x^{16} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{156} + x^{148} + x^{147} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{130} \\
& + x^{127} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{116} + x^{114} \\
& + x^{113} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102} + x^{100} \\
& + x^{96} + x^{94} + x^{90} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{77} + x^{74} + x^{70} + x^{68} + x^{67} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59}\\
&+ x^{58} + x^{56} + x^{49} + x^{48} + x^{43} + x^{40} + x^{39},\\
p_3(x) &= x^{135} + x^{134} + x^{133} + x^{131} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121}\\
&+ x^{120} + x^{119} + x^{118} + x^{115} + x^{111} + x^{110} + x^{109} + x^{107} + x^{103}\\
&+ x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{91} + x^{87} + x^{86}\\
&+ x^{85} + x^{83} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{65} + x^{64}\\
&+ x^{63} + x^{62} + x^{59} + x^{47} + x^{46} + x^{45} + x^{43} + x^{39} + x^{38} + x^{36} + x^{35}\\
&+ x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27},\\
p_6(x) &= x^{138} + x^{136} + x^{134} + x^{130} + x^{122} + x^{120} + x^{118} + x^{112} + x^{108} + x^{100}\\
&+ x^{98} + x^{94} + x^{82} + x^{80} + x^{78} + x^{72} + x^{70} + x^{64} + x^{60} + x^{54} + x^{46}\\
&+ x^{44} + x^{42} + x^{36} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22} + x^{18},\\
p_9(x) &= x^{141} + x^{140} + x^{138} + x^{137} + x^{136} + x^{133} + x^{129} + x^{128} + x^{126} + x^{125}\\
&+ x^{124} + x^{121} + x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{97} + x^{96}\\
&+ x^{94} + x^{90} + x^{88} + x^{85} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{61}\\
&+ x^{60} + x^{58} + x^{57} + x^{56} + x^{53} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} + x^{41}\\
&+ x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{21} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12}\\
&+ x^{9},\\
p_{12}(x) &= x^{144} + x^{140} + x^{136} + x^{128} + x^{124} + x^{120} + x^{116} + x^{108} + x^{104} + x^{84}\\
&+ x^{76} + x^{72} + x^{68} + x^{60} + x^{56} + x^{48} + x^{44} + x^{40} + x^{36} + x^{28} + x^{24}\\
&+ x^{16} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{146} + x^{144} + x^{143} + x^{139} + x^{132} + x^{124} + x^{122} + x^{119} + x^{114} + x^{111}\\
&+ x^{110} + x^{108} + x^{104} + x^{103} + x^{101} + x^{95} + x^{93} + x^{92} + x^{91} + x^{88}\\
&+ x^{87} + x^{85} + x^{83} + x^{82} + x^{81} + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} + x^{68}\\
&+ x^{65} + x^{62} + x^{61} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{48} + x^{46}\\
&+ x^{44} + x^{43} + x^{40} + x^{39},\\
p_3(x) &= x^{143} + x^{142} + x^{141} + x^{138} + x^{137} + x^{134} + x^{132} + x^{131} + x^{130} + x^{126}\\
&+ x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{115} + x^{114} + x^{113}\\
&+ x^{110} + x^{108} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96}\\
&+ x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{85} + x^{84} + x^{83} + x^{81} + x^{73} + x^{72}\\
&+ x^{71} + x^{68} + x^{66} + x^{65} + x^{64} + x^{63} + x^{62} + x^{59} + x^{55} + x^{54} + x^{53}\\
&+ x^{50} + x^{49} + x^{46} + x^{44} + x^{43} + x^{42} + x^{38} + x^{36} + x^{35} + x^{34} + x^{33}\\
&+ x^{32} + x^{31} + x^{30} + x^{27},\\
p_6(x) &= x^{146} + x^{144} + x^{140} + x^{132} + x^{130} + x^{126} + x^{114} + x^{112} + x^{110} + x^{104}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{102} + x^{96} + x^{92} + x^{86} + x^{78} + x^{76} + x^{72} + x^{70} + x^{68} + x^{62} + x^{58} \\
&+ x^{56} + x^{54} + x^{50} + x^{42} + x^{40} + x^{38} + x^{34} + x^{26} + x^{24} + x^{22} + x^{18}, \\
p_9(x) &= x^{149} + x^{148} + x^{146} + x^{142} + x^{140} + x^{137} + x^{129} + x^{128} + x^{126} + x^{125} \\
&+ x^{124} + x^{121} + x^{117} + x^{116} + x^{114} + x^{110} + x^{108} + x^{105} + x^{101} \\
&+ x^{100} + x^{98} + x^{97} + x^{96} + x^{93} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} \\
&+ x^{69} + x^{68} + x^{66} + x^{62} + x^{60} + x^{57} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} \\
&+ x^{41} + x^{37} + x^{36} + x^{34} + x^{30} + x^{28} + x^{25} + x^{17} + x^{16} + x^{14} + x^{13} \\
&+ x^{12} + x^{9}, \\
p_{12}(x) &= x^{152} + x^{136} + x^{132} + x^{128} + x^{116} + x^{112} + x^{100} + x^{96} + x^{68} + x^{64} \\
&+ x^{56} + x^{52} + x^{48} + x^{36} + x^{32} + x^{24} + x^{20} + x^{16} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{141} + x^{137} + x^{135} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129} \\
&+ x^{126} + x^{124} + x^{123} + x^{119} + x^{117} + x^{113} + x^{112} + x^{110} + x^{109} \\
&+ x^{108} + x^{107} + x^{105} + x^{104} + x^{101} + x^{98} + x^{95} + x^{93} + x^{91} + x^{89} \\
&+ x^{88} + x^{87} + x^{86} + x^{83} + x^{80} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} \\
&+ x^{70} + x^{68} + x^{67} + x^{64} + x^{61} + x^{59} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} \\
&+ x^{51} + x^{49} + x^{47} + x^{45} + x^{44} + x^{42}, \\
p_3(x) &= x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} \\
&+ x^{132} + x^{128} + x^{124} + x^{123} + x^{120} + x^{119} + x^{117} + x^{115} + x^{110} \\
&+ x^{108} + x^{105} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91} \\
&+ x^{90} + x^{83} + x^{79} + x^{78} + x^{77} + x^{75} + x^{72} + x^{70} + x^{67} + x^{64} + x^{63} \\
&+ x^{62} + x^{61} + x^{60} + x^{57} + x^{56} + x^{52} + x^{51} + x^{50} + x^{46} + x^{44} + x^{41} \\
&+ x^{38} + x^{36} + x^{35} + x^{34} + x^{33} + x^{31} + x^{29} + x^{28} + x^{26}, \\
p_6(x) &= x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} \\
&+ x^{132} + x^{129} + x^{128} + x^{127} + x^{125} + x^{124} + x^{121} + x^{120} + x^{119} \\
&+ x^{117} + x^{115} + x^{114} + x^{109} + x^{104} + x^{103} + x^{99} + x^{98} + x^{97} + x^{96} \\
&+ x^{94} + x^{92} + x^{90} + x^{89} + x^{84} + x^{83} + x^{80} + x^{79} + x^{77} + x^{76} + x^{75} \\
&+ x^{74} + x^{73} + x^{70} + x^{69} + x^{67} + x^{66} + x^{62} + x^{61} + x^{57} + x^{54} + x^{53} \\
&+ x^{50} + x^{48} + x^{47} + x^{45} + x^{41} + x^{38} + x^{37} + x^{35} + x^{34} + x^{29} + x^{26} \\
&+ x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} + x^{11} + x^{10} \\
&+ x^{8} + x^{4} + x^{3} + x^{2} + 1, \\
p_9(x) &= x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{132} + x^{128} + x^{127} \\
&+ x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102} \\
&+ x^{100} + x^{88} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{64} + x^{63}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{44} + x^{32}\\
&+ x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12},\\
p_{12}(x) = {}& x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{131} + x^{130} + x^{128}\\
&+ x^{124} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114} + x^{111} + x^{110}\\
&+ x^{108} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90}\\
&+ x^{87} + x^{86} + x^{84} + x^{76} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{63}\\
&+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42}\\
&+ x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{19}\\
&+ x^{18} + x^{16} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{147} + x^{144} + x^{142} + x^{138} + x^{137} + x^{133} + x^{130} + x^{128} + x^{125} + x^{122}\\
&+ x^{121} + x^{120} + x^{119} + x^{114} + x^{112} + x^{111} + x^{110} + x^{108} + x^{107}\\
&+ x^{106} + x^{102} + x^{100} + x^{98} + x^{87} + x^{86} + x^{83} + x^{82} + x^{79} + x^{78} + x^{77}\\
&+ x^{76} + x^{69} + x^{68} + x^{67} + x^{66} + x^{60} + x^{59} + x^{55} + x^{52} + x^{50} + x^{47}\\
&+ x^{45} + x^{42} + x^{41} + x^{40} + x^{39} + x^{36},\\
p_3(x) = {}& x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{134}\\
&+ x^{133} + x^{130} + x^{129} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117}\\
&+ x^{116} + x^{113} + x^{112} + x^{111} + x^{110} + x^{106} + x^{104} + x^{98} + x^{96} + x^{92}\\
&+ x^{90} + x^{89} + x^{88} + x^{87} + x^{84} + x^{83} + x^{80} + x^{77} + x^{74} + x^{70} + x^{67}\\
&+ x^{66} + x^{65} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57} + x^{52} + x^{51} + x^{49} + x^{47}\\
&+ x^{46} + x^{42} + x^{40} + x^{34} + x^{31} + x^{30} + x^{29} + x^{27} + x^{24},\\
p_6(x) = {}& x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{134}\\
&+ x^{133} + x^{130} + x^{127} + x^{122} + x^{121} + x^{116} + x^{113} + x^{112} + x^{111}\\
&+ x^{110} + x^{108} + x^{107} + x^{106} + x^{105} + x^{102} + x^{101} + x^{99} + x^{97} + x^{96}\\
&+ x^{93} + x^{90} + x^{88} + x^{85} + x^{83} + x^{82} + x^{80} + x^{79} + x^{78} + x^{75} + x^{74}\\
&+ x^{71} + x^{70} + x^{69} + x^{63} + x^{61} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{52}\\
&+ x^{51} + x^{49} + x^{45} + x^{43} + x^{38} + x^{36} + x^{35} + x^{30} + x^{28} + x^{22} + x^{20}\\
&+ x^{17} + x^{14} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) = {}& x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{132} + x^{128} + x^{127}\\
&+ x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102}\\
&+ x^{100} + x^{88} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{64} + x^{63}\\
&+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{44} + x^{32}\\
&+ x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12},\\
p_{12}(x) = {}& x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{131} + x^{130} + x^{128}
\end{aligned}
$$

$$+ x^{124} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114} + x^{111} + x^{110}$$
$$+ x^{108} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90}$$
$$+ x^{87} + x^{86} + x^{84} + x^{76} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{63}$$
$$+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42}$$
$$+ x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{19}$$
$$+ x^{18} + x^{16} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{146} + x^{144} + x^{143} + x^{139} + x^{132} + x^{124} + x^{122} + x^{119} + x^{114} + x^{111} \\
& + x^{110} + x^{108} + x^{104} + x^{103} + x^{101} + x^{95} + x^{93} + x^{92} + x^{91} + x^{88} \\
& + x^{87} + x^{85} + x^{83} + x^{82} + x^{81} + x^{76} + x^{74} + x^{73} + x^{72} + x^{71} + x^{68} \\
& + x^{65} + x^{62} + x^{61} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{48} + x^{46} \\
& + x^{44} + x^{43} + x^{40} + x^{39}, \\
p_3(x) = {} & x^{143} + x^{142} + x^{141} + x^{138} + x^{137} + x^{134} + x^{132} + x^{131} + x^{130} + x^{126} \\
& + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{115} + x^{114} + x^{113} \\
& + x^{110} + x^{108} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} \\
& + x^{93} + x^{91} + x^{90} + x^{89} + x^{87} + x^{85} + x^{84} + x^{83} + x^{81} + x^{73} + x^{72} \\
& + x^{71} + 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^{44} + x^{43} + x^{42} + x^{38} + x^{36} + x^{35} + x^{34} + x^{33} \\
& + x^{32} + x^{31} + x^{30} + x^{27}, \\
p_6(x) = {} & x^{146} + x^{144} + x^{140} + x^{132} + x^{130} + x^{126} + x^{114} + x^{112} + x^{110} + x^{104} \\
& + x^{102} + x^{96} + x^{92} + x^{86} + x^{78} + x^{76} + x^{72} + x^{70} + x^{68} + x^{62} + x^{58} \\
& + x^{56} + x^{54} + x^{50} + x^{42} + x^{40} + x^{38} + x^{34} + x^{26} + x^{24} + x^{22} + x^{18}, \\
p_9(x) = {} & x^{149} + x^{148} + x^{146} + x^{142} + x^{140} + x^{137} + x^{129} + x^{128} + x^{126} + x^{125} \\
& + x^{124} + x^{121} + x^{117} + x^{116} + x^{114} + x^{110} + x^{108} + x^{105} + x^{101} \\
& + x^{100} + x^{98} + x^{97} + x^{96} + x^{93} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} \\
& + x^{69} + x^{68} + x^{66} + x^{62} + x^{60} + x^{57} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} \\
& + x^{41} + x^{37} + x^{36} + x^{34} + x^{30} + x^{28} + x^{25} + x^{17} + x^{16} + x^{14} + x^{13} \\
& + x^{12} + x^{9}, \\
p_{12}(x) = {} & x^{152} + x^{136} + x^{132} + x^{128} + x^{116} + x^{112} + x^{100} + x^{96} + x^{68} + x^{64} \\
& + x^{56} + x^{52} + x^{48} + x^{36} + x^{32} + x^{24} + x^{20} + x^{16} + x^{8} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{156} + x^{148} + x^{147} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{130} \\
& + x^{127} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{116} + x^{114}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{113} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102} + x^{100}\\
&+ x^{96} + x^{94} + x^{90} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{81} + x^{80} + x^{78}\\
&+ x^{77} + x^{74} + x^{70} + x^{68} + x^{67} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59}\\
&+ x^{58} + x^{56} + x^{49} + x^{48} + x^{43} + x^{40} + x^{39},\\
p_3(x) &= x^{135} + x^{134} + x^{133} + x^{131} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121}\\
&+ x^{120} + x^{119} + x^{118} + x^{115} + x^{111} + x^{110} + x^{109} + x^{107} + x^{103}\\
&+ x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{91} + x^{87} + x^{86}\\
&+ x^{85} + x^{83} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{65} + x^{64}\\
&+ x^{63} + x^{62} + x^{59} + x^{47} + x^{46} + x^{45} + x^{43} + x^{39} + x^{38} + x^{36} + x^{35}\\
&+ x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27},\\
p_6(x) &= x^{138} + x^{136} + x^{134} + x^{130} + x^{122} + x^{120} + x^{118} + x^{112} + x^{108} + x^{100}\\
&+ x^{98} + x^{94} + x^{82} + x^{80} + x^{78} + x^{72} + x^{70} + x^{64} + x^{60} + x^{54} + x^{46}\\
&+ x^{44} + x^{42} + x^{36} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22} + x^{18},\\
p_9(x) &= x^{141} + x^{140} + x^{138} + x^{137} + x^{136} + x^{133} + x^{129} + x^{128} + x^{126} + x^{125}\\
&+ x^{124} + x^{121} + x^{109} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{97} + x^{96}\\
&+ x^{94} + x^{90} + x^{88} + x^{85} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{61}\\
&+ x^{60} + x^{58} + x^{57} + x^{56} + x^{53} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} + x^{41}\\
&+ x^{29} + x^{28} + x^{26} + x^{25} + x^{24} + x^{21} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12}\\
&+ x^{9},\\
p_{12}(x) &= x^{144} + x^{140} + x^{136} + x^{128} + x^{124} + x^{120} + x^{116} + x^{108} + x^{104} + x^{84}\\
&+ x^{76} + x^{72} + x^{68} + x^{60} + x^{56} + x^{48} + x^{44} + x^{40} + x^{36} + x^{28} + x^{24}\\
&+ x^{16} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{141} + x^{137} + x^{135} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129}\\
&+ x^{126} + x^{124} + x^{123} + x^{119} + x^{117} + x^{113} + x^{112} + x^{110} + x^{109}\\
&+ x^{108} + x^{107} + x^{105} + x^{104} + x^{101} + x^{98} + x^{95} + x^{93} + x^{91} + x^{89}\\
&+ x^{88} + x^{87} + x^{86} + x^{83} + x^{80} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71}\\
&+ x^{70} + x^{68} + x^{67} + x^{64} + x^{61} + x^{59} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53}\\
&+ x^{51} + x^{49} + x^{47} + x^{45} + x^{44} + x^{42},\\
p_3(x) &= x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133}\\
&+ x^{132} + x^{128} + x^{124} + x^{123} + x^{120} + x^{119} + x^{117} + x^{115} + x^{110}\\
&+ x^{108} + x^{105} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{91}\\
&+ x^{90} + x^{83} + x^{79} + x^{78} + x^{77} + x^{75} + x^{72} + x^{70} + x^{67} + x^{64} + x^{63}\\
&+ x^{62} + x^{61} + x^{60} + x^{57} + x^{56} + x^{52} + x^{51} + x^{50} + x^{46} + x^{44} + x^{41}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{38} + x^{36} + x^{35} + x^{34} + x^{33} + x^{31} + x^{29} + x^{28} + x^{26},\\
p_6(x) = {}& x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133}\\
&+ x^{132} + x^{129} + x^{128} + x^{127} + x^{125} + x^{124} + x^{121} + x^{120} + x^{119}\\
&+ x^{117} + x^{115} + x^{114} + x^{109} + x^{104} + x^{103} + x^{99} + x^{98} + x^{97} + x^{96}\\
&+ x^{94} + x^{92} + x^{90} + x^{89} + x^{84} + x^{83} + x^{80} + x^{79} + x^{77} + x^{76} + x^{75}\\
&+ x^{74} + x^{73} + x^{70} + x^{69} + x^{67} + x^{66} + x^{62} + x^{61} + x^{57} + x^{54} + x^{53}\\
&+ x^{50} + x^{48} + x^{47} + x^{45} + x^{41} + x^{38} + x^{37} + x^{35} + x^{34} + x^{29} + x^{26}\\
&+ x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} + x^{11} + x^{10}\\
&+ x^{8} + x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) = {}& x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{132} + x^{128} + x^{127}\\
&+ x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{108} + x^{104} + x^{103} + x^{102}\\
&+ x^{100} + x^{88} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{64} + x^{63}\\
&+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{44} + x^{32}\\
&+ x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12},\\
p_{12}(x) = {}& x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{134} + x^{131} + x^{130} + x^{128}\\
&+ x^{124} + x^{123} + x^{122} + x^{120} + x^{116} + x^{115} + x^{114} + x^{111} + x^{110}\\
&+ x^{108} + x^{104} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90}\\
&+ x^{87} + x^{86} + x^{84} + x^{76} + x^{75} + x^{74} + x^{72} + x^{68} + x^{67} + x^{66} + x^{63}\\
&+ x^{62} + x^{60} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42}\\
&+ x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{19}\\
&+ x^{18} + x^{16} + x^{12} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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]	1280	[2097, 33]	2560	[3717, 1577]	3840	[4315, 2612]
1	[3, 4]	1281	[2098, 769]	2561	[215, 762]	3841	[4261, 4452]
2	[5, 6]	1282	[2099, 783]	2562	[3718, 549]	3842	[2819, 992]
3	[7, 8]	1283	[1574, 1750]	2563	[235, 2227]	3843	[405, 2649]
4	[9, 10]	1284	[2100, 2101]	2564	[3699, 1579]	3844	[4453, 4454]
5	[11, 12]	1285	[2102, 1598]	2565	[3719, 2226]	3845	[4455, 4456]
6	[13, 14]	1286	[2103, 2104]	2566	[176, 1694]	3846	[1120, 4457]
7	[15, 16]	1287	[506, 2105]	2567	[3720, 138]	3847	[4458, 1287]
8	[17, 18]	1288	[2106, 1997]	2568	[3721, 548]	3848	[104, 1039]
9	[19, 20]	1289	[2107, 2108]	2569	[834, 712]	3849	[4459, 4460]
10	[21, 22]	1290	[475, 2109]	2570	[1568, 3634]	3850	[4461, 4462]
11	[23, 24]	1291	[2021, 2110]	2571	[598, 511]	3851	[4463, 4464]

12	[25, 26]	1292	[845, 1952]	2572	[3722, 1714]	3852	[4465, 2553]
13	[27, 28]	1293	[602, 2049]	2573	[3723, 3724]	3853	[4183, 4466]
14	[29, 30]	1294	[2111, 537]	2574	[3725, 3726]	3854	[4467, 4468]
15	[31, 32]	1295	[784, 674]	2575	[2193, 2166]	3855	[385, 4469]
16	[33, 34]	1296	[2112, 2113]	2576	[3680, 2136]	3856	[4470, 4471]
17	[35, 36]	1297	[2114, 2115]	2577	[2373, 584]	3857	[4472, 4473]
18	[37, 38]	1298	[2116, 141]	2578	[845, 3727]	3858	[4209, 390]
19	[39, 40]	1299	[2117, 2118]	2579	[3600, 183]	3859	[985, 4474]
20	[41, 42]	1300	[696, 1858]	2580	[3728, 2370]	3860	[4475, 4476]
21	[43, 44]	1301	[2119, 176]	2581	[1825, 1914]	3861	[3090, 4477]
22	[45, 46]	1302	[1983, 2120]	2582	[3729, 2007]	3862	[4478, 3275]
23	[47, 48]	1303	[1803, 2121]	2583	[3730, 570]	3863	[4479, 4480]
24	[49, 50]	1304	[2122, 56]	2584	[737, 825]	3864	[3131, 1414]
25	[51, 52]	1305	[2123, 1785]	2585	[1779, 1816]	3865	[4481, 4482]
26	[53, 54]	1306	[612, 1862]	2586	[575, 3731]	3866	[4483, 3146]
27	[55, 56]	1307	[2124, 2125]	2587	[3648, 729]	3867	[4484, 4485]
28	[57, 58]	1308	[2126, 1652]	2588	[2236, 3664]	3868	[2408, 4486]
29	[59, 60]	1309	[2127, 2128]	2589	[3732, 1770]	3869	[4487, 3161]
30	[45, 61]	1310	[750, 516]	2590	[40, 1881]	3870	[4488, 2470]
31	[62, 63]	1311	[2129, 2130]	2591	[3733, 3605]	3871	[4489, 4490]
32	[64, 65]	1312	[156, 699]	2592	[3636, 1816]	3872	[4449, 4183]
33	[66, 67]	1313	[2131, 2132]	2593	[3686, 3734]	3873	[4491, 4492]
34	[68, 69]	1314	[1948, 714]	2594	[805, 1673]	3874	[4482, 3130]
35	[70, 71]	1315	[1629, 2133]	2595	[3735, 1851]	3875	[4493, 4494]
36	[72, 73]	1316	[659, 758]	2596	[683, 1618]	3876	[4395, 3230]
37	[74, 75]	1317	[688, 2134]	2597	[496, 3736]	3877	[1066, 4495]
38	[76, 77]	1318	[1985, 679]	2598	[791, 3737]	3878	[4496, 898]
39	[78, 79]	1319	[1972, 845]	2599	[2335, 483]	3879	[4497, 4498]
40	[80, 81]	1320	[2135, 2136]	2600	[174, 2003]	3880	[4499, 4367]
41	[82, 83]	1321	[788, 2137]	2601	[679, 2014]	3881	[4500, 4501]
42	[84, 85]	1322	[2138, 1639]	2602	[3738, 3739]	3882	[4502, 4503]
43	[86, 87]	1323	[498, 2139]	2603	[3660, 3740]	3883	[4504, 3511]
44	[88, 88]	1324	[1820, 2140]	2604	[3741, 3742]	3884	[4476, 3444]
45	[89, 90]	1325	[611, 587]	2605	[1628, 2189]	3885	[4505, 4472]
46	[91, 92]	1326	[2141, 1949]	2606	[2234, 654]	3886	[4506, 3572]
47	[93, 94]	1327	[795, 1585]	2607	[847, 3743]	3887	[4507, 4508]
48	[95, 96]	1328	[513, 1660]	2608	[2049, 3669]	3888	[3023, 4509]
49	[97, 98]	1329	[2142, 2143]	2609	[783, 3744]	3889	[4510, 3542]
50	[99, 100]	1330	[2144, 32]	2610	[3745, 613]	3890	[2516, 2541]
51	[101, 102]	1331	[2145, 42]	2611	[505, 3746]	3891	[4511, 4248]
52	[103, 104]	1332	[798, 2146]	2612	[2226, 1911]	3892	[2391, 4512]
53	[105, 106]	1333	[2147, 2148]	2613	[503, 497]	3893	[4513, 3052]
54	[107, 108]	1334	[1822, 2149]	2614	[3747, 1565]	3894	[4514, 4515]
55	[109, 110]	1335	[1715, 2150]	2615	[3748, 1707]	3895	[4516, 1114]

56	[111, 112]	1336	[1889, 2151]	2616	[3749, 33]	3896	[2566, 3034]
57	[113, 114]	1337	[2152, 1817]	2617	[685, 1681]	3897	[4517, 3072]
58	[115, 116]	1338	[2153, 2154]	2618	[2188, 1719]	3898	[4518, 4519]
59	[117, 118]	1339	[2155, 2156]	2619	[603, 625]	3899	[4520, 2822]
60	[119, 120]	1340	[2157, 2158]	2620	[509, 3750]	3900	[4521, 3489]
61	[121, 122]	1341	[1654, 1679]	2621	[3741, 2230]	3901	[4522, 2676]
62	[123, 124]	1342	[220, 607]	2622	[3751, 3752]	3902	[4523, 4524]
63	[125, 126]	1343	[557, 1772]	2623	[3627, 202]	3903	[2791, 4525]
64	[127, 128]	1344	[2159, 2160]	2624	[588, 2089]	3904	[1539, 4463]
65	[129, 130]	1345	[620, 2161]	2625	[2128, 3742]	3905	[4526, 4527]
66	[131, 132]	1346	[605, 638]	2626	[764, 1869]	3906	[4528, 4529]
67	[133, 134]	1347	[2162, 2163]	2627	[1815, 2263]	3907	[4530, 4531]
68	[135, 136]	1348	[2164, 1719]	2628	[579, 2137]	3908	[4532, 1345]
69	[137, 138]	1349	[708, 2165]	2629	[3681, 519]	3909	[4533, 1091]
70	[139, 140]	1350	[2136, 519]	2630	[635, 3753]	3910	[4311, 1097]
71	[141, 142]	1351	[2166, 2167]	2631	[3665, 1868]	3911	[4534, 2493]
72	[143, 140]	1352	[2168, 2169]	2632	[2178, 1758]	3912	[263, 1119]
73	[144, 145]	1353	[2170, 2171]	2633	[3592, 1783]	3913	[4535, 4536]
74	[146, 147]	1354	[2172, 2173]	2634	[2324, 2160]	3914	[941, 4537]
75	[148, 149]	1355	[2149, 2174]	2635	[3754, 3755]	3915	[3543, 3328]
76	[150, 151]	1356	[1601, 2175]	2636	[2279, 3710]	3916	[2801, 4538]
77	[152, 153]	1357	[2176, 1926]	2637	[1647, 2101]	3917	[4539, 3247]
78	[154, 155]	1358	[2177, 711]	2638	[1872, 2092]	3918	[2560, 3173]
79	[156, 157]	1359	[2178, 2179]	2639	[2015, 3756]	3919	[4540, 4541]
80	[127, 158]	1360	[505, 480]	2640	[2169, 630]	3920	[4542, 4543]
81	[159, 160]	1361	[615, 2139]	2641	[3757, 3758]	3921	[2590, 4544]
82	[161, 162]	1362	[669, 2180]	2642	[759, 673]	3922	[4545, 4546]
83	[163, 164]	1363	[2181, 2182]	2643	[3759, 2356]	3923	[4547, 3545]
84	[165, 166]	1364	[2183, 1808]	2644	[2138, 525]	3924	[4548, 4549]
85	[47, 167]	1365	[2184, 169]	2645	[791, 2120]	3925	[1314, 4550]
86	[168, 151]	1366	[2185, 2186]	2646	[3760, 632]	3926	[2594, 4551]
87	[169, 170]	1367	[723, 2069]	2647	[206, 683]	3927	[2397, 3402]
88	[171, 172]	1368	[2187, 594]	2648	[1786, 1571]	3928	[4552, 1311]
89	[173, 174]	1369	[2188, 1715]	2649	[3761, 2088]	3929	[1302, 3419]
90	[175, 176]	1370	[1715, 1798]	2650	[699, 1842]	3930	[4553, 4331]
91	[177, 178]	1371	[2026, 2189]	2651	[1705, 1834]	3931	[4554, 4555]
92	[179, 180]	1372	[2190, 2148]	2652	[3719, 541]	3932	[4556, 4557]
93	[181, 134]	1373	[1957, 2191]	2653	[2107, 149]	3933	[4558, 4559]
94	[182, 183]	1374	[2192, 218]	2654	[3762, 795]	3934	[1439, 4559]
95	[184, 185]	1375	[2193, 1662]	2655	[198, 1635]	3935	[4309, 4560]
96	[186, 187]	1376	[2194, 1791]	2656	[3763, 158]	3936	[4561, 4562]
97	[188, 189]	1377	[2195, 640]	2657	[3764, 3621]	3937	[2748, 3187]
98	[190, 191]	1378	[2196, 1767]	2658	[3765, 3766]	3938	[4563, 4365]
99	[192, 193]	1379	[2197, 2198]	2659	[3767, 1840]	3939	[2821, 1558]

100	[194, 195]	1380	[1788, 1821]	2660	[134, 513]	3940	[4564, 312]
101	[196, 197]	1381	[2199, 1880]	2661	[234, 3768]	3941	[4565, 3140]
102	[198, 136]	1382	[2200, 1961]	2662	[3769, 2367]	3942	[1105, 3533]
103	[199, 200]	1383	[2201, 2202]	2663	[3770, 1995]	3943	[2897, 4193]
104	[201, 202]	1384	[2203, 659]	2664	[619, 1668]	3944	[2700, 3291]
105	[203, 204]	1385	[2054, 714]	2665	[1887, 665]	3945	[3204, 4297]
106	[205, 206]	1386	[2204, 568]	2666	[3771, 3674]	3946	[4566, 4567]
107	[207, 208]	1387	[2205, 1731]	2667	[3772, 2206]	3947	[4568, 2789]
108	[209, 210]	1388	[2185, 2206]	2668	[163, 608]	3948	[4569, 956]
109	[211, 212]	1389	[1861, 613]	2669	[1920, 1703]	3949	[4404, 4570]
110	[213, 214]	1390	[1780, 2207]	2670	[1630, 3773]	3950	[3167, 2973]
111	[215, 216]	1391	[1639, 2208]	2671	[2189, 2029]	3951	[2838, 876]
112	[217, 218]	1392	[525, 2208]	2672	[3774, 170]	3952	[4571, 4572]
113	[219, 220]	1393	[2209, 140]	2673	[3775, 3750]	3953	[4573, 4574]
114	[221, 222]	1394	[2210, 2030]	2674	[3776, 3777]	3954	[4575, 4576]
115	[223, 224]	1395	[704, 2211]	2675	[2375, 3778]	3955	[4577, 4578]
116	[225, 226]	1396	[2212, 1752]	2676	[2082, 197]	3956	[1477, 4420]
117	[227, 228]	1397	[2213, 2214]	2677	[3779, 482]	3957	[4579, 4580]
118	[229, 230]	1398	[2215, 2216]	2678	[492, 1814]	3958	[4581, 4582]
119	[231, 232]	1399	[2217, 2218]	2679	[3780, 3607]	3959	[4583, 2667]
120	[233, 234]	1400	[2123, 2219]	2680	[3781, 1569]	3960	[2609, 4584]
121	[235, 214]	1401	[2220, 2221]	2681	[3782, 1857]	3961	[4585, 4586]
122	[236, 237]	1402	[2222, 1677]	2682	[2225, 782]	3962	[1082, 4587]
123	[238, 239]	1403	[2223, 1854]	2683	[2266, 2186]	3963	[4588, 4589]
124	[240, 241]	1404	[2117, 2224]	2684	[3595, 776]	3964	[3427, 4590]
125	[242, 243]	1405	[2225, 2099]	2685	[3603, 206]	3965	[4591, 1516]
126	[244, 245]	1406	[540, 2226]	2686	[1586, 1717]	3966	[3099, 4298]
127	[246, 247]	1407	[734, 498]	2687	[3783, 3784]	3967	[4592, 2720]
128	[248, 249]	1408	[213, 2227]	2688	[589, 2075]	3968	[4593, 3483]
129	[250, 251]	1409	[2228, 1624]	2689	[2205, 1762]	3969	[3324, 23]
130	[252, 253]	1410	[2229, 2230]	2690	[1641, 3785]	3970	[891, 4594]
131	[254, 255]	1411	[2231, 1653]	2691	[3786, 823]	3971	[3352, 2700]
132	[256, 257]	1412	[2232, 1868]	2692	[3787, 721]	3972	[4595, 1408]
133	[258, 259]	1413	[2233, 760]	2693	[3788, 589]	3973	[4596, 1061]
134	[260, 261]	1414	[1906, 774]	2694	[3789, 225]	3974	[3534, 4597]
135	[262, 263]	1415	[2234, 2235]	2695	[2303, 2071]	3975	[3186, 3295]
136	[264, 265]	1416	[2236, 2237]	2696	[3790, 162]	3976	[4598, 3379]
137	[266, 267]	1417	[1609, 2238]	2697	[1794, 3791]	3977	[4599, 4422]
138	[268, 269]	1418	[36, 2239]	2698	[3792, 2106]	3978	[4600, 4601]
139	[270, 271]	1419	[2240, 675]	2699	[3793, 1713]	3979	[4602, 4603]
140	[272, 273]	1420	[2241, 695]	2700	[1966, 1869]	3980	[4604, 4605]
141	[274, 275]	1421	[2215, 754]	2701	[3794, 2058]	3981	[4570, 4606]
142	[276, 277]	1422	[2242, 1713]	2702	[3744, 536]	3982	[4607, 2554]
143	[278, 279]	1423	[2243, 1707]	2703	[2058, 819]	3983	[4608, 1166]

144	[280, 281]	1424	[2244, 1619]	2704	[2058, 228]	3984	[447, 4609]
145	[282, 283]	1425	[678, 1986]	2705	[1751, 1738]	3985	[2916, 4610]
146	[284, 285]	1426	[1736, 1905]	2706	[3795, 1891]	3986	[1537, 368]
147	[286, 287]	1427	[2187, 1948]	2707	[3796, 1756]	3987	[4611, 4612]
148	[288, 289]	1428	[2245, 1967]	2708	[2090, 2043]	3988	[4613, 4614]
149	[290, 291]	1429	[1696, 2246]	2709	[3797, 3666]	3989	[4615, 2880]
150	[292, 293]	1430	[2247, 2248]	2710	[3792, 1903]	3990	[4616, 4545]
151	[294, 295]	1431	[2249, 2250]	2711	[3798, 3799]	3991	[4617, 2963]
152	[296, 297]	1432	[2201, 2251]	2712	[2147, 1666]	3992	[4618, 948]
153	[298, 299]	1433	[2252, 2253]	2713	[3710, 3752]	3993	[4295, 4619]
154	[300, 301]	1434	[2254, 2255]	2714	[3663, 3800]	3994	[1286, 4620]
155	[302, 303]	1435	[2256, 2257]	2715	[3801, 1913]	3995	[4621, 4417]
156	[304, 305]	1436	[2258, 2259]	2716	[3802, 2379]	3996	[4622, 4623]
157	[92, 306]	1437	[2260, 708]	2717	[1818, 3646]	3997	[247, 3409]
158	[307, 308]	1438	[2261, 742]	2718	[793, 1991]	3998	[4624, 4625]
159	[309, 310]	1439	[2262, 2263]	2719	[3623, 2218]	3999	[4626, 1404]
160	[311, 312]	1440	[783, 1749]	2720	[1698, 1869]	4000	[4627, 2872]
161	[313, 307]	1441	[1749, 2264]	2721	[3628, 2246]	4001	[4628, 4629]
162	[314, 315]	1442	[2265, 1751]	2722	[1674, 3653]	4002	[4630, 418]
163	[316, 317]	1443	[2266, 2206]	2723	[1792, 3803]	4003	[4631, 4632]
164	[318, 319]	1444	[2267, 515]	2724	[3804, 3702]	4004	[4633, 4634]
165	[320, 321]	1445	[2268, 1847]	2725	[2033, 3768]	4005	[3014, 1291]
166	[322, 323]	1446	[2269, 543]	2726	[2129, 1704]	4006	[4635, 4636]
167	[324, 325]	1447	[2270, 1594]	2727	[3805, 3752]	4007	[3272, 1044]
168	[326, 327]	1448	[2271, 228]	2728	[3806, 1666]	4008	[4637, 4638]
169	[328, 329]	1449	[2272, 2273]	2729	[1886, 3807]	4009	[4639, 1062]
170	[330, 331]	1450	[2274, 2275]	2730	[1691, 1847]	4010	[4640, 2400]
171	[332, 333]	1451	[2276, 788]	2731	[1689, 3808]	4011	[4641, 1370]
172	[334, 335]	1452	[2277, 519]	2732	[1888, 2121]	4012	[2958, 4642]
173	[336, 337]	1453	[2278, 2050]	2733	[646, 1789]	4013	[4643, 1454]
174	[338, 339]	1454	[761, 2279]	2734	[747, 3706]	4014	[4644, 1268]
175	[340, 341]	1455	[766, 2280]	2735	[2103, 2221]	4015	[3557, 4645]
176	[342, 343]	1456	[1716, 1587]	2736	[3622, 3803]	4016	[4646, 4647]
177	[344, 345]	1457	[1730, 1762]	2737	[3809, 1634]	4017	[4648, 115]
178	[346, 347]	1458	[2281, 575]	2738	[3810, 551]	4018	[4649, 4278]
179	[348, 349]	1459	[2282, 2283]	2739	[1713, 2036]	4019	[4397, 4501]
180	[350, 351]	1460	[1671, 2284]	2740	[1666, 718]	4020	[3388, 3443]
181	[352, 353]	1461	[2253, 702]	2741	[3811, 3812]	4021	[2431, 2863]
182	[354, 355]	1462	[2285, 2286]	2742	[181, 1588]	4022	[1320, 2578]
183	[356, 357]	1463	[2287, 2288]	2743	[779, 3813]	4023	[4650, 2449]
184	[358, 359]	1464	[52, 2289]	2744	[124, 1674]	4024	[4651, 3416]
185	[360, 361]	1465	[2290, 2121]	2745	[2059, 566]	4025	[4652, 357]
186	[362, 363]	1466	[2291, 2292]	2746	[3814, 467]	4026	[4292, 1253]
187	[364, 365]	1467	[544, 137]	2747	[3815, 3816]	4027	[4653, 3443]

188	[366, 367]	1468	[2293, 2294]	2748	[3817, 691]	4028	[4654, 1458]
189	[368, 369]	1469	[717, 2295]	2749	[37, 1917]	4029	[4655, 943]
190	[370, 371]	1470	[2296, 478]	2750	[3818, 128]	4030	[1559, 4656]
191	[372, 373]	1471	[542, 1781]	2751	[1807, 129]	4031	[4657, 2429]
192	[374, 375]	1472	[171, 2297]	2752	[3819, 1766]	4032	[3587, 4658]
193	[376, 377]	1473	[1708, 2298]	2753	[3687, 2042]	4033	[4659, 4660]
194	[378, 379]	1474	[2299, 503]	2754	[1836, 3805]	4034	[4661, 3033]
195	[380, 381]	1475	[1566, 523]	2755	[48, 1723]	4035	[4662, 4663]
196	[382, 383]	1476	[520, 2300]	2756	[2078, 488]	4036	[4664, 4320]
197	[384, 385]	1477	[2301, 578]	2757	[1992, 1587]	4037	[4665, 117]
198	[386, 387]	1478	[2302, 210]	2758	[3811, 141]	4038	[4666, 3260]
199	[388, 389]	1479	[2303, 1725]	2759	[3820, 724]	4039	[4667, 4668]
200	[390, 391]	1480	[2304, 1689]	2760	[3802, 222]	4040	[4669, 3012]
201	[392, 393]	1481	[2305, 2237]	2761	[3821, 3822]	4041	[4670, 3335]
202	[394, 395]	1482	[2306, 1926]	2762	[3778, 572]	4042	[4671, 4672]
203	[396, 397]	1483	[1789, 2307]	2763	[3823, 3824]	4043	[4673, 4674]
204	[398, 399]	1484	[2087, 470]	2764	[3825, 3826]	4044	[4675, 4676]
205	[400, 401]	1485	[2308, 1894]	2765	[2309, 234]	4045	[4677, 2979]
206	[402, 403]	1486	[2309, 2033]	2766	[3827, 525]	4046	[4555, 4472]
207	[404, 405]	1487	[1572, 2310]	2767	[1860, 3803]	4047	[4678, 4679]
208	[406, 407]	1488	[2311, 2288]	2768	[182, 3766]	4048	[3017, 304]
209	[408, 409]	1489	[2312, 1894]	2769	[2088, 37]	4049	[4680, 4681]
210	[410, 411]	1490	[1869, 562]	2770	[2148, 1667]	4050	[4642, 4682]
211	[412, 413]	1491	[2313, 1668]	2771	[3828, 1610]	4051	[2514, 894]
212	[414, 415]	1492	[2250, 679]	2772	[2295, 758]	4052	[4683, 1221]
213	[416, 417]	1493	[1818, 2196]	2773	[2046, 3829]	4053	[4684, 4685]
214	[418, 419]	1494	[2314, 130]	2774	[1826, 34]	4054	[4686, 4361]
215	[420, 421]	1495	[2315, 2316]	2775	[3830, 1890]	4055	[3488, 1187]
216	[422, 423]	1496	[1564, 1619]	2776	[3831, 3626]	4056	[4687, 4688]
217	[424, 425]	1497	[2317, 542]	2777	[3832, 3833]	4057	[2441, 4689]
218	[426, 427]	1498	[2318, 180]	2778	[3834, 1823]	4058	[2541, 4383]
219	[428, 429]	1499	[1584, 1914]	2779	[1969, 1756]	4059	[2458, 2853]
220	[430, 431]	1500	[2319, 1760]	2780	[2250, 1986]	4060	[4690, 2520]
221	[432, 433]	1501	[2320, 2321]	2781	[3835, 3836]	4061	[4, 3056]
222	[434, 435]	1502	[2183, 1899]	2782	[3837, 54]	4062	[4691, 4251]
223	[436, 437]	1503	[696, 2225]	2783	[1621, 3838]	4063	[4692, 2412]
224	[438, 439]	1504	[675, 2240]	2784	[541, 3839]	4064	[4693, 4442]
225	[440, 441]	1505	[536, 2065]	2785	[549, 3840]	4065	[4531, 4694]
226	[442, 443]	1506	[1857, 2225]	2786	[3841, 2071]	4066	[2680, 4695]
227	[444, 445]	1507	[823, 822]	2787	[1823, 3842]	4067	[4696, 4231]
228	[446, 447]	1508	[2264, 2065]	2788	[3843, 1959]	4068	[2453, 375]
229	[448, 449]	1509	[2311, 2113]	2789	[1625, 3784]	4069	[3536, 979]
230	[450, 451]	1510	[2322, 2323]	2790	[3778, 492]	4070	[4697, 4280]
231	[452, 453]	1511	[2324, 2325]	2791	[1961, 479]	4071	[3236, 4638]

232	[454, 455]	1512	[2326, 594]	2792	[3646, 1767]	4072	[4698, 4305]
233	[456, 457]	1513	[2327, 2328]	2793	[3836, 1915]	4073	[1490, 290]
234	[458, 459]	1514	[2019, 2329]	2794	[2279, 3805]	4074	[1256, 407]
235	[460, 461]	1515	[2301, 602]	2795	[1932, 2134]	4075	[4679, 4699]
236	[462, 366]	1516	[2330, 1704]	2796	[3692, 1934]	4076	[4700, 4701]
237	[463, 464]	1517	[1645, 571]	2797	[187, 2165]	4077	[4702, 3142]
238	[465, 466]	1518	[2331, 33]	2798	[3844, 3845]	4078	[2508, 2753]
239	[467, 468]	1519	[1831, 1922]	2799	[821, 227]	4079	[4703, 2753]
240	[469, 470]	1520	[2332, 1653]	2800	[3846, 3847]	4080	[4704, 4636]
241	[471, 472]	1521	[2333, 479]	2801	[1660, 740]	4081	[2617, 2809]
242	[473, 474]	1522	[2334, 1957]	2802	[3848, 1763]	4082	[4705, 4706]
243	[475, 476]	1523	[2335, 218]	2803	[2095, 772]	4083	[4707, 2704]
244	[477, 478]	1524	[2336, 1690]	2804	[3849, 1714]	4084	[4708, 4709]
245	[479, 480]	1525	[1681, 546]	2805	[3850, 647]	4085	[4352, 4581]
246	[481, 482]	1526	[2337, 1836]	2806	[61, 156]	4086	[4710, 949]
247	[217, 483]	1527	[2338, 1628]	2807	[1797, 1621]	4087	[4711, 4712]
248	[484, 485]	1528	[2339, 2290]	2808	[3851, 1764]	4088	[4713, 4714]
249	[164, 486]	1529	[2340, 1842]	2809	[33, 1827]	4089	[4715, 4716]
250	[487, 488]	1530	[626, 2341]	2810	[1681, 3641]	4090	[2907, 4717]
251	[137, 489]	1531	[1976, 2342]	2811	[2042, 1632]	4091	[4718, 2898]
252	[490, 491]	1532	[2343, 2238]	2812	[2127, 3741]	4092	[4719, 3276]
253	[210, 492]	1533	[2344, 2345]	2813	[3605, 2248]	4093	[4720, 2422]
254	[493, 494]	1534	[2346, 2007]	2814	[3852, 3773]	4094	[1541, 3436]
255	[178, 495]	1535	[1761, 1731]	2815	[226, 3853]	4095	[4721, 4722]
256	[496, 497]	1536	[2347, 1749]	2816	[3854, 2284]	4096	[4723, 1011]
257	[498, 499]	1537	[2264, 537]	2817	[3855, 3673]	4097	[4724, 3217]
258	[500, 501]	1538	[2348, 1905]	2818	[1576, 1773]	4098	[4725, 1167]
259	[502, 503]	1539	[2349, 2169]	2819	[3812, 142]	4099	[4726, 4727]
260	[504, 505]	1540	[2350, 2351]	2820	[1909, 134]	4100	[4728, 377]
261	[506, 507]	1541	[2005, 831]	2821	[194, 3856]	4101	[4240, 4729]
262	[508, 509]	1542	[2352, 489]	2822	[3857, 48]	4102	[4730, 3100]
263	[510, 511]	1543	[2353, 1864]	2823	[3858, 1688]	4103	[4731, 4732]
264	[512, 513]	1544	[2102, 2076]	2824	[724, 204]	4104	[4318, 4301]
265	[514, 36]	1545	[2354, 821]	2825	[1825, 1585]	4105	[4733, 2694]
266	[515, 516]	1546	[2355, 2356]	2826	[3751, 3711]	4106	[4734, 4378]
267	[517, 518]	1547	[2357, 2156]	2827	[3859, 3860]	4107	[4735, 4736]
268	[519, 520]	1548	[2358, 2115]	2828	[2152, 1866]	4108	[4737, 4738]
269	[521, 522]	1549	[2359, 129]	2829	[2182, 3861]	4109	[30, 2664]
270	[173, 523]	1550	[2360, 2361]	2830	[174, 3862]	4110	[1339, 4284]
271	[524, 525]	1551	[2362, 2363]	2831	[3654, 766]	4111	[4574, 4583]
272	[526, 527]	1552	[2364, 2365]	2832	[3863, 780]	4112	[4739, 4740]
273	[528, 529]	1553	[2366, 2367]	2833	[3864, 3808]	4113	[4741, 4651]
274	[530, 531]	1554	[2368, 155]	2834	[3865, 610]	4114	[4742, 4743]
275	[532, 533]	1555	[2369, 2370]	2835	[3866, 3867]	4115	[1318, 3462]

276	[534, 535]	1556	[2371, 2372]	2836	[3868, 3869]	4116	[4744, 4745]
277	[536, 537]	1557	[2373, 2374]	2837	[2195, 1599]	4117	[4420, 2457]
278	[538, 539]	1558	[134, 1589]	2838	[46, 156]	4118	[4746, 1507]
279	[540, 541]	1559	[2375, 210]	2839	[2182, 617]	4119	[3356, 4175]
280	[12, 542]	1560	[596, 2329]	2840	[2150, 1799]	4120	[4747, 2730]
281	[543, 544]	1561	[702, 2376]	2841	[3870, 521]	4121	[4748, 4749]
282	[545, 546]	1562	[2377, 2378]	2842	[3871, 2073]	4122	[4750, 2608]
283	[547, 548]	1563	[221, 2379]	2843	[3872, 597]	4123	[4751, 1354]
284	[549, 550]	1564	[2380, 2381]	2844	[3873, 2308]	4124	[4752, 2461]
285	[551, 552]	1565	[2382, 2383]	2845	[3874, 2186]	4125	[1164, 4753]
286	[553, 554]	1566	[2384, 2385]	2846	[152, 2045]	4126	[4754, 2785]
287	[555, 556]	1567	[2386, 2387]	2847	[733, 475]	4127	[4755, 4756]
288	[557, 212]	1568	[2388, 2389]	2848	[3875, 1920]	4128	[4757, 4596]
289	[558, 559]	1569	[2390, 2391]	2849	[2008, 1681]	4129	[2998, 2391]
290	[560, 561]	1570	[2392, 2393]	2850	[3876, 718]	4130	[2808, 4745]
291	[562, 491]	1571	[2394, 2395]	2851	[3834, 2149]	4131	[279, 4758]
292	[563, 564]	1572	[2396, 2397]	2852	[32, 489]	4132	[293, 4362]
293	[565, 566]	1573	[2398, 2399]	2853	[166, 3877]	4133	[4759, 4486]
294	[567, 568]	1574	[2400, 2401]	2854	[3645, 597]	4134	[4760, 2893]
295	[569, 570]	1575	[1293, 2402]	2855	[2110, 3734]	4135	[4761, 2388]
296	[223, 571]	1576	[2403, 2404]	2856	[3754, 648]	4136	[4762, 2907]
297	[210, 572]	1577	[2405, 2406]	2857	[3878, 487]	4137	[4763, 4764]
298	[573, 574]	1578	[2407, 2408]	2858	[2285, 2173]	4138	[4765, 860]
299	[575, 576]	1579	[2409, 2410]	2859	[2155, 3847]	4139	[4766, 4767]
300	[577, 578]	1580	[2411, 330]	2860	[2177, 834]	4140	[4364, 4459]
301	[579, 580]	1581	[2412, 2413]	2861	[3667, 1930]	4141	[4265, 4768]
302	[581, 582]	1582	[2414, 2415]	2862	[3730, 3879]	4142	[4769, 1329]
303	[583, 584]	1583	[2416, 2417]	2863	[3880, 1893]	4143	[4770, 1395]
304	[585, 496]	1584	[2418, 2419]	2864	[3881, 696]	4144	[4358, 455]
305	[586, 476]	1585	[2420, 2421]	2865	[3823, 3882]	4145	[4771, 3241]
306	[178, 587]	1586	[2422, 2423]	2866	[1741, 3673]	4146	[4772, 4773]
307	[588, 589]	1587	[2424, 397]	2867	[703, 2218]	4147	[4774, 4775]
308	[590, 591]	1588	[2425, 2426]	2868	[3883, 1851]	4148	[4776, 1138]
309	[592, 593]	1589	[2427, 1361]	2869	[3884, 610]	4149	[4777, 1070]
310	[594, 595]	1590	[2428, 2429]	2870	[2122, 3885]	4150	[3114, 4778]
311	[490, 596]	1591	[2430, 2431]	2871	[3794, 227]	4151	[4527, 326]
312	[225, 597]	1592	[2432, 2433]	2872	[3886, 2292]	4152	[4779, 899]
313	[598, 590]	1593	[2434, 2435]	2873	[3887, 2171]	4153	[4780, 1247]
314	[599, 600]	1594	[2436, 2437]	2874	[3821, 3609]	4154	[4781, 4782]
315	[601, 602]	1595	[2438, 2439]	2875	[3645, 226]	4155	[4783, 4613]
316	[603, 604]	1596	[2440, 2441]	2876	[849, 658]	4156	[4784, 4785]
317	[605, 606]	1597	[2442, 2443]	2877	[3888, 3889]	4157	[4786, 4787]
318	[592, 607]	1598	[2444, 2445]	2878	[3890, 2228]	4158	[3181, 4605]
319	[608, 609]	1599	[2446, 2447]	2879	[558, 3698]	4159	[2728, 1491]

320	[610, 611]	1600	[2448, 2449]	2880	[3670, 3816]	4160	[3337, 3002]
321	[612, 613]	1601	[2450, 2451]	2881	[2042, 1763]	4161	[4788, 4789]
322	[614, 615]	1602	[2452, 2453]	2882	[3700, 1701]	4162	[4790, 3885]
323	[616, 617]	1603	[2454, 2455]	2883	[3891, 720]	4163	[3669, 2146]
324	[618, 466]	1604	[2456, 1177]	2884	[594, 714]	4164	[2081, 3707]
325	[619, 620]	1605	[2457, 2458]	2885	[550, 3892]	4165	[4791, 2290]
326	[621, 622]	1606	[2459, 2460]	2886	[167, 1918]	4166	[3809, 2110]
327	[623, 232]	1607	[2461, 2462]	2887	[3893, 2219]	4167	[4792, 2162]
328	[624, 564]	1608	[2463, 461]	2888	[3798, 467]	4168	[4793, 132]
329	[625, 626]	1609	[2464, 2465]	2889	[800, 61]	4169	[1705, 4117]
330	[627, 628]	1610	[2466, 2467]	2890	[2184, 1581]	4170	[4085, 1784]
331	[629, 630]	1611	[2468, 2469]	2891	[3894, 716]	4171	[4794, 1970]
332	[631, 632]	1612	[2470, 2471]	2892	[2086, 2033]	4172	[4153, 675]
333	[633, 634]	1613	[2472, 2473]	2893	[3895, 814]	4173	[2357, 3847]
334	[635, 636]	1614	[2474, 2475]	2894	[1882, 3896]	4174	[4107, 762]
335	[637, 638]	1615	[2476, 1225]	2895	[1637, 3653]	4175	[3913, 2238]
336	[639, 37]	1616	[2477, 2478]	2896	[3897, 3679]	4176	[2359, 726]
337	[640, 641]	1617	[2479, 2480]	2897	[3898, 3899]	4177	[4795, 2328]
338	[642, 56]	1618	[2481, 2482]	2898	[1816, 1866]	4178	[4148, 3615]
339	[643, 644]	1619	[2483, 2484]	2899	[3900, 1691]	4179	[1841, 700]
340	[645, 646]	1620	[2485, 2486]	2900	[3901, 3860]	4180	[4796, 2034]
341	[647, 648]	1621	[2487, 2488]	2901	[3777, 699]	4181	[4797, 2251]
342	[649, 650]	1622	[2489, 2490]	2902	[2062, 152]	4182	[3652, 4798]
343	[651, 652]	1623	[2491, 2492]	2903	[3902, 1908]	4183	[2262, 1753]
344	[653, 654]	1624	[2493, 2494]	2904	[143, 2066]	4184	[1854, 4020]
345	[655, 656]	1625	[2495, 2496]	2905	[3903, 3856]	4185	[4799, 3867]
346	[657, 658]	1626	[2497, 1389]	2906	[3904, 3905]	4186	[809, 3647]
347	[659, 660]	1627	[2498, 2499]	2907	[517, 687]	4187	[589, 2090]
348	[661, 662]	1628	[2500, 2501]	2908	[3618, 755]	4188	[2377, 1618]
349	[663, 566]	1629	[2502, 2503]	2909	[3906, 3706]	4189	[725, 129]
350	[664, 665]	1630	[1388, 2504]	2910	[477, 1987]	4190	[4800, 1958]
351	[666, 667]	1631	[2505, 2506]	2911	[1903, 1997]	4191	[4801, 3724]
352	[668, 669]	1632	[2507, 2508]	2912	[3907, 2104]	4192	[772, 807]
353	[146, 501]	1633	[2509, 2510]	2913	[479, 3746]	4193	[2125, 2132]
354	[670, 671]	1634	[2511, 2512]	2914	[586, 2109]	4194	[1767, 722]
355	[672, 673]	1635	[2513, 2514]	2915	[3908, 539]	4195	[1682, 2204]
356	[534, 674]	1636	[2482, 2515]	2916	[3678, 148]	4196	[1707, 1709]
357	[675, 675]	1637	[239, 2516]	2917	[3909, 592]	4197	[1986, 2014]
358	[676, 174]	1638	[2517, 1347]	2918	[3910, 490]	4198	[1746, 214]
359	[677, 586]	1639	[2518, 2519]	2919	[3644, 225]	4199	[2124, 3605]
360	[678, 679]	1640	[965, 2520]	2920	[2128, 2230]	4200	[1998, 574]
361	[680, 681]	1641	[2521, 2522]	2921	[2197, 3773]	4201	[1628, 3915]
362	[682, 683]	1642	[2523, 2524]	2922	[3761, 470]	4202	[3780, 4095]
363	[684, 685]	1643	[1025, 2525]	2923	[1844, 3911]	4203	[4802, 2345]

364	[686, 687]	1644	[2526, 2527]	2924	[2290, 1804]	4204	[4004, 768]
365	[688, 689]	1645	[2528, 2529]	2925	[1836, 3710]	4205	[2365, 1897]
366	[690, 691]	1646	[2530, 2531]	2926	[202, 3858]	4206	[3820, 2069]
367	[692, 693]	1647	[2532, 382]	2927	[2322, 3912]	4207	[2170, 4079]
368	[694, 695]	1648	[2533, 80]	2928	[3593, 3698]	4208	[3908, 730]
369	[537, 696]	1649	[2534, 2535]	2929	[1738, 820]	4209	[1638, 730]
370	[697, 698]	1650	[2536, 2537]	2930	[3913, 1610]	4210	[1568, 3838]
371	[699, 700]	1651	[2538, 2539]	2931	[3914, 3758]	4211	[3990, 1944]
372	[701, 702]	1652	[2540, 2541]	2932	[2157, 1806]	4212	[3797, 1868]
373	[703, 704]	1653	[2542, 1393]	2933	[1593, 1608]	4213	[3827, 1639]
374	[705, 706]	1654	[1483, 2543]	2934	[2172, 2286]	4214	[4803, 501]
375	[470, 707]	1655	[2544, 2545]	2935	[2026, 3915]	4215	[4804, 564]
376	[186, 708]	1656	[2546, 2547]	2936	[1935, 2280]	4216	[3836, 3750]
377	[709, 562]	1657	[2548, 2549]	2937	[1656, 2006]	4217	[4805, 1703]
378	[710, 527]	1658	[2550, 2551]	2938	[3916, 3917]	4218	[4806, 3621]
379	[711, 712]	1659	[2552, 2553]	2939	[3856, 2067]	4219	[1719, 2150]
380	[713, 714]	1660	[2554, 2555]	2940	[817, 3619]	4220	[3744, 2264]
381	[715, 716]	1661	[1521, 1274]	2941	[3918, 3618]	4221	[4807, 754]
382	[717, 659]	1662	[2556, 2557]	2942	[647, 3755]	4222	[4808, 2081]
383	[718, 719]	1663	[2558, 255]	2943	[3919, 1795]	4223	[4138, 3799]
384	[515, 720]	1664	[2559, 2560]	2944	[3920, 2154]	4224	[713, 595]
385	[721, 722]	1665	[2561, 2562]	2945	[155, 3663]	4225	[4809, 1884]
386	[723, 724]	1666	[2563, 2564]	2946	[3671, 3813]	4226	[2085, 2341]
387	[725, 726]	1667	[2565, 2566]	2947	[3921, 2216]	4227	[3801, 1981]
388	[727, 728]	1668	[2567, 2568]	2948	[2074, 2090]	4228	[581, 645]
389	[58, 729]	1669	[2569, 2570]	2949	[3922, 3923]	4229	[1835, 3683]
390	[730, 731]	1670	[2571, 2476]	2950	[3924, 498]	4230	[2294, 1973]
391	[730, 732]	1671	[2572, 2573]	2951	[1575, 2182]	4231	[1634, 1629]
392	[733, 586]	1672	[2574, 2575]	2952	[735, 152]	4232	[4810, 3607]
393	[734, 615]	1673	[2576, 2577]	2953	[3880, 1851]	4233	[2344, 3826]
394	[735, 736]	1674	[2578, 1350]	2954	[3844, 841]	4234	[3999, 216]
395	[737, 738]	1675	[2579, 2580]	2955	[2064, 1574]	4235	[4811, 2255]
396	[739, 740]	1676	[2581, 2582]	2956	[1599, 641]	4236	[2136, 4141]
397	[741, 742]	1677	[2583, 2584]	2957	[1924, 50]	4237	[4092, 4812]
398	[743, 744]	1678	[2585, 2586]	2958	[3925, 1604]	4238	[157, 700]
399	[159, 745]	1679	[2587, 2588]	2959	[3605, 2132]	4239	[3995, 1628]
400	[746, 747]	1680	[2589, 1006]	2960	[2130, 1705]	4240	[4813, 3980]
401	[624, 748]	1681	[1263, 2590]	2961	[1611, 522]	4241	[3612, 2169]
402	[749, 750]	1682	[2591, 2592]	2962	[1577, 1913]	4242	[2027, 4019]
403	[751, 752]	1683	[2593, 2594]	2963	[3902, 3869]	4243	[4799, 4003]
404	[753, 754]	1684	[2595, 2596]	2964	[3926, 2290]	4244	[1735, 1934]
405	[755, 756]	1685	[2597, 2598]	2965	[3927, 3928]	4245	[2366, 4814]
406	[757, 758]	1686	[2599, 960]	2966	[131, 3929]	4246	[3972, 1653]
407	[759, 760]	1687	[359, 2600]	2967	[2209, 2066]	4247	[3960, 182]

408	[741, 761]	1688	[361, 2601]	2968	[2199, 630]	4248	[1885, 582]
409	[762, 763]	1689	[2602, 2599]	2969	[3930, 206]	4249	[3619, 600]
410	[764, 709]	1690	[2603, 2604]	2970	[3931, 3932]	4250	[3975, 2376]
411	[765, 766]	1691	[2586, 1040]	2971	[2338, 2026]	4251	[1581, 170]
412	[767, 768]	1692	[335, 2605]	2972	[3933, 3934]	4252	[2227, 3679]
413	[769, 770]	1693	[2606, 2607]	2973	[3935, 3936]	4253	[4815, 763]
414	[771, 772]	1694	[1235, 2608]	2974	[2218, 2211]	4254	[4816, 3932]
415	[773, 774]	1695	[2393, 2609]	2975	[3937, 3938]	4255	[693, 3727]
416	[775, 776]	1696	[2610, 2611]	2976	[744, 2158]	4256	[4817, 4818]
417	[777, 778]	1697	[2612, 2613]	2977	[3642, 1930]	4257	[3807, 665]
418	[779, 780]	1698	[2614, 2615]	2978	[2088, 707]	4258	[4087, 3923]
419	[781, 702]	1699	[2616, 2617]	2979	[2339, 1888]	4259	[3774, 1643]
420	[782, 783]	1700	[2618, 2619]	2980	[1660, 482]	4260	[777, 3899]
421	[784, 535]	1701	[2620, 2621]	2981	[2174, 3939]	4261	[2218, 706]
422	[785, 786]	1702	[2622, 2623]	2982	[3940, 587]	4262	[219, 592]
423	[787, 788]	1703	[2624, 2625]	2983	[3837, 1978]	4263	[3683, 3753]
424	[789, 474]	1704	[2626, 2627]	2984	[679, 3629]	4264	[162, 128]
425	[790, 791]	1705	[2628, 2629]	2985	[3941, 1772]	4265	[614, 498]
426	[792, 793]	1706	[961, 2630]	2986	[3893, 1785]	4266	[2000, 683]
427	[794, 507]	1707	[2631, 2632]	2987	[1769, 3942]	4267	[3772, 2186]
428	[712, 795]	1708	[2633, 2634]	2988	[3915, 2029]	4268	[1729, 510]
429	[796, 797]	1709	[2635, 2636]	2989	[3897, 2009]	4269	[1865, 1817]
430	[798, 799]	1710	[2637, 2638]	2990	[3795, 3784]	4270	[4794, 1756]
431	[800, 46]	1711	[2639, 2640]	2991	[2055, 3700]	4271	[4819, 1667]
432	[801, 34]	1712	[1186, 2558]	2992	[1903, 3943]	4272	[563, 748]
433	[802, 803]	1713	[2641, 2642]	2993	[770, 1711]	4273	[4820, 3982]
434	[804, 191]	1714	[2643, 1507]	2994	[640, 1600]	4274	[1688, 200]
435	[805, 124]	1715	[2644, 2645]	2995	[3840, 3628]	4275	[2143, 3800]
436	[806, 807]	1716	[2646, 2647]	2996	[2336, 3808]	4276	[4821, 4818]
437	[808, 208]	1717	[2648, 2649]	2997	[32, 138]	4277	[4105, 4081]
438	[809, 810]	1718	[2650, 2651]	2998	[206, 1617]	4278	[1798, 1884]
439	[811, 812]	1719	[2652, 2653]	2999	[233, 2033]	4279	[3614, 1834]
440	[813, 814]	1720	[2654, 2655]	3000	[3817, 671]	4280	[484, 2361]
441	[811, 815]	1721	[2656, 2657]	3001	[3944, 3842]	4281	[4822, 151]
442	[762, 816]	1722	[2658, 2659]	3002	[2358, 1957]	4282	[4823, 1797]
443	[774, 817]	1723	[94, 2660]	3003	[3945, 1952]	4283	[3950, 1612]
444	[228, 818]	1724	[2661, 2662]	3004	[218, 1719]	4284	[1570, 1787]
445	[819, 818]	1725	[2663, 2664]	3005	[2313, 620]	4285	[4824, 756]
446	[820, 821]	1726	[1092, 2665]	3006	[3946, 736]	4286	[2189, 1946]
447	[822, 823]	1727	[2666, 2667]	3007	[568, 3926]	4287	[4142, 1991]
448	[824, 825]	1728	[1155, 1384]	3008	[487, 3947]	4288	[3963, 3630]
449	[826, 827]	1729	[2668, 2669]	3009	[3948, 519]	4289	[4032, 4113]
450	[828, 829]	1730	[2670, 2671]	3010	[1624, 3949]	4290	[4825, 2154]
451	[830, 831]	1731	[2672, 1459]	3011	[1614, 2289]	4291	[3832, 4818]

452	[832, 160]	1732	[2673, 399]	3012	[1858, 2099]	4292	[4826, 604]
453	[833, 834]	1733	[2674, 2675]	3013	[3781, 232]	4293	[755, 600]
454	[835, 836]	1734	[2676, 1085]	3014	[520, 3942]	4294	[4827, 604]
455	[837, 838]	1735	[2677, 2678]	3015	[3950, 522]	4295	[4112, 4033]
456	[839, 820]	1736	[2679, 2680]	3016	[790, 1983]	4296	[4828, 1790]
457	[840, 841]	1737	[2681, 277]	3017	[3951, 586]	4297	[3952, 141]
458	[842, 843]	1738	[1504, 2682]	3018	[785, 1926]	4298	[3987, 189]
459	[844, 845]	1739	[2683, 2684]	3019	[3952, 3812]	4299	[3819, 2363]
460	[846, 509]	1740	[2685, 2686]	3020	[3759, 3953]	4300	[2010, 1665]
461	[847, 848]	1741	[2687, 2688]	3021	[820, 3794]	4301	[4036, 825]
462	[849, 850]	1742	[2689, 2690]	3022	[3904, 2353]	4302	[1863, 1802]
463	[851, 543]	1743	[2691, 2643]	3023	[721, 1768]	4303	[1808, 1900]
464	[852, 853]	1744	[2692, 2693]	3024	[2302, 3778]	4304	[3775, 1915]
465	[854, 855]	1745	[2694, 2695]	3025	[2153, 3954]	4305	[55, 3885]
466	[856, 857]	1746	[2696, 2697]	3026	[749, 515]	4306	[3946, 152]
467	[858, 859]	1747	[365, 2698]	3027	[3898, 778]	4307	[2346, 684]
468	[860, 861]	1748	[2699, 2700]	3028	[3955, 1677]	4308	[555, 3674]
469	[862, 863]	1749	[2701, 2702]	3029	[719, 3896]	4309	[1784, 2219]
470	[864, 865]	1750	[2703, 444]	3030	[3956, 3614]	4310	[3625, 1748]
471	[866, 867]	1751	[2704, 2703]	3031	[3957, 182]	4311	[829, 527]
472	[868, 869]	1752	[2705, 988]	3032	[3958, 1642]	4312	[3962, 2292]
473	[870, 871]	1753	[2706, 2707]	3033	[736, 2045]	4313	[3979, 3756]
474	[872, 873]	1754	[2708, 2596]	3034	[2226, 3839]	4314	[4829, 2226]
475	[874, 875]	1755	[2709, 2710]	3035	[1565, 1620]	4315	[585, 503]
476	[876, 79]	1756	[2711, 2712]	3036	[3684, 1808]	4316	[584, 3594]
477	[877, 878]	1757	[2713, 2714]	3037	[3959, 1687]	4317	[4830, 34]
478	[879, 880]	1758	[2715, 2716]	3038	[2368, 2142]	4318	[829, 1863]
479	[881, 882]	1759	[2717, 2718]	3039	[2149, 3842]	4319	[2276, 579]
480	[883, 884]	1760	[2719, 2720]	3040	[1782, 548]	4320	[3914, 3889]
481	[885, 886]	1761	[2721, 2722]	3041	[2351, 1860]	4321	[4831, 1723]
482	[887, 888]	1762	[2723, 2724]	3042	[3960, 3600]	4322	[4832, 468]
483	[889, 890]	1763	[2725, 1249]	3043	[3961, 2136]	4323	[4802, 3826]
484	[449, 891]	1764	[2726, 952]	3044	[3962, 3819]	4324	[2293, 125]
485	[892, 893]	1765	[2727, 2728]	3045	[3963, 628]	4325	[4833, 1697]
486	[894, 895]	1766	[2729, 2730]	3046	[821, 2058]	4326	[2174, 3726]
487	[896, 897]	1767	[2731, 2732]	3047	[2272, 2]	4327	[2190, 1666]
488	[898, 899]	1768	[2733, 2734]	3048	[1785, 1977]	4328	[4060, 1625]
489	[63, 900]	1769	[2735, 2736]	3049	[1983, 3737]	4329	[4834, 1887]
490	[901, 902]	1770	[2737, 2738]	3050	[185, 1687]	4330	[1899, 1809]
491	[903, 904]	1771	[2739, 2740]	3051	[3964, 2284]	4331	[4835, 780]
492	[905, 906]	1772	[2741, 2742]	3052	[655, 3965]	4332	[3925, 2275]
493	[907, 908]	1773	[2743, 2744]	3053	[2024, 2370]	4333	[3777, 157]
494	[909, 910]	1774	[2745, 2746]	3054	[3966, 747]	4334	[4836, 1710]
495	[911, 912]	1775	[2747, 2748]	3055	[3967, 593]	4335	[4021, 3985]

496	[913, 914]	1776	[2381, 2749]	3056	[8, 1846]	4336	[2041, 1631]
497	[915, 252]	1777	[2750, 1225]	3057	[10, 3731]	4337	[3615, 518]
498	[916, 917]	1778	[2751, 2752]	3058	[46, 3777]	4338	[4098, 3724]
499	[918, 919]	1779	[2753, 2754]	3059	[1658, 552]	4339	[4813, 662]
500	[920, 921]	1780	[24, 2755]	3060	[642, 3885]	4340	[1676, 3662]
501	[922, 923]	1781	[1233, 2756]	3061	[569, 3879]	4341	[4837, 125]
502	[924, 925]	1782	[2757, 280]	3062	[567, 3968]	4342	[1668, 2161]
503	[926, 927]	1783	[2758, 70]	3063	[643, 667]	4343	[202, 1687]
504	[928, 883]	1784	[2759, 2760]	3064	[775, 1889]	4344	[2278, 561]
505	[929, 930]	1785	[2761, 2762]	3065	[2282, 752]	4345	[2017, 2152]
506	[931, 932]	1786	[1506, 2763]	3066	[3920, 3954]	4346	[2018, 3928]
507	[933, 934]	1787	[2764, 2765]	3067	[2130, 3614]	4347	[4838, 180]
508	[935, 936]	1788	[2766, 1406]	3068	[3969, 3970]	4348	[834, 1824]
509	[937, 93]	1789	[1072, 2767]	3069	[3688, 3611]	4349	[1988, 1881]
510	[938, 939]	1790	[2768, 2769]	3070	[3971, 576]	4350	[4839, 1587]
511	[940, 941]	1791	[2575, 2770]	3071	[197, 1989]	4351	[1962, 1954]
512	[942, 943]	1792	[2771, 2772]	3072	[155, 2143]	4352	[4840, 1611]
513	[353, 944]	1793	[2773, 2774]	3073	[1702, 3693]	4353	[4841, 3742]
514	[897, 945]	1794	[2775, 2776]	3074	[3972, 1592]	4354	[3860, 1734]
515	[946, 947]	1795	[2777, 2778]	3075	[57, 1897]	4355	[2056, 667]
516	[948, 949]	1796	[2779, 2780]	3076	[3973, 10]	4356	[4842, 2140]
517	[950, 951]	1797	[2781, 2782]	3077	[148, 2108]	4357	[3941, 212]
518	[952, 953]	1798	[890, 2783]	3078	[3974, 50]	4358	[3621, 1860]
519	[954, 955]	1799	[2653, 2784]	3079	[781, 3975]	4359	[4145, 1983]
520	[956, 957]	1800	[1377, 2785]	3080	[1613, 3743]	4360	[4843, 1631]
521	[958, 959]	1801	[2786, 2787]	3081	[827, 1690]	4361	[718, 1882]
522	[960, 961]	1802	[1519, 16]	3082	[3830, 2151]	4362	[3877, 799]
523	[962, 963]	1803	[2788, 2789]	3083	[3976, 1784]	4363	[4155, 36]
524	[964, 965]	1804	[2486, 2790]	3084	[3977, 3639]	4364	[4844, 1923]
525	[966, 967]	1805	[1172, 2791]	3085	[3978, 592]	4365	[787, 579]
526	[968, 969]	1806	[2792, 2793]	3086	[3979, 2016]	4366	[4042, 4845]
527	[970, 971]	1807	[435, 2794]	3087	[661, 3980]	4367	[4846, 1852]
528	[972, 973]	1808	[2795, 2796]	3088	[3981, 3982]	4368	[4847, 763]
529	[974, 975]	1809	[2797, 1087]	3089	[2066, 2294]	4369	[4848, 3739]
530	[976, 977]	1810	[2798, 2799]	3090	[812, 1931]	4370	[572, 1814]
531	[978, 979]	1811	[2800, 2801]	3091	[3983, 1880]	4371	[3854, 1672]
532	[980, 981]	1812	[2802, 2803]	3092	[3949, 3784]	4372	[4807, 2216]
533	[982, 983]	1813	[2804, 2457]	3093	[12, 1780]	4373	[4849, 622]
534	[984, 985]	1814	[2805, 2806]	3094	[3984, 533]	4374	[3892, 1697]
535	[986, 987]	1815	[2807, 2808]	3095	[162, 158]	4375	[503, 3736]
536	[988, 989]	1816	[2809, 2810]	3096	[3985, 1789]	4376	[4048, 61]
537	[990, 991]	1817	[2754, 2811]	3097	[1796, 2134]	4377	[3874, 2206]
538	[992, 993]	1818	[2812, 2813]	3098	[3986, 3987]	4378	[2115, 2191]
539	[994, 995]	1819	[2814, 2815]	3099	[1633, 2110]	4379	[4850, 2038]

540	[996, 997]	1820	[2816, 2817]	3100	[2265, 2064]	4380	[1635, 3912]
541	[998, 999]	1821	[2818, 1116]	3101	[2355, 3953]	4381	[4851, 537]
542	[1000, 1001]	1822	[2742, 2819]	3102	[3988, 658]	4382	[3843, 204]
543	[1002, 266]	1823	[2820, 2821]	3103	[2069, 204]	4383	[550, 3628]
544	[1003, 268]	1824	[2822, 2823]	3104	[3763, 128]	4384	[3596, 1892]
545	[1004, 1005]	1825	[2824, 2825]	3105	[3989, 710]	4385	[4078, 4081]
546	[1006, 1007]	1826	[2826, 1110]	3106	[3990, 1812]	4386	[3916, 3923]
547	[1008, 1009]	1827	[2827, 2828]	3107	[3991, 167]	4387	[4852, 2264]
548	[1010, 1011]	1828	[2829, 2830]	3108	[3992, 750]	4388	[4853, 3596]
549	[1012, 1013]	1829	[2831, 1454]	3109	[3993, 2140]	4389	[4141, 1769]
550	[855, 1014]	1830	[2832, 1122]	3110	[539, 732]	4390	[4018, 4854]
551	[1015, 27]	1831	[2833, 2834]	3111	[3747, 1619]	4391	[2304, 827]
552	[1016, 1017]	1832	[2835, 2726]	3112	[3994, 1828]	4392	[4041, 2]
553	[1018, 1019]	1833	[2836, 1044]	3113	[3995, 2026]	4393	[2240, 2240]
554	[1020, 1021]	1834	[2837, 2838]	3114	[3661, 748]	4394	[4855, 2289]
555	[1022, 1023]	1835	[2547, 1173]	3115	[3996, 1852]	4395	[2365, 58]
556	[1024, 1025]	1836	[1364, 2839]	3116	[3997, 2143]	4396	[3760, 14]
557	[1026, 1027]	1837	[2840, 70]	3117	[844, 693]	4397	[4028, 3824]
558	[1028, 1029]	1838	[2841, 2405]	3118	[2192, 483]	4398	[4856, 698]
559	[1030, 883]	1839	[2842, 2548]	3119	[3810, 1658]	4399	[692, 845]
560	[1031, 1032]	1840	[2843, 2844]	3120	[582, 3985]	4400	[774, 3618]
561	[1033, 389]	1841	[2845, 2846]	3121	[2314, 1968]	4401	[4857, 224]
562	[1034, 1035]	1842	[305, 256]	3122	[830, 2006]	4402	[4134, 3731]
563	[1036, 1037]	1843	[2847, 1139]	3123	[3968, 3926]	4403	[4858, 1784]
564	[1038, 1039]	1844	[2848, 2849]	3124	[3825, 2345]	4404	[2292, 2363]
565	[1040, 1041]	1845	[2850, 2851]	3125	[3998, 1571]	4405	[4046, 1915]
566	[1042, 1043]	1846	[16, 2852]	3126	[1739, 230]	4406	[4859, 3659]
567	[1044, 1045]	1847	[2853, 2854]	3127	[2112, 2288]	4407	[169, 1643]
568	[1046, 1047]	1848	[2855, 2856]	3128	[3999, 762]	4408	[668, 176]
569	[1048, 1049]	1849	[2857, 1051]	3129	[4000, 4001]	4409	[3876, 1667]
570	[1050, 1051]	1850	[2858, 2859]	3130	[565, 1646]	4410	[4826, 625]
571	[1052, 1053]	1851	[2860, 2861]	3131	[1937, 44]	4411	[2158, 1807]
572	[409, 1054]	1852	[2862, 2863]	3132	[3956, 1705]	4412	[2274, 1604]
573	[1055, 1056]	1853	[2864, 2865]	3133	[1877, 37]	4413	[2116, 3812]
574	[1057, 1058]	1854	[2866, 2867]	3134	[469, 2088]	4414	[3725, 3939]
575	[1059, 1060]	1855	[2868, 344]	3135	[1947, 815]	4415	[4860, 536]
576	[1061, 1062]	1856	[2869, 2870]	3136	[2235, 1874]	4416	[2241, 3598]
577	[1063, 1064]	1857	[2871, 420]	3137	[2247, 2132]	4417	[1787, 3656]
578	[1065, 1066]	1858	[991, 2705]	3138	[4002, 1746]	4418	[4861, 3867]
579	[1067, 1068]	1859	[2872, 2873]	3139	[3866, 4003]	4419	[2371, 1800]
580	[1069, 1070]	1860	[2874, 2875]	3140	[1746, 2227]	4420	[3682, 635]
581	[863, 854]	1861	[2876, 2877]	3141	[1582, 2127]	4421	[42, 2007]
582	[1071, 1072]	1862	[2878, 2879]	3142	[2227, 2009]	4422	[2150, 1884]
583	[1073, 1074]	1863	[2880, 2881]	3143	[4004, 650]	4423	[1964, 3896]

584	[1075, 1076]	1864	[2882, 950]	3144	[2062, 736]	4424	[4049, 761]
585	[1077, 915]	1865	[2883, 2884]	3145	[59, 3902]	4425	[4061, 1845]
586	[1078, 1079]	1866	[2885, 2886]	3146	[606, 3739]	4426	[4862, 706]
587	[345, 1080]	1867	[2447, 2887]	3147	[3842, 3939]	4427	[4863, 3932]
588	[1081, 1082]	1868	[2888, 2889]	3148	[4005, 1703]	4428	[1833, 4117]
589	[1083, 1084]	1869	[2890, 903]	3149	[1824, 795]	4429	[583, 2374]
590	[1085, 1086]	1870	[2891, 362]	3150	[2078, 3947]	4430	[4842, 838]
591	[1087, 1088]	1871	[2892, 2893]	3151	[4006, 2307]	4431	[1875, 52]
592	[1089, 1090]	1872	[2894, 2895]	3152	[3663, 4007]	4432	[4823, 3626]
593	[1091, 1092]	1873	[2896, 2897]	3153	[4008, 1574]	4433	[4136, 1768]
594	[1093, 1094]	1874	[1207, 2898]	3154	[819, 2265]	4434	[3911, 1980]
595	[1095, 1096]	1875	[2899, 2900]	3155	[4009, 687]	4435	[835, 853]
596	[1097, 1098]	1876	[2675, 2901]	3156	[1845, 1980]	4436	[4864, 156]
597	[1099, 1100]	1877	[2902, 76]	3157	[4010, 2064]	4437	[1753, 4130]
598	[1101, 1087]	1878	[2623, 2903]	3158	[3973, 575]	4438	[3600, 3766]
599	[1102, 1103]	1879	[2904, 2905]	3159	[715, 2052]	4439	[4816, 4865]
600	[1104, 1105]	1880	[2906, 2907]	3160	[1858, 782]	4440	[3931, 4865]
601	[1106, 1107]	1881	[2908, 2909]	3161	[2065, 696]	4441	[4866, 747]
602	[1108, 1109]	1882	[2910, 2911]	3162	[504, 479]	4442	[126, 1974]
603	[1110, 1111]	1883	[2912, 2913]	3163	[1734, 1876]	4443	[4867, 2142]
604	[1112, 1113]	1884	[2914, 887]	3164	[1785, 2342]	4444	[4868, 1727]
605	[1114, 1115]	1885	[2915, 2916]	3165	[4011, 159]	4445	[4831, 1918]
606	[1116, 1117]	1886	[2917, 1229]	3166	[1883, 1799]	4446	[1787, 1695]
607	[429, 1118]	1887	[2918, 2919]	3167	[3961, 3681]	4447	[4058, 3949]
608	[1119, 1120]	1888	[1080, 2920]	3168	[1942, 1894]	4448	[199, 1828]
609	[1121, 1122]	1889	[2921, 2922]	3169	[4012, 2251]	4449	[773, 1907]
610	[1123, 1124]	1890	[2923, 2924]	3170	[4013, 4007]	4450	[4869, 2289]
611	[1125, 1126]	1891	[2925, 2772]	3171	[3860, 1729]	4451	[4870, 610]
612	[1127, 1128]	1892	[2903, 2926]	3172	[3771, 556]	4452	[4871, 3705]
613	[1129, 1130]	1893	[2927, 2928]	3173	[2001, 3785]	4453	[4872, 613]
614	[1131, 1132]	1894	[981, 2929]	3174	[140, 2294]	4454	[3878, 2078]
615	[1133, 1134]	1895	[2930, 2931]	3175	[1807, 726]	4455	[4873, 1961]
616	[1135, 1136]	1896	[2932, 2933]	3176	[220, 593]	4456	[4839, 1717]
617	[1137, 1138]	1897	[2934, 2935]	3177	[4014, 480]	4457	[1967, 2158]
618	[1139, 1140]	1898	[2936, 2420]	3178	[4015, 3615]	4458	[4127, 1679]
619	[413, 1141]	1899	[2937, 2938]	3179	[4016, 3740]	4459	[3921, 754]
620	[1142, 1143]	1900	[2939, 2940]	3180	[481, 740]	4460	[1853, 3987]
621	[1144, 1145]	1901	[2941, 2942]	3181	[3718, 466]	4461	[1971, 2106]
622	[1146, 1147]	1902	[1280, 2943]	3182	[3703, 607]	4462	[1928, 2196]
623	[1148, 1149]	1903	[2944, 2945]	3183	[4017, 2365]	4463	[4030, 137]
624	[1150, 1151]	1904	[2946, 2947]	3184	[4018, 2257]	4464	[2169, 1880]
625	[1152, 1153]	1905	[2948, 2949]	3185	[3966, 3906]	4465	[4838, 3714]
626	[1154, 1155]	1906	[2950, 2951]	3186	[467, 4019]	4466	[1907, 3618]
627	[1156, 1157]	1907	[2952, 2953]	3187	[3994, 200]	4467	[2308, 1644]

628	[1158, 23]	1908	[2954, 2955]	3188	[3987, 4020]	4468	[4874, 2367]
629	[1159, 1160]	1909	[393, 2427]	3189	[789, 171]	4469	[2328, 2101]
630	[1161, 1162]	1910	[1009, 2428]	3190	[676, 523]	4470	[545, 3641]
631	[1163, 1164]	1911	[2956, 1328]	3191	[2317, 1780]	4471	[4875, 212]
632	[1165, 1166]	1912	[2957, 2958]	3192	[837, 2140]	4472	[601, 578]
633	[1167, 1168]	1913	[2404, 2959]	3193	[4021, 646]	4473	[1854, 189]
634	[1169, 1170]	1914	[1312, 2960]	3194	[4022, 1673]	4474	[4058, 1625]
635	[1171, 1172]	1915	[936, 1525]	3195	[685, 1636]	4475	[2337, 2279]
636	[1173, 1174]	1916	[939, 2961]	3196	[4023, 3752]	4476	[4866, 3906]
637	[1175, 1176]	1917	[865, 2962]	3197	[3706, 4024]	4477	[2294, 126]
638	[1177, 1178]	1918	[2963, 1077]	3198	[3701, 1781]	4478	[3856, 4876]
639	[1179, 1180]	1919	[2964, 2965]	3199	[4025, 3794]	4479	[3799, 468]
640	[1181, 1182]	1920	[2966, 2967]	3200	[1752, 3744]	4480	[190, 4877]
641	[1183, 1184]	1921	[2968, 2969]	3201	[4026, 1985]	4481	[4867, 155]
642	[1185, 1186]	1922	[2970, 2971]	3202	[4027, 3744]	4482	[4878, 3609]
643	[1187, 1188]	1923	[2972, 2973]	3203	[4028, 3882]	4483	[4879, 1569]
644	[1189, 1190]	1924	[2974, 2975]	3204	[3981, 4029]	4484	[4880, 2189]
645	[1191, 1192]	1925	[2621, 2976]	3205	[3787, 1767]	4485	[2114, 1957]
646	[1193, 1194]	1926	[2977, 76]	3206	[4016, 2040]	4486	[1743, 2035]
647	[1195, 1196]	1927	[2978, 108]	3207	[1626, 3618]	4487	[2213, 4881]
648	[1197, 1198]	1928	[2979, 2731]	3208	[4030, 32]	4488	[4882, 582]
649	[1199, 1200]	1929	[2980, 2981]	3209	[2069, 1959]	4489	[4091, 486]
650	[1201, 1202]	1930	[2982, 2983]	3210	[4031, 1965]	4490	[1683, 568]
651	[371, 1203]	1931	[1493, 2984]	3211	[3842, 3726]	4491	[4860, 2264]
652	[1204, 1205]	1932	[2985, 2986]	3212	[4032, 4033]	4492	[4883, 2214]
653	[1206, 1207]	1933	[2987, 2988]	3213	[1927, 1818]	4493	[3762, 1825]
654	[1208, 1209]	1934	[2989, 2404]	3214	[1757, 2179]	4494	[4884, 1683]
655	[1210, 1211]	1935	[2990, 1412]	3215	[3969, 1582]	4495	[58, 3649]
656	[1212, 1213]	1936	[2991, 2992]	3216	[2053, 853]	4496	[1680, 1636]
657	[1214, 1215]	1937	[979, 2993]	3217	[2070, 3980]	4497	[1996, 3943]
658	[1216, 1217]	1938	[2785, 2994]	3218	[3906, 2081]	4498	[2126, 4146]
659	[1218, 1219]	1939	[1058, 2995]	3219	[1755, 1970]	4499	[1675, 571]
660	[1220, 996]	1940	[2996, 2997]	3220	[1929, 3643]	4500	[4885, 819]
661	[1221, 1222]	1941	[2686, 2998]	3221	[3640, 4034]	4501	[782, 1752]
662	[1223, 1224]	1942	[2859, 2999]	3222	[584, 4035]	4502	[4886, 1693]
663	[1225, 1226]	1943	[3000, 2727]	3223	[3858, 3994]	4503	[4111, 768]
664	[1227, 1228]	1944	[3001, 3002]	3224	[1849, 1897]	4504	[4887, 4095]
665	[1229, 309]	1945	[3003, 3004]	3225	[4036, 738]	4505	[3986, 1854]
666	[1230, 1231]	1946	[3005, 964]	3226	[4037, 822]	4506	[39, 197]
667	[1232, 1233]	1947	[3006, 3007]	3227	[4038, 1585]	4507	[2362, 1766]
668	[1234, 1235]	1948	[3008, 2454]	3228	[3740, 1606]	4508	[4888, 12]
669	[1236, 1237]	1949	[3009, 1003]	3229	[4039, 2179]	4509	[2353, 3851]
670	[1238, 1239]	1950	[3010, 3011]	3230	[528, 151]	4510	[2091, 1873]
671	[1240, 1097]	1951	[2490, 2844]	3231	[4040, 2265]	4511	[126, 1685]

672	[1241, 1242]	1952	[1276, 3012]	3232	[4041, 2273]	4512	[1617, 2378]
673	[1243, 1244]	1953	[3013, 3014]	3233	[2222, 3662]	4513	[3835, 509]
674	[1245, 1246]	1954	[3015, 2999]	3234	[3873, 533]	4514	[3894, 2052]
675	[1247, 1248]	1955	[3016, 3017]	3235	[3786, 822]	4515	[1580, 169]
676	[1249, 1250]	1956	[2780, 2552]	3236	[4042, 4043]	4516	[4829, 541]
677	[1054, 1251]	1957	[3018, 3019]	3237	[2348, 494]	4517	[4889, 2173]
678	[1252, 1205]	1958	[3020, 3021]	3238	[3884, 1993]	4518	[4805, 3693]
679	[1253, 1254]	1959	[3022, 3023]	3239	[1805, 2011]	4519	[4890, 710]
680	[1255, 1256]	1960	[3024, 3025]	3240	[3640, 1590]	4520	[4124, 2038]
681	[1257, 1258]	1961	[3026, 3027]	3241	[2166, 1663]	4521	[4891, 2253]
682	[1259, 1260]	1962	[3028, 3029]	3242	[1687, 3994]	4522	[2349, 629]
683	[401, 1261]	1963	[3030, 3031]	3243	[637, 606]	4523	[4856, 1727]
684	[1262, 1263]	1964	[3032, 3033]	3244	[3796, 1970]	4524	[3957, 3600]
685	[1264, 1265]	1965	[3034, 3035]	3245	[3626, 1621]	4525	[2055, 1939]
686	[1266, 1267]	1966	[3036, 1034]	3246	[4044, 162]	4526	[4115, 605]
687	[1138, 1268]	1967	[3037, 3038]	3247	[1921, 1832]	4527	[2252, 781]
688	[869, 1269]	1968	[1335, 3039]	3248	[2008, 1636]	4528	[3677, 1907]
689	[1270, 1271]	1969	[3040, 3041]	3249	[4045, 797]	4529	[4125, 2278]
690	[951, 1272]	1970	[3042, 3043]	3250	[43, 2307]	4530	[4892, 2284]
691	[1273, 1274]	1971	[3044, 3045]	3251	[3806, 2148]	4531	[1603, 2275]
692	[1275, 1276]	1972	[3046, 3047]	3252	[4046, 3750]	4532	[4893, 605]
693	[1277, 1278]	1973	[1043, 3048]	3253	[4047, 1580]	4533	[4791, 1888]
694	[1279, 1280]	1974	[3049, 1289]	3254	[817, 755]	4534	[3910, 562]
695	[1281, 412]	1975	[96, 3050]	3255	[726, 130]	4535	[806, 3637]
696	[1282, 1283]	1976	[3051, 2886]	3256	[2135, 3681]	4536	[4861, 4003]
697	[267, 1284]	1977	[3052, 2620]	3257	[4048, 46]	4537	[1683, 3968]
698	[1285, 1286]	1978	[3053, 3054]	3258	[491, 2020]	4538	[522, 1995]
699	[1287, 1288]	1979	[3055, 3023]	3259	[2141, 2269]	4539	[3633, 3838]
700	[1289, 1290]	1980	[3056, 3057]	3260	[3615, 687]	4540	[1837, 3947]
701	[1291, 1053]	1981	[1481, 940]	3261	[1897, 3649]	4541	[4894, 3792]
702	[1292, 1293]	1982	[3058, 3059]	3262	[3793, 2035]	4542	[4895, 3869]
703	[1294, 1295]	1983	[3060, 3061]	3263	[4049, 742]	4543	[4896, 2257]
704	[1296, 1297]	1984	[3062, 3063]	3264	[2243, 1708]	4544	[1733, 1729]
705	[908, 1298]	1985	[3064, 3065]	3265	[1859, 3622]	4545	[3619, 756]
706	[1299, 1300]	1986	[3066, 3067]	3266	[2030, 1655]	4546	[226, 2044]
707	[1301, 1302]	1987	[3068, 3069]	3267	[664, 2055]	4547	[4014, 3746]
708	[1303, 1304]	1988	[3070, 3071]	3268	[4050, 570]	4548	[4897, 3734]
709	[1305, 1306]	1989	[79, 3072]	3269	[3602, 487]	4549	[766, 1936]
710	[1307, 1308]	1990	[1246, 2902]	3270	[4051, 164]	4550	[2361, 3970]
711	[1309, 1310]	1991	[2724, 3073]	3271	[813, 1821]	4551	[3734, 1630]
712	[1311, 1312]	1992	[3074, 3075]	3272	[2210, 472]	4552	[3776, 156]
713	[1313, 1314]	1993	[3076, 911]	3273	[578, 2049]	4553	[4898, 2295]
714	[1315, 1316]	1994	[888, 3077]	3274	[4052, 2149]	4554	[4899, 2156]
715	[1317, 1318]	1995	[100, 2978]	3275	[3985, 1937]	4555	[2133, 2198]

716	[1319, 1320]	1996	[3078, 3079]	3276	[4053, 776]	4556	[3997, 3663]
717	[1060, 1321]	1997	[3080, 3081]	3277	[4015, 517]	4557	[3599, 182]
718	[1322, 1323]	1998	[3082, 3083]	3278	[523, 3862]	4558	[4900, 4071]
719	[1324, 1325]	1999	[3084, 1228]	3279	[501, 4054]	4559	[742, 2279]
720	[1326, 1005]	2000	[3085, 3086]	3280	[500, 147]	4560	[2323, 163]
721	[331, 1327]	2001	[3087, 3088]	3281	[177, 611]	4561	[3712, 722]
722	[1328, 1329]	2002	[3089, 3090]	3282	[1955, 578]	4562	[1747, 1871]
723	[1330, 1331]	2003	[1250, 63]	3283	[3935, 2162]	4563	[4828, 1892]
724	[1332, 1333]	2004	[3091, 3092]	3284	[1912, 728]	4564	[4901, 662]
725	[1334, 1335]	2005	[6, 3093]	3285	[683, 2378]	4565	[3716, 831]
726	[1336, 1337]	2006	[3094, 1477]	3286	[41, 3729]	4566	[1919, 1702]
727	[1338, 1339]	2007	[83, 3095]	3287	[3949, 1891]	4567	[3635, 3829]
728	[1340, 1341]	2008	[1213, 3096]	3288	[3765, 183]	4568	[3859, 1733]
729	[114, 1342]	2009	[2437, 2824]	3289	[4055, 4056]	4569	[3659, 793]
730	[1343, 1344]	2010	[3097, 378]	3290	[4013, 3800]	4570	[164, 609]
731	[1345, 1346]	2011	[3098, 3099]	3291	[3655, 560]	4571	[4102, 782]
732	[1347, 1315]	2012	[3100, 3101]	3292	[833, 711]	4572	[4902, 2224]
733	[1348, 1349]	2013	[3102, 269]	3293	[4039, 1758]	4573	[4903, 3717]
734	[1350, 1351]	2014	[1205, 3103]	3294	[3624, 1984]	4574	[3721, 1783]
735	[1352, 1353]	2015	[3104, 3105]	3295	[61, 3777]	4575	[3770, 4904]
736	[1354, 1355]	2016	[3106, 382]	3296	[4057, 3596]	4576	[1712, 2166]
737	[1356, 1357]	2017	[3107, 2885]	3297	[1779, 2152]	4577	[2352, 138]
738	[1358, 1359]	2018	[3108, 1309]	3298	[1769, 2300]	4578	[2328, 1648]
739	[261, 1360]	2019	[3109, 2718]	3299	[1771, 3647]	4579	[4040, 818]
740	[1361, 1362]	2020	[902, 3110]	3300	[1801, 3708]	4580	[4905, 4082]
741	[1363, 1364]	2021	[3111, 1496]	3301	[1980, 4058]	4581	[4844, 50]
742	[1365, 1366]	2022	[3112, 2889]	3302	[1777, 1847]	4582	[3672, 1742]
743	[1367, 1368]	2023	[3113, 3114]	3303	[2063, 1665]	4583	[3717, 1773]
744	[1369, 1334]	2024	[3115, 2894]	3304	[2007, 685]	4584	[4902, 2118]
745	[1370, 1371]	2025	[3116, 3117]	3305	[2318, 3714]	4585	[3924, 615]
746	[1372, 1373]	2026	[3118, 3005]	3306	[3912, 163]	4586	[3951, 475]
747	[1374, 1375]	2027	[2478, 373]	3307	[3622, 1793]	4587	[4906, 1949]
748	[1376, 1377]	2028	[2931, 2713]	3308	[3720, 489]	4588	[4869, 1615]
749	[1378, 1326]	2029	[3119, 3120]	3309	[1678, 4059]	4589	[4907, 3946]
750	[1379, 1380]	2030	[3121, 3122]	3310	[2106, 3943]	4590	[3767, 3705]
751	[1381, 1382]	2031	[2615, 3016]	3311	[4060, 3949]	4591	[207, 4908]
752	[1383, 1384]	2032	[3075, 3123]	3312	[4061, 3911]	4592	[739, 482]
753	[1385, 1386]	2033	[3124, 3125]	3313	[4062, 2300]	4593	[2043, 1948]
754	[1387, 1388]	2034	[3126, 3100]	3314	[3895, 1821]	4594	[827, 3808]
755	[1389, 1390]	2035	[3127, 3128]	3315	[3657, 1874]	4595	[3709, 1596]
756	[1391, 1392]	2036	[3129, 1537]	3316	[4063, 1580]	4596	[4059, 1846]
757	[1393, 1394]	2037	[3130, 3131]	3317	[4064, 4056]	4597	[2256, 4854]
758	[1395, 1227]	2038	[3132, 367]	3318	[514, 1770]	4598	[4909, 1823]
759	[1396, 1397]	2039	[1557, 2384]	3319	[4065, 1695]	4599	[4910, 3758]

760	[1398, 1399]	2040	[3133, 17]	3320	[4066, 191]	4600	[4911, 3741]
761	[1400, 1401]	2041	[1333, 2450]	3321	[4067, 4068]	4601	[4906, 2269]
762	[1402, 1403]	2042	[3134, 3135]	3322	[144, 3640]	4602	[2022, 516]
763	[1404, 1405]	2043	[1084, 1095]	3323	[673, 2255]	4603	[4912, 2250]
764	[1406, 1407]	2044	[441, 1131]	3324	[709, 490]	4604	[2194, 4913]
765	[1408, 1409]	2045	[2983, 3136]	3325	[3933, 2376]	4605	[3850, 3754]
766	[1410, 1411]	2046	[3137, 3138]	3326	[1956, 1658]	4606	[2269, 1950]
767	[1412, 1073]	2047	[3139, 1559]	3327	[3928, 711]	4607	[1819, 3611]
768	[1413, 1414]	2048	[3140, 2690]	3328	[185, 3858]	4608	[38, 132]
769	[1415, 1416]	2049	[1064, 1472]	3329	[1917, 3929]	4609	[840, 3845]
770	[1417, 1418]	2050	[3141, 3142]	3330	[1918, 1975]	4610	[539, 731]
771	[1419, 1420]	2051	[3143, 3144]	3331	[3940, 495]	4611	[4137, 4029]
772	[1421, 1422]	2052	[3145, 2728]	3332	[4069, 646]	4612	[4914, 60]
773	[1423, 1424]	2053	[3146, 3147]	3333	[1595, 2316]	4613	[760, 2255]
774	[1425, 1426]	2054	[3148, 2625]	3334	[3922, 3917]	4614	[4797, 2202]
775	[1427, 1428]	2055	[3149, 3150]	3335	[4070, 1920]	4615	[4915, 2042]
776	[1429, 408]	2056	[3151, 3152]	3336	[2343, 1610]	4616	[4916, 1742]
777	[1430, 1431]	2057	[3153, 3154]	3337	[623, 1569]	4617	[4917, 1869]
778	[1432, 1433]	2058	[357, 1503]	3338	[3691, 3851]	4618	[4011, 1701]
779	[1434, 1435]	2059	[3155, 3156]	3339	[1933, 2092]	4619	[2072, 843]
780	[1436, 1437]	2060	[3157, 2954]	3340	[3675, 155]	4620	[542, 2207]
781	[1438, 1439]	2061	[108, 296]	3341	[2049, 3877]	4621	[4918, 2136]
782	[1283, 1440]	2062	[3158, 298]	3342	[3812, 4071]	4622	[4919, 1817]
783	[1441, 1442]	2063	[3159, 2497]	3343	[4000, 4072]	4623	[1700, 1778]
784	[1443, 1444]	2064	[1505, 3160]	3344	[4073, 2107]	4624	[2057, 227]
785	[1445, 1446]	2065	[3161, 3046]	3345	[2075, 2187]	4625	[4920, 1573]
786	[1447, 1180]	2066	[3162, 244]	3346	[4074, 580]	4626	[2093, 2225]
787	[1448, 1449]	2067	[3163, 3164]	3347	[4075, 507]	4627	[4921, 1710]
788	[1450, 1451]	2068	[3165, 398]	3348	[474, 172]	4628	[1745, 213]
789	[1452, 1453]	2069	[3166, 3167]	3349	[3805, 3711]	4629	[3713, 2134]
790	[1454, 1455]	2070	[3168, 3169]	3350	[3870, 1611]	4630	[4922, 781]
791	[1456, 1457]	2071	[3170, 376]	3351	[4076, 2345]	4631	[757, 660]
792	[1458, 1459]	2072	[2825, 3171]	3352	[638, 3739]	4632	[4088, 772]
793	[1460, 1461]	2073	[3172, 3173]	3353	[3848, 1632]	4633	[3631, 1760]
794	[1462, 1463]	2074	[3174, 2778]	3354	[672, 760]	4634	[3676, 542]
795	[1464, 1465]	2075	[3175, 3176]	3355	[512, 1589]	4635	[1895, 1579]
796	[1466, 1467]	2076	[3177, 2387]	3356	[4057, 1879]	4636	[1863, 3708]
797	[1468, 1469]	2077	[3178, 3179]	3357	[4077, 200]	4637	[4149, 2064]
798	[1470, 1471]	2078	[3180, 3181]	3358	[2081, 4024]	4638	[822, 822]
799	[1472, 1473]	2079	[3182, 3183]	3359	[4078, 1778]	4639	[4096, 3947]
800	[1474, 1475]	2080	[3184, 2458]	3360	[1657, 2076]	4640	[4923, 227]
801	[1476, 1477]	2081	[1373, 2532]	3361	[3887, 4079]	4641	[4924, 2026]
802	[1478, 1479]	2082	[3185, 2908]	3362	[2162, 4080]	4642	[1973, 1685]
803	[1480, 1481]	2083	[2889, 3186]	3363	[2299, 496]	4643	[4925, 3766]

804	[1482, 1483]	2084	[3187, 2712]	3364	[1982, 791]	4644	[4926, 3609]
805	[1484, 1485]	2085	[3188, 340]	3365	[4081, 3636]	4645	[4141, 520]
806	[1463, 1486]	2086	[3154, 3126]	3366	[2320, 4082]	4646	[3875, 1702]
807	[1487, 1247]	2087	[3189, 3190]	3367	[4083, 818]	4647	[712, 1825]
808	[1488, 396]	2088	[3191, 3192]	3368	[4084, 507]	4648	[4927, 225]
809	[1489, 1490]	2089	[3193, 3194]	3369	[9, 575]	4649	[4928, 671]
810	[1491, 924]	2090	[3195, 3008]	3370	[4085, 3893]	4650	[4075, 2105]
811	[1492, 1493]	2091	[3196, 3197]	3371	[1867, 3666]	4651	[4792, 3936]
812	[1494, 1495]	2092	[3198, 2943]	3372	[4086, 3641]	4652	[3782, 696]
813	[1496, 1175]	2093	[3199, 3200]	3373	[3905, 1864]	4653	[4929, 2099]
814	[1497, 1498]	2094	[3201, 1317]	3374	[4087, 3917]	4654	[4150, 478]
815	[1499, 1500]	2095	[3202, 3203]	3375	[2220, 2104]	4655	[3697, 559]
816	[1501, 117]	2096	[1517, 3204]	3376	[2271, 819]	4656	[1589, 739]
817	[1502, 1104]	2097	[3205, 3206]	3377	[3757, 3889]	4657	[3735, 1893]
818	[1503, 1504]	2098	[265, 1417]	3378	[4088, 1774]	4658	[4132, 3639]
819	[1300, 1505]	2099	[3200, 2701]	3379	[4089, 4033]	4659	[4067, 1975]
820	[277, 1506]	2100	[3207, 3185]	3380	[1823, 2174]	4660	[3903, 195]
821	[1507, 446]	2101	[3208, 3209]	3381	[3608, 3822]	4661	[3851, 4015]
822	[1405, 1508]	2102	[3210, 3211]	3382	[4090, 1852]	4662	[1950, 4030]
823	[823, 823]	2103	[3212, 2800]	3383	[3890, 1980]	4663	[2219, 2342]
824	[1479, 1509]	2104	[3213, 3214]	3384	[2159, 2325]	4664	[3815, 622]
825	[1510, 1511]	2105	[3215, 3216]	3385	[4091, 609]	4665	[4008, 1738]
826	[1512, 1513]	2106	[3217, 3218]	3386	[3807, 2055]	4666	[1765, 2363]
827	[1514, 1515]	2107	[3219, 3220]	3387	[4010, 1751]	4667	[4930, 3942]
828	[1516, 1517]	2108	[3221, 2885]	3388	[4092, 4093]	4668	[597, 3853]
829	[1518, 1519]	2109	[3222, 3223]	3389	[4026, 2250]	4669	[4931, 1752]
830	[1520, 1521]	2110	[3224, 3225]	3390	[4094, 1748]	4670	[2096, 1623]
831	[1522, 1523]	2111	[3226, 2609]	3391	[537, 1857]	4671	[4932, 1896]
832	[1524, 1525]	2112	[3227, 3228]	3392	[1664, 2011]	4672	[3978, 220]
833	[1526, 1527]	2113	[3229, 3230]	3393	[4050, 3879]	4673	[4151, 57]
834	[1528, 1464]	2114	[3231, 3232]	3394	[3606, 4095]	4674	[3715, 2052]
835	[1529, 1530]	2115	[3233, 3234]	3395	[1770, 2239]	4675	[3900, 1846]
836	[1531, 969]	2116	[3235, 3236]	3396	[510, 590]	4676	[3927, 833]
837	[1532, 1533]	2117	[3237, 1466]	3397	[4096, 488]	4677	[826, 1689]
838	[1534, 1535]	2118	[3238, 3239]	3398	[36, 1771]	4678	[4106, 167]
839	[1536, 1537]	2119	[375, 3240]	3399	[13, 632]	4679	[4887, 3607]
840	[1538, 1539]	2120	[3241, 3242]	3400	[1993, 611]	4680	[1901, 2107]
841	[1540, 1541]	2121	[3243, 2787]	3401	[1750, 821]	4681	[4073, 148]
842	[1542, 1543]	2122	[3244, 3245]	3402	[1939, 159]	4682	[2085, 193]
843	[1544, 1389]	2123	[3246, 3247]	3403	[2360, 485]	4683	[4933, 61]
844	[1545, 1546]	2124	[3248, 3249]	3404	[3738, 1994]	4684	[4911, 2128]
845	[1547, 1548]	2125	[3250, 3251]	3405	[801, 1827]	4685	[4934, 3905]
846	[1549, 1550]	2126	[3252, 3253]	3406	[4097, 3792]	4686	[812, 4935]
847	[1551, 1552]	2127	[893, 3254]	3407	[4098, 4099]	4687	[3872, 226]

848	[1553, 1554]	2128	[3073, 3255]	3408	[4100, 4024]	4688	[2223, 3987]
849	[71, 1555]	2129	[3256, 2628]	3409	[2032, 3754]	4689	[2115, 1958]
850	[1556, 1557]	2130	[3257, 2837]	3410	[1634, 3734]	4690	[4936, 747]
851	[1558, 1559]	2131	[3258, 1271]	3411	[2064, 1738]	4691	[4937, 1984]
852	[1560, 1561]	2132	[3259, 3260]	3412	[4101, 237]	4692	[4938, 1704]
853	[1562, 1563]	2133	[3225, 3261]	3413	[4102, 2099]	4693	[4939, 4029]
854	[1564, 1565]	2134	[3262, 3263]	3414	[4103, 2094]	4694	[3814, 3799]
855	[1566, 174]	2135	[3264, 954]	3415	[4104, 2279]	4695	[2133, 3773]
856	[1567, 1568]	2136	[3265, 2735]	3416	[645, 3985]	4696	[4940, 807]
857	[150, 529]	2137	[1449, 2400]	3417	[3936, 2163]	4697	[2326, 1948]
858	[231, 1569]	2138	[2926, 3266]	3418	[508, 3836]	4698	[2061, 3946]
859	[1570, 1571]	2139	[1351, 1006]	3419	[176, 2180]	4699	[3888, 3758]
860	[1572, 1573]	2140	[3267, 3268]	3420	[638, 1994]	4700	[2268, 1692]
861	[1574, 820]	2141	[3269, 3270]	3421	[1699, 4105]	4701	[485, 1582]
862	[1575, 616]	2142	[3271, 3272]	3422	[4106, 48]	4702	[4937, 1623]
863	[502, 496]	2143	[301, 3273]	3423	[3790, 127]	4703	[804, 4877]
864	[1576, 1577]	2144	[3274, 3275]	3424	[3804, 2080]	4704	[3968, 2339]
865	[1578, 1579]	2145	[3276, 3277]	3425	[3944, 2174]	4705	[4119, 3792]
866	[1580, 1581]	2146	[3278, 3279]	3426	[4107, 216]	4706	[4875, 1772]
867	[1582, 1583]	2147	[3280, 1063]	3427	[216, 763]	4707	[4923, 2058]
868	[1584, 1585]	2148	[3281, 1324]	3428	[2031, 2148]	4708	[4835, 3813]
869	[1586, 1587]	2149	[3282, 3283]	3429	[4108, 1599]	4709	[1925, 786]
870	[1588, 1589]	2150	[3284, 3285]	3430	[3855, 1742]	4710	[3616, 1874]
871	[145, 1590]	2151	[3286, 2581]	3431	[719, 1965]	4711	[4941, 2146]
872	[1591, 1592]	2152	[299, 3287]	3432	[4109, 2085]	4712	[2143, 4007]
873	[1593, 1594]	2153	[3288, 3289]	3433	[2060, 3902]	4713	[839, 1750]
874	[1595, 1596]	2154	[3290, 3291]	3434	[4110, 189]	4714	[4942, 4093]
875	[1597, 1598]	2155	[2898, 3292]	3435	[466, 3840]	4715	[4943, 4071]
876	[1599, 1600]	2156	[3293, 3294]	3436	[2351, 3622]	4716	[4871, 1840]
877	[1601, 1602]	2157	[3295, 3296]	3437	[1848, 474]	4717	[3905, 3851]
878	[1603, 1604]	2158	[3297, 1336]	3438	[2244, 1565]	4718	[3983, 630]
879	[1605, 1606]	2159	[3298, 3299]	3439	[769, 793]	4719	[4944, 1642]
880	[1607, 1608]	2160	[3300, 2481]	3440	[1606, 8]	4720	[2350, 3621]
881	[1609, 1610]	2161	[3301, 886]	3441	[2229, 3742]	4721	[4100, 3707]
882	[1611, 1612]	2162	[3302, 3303]	3442	[4111, 650]	4722	[4108, 640]
883	[1613, 848]	2163	[3304, 87]	3443	[1751, 1574]	4723	[3877, 2146]
884	[1614, 1615]	2164	[2423, 3305]	3444	[4112, 4113]	4724	[746, 3906]
885	[1616, 738]	2165	[3306, 3307]	3445	[1726, 698]	4725	[4945, 1646]
886	[1617, 1618]	2166	[3308, 109]	3446	[2144, 137]	4726	[4946, 492]
887	[1619, 1620]	2167	[3309, 3310]	3447	[4045, 4114]	4727	[532, 2308]
888	[615, 499]	2168	[3311, 3312]	3448	[3891, 516]	4728	[4947, 2034]
889	[1567, 1621]	2169	[3313, 3314]	3449	[608, 486]	4729	[4846, 531]
890	[1622, 1623]	2170	[3315, 3316]	3450	[4115, 637]	4730	[4948, 2240]
891	[1624, 1625]	2171	[3317, 3318]	3451	[2203, 2295]	4731	[4944, 3785]

892	[1626, 817]	2172	[3319, 3320]	3452	[4116, 1685]	4732	[3992, 515]
893	[1627, 1628]	2173	[3321, 3322]	3453	[3614, 4117]	4733	[3959, 3858]
894	[1629, 1630]	2174	[3323, 3324]	3454	[4118, 1750]	4734	[4933, 46]
895	[1631, 1632]	2175	[3325, 3326]	3455	[4101, 728]	4735	[2354, 3794]
896	[599, 756]	2176	[3092, 3327]	3456	[3909, 220]	4736	[4949, 4043]
897	[1633, 1634]	2177	[3328, 2822]	3457	[4119, 1971]	4737	[682, 1617]
898	[135, 1635]	2178	[3329, 3330]	3458	[547, 1783]	4738	[3970, 1583]
899	[1636, 546]	2179	[3331, 345]	3459	[4120, 1881]	4739	[2254, 1810]
900	[124, 1637]	2180	[3240, 1121]	3460	[2040, 1606]	4740	[3769, 4814]
901	[1638, 539]	2181	[3332, 1137]	3461	[2270, 1608]	4741	[4126, 3853]
902	[1639, 1640]	2182	[3333, 3334]	3462	[794, 2105]	4742	[165, 2049]
903	[1641, 1642]	2183	[443, 2939]	3463	[2111, 2065]	4743	[4840, 521]
904	[1581, 1643]	2184	[3335, 1025]	3464	[4121, 4072]	4744	[3958, 3785]
905	[533, 1644]	2185	[3336, 3337]	3465	[686, 518]	4745	[1621, 3634]
906	[140, 125]	2186	[3338, 3339]	3466	[4094, 1871]	4746	[4118, 820]
907	[1645, 224]	2187	[3340, 3341]	3467	[474, 2297]	4747	[4830, 1827]
908	[663, 1646]	2188	[2647, 3284]	3468	[1734, 510]	4748	[3601, 2221]
909	[1647, 1648]	2189	[3342, 2380]	3469	[611, 495]	4749	[161, 127]
910	[1649, 1650]	2190	[1407, 1322]	3470	[4122, 164]	4750	[4950, 2130]
911	[1651, 1652]	2191	[3343, 1419]	3471	[2245, 744]	4751	[4909, 2149]
912	[10, 576]	2192	[3344, 2652]	3472	[3864, 1690]	4752	[4951, 2113]
913	[1591, 1653]	2193	[110, 3345]	3473	[4123, 3946]	4753	[2101, 2082]
914	[1654, 652]	2194	[3346, 964]	3474	[4124, 3696]	4754	[4952, 1695]
915	[472, 1655]	2195	[3041, 2448]	3475	[2258, 1829]	4755	[4953, 2020]
916	[1656, 831]	2196	[3054, 2733]	3476	[4125, 560]	4756	[3915, 1946]
917	[1657, 1598]	2197	[3347, 1017]	3477	[216, 816]	4757	[3733, 2125]
918	[1658, 1659]	2198	[1473, 3348]	3478	[4055, 3938]	4758	[1938, 1899]
919	[1589, 1660]	2199	[3349, 30]	3479	[4126, 2044]	4759	[701, 3975]
920	[1661, 562]	2200	[3350, 881]	3480	[3911, 2228]	4760	[491, 2329]
921	[1662, 1663]	2201	[3351, 3352]	3481	[4127, 652]	4761	[4954, 3596]
922	[1664, 1665]	2202	[3353, 3354]	3482	[2327, 2100]	4762	[3967, 607]
923	[666, 644]	2203	[2893, 1220]	3483	[2292, 1766]	4763	[4955, 130]
924	[1666, 1667]	2204	[3355, 3356]	3484	[4122, 608]	4764	[3928, 834]
925	[1668, 1669]	2205	[3357, 3358]	3485	[4128, 1700]	4765	[1737, 1574]
926	[631, 14]	2206	[3359, 3360]	3486	[4062, 3942]	4766	[4886, 1580]
927	[852, 836]	2207	[3361, 318]	3487	[2261, 761]	4767	[2231, 1592]
928	[1670, 1614]	2208	[3362, 2925]	3488	[3846, 2156]	4768	[501, 1898]
929	[1671, 1672]	2209	[3363, 3364]	3489	[3734, 2133]	4769	[4956, 4033]
930	[1673, 1674]	2210	[1019, 3365]	3490	[4129, 3840]	4770	[4957, 1907]
931	[1675, 224]	2211	[3366, 3154]	3491	[2263, 4130]	4771	[4958, 1687]
932	[1676, 1677]	2212	[3367, 2527]	3492	[1707, 2298]	4772	[3977, 4133]
933	[1605, 1678]	2213	[3368, 3369]	3493	[2181, 616]	4773	[4022, 124]
934	[651, 1679]	2214	[3370, 3371]	3494	[4131, 1634]	4774	[3722, 2036]
935	[1680, 1681]	2215	[3372, 3373]	3495	[693, 1952]	4775	[4821, 3833]

936	[1682, 1683]	2216	[3374, 3375]	3496	[188, 4020]	4776	[4959, 625]
937	[1684, 1685]	2217	[3376, 3366]	3497	[4132, 4133]	4777	[4931, 783]
938	[1686, 1611]	2218	[3377, 3378]	3498	[1583, 3741]	4778	[4090, 531]
939	[1687, 1688]	2219	[3379, 3380]	3499	[4134, 576]	4779	[4855, 1615]
940	[1689, 1690]	2220	[3381, 3382]	3500	[4135, 3626]	4780	[4851, 2065]
941	[1691, 1692]	2221	[3383, 3384]	3501	[4136, 722]	4781	[4960, 1821]
942	[1693, 169]	2222	[3385, 3386]	3502	[136, 2323]	4782	[141, 4071]
943	[236, 728]	2223	[3387, 3388]	3503	[616, 3861]	4783	[4961, 761]
944	[669, 1694]	2224	[3389, 3390]	3504	[4137, 3982]	4784	[4895, 1908]
945	[1571, 1695]	2225	[861, 3391]	3505	[4138, 467]	4785	[4874, 4814]
946	[1696, 1697]	2226	[3392, 3393]	3506	[4027, 1749]	4786	[832, 745]
947	[1698, 709]	2227	[3394, 3395]	3507	[3694, 4139]	4787	[797, 1928]
948	[1699, 1700]	2228	[3396, 2495]	3508	[828, 710]	4788	[788, 580]
949	[1701, 745]	2229	[3397, 2924]	3509	[2315, 1596]	4789	[3723, 4099]
950	[1702, 1703]	2230	[3242, 3398]	3510	[485, 3970]	4790	[4962, 4569]
951	[1701, 160]	2231	[3399, 3400]	3511	[690, 671]	4791	[4963, 2486]
952	[513, 739]	2232	[3390, 1492]	3512	[4005, 3693]	4792	[4515, 3304]
953	[1704, 1705]	2233	[3401, 2798]	3513	[2232, 3666]	4793	[4964, 3310]
954	[1706, 1707]	2234	[3402, 3403]	3514	[3984, 2308]	4794	[2399, 4737]
955	[1708, 1709]	2235	[3404, 2498]	3515	[2267, 750]	4795	[4749, 2533]
956	[680, 1710]	2236	[3405, 3406]	3516	[3689, 3954]	4796	[4778, 4965]
957	[793, 1711]	2237	[3407, 316]	3517	[697, 1727]	4797	[4729, 4760]
958	[618, 549]	2238	[3408, 3409]	3518	[4140, 180]	4798	[4605, 3435]
959	[1712, 1662]	2239	[945, 3410]	3519	[846, 3836]	4799	[1128, 4511]
960	[1713, 1714]	2240	[1248, 3411]	3520	[11, 3676]	4800	[3445, 2803]
961	[483, 1715]	2241	[3412, 386]	3521	[3681, 4141]	4801	[1509, 3420]
962	[1716, 1717]	2242	[3413, 3414]	3522	[3789, 3645]	4802	[3287, 4966]
963	[1718, 556]	2243	[3415, 2635]	3523	[8, 1691]	4803	[4400, 2936]
964	[483, 1719]	2244	[3416, 3417]	3524	[776, 2151]	4804	[4782, 4967]
965	[620, 1669]	2245	[3418, 2792]	3525	[1882, 1965]	4805	[3029, 2441]
966	[649, 768]	2246	[3419, 2914]	3526	[572, 2039]	4806	[4968, 2874]
967	[1607, 1594]	2247	[3420, 3263]	3527	[4142, 1711]	4807	[949, 4969]
968	[1720, 827]	2248	[3421, 2419]	3528	[4143, 659]	4808	[1090, 4651]
969	[1721, 656]	2249	[3422, 2930]	3529	[4053, 1889]	4809	[4970, 3164]
970	[1722, 1602]	2250	[3423, 3424]	3530	[1583, 2128]	4810	[4473, 4971]
971	[167, 1723]	2251	[3425, 3426]	3531	[4144, 550]	4811	[4972, 3583]
972	[1724, 1725]	2252	[947, 3427]	3532	[209, 3778]	4812	[4973, 4974]
973	[1726, 1727]	2253	[3428, 3429]	3533	[147, 4054]	4813	[4975, 4976]
974	[1728, 1729]	2254	[2877, 3117]	3534	[234, 2034]	4814	[4977, 4694]
975	[1730, 1731]	2255	[1397, 3200]	3535	[2332, 1592]	4815	[327, 3426]
976	[1732, 591]	2256	[3430, 3431]	3536	[3659, 770]	4816	[2817, 4374]
977	[1733, 1734]	2257	[3432, 3433]	3537	[2077, 487]	4817	[932, 4249]
978	[1735, 1650]	2258	[3434, 3435]	3538	[3919, 3791]	4818	[4978, 4460]
979	[1736, 494]	2259	[1394, 3174]	3539	[4145, 791]	4819	[2710, 2910]

980	[1737, 1738]	2260	[3436, 3306]	3540	[157, 1842]	4820	[69, 4979]
981	[1739, 1740]	2261	[3437, 3438]	3541	[2333, 505]	4821	[4709, 4608]
982	[1741, 1742]	2262	[3439, 3440]	3542	[3685, 1710]	4822	[3574, 4221]
983	[1743, 1713]	2263	[3441, 3442]	3543	[673, 1810]	4823	[3451, 2487]
984	[824, 738]	2264	[3443, 1282]	3544	[1616, 825]	4824	[4980, 1198]
985	[1744, 654]	2265	[3021, 3401]	3545	[1651, 4146]	4825	[4981, 4982]
986	[1745, 1746]	2266	[3444, 3445]	3546	[776, 1890]	4826	[1523, 1154]
987	[1747, 1748]	2267	[3446, 3447]	3547	[1943, 1812]	4827	[4983, 4438]
988	[1749, 536]	2268	[3448, 3449]	3548	[3740, 1678]	4828	[3263, 3476]
989	[1738, 1750]	2269	[3450, 3451]	3549	[3597, 2160]	4829	[4984, 2956]
990	[818, 1751]	2270	[3452, 3453]	3550	[4037, 823]	4830	[3431, 1523]
991	[1752, 1749]	2271	[3454, 3021]	3551	[4147, 2286]	4831	[2922, 2453]
992	[1588, 513]	2272	[3455, 3456]	3552	[4148, 517]	4832	[1357, 4985]
993	[1753, 1754]	2273	[3457, 3458]	3553	[4089, 4113]	4833	[4986, 4663]
994	[1755, 1756]	2274	[3459, 3460]	3554	[2331, 1826]	4834	[4431, 1378]
995	[1757, 1758]	2275	[3461, 3462]	3555	[3971, 3731]	4835	[4987, 4988]
996	[814, 605]	2276	[3463, 3464]	3556	[3948, 4141]	4836	[4989, 3430]
997	[708, 1759]	2277	[3245, 2584]	3557	[3857, 167]	4837	[1269, 2531]
998	[553, 1760]	2278	[3465, 3466]	3558	[4149, 1751]	4838	[4990, 3013]
999	[1761, 1762]	2279	[3438, 3467]	3559	[1750, 3794]	4839	[3466, 4461]
1000	[657, 850]	2280	[3468, 3469]	3560	[4150, 1987]	4840	[1414, 1036]
1001	[1631, 1763]	2281	[3470, 3471]	3561	[4151, 2365]	4841	[4991, 2581]
1002	[1764, 517]	2282	[3472, 3473]	3562	[1941, 14]	4842	[4992, 4993]
1003	[1686, 521]	2283	[3474, 938]	3563	[4152, 1804]	4843	[4994, 4788]
1004	[1765, 1766]	2284	[3475, 3476]	3564	[1949, 543]	4844	[4995, 4996]
1005	[1767, 1768]	2285	[3477, 3478]	3565	[4153, 2240]	4845	[4997, 1008]
1006	[519, 1769]	2286	[3479, 3119]	3566	[4154, 521]	4846	[2732, 4998]
1007	[1770, 1771]	2287	[251, 3480]	3567	[3840, 3892]	4847	[973, 3354]
1008	[211, 1772]	2288	[3481, 2910]	3568	[2291, 3819]	4848	[4999, 2992]
1009	[803, 1773]	2289	[3482, 3449]	3569	[4144, 3840]	4849	[2499, 5000]
1010	[771, 1774]	2290	[3483, 1148]	3570	[2330, 2130]	4850	[4372, 2434]
1011	[201, 185]	2291	[3484, 3485]	3571	[38, 3929]	4851	[5001, 2871]
1012	[792, 770]	2292	[3486, 1484]	3572	[796, 4114]	4852	[5002, 3161]
1013	[1775, 478]	2293	[2986, 1043]	3573	[4155, 1770]	4853	[5003, 4184]
1014	[1565, 1776]	2294	[3364, 2597]	3574	[4156, 2175]	4854	[5004, 4965]
1015	[1777, 1692]	2295	[3487, 2831]	3575	[51, 1614]	4855	[4695, 3099]
1016	[1778, 1779]	2296	[2695, 3488]	3576	[1721, 3965]	4856	[5005, 5006]
1017	[1780, 1781]	2297	[2856, 3489]	3577	[4157, 1604]	4857	[5007, 5008]
1018	[1782, 1783]	2298	[2630, 1370]	3578	[1937, 2307]	4858	[5009, 5010]
1019	[1784, 1785]	2299	[3490, 3491]	3579	[4158, 1637]	4859	[5011, 1460]
1020	[1786, 1787]	2300	[955, 3492]	3580	[2242, 2035]	4860	[5012, 2955]
1021	[1788, 814]	2301	[3493, 322]	3581	[772, 3637]	4861	[4340, 1560]
1022	[1789, 44]	2302	[3494, 3495]	3582	[4159, 2239]	4862	[2947, 4727]
1023	[1790, 1791]	2303	[3496, 3497]	3583	[3998, 1787]	4863	[4993, 1022]

1024	[1792, 1793]	2304	[3498, 2603]	3584	[4160, 1958]	4864	[4205, 3294]
1025	[1794, 1795]	2305	[3499, 3500]	3585	[1678, 8]	4865	[5013, 1486]
1026	[1796, 689]	2306	[3501, 3502]	3586	[1979, 1916]	4866	[2475, 2579]
1027	[1797, 1568]	2307	[1194, 3503]	3587	[3799, 4019]	4867	[5014, 2661]
1028	[1798, 1799]	2308	[3504, 3505]	3588	[4161, 1602]	4868	[5015, 5016]
1029	[1632, 1800]	2309	[3506, 3507]	3589	[2253, 3975]	4869	[5017, 2562]
1030	[1801, 1802]	2310	[3508, 3509]	3590	[750, 720]	4870	[5018, 1125]
1031	[1803, 1804]	2311	[249, 3510]	3591	[4064, 3938]	4871	[4332, 2442]
1032	[1805, 1665]	2312	[3511, 3031]	3592	[4162, 3541]	4872	[3025, 4972]
1033	[1806, 1807]	2313	[1027, 2569]	3593	[4163, 4164]	4873	[2778, 4339]
1034	[677, 475]	2314	[3512, 308]	3594	[3585, 2611]	4874	[5019, 4238]
1035	[1808, 1809]	2315	[3513, 2807]	3595	[4165, 2923]	4875	[381, 320]
1036	[760, 1810]	2316	[3514, 1291]	3596	[4166, 4167]	4876	[4525, 2913]
1037	[1811, 1812]	2317	[3515, 1190]	3597	[4168, 4169]	4877	[5020, 4985]
1038	[1813, 1814]	2318	[3516, 3517]	3598	[4170, 4171]	4878	[5021, 5022]
1039	[1815, 1753]	2319	[1500, 866]	3599	[4172, 356]	4879	[5023, 5024]
1040	[1816, 1817]	2320	[3518, 3519]	3600	[4173, 4174]	4880	[1380, 3322]
1041	[797, 1818]	2321	[3520, 3159]	3601	[4175, 3000]	4881	[5025, 3535]
1042	[1819, 634]	2322	[3521, 3522]	3602	[4176, 4177]	4882	[3190, 1193]
1043	[1820, 838]	2323	[3523, 3524]	3603	[3038, 2479]	4883	[5026, 5027]
1044	[1821, 637]	2324	[3525, 3526]	3604	[4178, 3259]	4884	[5028, 1046]
1045	[1822, 1823]	2325	[3527, 3086]	3605	[4179, 3256]	4885	[5029, 1419]
1046	[1824, 1825]	2326	[3528, 1315]	3606	[4180, 4181]	4886	[1228, 4708]
1047	[1826, 1827]	2327	[3529, 3530]	3607	[4182, 4183]	4887	[5030, 5031]
1048	[1688, 1828]	2328	[3531, 3532]	3608	[4184, 4185]	4888	[5032, 1000]
1049	[660, 1829]	2329	[3533, 3278]	3609	[4186, 1394]	4889	[1485, 5033]
1050	[1830, 153]	2330	[1271, 3534]	3610	[3255, 4187]	4890	[5034, 5035]
1051	[1831, 1832]	2331	[1467, 68]	3611	[4188, 2873]	4891	[5036, 4467]
1052	[1833, 1834]	2332	[3535, 3536]	3612	[4189, 1161]	4892	[5037, 5038]
1053	[1835, 635]	2333	[3537, 3538]	3613	[4190, 4191]	4893	[3144, 1177]
1054	[761, 1836]	2334	[2929, 3020]	3614	[4192, 284]	4894	[5039, 4530]
1055	[1837, 488]	2335	[3539, 2644]	3615	[4193, 4194]	4895	[5040, 4223]
1056	[1838, 803]	2336	[3540, 1202]	3616	[3578, 2433]	4896	[4273, 2534]
1057	[1839, 1840]	2337	[3541, 3542]	3617	[4195, 2997]	4897	[2439, 3375]
1058	[35, 1770]	2338	[2433, 3543]	3618	[1424, 4196]	4898	[5041, 4981]
1059	[1841, 1842]	2339	[1045, 3243]	3619	[1426, 4197]	4899	[5042, 5043]
1060	[1843, 645]	2340	[3544, 1174]	3620	[2568, 4198]	4900	[1533, 4485]
1061	[1844, 1845]	2341	[1113, 870]	3621	[4199, 4200]	4901	[4446, 5044]
1062	[1846, 1847]	2342	[3545, 3546]	3622	[3553, 4201]	4902	[5045, 5046]
1063	[1848, 171]	2343	[1111, 3547]	3623	[369, 1299]	4903	[4773, 2743]
1064	[1706, 1708]	2344	[2604, 3548]	3624	[4202, 4203]	4904	[2469, 4343]
1065	[1849, 58]	2345	[3549, 3284]	3625	[4204, 4205]	4905	[5047, 2591]
1066	[1850, 1851]	2346	[3120, 1213]	3626	[4206, 4207]	4906	[4732, 1002]
1067	[530, 1852]	2347	[3550, 369]	3627	[4208, 4209]	4907	[5048, 5049]

1068	[1853, 1854]	2348	[3551, 370]	3628	[857, 4210]	4908	[5050, 4234]
1069	[1855, 1856]	2349	[3552, 2906]	3629	[3424, 64]	4909	[5051, 3323]
1070	[1857, 1858]	2350	[1527, 3553]	3630	[4211, 2416]	4910	[5052, 5053]
1071	[1859, 1860]	2351	[3554, 2773]	3631	[4212, 1179]	4911	[5054, 4333]
1072	[1861, 1862]	2352	[3555, 1118]	3632	[4213, 4214]	4912	[5055, 3066]
1073	[710, 1863]	2353	[3556, 3557]	3633	[4215, 2854]	4913	[4167, 2517]
1074	[1864, 1764]	2354	[3558, 3559]	3634	[2782, 4216]	4914	[5056, 5057]
1075	[1865, 1866]	2355	[3560, 2403]	3635	[4217, 4218]	4915	[5058, 2725]
1076	[1867, 1868]	2356	[3561, 3562]	3636	[2619, 4219]	4916	[5059, 5060]
1077	[1869, 490]	2357	[3563, 3564]	3637	[3203, 4220]	4917	[5061, 901]
1078	[1870, 1871]	2358	[3565, 3343]	3638	[4221, 3525]	4918	[1140, 278]
1079	[1872, 1873]	2359	[3566, 3567]	3639	[4222, 4223]	4919	[5062, 2604]
1080	[654, 1874]	2360	[3568, 101]	3640	[4224, 3399]	4920	[5063, 1352]
1081	[1875, 1614]	2361	[3569, 3570]	3641	[1265, 3079]	4921	[5049, 4233]
1082	[1876, 511]	2362	[3571, 1320]	3642	[4225, 4226]	4922	[5064, 1292]
1083	[1877, 707]	2363	[3572, 3071]	3643	[4227, 1353]	4923	[5065, 1300]
1084	[1878, 1879]	2364	[3573, 3574]	3644	[3314, 1099]	4924	[5066, 3342]
1085	[629, 1880]	2365	[3575, 3576]	3645	[4228, 4229]	4925	[4582, 4688]
1086	[197, 1881]	2366	[3577, 3578]	3646	[1469, 4230]	4926	[4689, 5067]
1087	[1667, 1882]	2367	[3579, 3580]	3647	[2738, 4231]	4927	[5068, 442]
1088	[1673, 1637]	2368	[431, 3581]	3648	[4232, 1316]	4928	[5069, 5070]
1089	[1883, 1884]	2369	[2522, 2840]	3649	[1051, 250]	4929	[5071, 1441]
1090	[1885, 645]	2370	[3582, 3583]	3650	[4233, 4234]	4930	[5072, 2545]
1091	[1886, 1887]	2371	[3584, 2384]	3651	[3517, 1028]	4931	[5073, 2929]
1092	[1888, 1804]	2372	[2506, 3521]	3652	[4235, 1131]	4932	[5074, 5040]
1093	[1889, 1890]	2373	[1200, 3585]	3653	[2577, 4236]	4933	[1107, 5075]
1094	[1625, 1891]	2374	[3586, 1520]	3654	[3400, 3468]	4934	[5076, 5077]
1095	[707, 38]	2375	[2712, 3587]	3655	[28, 1033]	4935	[5078, 1471]
1096	[1879, 1892]	2376	[439, 3089]	3656	[4237, 2871]	4936	[5079, 5007]
1097	[1850, 1893]	2377	[3588, 3589]	3657	[4238, 1393]	4937	[5035, 5019]
1098	[527, 1802]	2378	[403, 3590]	3658	[4239, 4240]	4938	[5080, 4192]
1099	[533, 1894]	2379	[3591, 3296]	3659	[4241, 2639]	4939	[5081, 5082]
1100	[1821, 605]	2380	[470, 37]	3660	[3369, 2585]	4940	[4699, 4557]
1101	[123, 1673]	2381	[2263, 1754]	3661	[4242, 4243]	4941	[5083, 2984]
1102	[1895, 1896]	2382	[3592, 548]	3662	[4244, 956]	4942	[5084, 968]
1103	[1897, 729]	2383	[3593, 559]	3663	[3581, 3058]	4943	[4619, 4632]
1104	[147, 1898]	2384	[602, 166]	3664	[4245, 3522]	4944	[5010, 4323]
1105	[1899, 1900]	2385	[2374, 3594]	3665	[4246, 3006]	4945	[5085, 5086]
1106	[1901, 148]	2386	[3595, 1889]	3666	[4247, 4248]	4946	[1202, 1217]
1107	[538, 730]	2387	[573, 1999]	3667	[4249, 4250]	4947	[878, 3433]
1108	[1902, 1903]	2388	[1722, 2175]	3668	[867, 4251]	4948	[5087, 4220]
1109	[1904, 1905]	2389	[3596, 1790]	3669	[2690, 4252]	4949	[5088, 2848]
1110	[1906, 1907]	2390	[3597, 2325]	3670	[4253, 4254]	4950	[5089, 2974]
1111	[60, 1908]	2391	[1578, 1896]	3671	[4255, 4256]	4951	[5090, 5091]

1112	[1909, 1588]	2392	[2212, 783]	3672	[2730, 4257]	4952	[3382, 3580]
1113	[1910, 145]	2393	[694, 3598]	3673	[4258, 321]	4953	[5092, 3307]
1114	[473, 171]	2394	[842, 2073]	3674	[4259, 4260]	4954	[5093, 2768]
1115	[541, 1911]	2395	[3599, 3600]	3675	[2720, 4261]	4955	[5094, 249]
1116	[1912, 237]	2396	[3601, 2104]	3676	[4262, 3361]	4956	[3495, 5095]
1117	[1773, 1913]	2397	[3602, 2078]	3677	[90, 3344]	4957	[5075, 1502]
1118	[795, 1914]	2398	[3603, 682]	3678	[2740, 4263]	4958	[4634, 1286]
1119	[509, 1915]	2399	[2319, 554]	3679	[2697, 4264]	4959	[5096, 3188]
1120	[511, 1916]	2400	[228, 2265]	3680	[4214, 4265]	4960	[4758, 5061]
1121	[707, 1917]	2401	[227, 819]	3681	[4266, 4267]	4961	[425, 862]
1122	[48, 1918]	2402	[1662, 2167]	3682	[3093, 4268]	4962	[4790, 56]
1123	[1919, 1920]	2403	[3604, 3605]	3683	[4269, 4270]	4963	[5097, 3778]
1124	[1921, 1922]	2404	[751, 2283]	3684	[4271, 2797]	4964	[3745, 1862]
1125	[49, 1923]	2405	[3606, 3607]	3685	[4272, 4273]	4965	[2217, 704]
1126	[1879, 1790]	2406	[521, 1612]	3686	[4198, 1388]	4966	[4114, 1818]
1127	[1924, 1923]	2407	[3608, 3609]	3687	[397, 2507]	4967	[4863, 4865]
1128	[1925, 1926]	2408	[3610, 1677]	3688	[4274, 4275]	4968	[4927, 3645]
1129	[1927, 1928]	2409	[851, 1950]	3689	[1321, 4276]	4969	[1700, 4081]
1130	[1929, 1930]	2410	[633, 3611]	3690	[2419, 4277]	4970	[4836, 681]
1131	[814, 637]	2411	[3612, 629]	3691	[4231, 2971]	4971	[2028, 4908]
1132	[815, 1931]	2412	[3613, 1725]	3692	[4278, 4279]	4972	[2287, 2113]
1133	[1932, 689]	2413	[1704, 3614]	3693	[4280, 1314]	4973	[4873, 2333]
1134	[1933, 1873]	2414	[1764, 3615]	3694	[4281, 2616]	4974	[1990, 554]
1135	[1870, 1748]	2415	[2125, 2248]	3695	[4282, 3513]	4975	[4815, 816]
1136	[1649, 1934]	2416	[2083, 2253]	3696	[4283, 4284]	4976	[3728, 2025]
1137	[1935, 1936]	2417	[1667, 719]	3697	[4285, 4286]	4977	[4109, 626]
1138	[646, 1937]	2418	[3616, 3617]	3698	[4287, 4288]	4978	[4946, 572]
1139	[1938, 1808]	2419	[726, 1968]	3699	[4289, 1488]	4979	[136, 3912]
1140	[175, 669]	2420	[3618, 3619]	3700	[2919, 311]	4980	[168, 529]
1141	[665, 1939]	2421	[604, 2085]	3701	[4290, 3039]	4981	[1774, 807]
1142	[1940, 609]	2422	[3620, 1596]	3702	[4291, 4292]	4982	[4066, 4877]
1143	[1941, 632]	2423	[3621, 3622]	3703	[4293, 1021]	4983	[4960, 814]
1144	[1942, 1644]	2424	[3623, 704]	3704	[4294, 4295]	4984	[5098, 513]
1145	[1943, 1944]	2425	[526, 1863]	3705	[4296, 4297]	4985	[4914, 3902]
1146	[1945, 1946]	2426	[3624, 1623]	3706	[4298, 2855]	4986	[493, 1905]
1147	[1947, 812]	2427	[2119, 669]	3707	[1375, 3004]	4987	[4943, 142]
1148	[1948, 595]	2428	[2090, 2187]	3708	[1563, 4299]	4988	[3937, 4056]
1149	[1949, 1950]	2429	[1773, 1981]	3709	[4300, 3439]	4989	[4156, 1602]
1150	[1951, 1952]	2430	[3625, 1871]	3710	[4301, 4302]	4990	[5099, 658]
1151	[1953, 1954]	2431	[3626, 1568]	3711	[2839, 4303]	4991	[2084, 2151]
1152	[1955, 602]	2432	[2233, 673]	3712	[4304, 1162]	4992	[4878, 3822]
1153	[1956, 551]	2433	[3627, 185]	3713	[4305, 4306]	4993	[4820, 4029]
1154	[1957, 1958]	2434	[3628, 1697]	3714	[4307, 4308]	4994	[4131, 2110]
1155	[218, 1715]	2435	[492, 2039]	3715	[1196, 4309]	4995	[4800, 2191]

1156	[203, 1959]	2436	[2013, 3629]	3716	[4310, 4311]	4996	[4817, 3833]
1157	[1960, 1961]	2437	[627, 3630]	3717	[4312, 4313]	4997	[4903, 803]
1158	[1962, 1963]	2438	[3631, 554]	3718	[4314, 4315]	4998	[2204, 3968]
1159	[1964, 1965]	2439	[610, 178]	3719	[4236, 4316]	4999	[3907, 2221]
1160	[1966, 709]	2440	[2334, 2115]	3720	[4317, 1092]	5000	[3651, 1963]
1161	[743, 1967]	2441	[3632, 549]	3721	[2707, 4318]	5001	[4929, 782]
1162	[129, 1968]	2442	[1917, 132]	3722	[349, 4319]	5002	[4025, 821]
1163	[1969, 1970]	2443	[626, 193]	3723	[4320, 4274]	5003	[4918, 3681]
1164	[1971, 1903]	2444	[3633, 3634]	3724	[4321, 1298]	5004	[4158, 1674]
1165	[1972, 693]	2445	[3635, 2047]	3725	[4322, 2517]	5005	[4919, 1866]
1166	[1843, 582]	2446	[2004, 160]	3726	[3291, 1490]	5006	[2089, 2075]
1167	[1973, 1974]	2447	[3620, 2316]	3727	[3047, 2704]	5007	[60, 3869]
1168	[1723, 1975]	2448	[1778, 3636]	3728	[4323, 2987]	5008	[4012, 2202]
1169	[1976, 1977]	2449	[1860, 1793]	3729	[4324, 1264]	5009	[5100, 1673]
1170	[53, 1978]	2450	[1774, 3637]	3730	[4325, 4326]	5010	[5099, 850]
1171	[1979, 591]	2451	[3638, 3639]	3731	[20, 1267]	5011	[4922, 2253]
1172	[767, 650]	2452	[192, 2341]	3732	[4327, 2739]	5012	[5101, 1858]
1173	[1980, 1624]	2453	[1910, 3640]	3733	[4328, 4329]	5013	[4159, 1771]
1174	[1577, 1981]	2454	[1636, 3641]	3734	[2510, 4330]	5014	[5102, 134]
1175	[1982, 1983]	2455	[1845, 2228]	3735	[4331, 4332]	5015	[1732, 1916]
1176	[1619, 1776]	2456	[3642, 3643]	3736	[3491, 3567]	5016	[42, 684]
1177	[1622, 1984]	2457	[578, 166]	3737	[3059, 4333]	5017	[3892, 2246]
1178	[736, 153]	2458	[3644, 3645]	3738	[4334, 3469]	5018	[4954, 1879]
1179	[1985, 1986]	2459	[3646, 721]	3739	[1176, 3049]	5019	[3690, 843]
1180	[1775, 1987]	2460	[2235, 3617]	3740	[4335, 4336]	5020	[4808, 3706]
1181	[1988, 1989]	2461	[1630, 2198]	3741	[2415, 4337]	5021	[4796, 3768]
1182	[1990, 1760]	2462	[2239, 3647]	3742	[2417, 3589]	5022	[1811, 1944]
1183	[1648, 196]	2463	[3648, 3649]	3743	[4338, 1045]	5023	[4120, 1989]
1184	[770, 1991]	2464	[3650, 580]	3744	[2527, 990]	5024	[1967, 1806]
1185	[1992, 1717]	2465	[3651, 1954]	3745	[4339, 4340]	5025	[2098, 3659]
1186	[1993, 178]	2466	[3652, 3653]	3746	[3027, 384]	5026	[4140, 3714]
1187	[606, 1994]	2467	[3654, 1935]	3747	[4341, 4342]	5027	[1670, 52]
1188	[1612, 1995]	2468	[184, 202]	3748	[4343, 4344]	5028	[3749, 1826]
1189	[1996, 1997]	2469	[3655, 2278]	3749	[4345, 2827]	5029	[2347, 3744]
1190	[1998, 1999]	2470	[1571, 3656]	3750	[4346, 3092]	5030	[4862, 2211]
1191	[2000, 1617]	2471	[582, 646]	3751	[4347, 1184]	5031	[2369, 2025]
1192	[2001, 1642]	2472	[3657, 3617]	3752	[391, 1391]	5032	[4915, 1631]
1193	[2002, 616]	2473	[3658, 3659]	3753	[4348, 2846]	5033	[4896, 4854]
1194	[523, 2003]	2474	[1684, 1974]	3754	[4349, 4350]	5034	[4827, 625]
1195	[2004, 745]	2475	[139, 2066]	3755	[3123, 1103]	5035	[4147, 2173]
1196	[2005, 2006]	2476	[3660, 2040]	3756	[4351, 4352]	5036	[5102, 1588]
1197	[2007, 2008]	2477	[3661, 564]	3757	[4353, 4354]	5037	[4065, 3656]
1198	[214, 2009]	2478	[3610, 3662]	3758	[4355, 4301]	5038	[3638, 4133]
1199	[2010, 2011]	2479	[3613, 2071]	3759	[4356, 3418]	5039	[4898, 659]

1200	[1961, 505]	2480	[2142, 3663]	3760	[4357, 4358]	5040	[2176, 786]
1201	[2012, 788]	2481	[2305, 3664]	3761	[4359, 1301]	5041	[5103, 218]
1202	[133, 1588]	2482	[52, 1615]	3762	[4360, 4361]	5042	[4009, 518]
1203	[1763, 1800]	2483	[3665, 3666]	3763	[4362, 415]	5043	[1635, 2323]
1204	[2013, 2014]	2484	[3667, 3643]	3764	[4363, 4364]	5044	[808, 4908]
1205	[2015, 2016]	2485	[472, 3668]	3765	[3088, 4365]	5045	[4872, 1862]
1206	[2017, 1816]	2486	[166, 3669]	3766	[4366, 3559]	5046	[4044, 127]
1207	[2018, 833]	2487	[3670, 622]	3767	[4367, 4293]	5047	[4084, 2105]
1208	[2019, 2020]	2488	[2295, 660]	3768	[3507, 1441]	5048	[5100, 124]
1209	[2021, 1634]	2489	[3671, 780]	3769	[4203, 2670]	5049	[621, 3816]
1210	[2022, 720]	2490	[3672, 3673]	3770	[4368, 2978]	5050	[4880, 3915]
1211	[2023, 1746]	2491	[1728, 1734]	3771	[4369, 4370]	5051	[4917, 709]
1212	[2024, 2025]	2492	[1718, 3674]	3772	[4371, 4372]	5052	[3783, 1891]
1213	[1627, 2026]	2493	[3675, 2142]	3773	[4330, 2829]	5053	[4105, 1778]
1214	[2027, 468]	2494	[562, 596]	3774	[4373, 2961]	5054	[5104, 3645]
1215	[2028, 208]	2495	[654, 3617]	3775	[4374, 112]	5055	[4938, 2130]
1216	[1945, 2029]	2496	[590, 1916]	3776	[2698, 1287]	5056	[3881, 1857]
1217	[471, 2030]	2497	[3676, 1780]	3777	[1475, 4375]	5057	[5105, 4139]
1218	[2031, 1666]	2498	[3632, 466]	3778	[4376, 2805]	5058	[5106, 2066]
1219	[2032, 647]	2499	[2035, 1714]	3779	[4377, 2570]	5059	[4841, 2230]
1220	[2033, 2034]	2500	[3677, 774]	3780	[4378, 4379]	5060	[3729, 684]
1221	[2035, 2036]	2501	[2260, 187]	3781	[899, 4380]	5061	[524, 1639]
1222	[2037, 2038]	2502	[3678, 2107]	3782	[4381, 861]	5062	[3818, 158]
1223	[1813, 2039]	2503	[525, 1640]	3783	[4382, 2828]	5063	[4921, 681]
1224	[765, 1935]	2504	[214, 3679]	3784	[4383, 4384]	5064	[577, 602]
1225	[511, 591]	2505	[3680, 3681]	3785	[4385, 4386]	5065	[4852, 536]
1226	[2040, 1678]	2506	[3682, 3683]	3786	[4387, 1405]	5066	[5107, 470]
1227	[1907, 817]	2507	[704, 706]	3787	[4388, 4389]	5067	[1953, 1963]
1228	[2041, 2042]	2508	[742, 1836]	3788	[3456, 3175]	5068	[4957, 774]
1229	[2043, 594]	2509	[3684, 1899]	3789	[1166, 4255]	5069	[4086, 546]
1230	[596, 2020]	2510	[2002, 2182]	3790	[3270, 248]	5070	[2100, 1648]
1231	[597, 2044]	2511	[1902, 2106]	3791	[4390, 3340]	5071	[4083, 2265]
1232	[1830, 2045]	2512	[3685, 681]	3792	[4391, 3080]	5072	[727, 237]
1233	[2046, 2047]	2513	[3686, 1629]	3793	[3411, 4392]	5073	[4948, 675]
1234	[2048, 2049]	2514	[3687, 1631]	3794	[2682, 4393]	5074	[4892, 1672]
1235	[560, 2050]	2515	[1846, 1692]	3795	[4394, 69]	5075	[4803, 147]
1236	[2051, 2052]	2516	[466, 550]	3796	[3303, 4395]	5076	[1744, 2235]
1237	[2053, 836]	2517	[2110, 1629]	3797	[4396, 942]	5077	[3926, 1888]
1238	[2054, 595]	2518	[2051, 716]	3798	[3160, 4397]	5078	[3912, 4051]
1239	[1887, 2055]	2519	[3688, 634]	3799	[4398, 4399]	5079	[4961, 742]
1240	[2056, 644]	2520	[1719, 1798]	3800	[2467, 4400]	5080	[465, 549]
1241	[2057, 2058]	2521	[3689, 2154]	3801	[4401, 2421]	5081	[4038, 1914]
1242	[229, 1740]	2522	[3690, 2073]	3802	[4402, 4403]	5082	[744, 1806]
1243	[2059, 1646]	2523	[3691, 1864]	3803	[2873, 4404]	5083	[3993, 838]

1244	[2060, 60]	2524	[3692, 1650]	3804	[4405, 4406]	5084	[3883, 1893]
1245	[2061, 2062]	2525	[1920, 3693]	3805	[1366, 4407]	5085	[4152, 2121]
1246	[2063, 2011]	2526	[3694, 3695]	3806	[4408, 2565]	5086	[2361, 1582]
1247	[818, 2064]	2527	[2099, 1752]	3807	[4409, 4410]	5087	[4885, 228]
1248	[2065, 1857]	2528	[3650, 2137]	3808	[1513, 2884]	5088	[4822, 529]
1249	[2066, 125]	2529	[2037, 3696]	3809	[271, 2502]	5089	[5108, 202]
1250	[187, 1759]	2530	[3697, 3698]	3810	[4306, 4411]	5090	[4955, 1968]
1251	[195, 2067]	2531	[3699, 1896]	3811	[2702, 276]	5091	[4114, 1928]
1252	[2068, 2069]	2532	[2148, 718]	3812	[4412, 4413]	5092	[2296, 1987]
1253	[2070, 662]	2533	[3700, 159]	3813	[4414, 1491]	5093	[5107, 2088]
1254	[604, 626]	2534	[3669, 799]	3814	[4415, 4416]	5094	[2131, 2248]
1255	[1724, 2071]	2535	[1892, 1791]	3815	[4417, 4418]	5095	[4801, 4099]
1256	[2072, 2073]	2536	[3701, 2207]	3816	[4419, 4420]	5096	[4882, 645]
1257	[2074, 2075]	2537	[2079, 3702]	3817	[1267, 4421]	5097	[5109, 905]
1258	[1597, 2076]	2538	[3703, 593]	3818	[4422, 2742]	5098	[2887, 2554]
1259	[2077, 2078]	2539	[3704, 12]	3819	[4423, 4424]	5099	[5110, 5111]
1260	[2079, 2080]	2540	[1839, 3705]	3820	[2592, 4425]	5100	[5112, 3477]
1261	[747, 2081]	2541	[1878, 3596]	3821	[4426, 4427]	5101	[5113, 2799]
1262	[2082, 40]	2542	[2012, 579]	3822	[4428, 4429]	5102	[5114, 358]
1263	[724, 1959]	2543	[3706, 3707]	3823	[4430, 4431]	5103	[2951, 3437]
1264	[2083, 781]	2544	[1806, 725]	3824	[4432, 3244]	5104	[5115, 4479]
1265	[125, 1973]	2545	[527, 3708]	3825	[4433, 4434]	5105	[5116, 5117]
1266	[2084, 1890]	2546	[3709, 2316]	3826	[4435, 3305]	5106	[4586, 242]
1267	[40, 1989]	2547	[803, 1577]	3827	[4436, 4437]	5107	[4681, 74]
1268	[625, 2085]	2548	[3710, 3711]	3828	[4438, 4439]	5108	[259, 5114]
1269	[1693, 1581]	2549	[758, 1829]	3829	[4440, 4441]	5109	[5106, 140]
1270	[2086, 234]	2550	[3712, 1768]	3830	[4442, 3043]	5110	[1951, 3727]
1271	[2087, 2088]	2551	[3713, 689]	3831	[4443, 907]	5111	[4850, 3696]
1272	[2089, 2090]	2552	[1648, 2082]	3832	[4444, 3349]	5112	[5108, 185]
1273	[2091, 2092]	2553	[1986, 3629]	3833	[4445, 4319]	5113	[5101, 2225]
1274	[1904, 494]	2554	[179, 3714]	3834	[315, 4446]	5114	[3748, 1708]
1275	[2093, 1858]	2555	[2219, 1977]	3835	[4447, 4346]	5115	[5103, 483]
1276	[1855, 2094]	2556	[1940, 486]	3836	[4448, 4449]	5116	[4932, 1579]
1277	[670, 691]	2557	[3715, 716]	3837	[4450, 4451]	5117	[2068, 724]
1278	[2095, 1774]	2558	[1950, 544]	3838	[2387, 1093]		
1279	[2096, 1984]	2559	[3716, 2006]	3839	[4316, 4389]		

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	854	0	1708	0	2562	0	3416	1	4270	1
1	0	855	1	1709	0	2563	1	3417	0	4271	0
2	0	856	0	1710	0	2564	1	3418	0	4272	1
3	0	857	1	1711	0	2565	0	3419	1	4273	1
4	0	858	0	1712	0	2566	1	3420	0	4274	0

5	0	859	0	1713	1	2567	1	3421	0	4275	0
6	1	860	1	1714	1	2568	0	3422	1	4276	0
7	0	861	1	1715	1	2569	0	3423	0	4277	1
8	1	862	1	1716	0	2570	0	3424	1	4278	0
9	0	863	1	1717	1	2571	0	3425	0	4279	1
10	0	864	0	1718	1	2572	1	3426	1	4280	0
11	0	865	0	1719	0	2573	1	3427	0	4281	1
12	1	866	0	1720	1	2574	1	3428	1	4282	0
13	1	867	0	1721	0	2575	1	3429	1	4283	1
14	1	868	1	1722	0	2576	0	3430	0	4284	0
15	0	869	0	1723	0	2577	0	3431	1	4285	0
16	0	870	1	1724	0	2578	1	3432	1	4286	1
17	1	871	0	1725	0	2579	1	3433	0	4287	0
18	1	872	0	1726	0	2580	1	3434	0	4288	0
19	0	873	1	1727	0	2581	1	3435	0	4289	1
20	0	874	0	1728	1	2582	0	3436	0	4290	0
21	0	875	0	1729	1	2583	0	3437	0	4291	0
22	1	876	1	1730	0	2584	0	3438	1	4292	0
23	0	877	0	1731	0	2585	0	3439	1	4293	0
24	1	878	0	1732	0	2586	1	3440	1	4294	1
25	1	879	0	1733	0	2587	0	3441	0	4295	0
26	1	880	0	1734	0	2588	0	3442	0	4296	1
27	1	881	0	1735	1	2589	0	3443	0	4297	1
28	0	882	0	1736	1	2590	0	3444	0	4298	1
29	1	883	0	1737	0	2591	1	3445	0	4299	0
30	1	884	1	1738	0	2592	1	3446	1	4300	1
31	0	885	0	1739	0	2593	0	3447	0	4301	1
32	0	886	0	1740	0	2594	1	3448	0	4302	1
33	0	887	1	1741	0	2595	1	3449	1	4303	0
34	0	888	0	1742	1	2596	1	3450	1	4304	0
35	1	889	0	1743	0	2597	0	3451	0	4305	1
36	1	890	0	1744	1	2598	0	3452	0	4306	1
37	1	891	1	1745	1	2599	0	3453	1	4307	0
38	1	892	0	1746	0	2600	1	3454	0	4308	0
39	0	893	1	1747	0	2601	0	3455	1	4309	1
40	0	894	1	1748	1	2602	1	3456	0	4310	0
41	0	895	0	1749	1	2603	0	3457	1	4311	0
42	1	896	1	1750	0	2604	0	3458	1	4312	1
43	0	897	0	1751	0	2605	1	3459	1	4313	1
44	1	898	0	1752	0	2606	1	3460	0	4314	0
45	1	899	0	1753	1	2607	1	3461	0	4315	0
46	0	900	1	1754	0	2608	0	3462	0	4316	0
47	0	901	0	1755	0	2609	1	3463	1	4317	1
48	0	902	0	1756	0	2610	1	3464	1	4318	0

49	1	903	1	1757	1	2611	1	3465	1	4319	1
50	1	904	0	1758	0	2612	0	3466	1	4320	1
51	1	905	0	1759	1	2613	1	3467	0	4321	0
52	0	906	1	1760	0	2614	1	3468	0	4322	1
53	1	907	0	1761	1	2615	1	3469	1	4323	1
54	0	908	1	1762	1	2616	0	3470	1	4324	0
55	1	909	0	1763	1	2617	0	3471	0	4325	0
56	1	910	1	1764	0	2618	0	3472	1	4326	0
57	0	911	0	1765	0	2619	1	3473	0	4327	0
58	1	912	0	1766	0	2620	1	3474	1	4328	1
59	1	913	0	1767	1	2621	0	3475	0	4329	1
60	0	914	0	1768	0	2622	1	3476	1	4330	1
61	1	915	1	1769	1	2623	0	3477	0	4331	1
62	0	916	1	1770	0	2624	1	3478	1	4332	1
63	1	917	1	1771	1	2625	1	3479	1	4333	1
64	0	918	0	1772	0	2626	1	3480	0	4334	1
65	1	919	0	1773	0	2627	0	3481	1	4335	1
66	0	920	1	1774	0	2628	0	3482	1	4336	1
67	1	921	0	1775	1	2629	1	3483	1	4337	0
68	0	922	0	1776	0	2630	1	3484	1	4338	1
69	1	923	0	1777	1	2631	1	3485	1	4339	1
70	1	924	1	1778	1	2632	0	3486	1	4340	1
71	0	925	1	1779	0	2633	0	3487	0	4341	1
72	1	926	1	1780	1	2634	0	3488	1	4342	1
73	1	927	0	1781	0	2635	0	3489	0	4343	1
74	1	928	0	1782	1	2636	1	3490	0	4344	1
75	1	929	1	1783	0	2637	0	3491	0	4345	0
76	1	930	0	1784	1	2638	0	3492	1	4346	0
77	1	931	1	1785	0	2639	0	3493	0	4347	1
78	0	932	1	1786	1	2640	1	3494	1	4348	0
79	0	933	0	1787	1	2641	1	3495	0	4349	0
80	0	934	1	1788	1	2642	0	3496	1	4350	1
81	0	935	0	1789	0	2643	1	3497	0	4351	0
82	0	936	1	1790	0	2644	1	3498	0	4352	1
83	1	937	1	1791	1	2645	0	3499	1	4353	1
84	1	938	0	1792	1	2646	0	3500	0	4354	1
85	0	939	1	1793	0	2647	0	3501	1	4355	1
86	0	940	1	1794	0	2648	1	3502	1	4356	1
87	1	941	1	1795	0	2649	0	3503	1	4357	0
88	1	942	1	1796	1	2650	1	3504	1	4358	1
89	1	943	0	1797	0	2651	0	3505	0	4359	0
90	1	944	0	1798	0	2652	0	3506	0	4360	1
91	0	945	0	1799	0	2653	0	3507	1	4361	1
92	0	946	1	1800	0	2654	1	3508	1	4362	0

93	0	947	1	1801	1	2655	1	3509	1	4363	1
94	0	948	0	1802	1	2656	0	3510	0	4364	0
95	0	949	1	1803	0	2657	1	3511	1	4365	0
96	1	950	1	1804	1	2658	0	3512	0	4366	0
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99	1	953	1	1807	1	2661	0	3515	1	4369	0
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101	1	955	0	1809	1	2663	0	3517	1	4371	1
102	1	956	0	1810	0	2664	1	3518	0	4372	1
103	0	957	1	1811	1	2665	0	3519	1	4373	0
104	1	958	1	1812	1	2666	0	3520	0	4374	0
105	1	959	0	1813	0	2667	1	3521	1	4375	1
106	0	960	1	1814	1	2668	1	3522	1	4376	0
107	0	961	0	1815	0	2669	0	3523	1	4377	1
108	0	962	0	1816	0	2670	0	3524	1	4378	1
109	1	963	1	1817	0	2671	1	3525	0	4379	1
110	1	964	0	1818	1	2672	0	3526	1	4380	0
111	1	965	0	1819	1	2673	0	3527	0	4381	0
112	1	966	1	1820	1	2674	0	3528	0	4382	0
113	0	967	0	1821	0	2675	1	3529	1	4383	1
114	0	968	1	1822	0	2676	0	3530	0	4384	0
115	1	969	0	1823	0	2677	1	3531	1	4385	0
116	0	970	0	1824	1	2678	0	3532	0	4386	0
117	1	971	1	1825	1	2679	1	3533	1	4387	0
118	1	972	0	1826	1	2680	0	3534	0	4388	1
119	0	973	0	1827	1	2681	0	3535	0	4389	1
120	1	974	1	1828	0	2682	1	3536	0	4390	1
121	1	975	0	1829	0	2683	0	3537	1	4391	0
122	0	976	0	1830	1	2684	0	3538	1	4392	0
123	0	977	0	1831	1	2685	0	3539	0	4393	1
124	1	978	1	1832	1	2686	0	3540	0	4394	1
125	1	979	1	1833	0	2687	0	3541	1	4395	1
126	0	980	0	1834	0	2688	0	3542	1	4396	0
127	0	981	0	1835	0	2689	1	3543	0	4397	0
128	0	982	0	1836	0	2690	1	3544	0	4398	1
129	1	983	0	1837	1	2691	0	3545	0	4399	0
130	0	984	1	1838	0	2692	1	3546	1	4400	0
131	0	985	1	1839	1	2693	0	3547	0	4401	0
132	0	986	1	1840	0	2694	1	3548	1	4402	1
133	1	987	0	1841	1	2695	1	3549	1	4403	1
134	0	988	1	1842	1	2696	0	3550	1	4404	1
135	0	989	0	1843	1	2697	0	3551	1	4405	1
136	1	990	0	1844	1	2698	0	3552	0	4406	0

137	1	991	0	1845	1	2699	1	3553	1	4407	1
138	0	992	1	1846	0	2700	0	3554	0	4408	0
139	1	993	1	1847	1	2701	1	3555	0	4409	1
140	1	994	0	1848	0	2702	0	3556	0	4410	0
141	0	995	1	1849	0	2703	0	3557	1	4411	0
142	1	996	1	1850	0	2704	0	3558	1	4412	1
143	1	997	0	1851	0	2705	0	3559	0	4413	0
144	1	998	1	1852	0	2706	1	3560	0	4414	1
145	0	999	1	1853	1	2707	0	3561	1	4415	1
146	1	1000	0	1854	0	2708	0	3562	0	4416	1
147	1	1001	0	1855	0	2709	0	3563	1	4417	1
148	1	1002	0	1856	1	2710	0	3564	0	4418	1
149	0	1003	0	1857	1	2711	0	3565	0	4419	1
150	1	1004	0	1858	0	2712	1	3566	1	4420	1
151	0	1005	1	1859	0	2713	1	3567	0	4421	1
152	1	1006	0	1860	0	2714	1	3568	1	4422	1
153	1	1007	0	1861	0	2715	0	3569	1	4423	0
154	0	1008	1	1862	0	2716	1	3570	1	4424	1
155	1	1009	0	1863	1	2717	1	3571	1	4425	0
156	0	1010	1	1864	0	2718	1	3572	1	4426	0
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158	1	1012	1	1866	1	2720	1	3574	1	4428	0
159	0	1013	1	1867	0	2721	1	3575	1	4429	1
160	0	1014	0	1868	0	2722	1	3576	0	4430	1
161	0	1015	1	1869	0	2723	1	3577	0	4431	1
162	1	1016	1	1870	1	2724	1	3578	1	4432	0
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164	0	1018	1	1872	0	2726	0	3580	1	4434	0
165	1	1019	1	1873	1	2727	0	3581	1	4435	0
166	1	1020	1	1874	0	2728	0	3582	0	4436	1
167	1	1021	1	1875	1	2729	0	3583	1	4437	1
168	0	1022	0	1876	1	2730	1	3584	1	4438	1
169	1	1023	0	1877	0	2731	1	3585	0	4439	0
170	1	1024	1	1878	0	2732	0	3586	1	4440	0
171	1	1025	0	1879	1	2733	0	3587	1	4441	1
172	1	1026	1	1880	0	2734	0	3588	1	4442	0
173	1	1027	0	1881	1	2735	1	3589	1	4443	1
174	1	1028	0	1882	0	2736	1	3590	0	4444	0
175	1	1029	0	1883	0	2737	0	3591	0	4445	0
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177	0	1031	0	1885	0	2739	1	3593	1	4447	0
178	0	1032	1	1886	0	2740	1	3594	0	4448	0
179	0	1033	1	1887	0	2741	0	3595	0	4449	0
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181	0	1035	0	1889	0	2743	0	3597	1	4451	0
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183	1	1037	1	1891	0	2745	0	3599	0	4453	0
184	0	1038	0	1892	1	2746	1	3600	1	4454	0
185	0	1039	0	1893	1	2747	1	3601	1	4455	1
186	1	1040	0	1894	0	2748	0	3602	1	4456	1
187	1	1041	0	1895	1	2749	1	3603	0	4457	1
188	1	1042	1	1896	1	2750	1	3604	0	4458	1
189	0	1043	1	1897	0	2751	1	3605	1	4459	0
190	1	1044	0	1898	1	2752	0	3606	1	4460	1
191	1	1045	0	1899	1	2753	0	3607	1	4461	1
192	1	1046	1	1900	0	2754	0	3608	0	4462	0
193	1	1047	1	1901	1	2755	0	3609	1	4463	1
194	1	1048	0	1902	1	2756	0	3610	0	4464	1
195	1	1049	1	1903	1	2757	1	3611	1	4465	1
196	1	1050	1	1904	0	2758	0	3612	0	4466	1
197	1	1051	1	1905	1	2759	1	3613	0	4467	1
198	1	1052	0	1906	1	2760	1	3614	1	4468	0
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200	1	1054	1	1908	0	2762	0	3616	1	4470	0
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202	1	1056	0	1910	0	2764	1	3618	1	4472	1
203	1	1057	1	1911	1	2765	0	3619	1	4473	0
204	1	1058	1	1912	1	2766	1	3620	0	4474	0
205	0	1059	1	1913	0	2767	0	3621	1	4475	1
206	0	1060	1	1914	0	2768	0	3622	1	4476	1
207	0	1061	1	1915	1	2769	1	3623	0	4477	0
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209	0	1063	0	1917	0	2771	1	3625	0	4479	1
210	1	1064	0	1918	1	2772	0	3626	1	4480	1
211	1	1065	0	1919	1	2773	0	3627	0	4481	1
212	1	1066	0	1920	0	2774	1	3628	1	4482	1
213	1	1067	0	1921	0	2775	0	3629	1	4483	1
214	0	1068	1	1922	0	2776	1	3630	1	4484	1
215	1	1069	0	1923	0	2777	0	3631	0	4485	1
216	0	1070	1	1924	1	2778	1	3632	1	4486	0
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218	1	1072	0	1926	1	2780	0	3634	0	4488	0
219	0	1073	1	1927	1	2781	0	3635	1	4489	1
220	1	1074	0	1928	0	2782	0	3636	1	4490	0
221	0	1075	0	1929	0	2783	1	3637	0	4491	1
222	1	1076	0	1930	1	2784	1	3638	1	4492	0
223	1	1077	0	1931	1	2785	1	3639	0	4493	1
224	1	1078	1	1932	0	2786	1	3640	1	4494	0

225	0	1079	0	1933	1	2787	0	3641	1	4495	1
226	1	1080	0	1934	1	2788	0	3642	1	4496	0
227	1	1081	1	1935	1	2789	0	3643	0	4497	0
228	1	1082	1	1936	1	2790	0	3644	0	4498	1
229	1	1083	0	1937	1	2791	0	3645	1	4499	1
230	1	1084	0	1938	1	2792	1	3646	1	4500	1
231	0	1085	0	1939	1	2793	0	3647	1	4501	1
232	0	1086	1	1940	0	2794	1	3648	0	4502	1
233	1	1087	0	1941	0	2795	0	3649	1	4503	0
234	0	1088	0	1942	0	2796	0	3650	0	4504	0
235	1	1089	0	1943	0	2797	1	3651	1	4505	0
236	0	1090	0	1944	0	2798	0	3652	1	4506	0
237	0	1091	0	1945	0	2799	0	3653	0	4507	1
238	0	1092	0	1946	0	2800	1	3654	0	4508	0
239	0	1093	0	1947	1	2801	0	3655	0	4509	0
240	1	1094	0	1948	1	2802	1	3656	1	4510	0
241	0	1095	0	1949	0	2803	0	3657	0	4511	0
242	1	1096	1	1950	1	2804	0	3658	1	4512	0
243	0	1097	0	1951	1	2805	1	3659	0	4513	0
244	0	1098	0	1952	0	2806	1	3660	0	4514	1
245	0	1099	0	1953	0	2807	0	3661	0	4515	0
246	0	1100	0	1954	1	2808	1	3662	1	4516	0
247	1	1101	0	1955	1	2809	0	3663	1	4517	1
248	0	1102	1	1956	0	2810	1	3664	0	4518	1
249	0	1103	0	1957	0	2811	1	3665	1	4519	1
250	1	1104	1	1958	1	2812	1	3666	1	4520	1
251	1	1105	1	1959	0	2813	1	3667	1	4521	1
252	0	1106	1	1960	1	2814	1	3668	0	4522	0
253	1	1107	1	1961	0	2815	1	3669	1	4523	1
254	0	1108	1	1962	0	2816	1	3670	1	4524	1
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256	0	1110	1	1964	0	2818	0	3672	1	4526	1
257	1	1111	0	1965	0	2819	1	3673	0	4527	1
258	1	1112	0	1966	0	2820	0	3674	0	4528	1
259	1	1113	0	1967	1	2821	1	3675	1	4529	1
260	0	1114	1	1968	1	2822	1	3676	0	4530	0
261	1	1115	1	1969	1	2823	0	3677	1	4531	0
262	0	1116	1	1970	1	2824	1	3678	1	4532	0
263	0	1117	0	1971	1	2825	1	3679	0	4533	0
264	1	1118	0	1972	0	2826	1	3680	0	4534	0
265	0	1119	1	1973	1	2827	1	3681	1	4535	1
266	1	1120	1	1974	1	2828	1	3682	1	4536	1
267	1	1121	0	1975	1	2829	0	3683	0	4537	0
268	0	1122	0	1976	0	2830	1	3684	0	4538	1

269	1	1123	1	1977	1	2831	0	3685	1	4539	0
270	1	1124	0	1978	1	2832	1	3686	0	4540	1
271	0	1125	1	1979	1	2833	1	3687	0	4541	1
272	1	1126	1	1980	1	2834	1	3688	0	4542	1
273	0	1127	1	1981	1	2835	1	3689	1	4543	1
274	0	1128	0	1982	0	2836	0	3690	0	4544	0
275	0	1129	1	1983	1	2837	0	3691	1	4545	1
276	1	1130	0	1984	0	2838	0	3692	0	4546	1
277	1	1131	1	1985	1	2839	0	3693	0	4547	1
278	1	1132	1	1986	1	2840	1	3694	1	4548	1
279	1	1133	0	1987	1	2841	0	3695	0	4549	0
280	1	1134	1	1988	0	2842	1	3696	1	4550	1
281	0	1135	1	1989	0	2843	0	3697	0	4551	0
282	0	1136	1	1990	0	2844	1	3698	0	4552	0
283	1	1137	1	1991	1	2845	1	3699	1	4553	1
284	1	1138	0	1992	1	2846	1	3700	0	4554	0
285	1	1139	1	1993	0	2847	1	3701	0	4555	1
286	1	1140	1	1994	0	2848	1	3702	0	4556	1
287	0	1141	0	1995	1	2849	1	3703	0	4557	0
288	1	1142	0	1996	0	2850	1	3704	1	4558	0
289	0	1143	0	1997	0	2851	1	3705	1	4559	0
290	0	1144	0	1998	0	2852	0	3706	1	4560	1
291	1	1145	0	1999	0	2853	1	3707	1	4561	0
292	1	1146	0	2000	1	2854	1	3708	0	4562	0
293	0	1147	1	2001	0	2855	0	3709	1	4563	1
294	0	1148	1	2002	0	2856	0	3710	1	4564	1
295	0	1149	0	2003	1	2857	0	3711	0	4565	0
296	1	1150	1	2004	1	2858	0	3712	0	4566	1
297	1	1151	0	2005	1	2859	0	3713	1	4567	1
298	1	1152	1	2006	1	2860	0	3714	0	4568	1
299	1	1153	0	2007	1	2861	1	3715	1	4569	0
300	0	1154	0	2008	1	2862	0	3716	0	4570	0
301	0	1155	1	2009	1	2863	1	3717	1	4571	1
302	1	1156	1	2010	1	2864	1	3718	0	4572	0
303	1	1157	1	2011	0	2865	1	3719	0	4573	0
304	0	1158	0	2012	1	2866	0	3720	1	4574	0
305	1	1159	0	2013	1	2867	1	3721	0	4575	0
306	0	1160	0	2014	0	2868	0	3722	1	4576	0
307	1	1161	1	2015	0	2869	1	3723	1	4577	0
308	0	1162	1	2016	1	2870	0	3724	0	4578	1
309	0	1163	1	2017	0	2871	1	3725	1	4579	1
310	0	1164	1	2018	0	2872	0	3726	0	4580	1
311	0	1165	0	2019	0	2873	1	3727	1	4581	0
312	0	1166	1	2020	0	2874	0	3728	1	4582	1

313	0	1167	1	2021	1	2875	1	3729	0	4583	1
314	1	1168	0	2022	1	2876	0	3730	0	4584	0
315	1	1169	0	2023	1	2877	0	3731	0	4585	1
316	1	1170	1	2024	1	2878	0	3732	0	4586	0
317	1	1171	1	2025	1	2879	0	3733	1	4587	0
318	0	1172	1	2026	0	2880	1	3734	0	4588	0
319	1	1173	1	2027	0	2881	1	3735	1	4589	1
320	1	1174	1	2028	1	2882	0	3736	0	4590	0
321	1	1175	0	2029	1	2883	0	3737	0	4591	0
322	1	1176	1	2030	0	2884	0	3738	1	4592	1
323	1	1177	0	2031	1	2885	1	3739	1	4593	0
324	1	1178	0	2032	0	2886	1	3740	1	4594	0
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326	0	1180	1	2034	0	2888	0	3742	0	4596	0
327	1	1181	0	2035	0	2889	0	3743	1	4597	0
328	1	1182	0	2036	0	2890	0	3744	0	4598	0
329	1	1183	0	2037	0	2891	1	3745	1	4599	0
330	1	1184	0	2038	0	2892	0	3746	1	4600	1
331	0	1185	1	2039	0	2893	0	3747	1	4601	0
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333	1	1187	1	2041	1	2895	0	3749	0	4603	0
334	1	1188	0	2042	1	2896	1	3750	0	4604	1
335	0	1189	0	2043	0	2897	1	3751	1	4605	1
336	1	1190	0	2044	0	2898	0	3752	1	4606	1
337	0	1191	1	2045	0	2899	1	3753	0	4607	1
338	1	1192	0	2046	0	2900	0	3754	0	4608	1
339	1	1193	0	2047	1	2901	1	3755	0	4609	1
340	1	1194	0	2048	0	2902	0	3756	0	4610	0
341	1	1195	1	2049	0	2903	1	3757	1	4611	1
342	1	1196	1	2050	0	2904	1	3758	1	4612	1
343	1	1197	1	2051	0	2905	0	3759	1	4613	1
344	0	1198	0	2052	1	2906	0	3760	0	4614	0
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347	1	1201	1	2055	1	2909	1	3763	0	4617	0
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352	0	1206	0	2060	0	2914	1	3768	1	4622	1
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355	1	1209	1	2063	0	2917	0	3771	0	4625	0
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359	1	1213	1	2067	0	2921	0	3775	0	4629	1
360	0	1214	0	2068	0	2922	0	3776	0	4630	0
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366	1	1220	1	2074	1	2928	1	3782	0	4636	1
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371	1	1225	1	2079	0	2933	1	3787	1	4641	0
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400	0	1254	0	2108	1	2962	1	3816	1	4670	0

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409	1	1263	1	2117	1	2971	0	3825	1	4679	0
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411	1	1265	1	2119	0	2973	1	3827	1	4681	0
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413	1	1267	0	2121	0	2975	0	3829	0	4683	1
414	1	1268	1	2122	0	2976	0	3830	0	4684	1
415	0	1269	1	2123	1	2977	1	3831	1	4685	1
416	1	1270	0	2124	1	2978	1	3832	0	4686	0
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420	1	1274	0	2128	1	2982	1	3836	0	4690	1
421	0	1275	0	2129	0	2983	0	3837	0	4691	1
422	0	1276	0	2130	0	2984	0	3838	1	4692	0
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425	1	1279	0	2133	1	2987	1	3841	1	4695	1
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433	1	1287	1	2141	1	2995	0	3849	0	4703	1
434	1	1288	0	2142	0	2996	0	3850	1	4704	0
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436	1	1290	0	2144	1	2998	0	3852	1	4706	0
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439	0	1293	1	2147	1	3001	0	3855	0	4709	0
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453	1	1307	1	2161	1	3015	1	3869	1	4723	0
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457	1	1311	0	2165	0	3019	1	3873	1	4727	0
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547	1	1401	0	2255	1	3109	0	3963	0	4817	1
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