PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z^5 + z^4 + z^3 + z, z^2 + 1)$

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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 $(a,b) = (z^5 + z^4 + z^3 + z, z^2 + 1)$.

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* $(a,b)=(z^5+z^4+z^3+z, z^2+1)$*, the two power series* $\mathrm{CF}(a,b)$ *and* $\mathrm{CF}(b,a)$ *are algebraic over* $\mathbb{F}_2(z)$*, with minimal polynomials of the form*

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

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

$$\begin{aligned}
p_0(z)&=z^{17}+z^{16}+z^{15}+z^{12}+z^8+z^2+z+1,\\
p_1(z)&=z^{22}+z^{20}+z^{19}+z^{18}+z^{16}+z^{15}+z^6+z^3+z^2+z,\\
p_2(z)&=z^{24}+z^{20}+z^{16}+z^{14}+z^{12}+z^2,\\
p_3(z)&=z^{22}+z^{20}+z^{19}+z^{18}+z^{16}+z^{15}+z^6+z^3+z^2+z,\\
p_4(z)&=z^{20}+z^{17}+z^{16}+z^{15}+z^{14}+z^{12}+z^8+z^4+z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{17}+z^{15}+z^{12}+z^2+z,\\
p_1(z)&=z^{22}+z^{20}+z^{19}+z^{18}+z^{16}+z^{15}+z^6+z^3+z^2+z,\\
p_2(z)&=z^{24}+z^{20}+z^{16}+z^{14}+z^{12}+z^2,\\
p_3(z)&=z^{22}+z^{20}+z^{19}+z^{18}+z^{16}+z^{15}+z^6+z^3+z^2+z,\\
p_4(z)&=z^{20}+z^{17}+z^{15}+z^{14}+z^{12}+z^4+z+1.
\end{aligned}$$

2. Proof

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

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

By the basic properties of continued fractions, we have

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

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

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

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

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

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

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

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

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

for some positive integer d_n. Hence,

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

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

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

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

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

of the vector

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

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

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

Lemma 2.1. *We have*

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

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

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

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

Proof. We give the proof of the identity

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

the proofs of the others being similar.

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

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

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

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

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

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

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

Define

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

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

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

$$
\begin{aligned}
&+ x^{8u}M^e[:6u] + x^{10u}M^e[:4u] + x^{12u}M^e[:2u] \\
&+ (x^{7u}+x^{8u}+x^{9u}+x^{12u})R^e, \\
W^e[:14u] = {}& W^e[:7u] + x^uW^e[:6u] + x^{3u}W^e[:4u] + x^{4u}W^e[:3u] + x^{5u}W^e[:2u] \\
&+ x^{6u}W^e[:u] + x^uW^e[:7u] + x^{2u}W^e[:6u] + x^{4u}W^e[:4u] \\
&+ x^{5u}W^e[:3u] + x^{6u}W^e[:2u] + x^{7u}W^e[:u] + x^{2u}W^e[:7u] \\
&+ x^{3u}W^e[:6u] + x^{5u}W^e[:4u] + x^{6u}W^e[:3u] + x^{7u}W^e[:2u] \\
&+ x^{8u}W^e[:u] + x^{5u}W^e[:7u] + x^{6u}W^e[:6u] + x^{8u}W^e[:4u] \\
&+ x^{9u}W^e[:3u] + x^{10u}W^e[:2u] + x^{11u}W^e[:u] + x^{7u}W^e[:7u] \\
&+ x^{8u}W^e[:6u] + x^{10u}W^e[:4u] + x^{12u}W^e[:2u] \\
&+ (x^{7u}+x^{8u}+x^{9u}+x^{12u})R^e.
\end{aligned}
$$

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

$$
\begin{aligned}
M^o[:14u] = {}& M^o[:7u] + x^uM^o[:6u] + x^{3u}M^o[:4u] + x^{4u}M^o[:3u] + x^{5u}M^o[:2u] \\
&+ x^{6u}M^o[:u] + x^uM^o[:7u] + x^{2u}M^o[:6u] + x^{4u}M^o[:4u] \\
&+ x^{5u}M^o[:3u] + x^{6u}M^o[:2u] + x^{7u}M^o[:u] + x^{2u}M^o[:7u] \\
&+ x^{3u}M^o[:6u] + x^{5u}M^o[:4u] + x^{6u}M^o[:3u] + x^{7u}M^o[:2u] \\
&+ x^{8u}M^o[:u] + x^{5u}M^o[:7u] + x^{6u}M^o[:6u] + x^{8u}M^o[:4u] \\
&+ x^{9u}M^o[:3u] + x^{10u}M^o[:2u] + x^{11u}M^o[:u] + x^{7u}M^o[:7u] \\
&+ x^{8u}M^o[:6u] + x^{10u}M^o[:4u] + x^{12u}M^o[:2u] \\
&+ (x^{7u}+x^{8u}+x^{9u}+x^{12u})R^o, \\
W^o[:14u] = {}& W^o[:7u] + x^uW^o[:6u] + x^{3u}W^o[:4u] + x^{4u}W^o[:3u] + x^{5u}W^o[:2u] \\
&+ x^{6u}W^o[:u] + x^uW^o[:7u] + x^{2u}W^o[:6u] + x^{4u}W^o[:4u] \\
&+ x^{5u}W^o[:3u] + x^{6u}W^o[:2u] + x^{7u}W^o[:u] + x^{2u}W^o[:7u] \\
&+ x^{3u}W^o[:6u] + x^{5u}W^o[:4u] + x^{6u}W^o[:3u] + x^{7u}W^o[:2u] \\
&+ x^{8u}W^o[:u] + x^{5u}W^o[:7u] + x^{6u}W^o[:6u] + x^{8u}W^o[:4u] \\
&+ x^{9u}W^o[:3u] + x^{10u}W^o[:2u] + x^{11u}W^o[:u] + x^{7u}W^o[:7u] \\
&+ x^{8u}W^o[:6u] + x^{10u}W^o[:4u] + x^{12u}W^o[:2u] \\
&+ (x^{7u}+x^{8u}+x^{9u}+x^{12u})R^o.
\end{aligned}
$$

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

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

$$+ x^{10u}T[:4u] + x^{12u}T[:2u].$$

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

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

which can be rewritten as

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

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

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

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4606 states; its transition function and output function can be found in the annex. Let $A(s,w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

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

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

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

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

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

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{24}), E_{24}) = (A(i,0^{22}), E_{22})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \leq k \leq 12$, which turns out to be true. $\square$

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

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

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

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

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

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 $n \geq 2$, we claim that

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

We give the proof of

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Define

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

where

$$\begin{aligned}
q_0(x) &= x^{24} + x^{23} + x^{22} + x^{16} + x^{12} + x^9 + x^8 + x^7,\\
q_1(x) &= x^{23} + x^{22} + x^{21} + x^{18} + x^9 + x^8 + x^6 + x^5 + x^4 + x^2,\\
q_2(x) &= x^{22} + x^{12} + x^{10} + x^8 + x^4 + 1,\\
q_3(x) &= x^{23} + x^{22} + x^{21} + x^{18} + x^9 + x^8 + x^6 + x^5 + x^4 + x^2,\\
q_4(x) &= x^{23} + x^{20} + x^{16} + x^{12} + x^{10} + x^9 + x^8 + x^7 + x^4.
\end{aligned}$$

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

$$\begin{aligned}
p_0(x) &= x^{120} + x^{118} + x^{110} + x^{104} + x^{102} + x^{98} + x^{92} + x^{82} + x^{74} + x^{70} + x^{68} \\
&\quad + x^{66} + x^{62} + x^{60} + x^{58} + x^{56} + x^{48} + x^{46} + x^{44} + x^{42} + x^{32} + x^{28} \\
&\quad + x^{24}, \\
p_3(x) &= x^{112} + x^{110} + x^{108} + x^{106} + x^{102} + x^{100} + x^{96} + x^{82} + x^{80} + x^{76} \\
&\quad + x^{72} + x^{64} + x^{60} + x^{56} + x^{54} + x^{50} + x^{42} + x^{38} + x^{32} + x^{28} + x^{26} \\
&\quad + x^{20} + x^{18} + x^{16}, \\
p_6(x) &= x^{116} + x^{114} + x^{104} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{82} + x^{78} \\
&\quad + x^{68} + x^{62} + x^{58} + x^{56} + x^{52} + x^{50} + x^{48} + x^{46} + x^{42} + x^{40} + x^{36} \\
&\quad + x^{30} + x^{28} + x^{20} + x^{18} + x^{16} + x^{8} + x^{6} + 1, \\
p_9(x) &= x^{118} + x^{114} + x^{108} + x^{106} + x^{98} + x^{94} + x^{90} + x^{86} + x^{84} + x^{80} + x^{78} \\
&\quad + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{48} + x^{38} + x^{36} + x^{32} + x^{28} \\
&\quad + x^{26} + x^{16} + x^{14} + x^{12} + x^{8} + x^{4}, \\
p_{12}(x) &= x^{118} + x^{116} + x^{112} + x^{86} + x^{84} + x^{80} + x^{70} + x^{68} + x^{64} + x^{38} + x^{36} \\
&\quad + x^{32} + x^{22} + x^{20} + x^{16} + x^{6} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{127} + x^{125} + x^{121} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112} \\
&\quad + x^{109} + x^{108} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{95} + x^{94} + x^{92} \\
&\quad + x^{91} + x^{90} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{78} + x^{77} + x^{70} \\
&\quad + x^{69} + x^{68} + x^{60} + x^{55} + x^{54} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{45} \\
&\quad + x^{44} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{33}, \\
p_3(x) &= x^{127} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
&\quad + x^{109} + x^{108} + x^{105} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{89} + x^{88} \\
&\quad + x^{87} + x^{86} + x^{83} + x^{82} + x^{71} + x^{70} + x^{65} + x^{64} + x^{61} + x^{60} + x^{59} \\
&\quad + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{43} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27} \\
&\quad + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18}, \\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} \\
&\quad + x^{98} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{80} \\
&\quad + x^{78} + x^{77} + x^{76} + x^{70} + x^{67} + x^{65} + x^{62} + x^{61} + x^{60} + x^{54} + x^{51} \\
&\quad + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{32} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{16} + x^{14} \\
&\quad + x^{13} + x^{12},
\end{aligned}$$

$$
\begin{aligned}
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{113} + x^{112} \\
&\quad + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{100} + x^{97} + x^{96} \\
&\quad + x^{95} + x^{94} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{67} + x^{66} + x^{61} \\
&\quad + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} \\
&\quad + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{15} + x^{14} + x^{7} + x^{6}, \\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102} \\
&\quad + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81} \\
&\quad + x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} \\
&\quad + x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{40} + x^{38} + x^{37} + x^{34} + x^{33} \\
&\quad + x^{32} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5} \\
&\quad + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{127} + x^{125} + x^{121} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112} \\
&\quad + x^{109} + x^{108} + x^{107} + x^{105} + x^{104} + x^{102} + x^{101} + x^{95} + x^{94} + x^{92} \\
&\quad + x^{91} + x^{90} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{78} + x^{77} + x^{70} \\
&\quad + x^{69} + x^{68} + x^{60} + x^{55} + x^{54} + x^{52} + x^{51} + x^{49} + x^{48} + x^{47} + x^{45} \\
&\quad + x^{44} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{33}, \\
p_3(x) &= x^{127} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
&\quad + x^{109} + x^{108} + x^{105} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{89} + x^{88} \\
&\quad + x^{87} + x^{86} + x^{83} + x^{82} + x^{71} + x^{70} + x^{65} + x^{64} + x^{61} + x^{60} + x^{59} \\
&\quad + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{43} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27} \\
&\quad + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18}, \\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} \\
&\quad + x^{98} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{80} \\
&\quad + x^{78} + x^{77} + x^{76} + x^{70} + x^{67} + x^{65} + x^{62} + x^{61} + x^{60} + x^{54} + x^{51} \\
&\quad + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{32} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{16} + x^{14} \\
&\quad + x^{13} + x^{12}, \\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{113} + x^{112} \\
&\quad + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{100} + x^{97} + x^{96} \\
&\quad + x^{95} + x^{94} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{67} + x^{66} + x^{61} \\
&\quad + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27}\\
&+ x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{15} + x^{14} + x^{7} + x^{6},\\
p_{12}(x) = {}& x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}\\
&+ x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&+ x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54}\\
&+ x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{40} + x^{38} + x^{37} + x^{34} + x^{33}\\
&+ x^{32} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5}\\
&+ x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{138} + x^{134} + x^{132} + x^{128} + x^{126} + x^{122} + x^{116} + x^{114} + x^{110} + x^{108}\\
&+ x^{106} + x^{100} + x^{94} + x^{92} + x^{88} + x^{86} + x^{82} + x^{76} + x^{74} + x^{62} + x^{58}\\
&+ x^{56} + x^{48} + x^{46} + x^{42},\\
p_3(x) = {}& x^{132} + x^{128} + x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{114} + x^{108}\\
&+ x^{106} + x^{104} + x^{98} + x^{96} + x^{92} + x^{82} + x^{72} + x^{58} + x^{56} + x^{48} + x^{46}\\
&+ x^{44} + x^{42} + x^{36} + x^{32} + x^{30} + x^{28} + x^{26} + x^{22} + x^{20} + x^{14} + x^{12},\\
p_6(x) = {}& x^{132} + x^{130} + x^{128} + x^{126} + x^{124} + x^{122} + x^{108} + x^{106} + x^{104} + x^{102}\\
&+ x^{98} + x^{96} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{76} + x^{74} + x^{68} + x^{64}\\
&+ x^{62} + x^{60} + x^{56} + x^{52} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42} + x^{40} + x^{38}\\
&+ x^{34} + x^{32} + x^{30} + x^{22} + x^{16} + x^{14} + x^{12} + x^{10} + x^{6} + x^{4} + x^{2} + 1,\\
p_9(x) = {}& x^{130} + x^{126} + x^{124} + x^{122} + x^{120} + x^{114} + x^{112} + x^{106} + x^{104} + x^{102}\\
&+ x^{98} + x^{90} + x^{80} + x^{74} + x^{66} + x^{64} + x^{60} + x^{54} + x^{50} + x^{46} + x^{42}\\
&+ x^{40} + x^{30} + x^{24} + x^{18} + x^{16} + x^{12} + x^{10} + x^{6} + x^{4},\\
p_{12}(x) = {}& x^{130} + x^{128} + x^{106} + x^{104} + x^{90} + x^{88} + x^{58} + x^{56} + x^{42} + x^{40} + x^{18}\\
&+ x^{16} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{138} + x^{130} + x^{128} + x^{126} + x^{124} + x^{120} + x^{116} + x^{112} + x^{100} + x^{98}\\
&+ x^{90} + x^{88} + x^{80} + x^{68} + x^{64} + x^{58} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44}\\
&+ x^{40} + x^{38} + x^{36} + x^{30} + x^{26} + x^{24},\\
p_3(x) = {}& x^{132} + x^{126} + x^{118} + x^{114} + x^{110} + x^{108} + x^{104} + x^{94} + x^{90} + x^{86}\\
&+ x^{82} + x^{80} + x^{78} + x^{76} + x^{68} + x^{66} + x^{54} + x^{52} + x^{50} + x^{48} + x^{44}\\
&+ x^{42} + x^{40} + x^{38} + x^{30} + x^{24} + x^{22} + x^{16},\\
p_6(x) = {}& x^{132} + x^{130} + x^{124} + x^{122} + x^{118} + x^{104} + x^{102} + x^{98} + x^{96} + x^{94}\\
&+ x^{92} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{70} + x^{68} + x^{62} + x^{60} + x^{56}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{54} + x^{48} + x^{46} + x^{40} + x^{36} + x^{32} + x^{8} + x^{6} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{130} + x^{126} + x^{124} + x^{122} + x^{120} + x^{114} + x^{112} + x^{106} + x^{104} + x^{102}\\
&\quad + x^{98} + x^{90} + x^{80} + x^{74} + x^{66} + x^{64} + x^{60} + x^{54} + x^{50} + x^{46} + x^{42}\\
&\quad + x^{40} + x^{30} + x^{24} + x^{18} + x^{16} + x^{12} + x^{10} + x^{6} + x^{4},\\
p_{12}(x) &= x^{130} + x^{128} + x^{106} + x^{104} + x^{90} + x^{88} + x^{58} + x^{56} + x^{42} + x^{40} + x^{18}\\
&\quad + x^{16} + x^{10} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{126} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{114} + x^{113} + x^{112}\\
&\quad + x^{110} + x^{107} + x^{106} + x^{105} + x^{103} + x^{99} + x^{96} + x^{95} + x^{94} + x^{93}\\
&\quad + x^{92} + x^{91} + x^{89} + x^{87} + x^{84} + x^{83} + x^{79} + x^{78} + x^{77} + x^{76} + x^{75}\\
&\quad + x^{74} + x^{72} + x^{71} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64} + x^{62} + x^{59} + x^{58}\\
&\quad + x^{57} + x^{55} + x^{53} + x^{52} + x^{49} + x^{47} + x^{43} + x^{40} + x^{37} + x^{34} + x^{33},\\
p_3(x) &= x^{127} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114}\\
&\quad + x^{109} + x^{108} + x^{105} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{89} + x^{88}\\
&\quad + x^{87} + x^{86} + x^{83} + x^{82} + x^{71} + x^{70} + x^{65} + x^{64} + x^{61} + x^{60} + x^{59}\\
&\quad + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{43} + x^{42}\\
&\quad + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27}\\
&\quad + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18},\\
p_6(x) &= x^{126} + x^{123} + x^{121} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108}\\
&\quad + x^{98} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{80}\\
&\quad + x^{78} + x^{77} + x^{76} + x^{70} + x^{67} + x^{65} + x^{62} + x^{61} + x^{60} + x^{54} + x^{51}\\
&\quad + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{32}\\
&\quad + x^{30} + x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{16} + x^{14}\\
&\quad + x^{13} + x^{12},\\
p_9(x) &= x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{113} + x^{112}\\
&\quad + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{100} + x^{97} + x^{96}\\
&\quad + x^{95} + x^{94} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{67} + x^{66} + x^{61}\\
&\quad + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42}\\
&\quad + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27}\\
&\quad + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{15} + x^{14} + x^{7} + x^{6},\\
p_{12}(x) &= x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102}\\
&\quad + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81}\\
&\quad + x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54}\\
&\quad + x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{40} + x^{38} + x^{37} + x^{34} + x^{33}
\end{aligned}
$$

$$+ x^{32} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{129} + x^{126} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{114} + x^{113} + x^{112} \\
& + x^{110} + x^{107} + x^{106} + x^{105} + x^{103} + x^{99} + x^{96} + x^{95} + x^{94} + x^{93} \\
& + x^{92} + x^{91} + x^{89} + x^{87} + x^{84} + x^{83} + x^{79} + x^{78} + x^{77} + x^{76} + x^{75} \\
& + x^{74} + x^{72} + x^{71} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64} + x^{62} + x^{59} + x^{58} \\
& + x^{57} + x^{55} + x^{53} + x^{52} + x^{49} + x^{47} + x^{43} + x^{40} + x^{37} + x^{34} + x^{33}, \\
p_3(x) = {} & x^{127} + x^{126} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
& + x^{109} + x^{108} + x^{105} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{89} + x^{88} \\
& + x^{87} + x^{86} + x^{83} + x^{82} + x^{71} + x^{70} + x^{65} + x^{64} + x^{61} + x^{60} + x^{59} \\
& + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{51} + x^{50} + x^{49} + x^{48} + x^{43} + x^{42} \\
& + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{27} \\
& + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18}, \\
p_6(x) = {} & x^{126} + x^{123} + x^{121} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} \\
& + x^{98} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{87} + x^{84} + x^{83} + x^{82} + x^{80} \\
& + x^{78} + x^{77} + x^{76} + x^{70} + x^{67} + x^{65} + x^{62} + x^{61} + x^{60} + x^{54} + x^{51} \\
& + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{32} \\
& + x^{30} + x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{16} + x^{14} \\
& + x^{13} + x^{12}, \\
p_9(x) = {} & x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{113} + x^{112} \\
& + x^{109} + x^{108} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{100} + x^{97} + x^{96} \\
& + x^{95} + x^{94} + x^{81} + x^{80} + x^{77} + x^{76} + x^{75} + x^{74} + x^{67} + x^{66} + x^{61} \\
& + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} \\
& + x^{41} + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} \\
& + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{15} + x^{14} + x^{7} + x^{6}, \\
p_{12}(x) = {} & x^{124} + x^{122} + x^{121} + x^{120} + x^{112} + x^{110} + x^{109} + x^{106} + x^{105} + x^{102} \\
& + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{88} + x^{86} + x^{85} + x^{82} + x^{81} \\
& + x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{54} \\
& + x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{40} + x^{38} + x^{37} + x^{34} + x^{33} \\
& + x^{32} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{12} + x^{8} + x^{6} + x^{5} \\
& + x^{2} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{120} + x^{114} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104} + x^{102} + x^{100} + x^{96} \\
&\quad + x^{88} + x^{70} + x^{68} + x^{62} + x^{58} + x^{48} + x^{42}, \\
p_3(x) &= x^{116} + x^{110} + x^{108} + x^{106} + x^{102} + x^{100} + x^{92} + x^{84} + x^{82} + x^{80} \\
&\quad + x^{72} + x^{64} + x^{54} + x^{52} + x^{50} + x^{48} + x^{42} + x^{40} + x^{38} + x^{36} + x^{28} \\
&\quad + x^{26} + x^{20} + x^{18} + x^{16} + x^{12}, \\
p_6(x) &= x^{110} + x^{106} + x^{104} + x^{96} + x^{94} + x^{92} + x^{88} + x^{82} + x^{72} + x^{68} + x^{62} \\
&\quad + x^{60} + x^{56} + x^{54} + x^{50} + x^{48} + x^{44} + x^{42} + x^{40} + x^{32} + x^{30} + x^{28} \\
&\quad + x^{26} + x^{24} + x^{22} + x^{20} + x^{18} + x^{14} + x^{6} + 1, \\
p_9(x) &= x^{118} + x^{114} + x^{108} + x^{106} + x^{98} + x^{94} + x^{90} + x^{86} + x^{84} + x^{80} + x^{78} \\
&\quad + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{48} + x^{38} + x^{36} + x^{32} + x^{28} \\
&\quad + x^{26} + x^{16} + x^{14} + x^{12} + x^{8} + x^{4}, \\
p_{12}(x) &= x^{118} + x^{116} + x^{112} + x^{86} + x^{84} + x^{80} + x^{70} + x^{68} + x^{64} + x^{38} + x^{36} \\
&\quad + x^{32} + x^{22} + x^{20} + x^{16} + x^{6} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
&\quad + x^{113} + x^{109} + x^{108} + x^{106} + x^{103} + x^{98} + x^{97} + x^{92} + x^{89} + x^{86} \\
&\quad + x^{84} + x^{83} + x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} \\
&\quad + x^{71} + x^{65} + x^{64} + x^{63} + x^{61} + x^{60} + x^{58} + x^{56} + x^{55} + x^{53} + x^{50} \\
&\quad + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{38} + x^{36} \\
&\quad + x^{34} + x^{30} + x^{28} + x^{26} + x^{25} + x^{24}, \\
p_3(x) &= x^{128} + x^{127} + x^{124} + x^{123} + x^{121} + x^{120} + x^{119} + x^{114} + x^{111} + x^{110} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{95} + x^{93} + x^{90} + x^{86} \\
&\quad + x^{84} + x^{82} + x^{81} + x^{80} + x^{72} + x^{71} + x^{68} + x^{67} + x^{65} + x^{60} + x^{59} \\
&\quad + x^{58} + x^{57} + x^{56} + x^{54} + x^{50} + x^{49} + x^{45} + x^{40} + x^{38} + x^{34} + x^{33} \\
&\quad + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{25} + x^{24} + x^{22} + x^{20} + x^{18} + x^{17} \\
&\quad + x^{16}, \\
p_6(x) &= x^{128} + x^{127} + x^{124} + x^{122} + x^{119} + x^{117} + x^{114} + x^{113} + x^{112} + x^{111} \\
&\quad + x^{110} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{100} \\
&\quad + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{84} \\
&\quad + x^{80} + x^{79} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} \\
&\quad + x^{63} + x^{62} + x^{61} + x^{56} + x^{55} + x^{54} + x^{52} + x^{50} + x^{46} + x^{45} + x^{44} \\
&\quad + x^{42} + x^{41} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} + x^{28} + x^{25} + x^{23} \\
&\quad + x^{17} + x^{13} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}$$

$$
\begin{aligned}
p_9(x) &= x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{80} \\
&\quad + x^{78} + x^{77} + x^{74} + x^{73} + x^{70} + x^{69} + x^{66} + x^{65} + x^{64} + x^{56} + x^{54} \\
&\quad + x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{32} + x^{30} + x^{29} \\
&\quad + x^{26} + x^{25} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9} + x^{8}, \\
p_{12}(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110} \\
&\quad + x^{109} + x^{106} + x^{105} + x^{104} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} + x^{82} \\
&\quad + x^{81} + x^{78} + x^{77} + x^{76} + x^{72} + x^{70} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61} \\
&\quad + x^{58} + x^{57} + x^{56} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} \\
&\quad + x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} + x^{12} + x^{10} + x^{9} \\
&\quad + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} + x^{127} + x^{126} \\
&\quad + x^{123} + x^{122} + x^{119} + x^{118} + x^{114} + x^{111} + x^{110} + x^{108} + x^{106} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{100} + x^{99} + x^{93} + x^{92} + x^{90} + x^{87} + x^{86} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{72} \\
&\quad + x^{71} + x^{70} + x^{69} + x^{67} + x^{64} + x^{63} + x^{58} + x^{57} + x^{55} + x^{51} + x^{48} \\
&\quad + x^{46} + x^{45} + x^{43} + x^{42} + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33}, \\
p_3(x) &= x^{131} + x^{130} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121} + x^{118} \\
&\quad + x^{117} + x^{116} + x^{114} + x^{111} + x^{110} + x^{109} + x^{107} + x^{104} + x^{103} \\
&\quad + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{90} + x^{87} + x^{86} \\
&\quad + x^{85} + x^{82} + x^{75} + x^{74} + x^{72} + x^{71} + x^{70} + x^{68} + x^{65} + x^{64} + x^{63} \\
&\quad + x^{61} + x^{59} + x^{57} + x^{55} + x^{52} + x^{51} + x^{50} + x^{48} + x^{45} + x^{44} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{39} + x^{37} + x^{35} + x^{33} + x^{31} + x^{28} + x^{23} + x^{22} + x^{21} \\
&\quad + x^{18}, \\
p_6(x) &= x^{132} + x^{128} + x^{126} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{104} + x^{98} \\
&\quad + x^{96} + x^{94} + x^{90} + x^{88} + x^{84} + x^{80} + x^{78} + x^{72} + x^{70} + x^{68} + x^{64} \\
&\quad + x^{60} + x^{58} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42} + x^{38} + x^{30} + x^{28} + x^{26} \\
&\quad + x^{22} + x^{16} + x^{14} + x^{12}, \\
p_9(x) &= x^{133} + x^{132} + x^{131} + x^{128} + x^{127} + x^{126} + x^{125} + x^{122} + x^{113} + x^{112} \\
&\quad + x^{111} + x^{108} + x^{107} + x^{106} + x^{105} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} \\
&\quad + x^{94} + x^{93} + x^{92} + x^{91} + x^{89} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{79} \\
&\quad + x^{78} + x^{77} + x^{74} + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54} \\
&\quad + x^{53} + x^{52} + x^{51} + x^{49} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{38} + x^{37}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{36} + x^{35} + x^{32} + x^{31} + x^{30} + x^{29} + x^{26} + x^{21} + x^{20} + x^{19} + x^{17}\\
&+ x^{14} + x^{13} + x^{12} + x^{11} + x^{9} + x^{6},\\
p_{12}(x) &= x^{134} + x^{132} + x^{126} + x^{124} + x^{114} + x^{112} + x^{110} + x^{108} + x^{102} + x^{100}\\
&+ x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{66} + x^{64} + x^{62} + x^{60} + x^{54}\\
&+ x^{52} + x^{38} + x^{36} + x^{34} + x^{32} + x^{30} + x^{28} + x^{22} + x^{20} + x^{18} + x^{16}\\
&+ x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{126} + x^{125} + x^{124} + x^{120} + x^{117} + x^{116} + x^{115} + x^{114} + x^{112} + x^{104}\\
&+ x^{102} + x^{99} + x^{98} + x^{97} + x^{94} + x^{92} + x^{91} + x^{90} + x^{86} + x^{85} + x^{84}\\
&+ x^{83} + x^{79} + x^{78} + x^{77} + x^{76} + x^{75} + x^{73} + x^{72} + x^{70} + x^{69} + x^{66}\\
&+ x^{65} + x^{64} + x^{60} + x^{59} + x^{58} + x^{56} + x^{55} + x^{49} + x^{47} + x^{45} + x^{44}\\
&+ x^{42} + x^{41} + x^{38} + x^{36} + x^{35} + x^{33},\\
p_3(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{117} + x^{114} + x^{109} + x^{108} + x^{106}\\
&+ x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{93} + x^{90} + x^{85} + x^{84} + x^{82} + x^{69}\\
&+ x^{68} + x^{67} + x^{65} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{55} + x^{52} + x^{43}\\
&+ x^{42} + x^{41} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} + x^{31} + x^{28} + x^{21} + x^{20}\\
&+ x^{18},\\
p_6(x) &= x^{126} + x^{124} + x^{122} + x^{118} + x^{114} + x^{108} + x^{98} + x^{96} + x^{92} + x^{82}\\
&+ x^{80} + x^{76} + x^{70} + x^{68} + x^{66} + x^{60} + x^{54} + x^{52} + x^{50} + x^{44} + x^{42}\\
&+ x^{40} + x^{36} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24} + x^{20} + x^{18} + x^{16} + x^{12},\\
p_9(x) &= x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{115}\\
&+ x^{112} + x^{109} + x^{108} + x^{107} + x^{104} + x^{101} + x^{100} + x^{99} + x^{96} + x^{95}\\
&+ x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{86} + x^{79} + x^{78} + x^{76} + x^{75} + x^{74}\\
&+ x^{73} + x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} + x^{59} + x^{56} + x^{53}\\
&+ x^{52} + x^{51} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{38} + x^{31}\\
&+ x^{30} + x^{28} + x^{27} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15}\\
&+ x^{14} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6},\\
p_{12}(x) &= x^{128} + x^{124} + x^{120} + x^{104} + x^{92} + x^{76} + x^{72} + x^{56} + x^{44} + x^{28} + x^{24}\\
&+ x^{16} + x^{12} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114}\\
&+ x^{112} + x^{111} + x^{110} + x^{107} + x^{103} + x^{101} + x^{100} + x^{97} + x^{93} + x^{90}\\
&+ x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{73}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{72} + x^{71} + x^{61} + x^{59} + x^{56} + x^{55} + x^{54} + x^{49} + x^{48} + x^{47} + x^{44}\\
&+ x^{42},\\
p_3(x) &= x^{128} + x^{127} + x^{126} + x^{121} + x^{115} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110}\\
&+ x^{108} + x^{106} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{97} + x^{93} + x^{91}\\
&+ x^{90} + x^{89} + x^{88} + x^{86} + x^{72} + x^{71} + x^{70} + x^{65} + x^{64} + x^{63} + x^{62}\\
&+ x^{59} + x^{58} + x^{56} + x^{55} + x^{54} + x^{52} + x^{51} + x^{49} + x^{46} + x^{45} + x^{43}\\
&+ x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{34} + x^{32} + x^{30} + x^{29} + x^{27} + x^{26}\\
&+ x^{25} + x^{24} + x^{22},\\
p_6(x) &= x^{128} + x^{127} + x^{126} + x^{123} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112}\\
&+ x^{111} + x^{108} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{97} + x^{96} + x^{94}\\
&+ x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{79} + x^{78} + x^{75} + x^{73} + x^{72} + x^{71}\\
&+ x^{70} + x^{69} + x^{63} + x^{62} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54}\\
&+ x^{53} + x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} + x^{41} + x^{40} + x^{37}\\
&+ x^{36} + x^{32} + x^{29} + x^{28} + x^{26} + x^{25} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17}\\
&+ x^{13} + x^{12} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) &= x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112}\\
&+ x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{80}\\
&+ x^{78} + x^{77} + x^{74} + x^{73} + x^{70} + x^{69} + x^{66} + x^{65} + x^{64} + x^{56} + x^{54}\\
&+ x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{32} + x^{30} + x^{29}\\
&+ x^{26} + x^{25} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9} + x^{8},\\
p_{12}(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110}\\
&+ x^{109} + x^{106} + x^{105} + x^{104} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} + x^{82}\\
&+ x^{81} + x^{78} + x^{77} + x^{76} + x^{72} + x^{70} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61}\\
&+ x^{58} + x^{57} + x^{56} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} + x^{12} + x^{10} + x^{9}\\
&+ x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114}\\
&+ x^{113} + x^{109} + x^{108} + x^{106} + x^{103} + x^{98} + x^{97} + x^{92} + x^{89} + x^{86}\\
&+ x^{84} + x^{83} + x^{81} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72}\\
&+ x^{71} + x^{65} + x^{64} + x^{63} + x^{61} + x^{60} + x^{58} + x^{56} + x^{55} + x^{53} + x^{50}\\
&+ x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{38} + x^{36}\\
&+ x^{34} + x^{30} + x^{28} + x^{26} + x^{25} + x^{24},\\
p_3(x) &= x^{128} + x^{127} + x^{124} + x^{123} + x^{121} + x^{120} + x^{119} + x^{114} + x^{111} + x^{110}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{105} + x^{103} + x^{102} + x^{101} + x^{97} + x^{96} + x^{95} + x^{93} + x^{90} + x^{86} \\
&+ x^{84} + x^{82} + x^{81} + x^{80} + x^{72} + x^{71} + x^{68} + x^{67} + x^{65} + x^{60} + x^{59} \\
&+ x^{58} + x^{57} + x^{56} + x^{54} + x^{50} + x^{49} + x^{45} + x^{40} + x^{38} + x^{34} + x^{33} \\
&+ x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{25} + x^{24} + x^{22} + x^{20} + x^{18} + x^{17} \\
&+ x^{16}, \\
p_6(x) &= x^{128} + x^{127} + x^{124} + x^{122} + x^{119} + x^{117} + x^{114} + x^{113} + x^{112} + x^{111} \\
&+ x^{110} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{103} + x^{102} + x^{100} \\
&+ x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{84} \\
&+ x^{80} + x^{79} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} \\
&+ x^{63} + x^{62} + x^{61} + x^{56} + x^{55} + x^{54} + x^{52} + x^{50} + x^{46} + x^{45} + x^{44} \\
&+ x^{42} + x^{41} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} + x^{28} + x^{25} + x^{23} \\
&+ x^{17} + x^{13} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1, \\
p_9(x) &= x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112} \\
&+ x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{80} \\
&+ x^{78} + x^{77} + x^{74} + x^{73} + x^{70} + x^{69} + x^{66} + x^{65} + x^{64} + x^{56} + x^{54} \\
&+ x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{32} + x^{30} + x^{29} \\
&+ x^{26} + x^{25} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9} + x^{8}, \\
p_{12}(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110} \\
&+ x^{109} + x^{106} + x^{105} + x^{104} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} + x^{82} \\
&+ x^{81} + x^{78} + x^{77} + x^{76} + x^{72} + x^{70} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61} \\
&+ x^{58} + x^{57} + x^{56} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30} \\
&+ x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} + x^{12} + x^{10} + x^{9} \\
&+ x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{126} + x^{125} + x^{124} + x^{120} + x^{117} + x^{116} + x^{115} + x^{114} + x^{112} + x^{104} \\
&+ x^{102} + x^{99} + x^{98} + x^{97} + x^{94} + x^{92} + x^{91} + x^{90} + x^{86} + x^{85} + x^{84} \\
&+ x^{83} + x^{79} + x^{78} + x^{77} + x^{76} + x^{75} + x^{73} + x^{72} + x^{70} + x^{69} + x^{66} \\
&+ x^{65} + x^{64} + x^{60} + x^{59} + x^{58} + x^{56} + x^{55} + x^{49} + x^{47} + x^{45} + x^{44} \\
&+ x^{42} + x^{41} + x^{38} + x^{36} + x^{35} + x^{33}, \\
p_3(x) &= x^{125} + x^{124} + x^{123} + x^{121} + x^{119} + x^{117} + x^{114} + x^{109} + x^{108} + x^{106} \\
&+ x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{93} + x^{90} + x^{85} + x^{84} + x^{82} + x^{69} \\
&+ x^{68} + x^{67} + x^{65} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{55} + x^{52} + x^{43} \\
&+ x^{42} + x^{41} + x^{39} + x^{36} + x^{35} + x^{34} + x^{33} + x^{31} + x^{28} + x^{21} + x^{20} \\
&+ x^{18},
\end{aligned}
$$

$$\begin{aligned}
p_6(x) &= x^{126} + x^{124} + x^{122} + x^{118} + x^{114} + x^{108} + x^{98} + x^{96} + x^{92} + x^{82} \\
&\quad + x^{80} + x^{76} + x^{70} + x^{68} + x^{66} + x^{60} + x^{54} + x^{52} + x^{50} + x^{44} + x^{42} \\
&\quad + x^{40} + x^{36} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24} + x^{20} + x^{18} + x^{16} + x^{12}, \\
p_9(x) &= x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{115} \\
&\quad + x^{112} + x^{109} + x^{108} + x^{107} + x^{104} + x^{101} + x^{100} + x^{99} + x^{96} + x^{95} \\
&\quad + x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{86} + x^{79} + x^{78} + x^{76} + x^{75} + x^{74} \\
&\quad + x^{73} + x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} + x^{59} + x^{56} + x^{53} \\
&\quad + x^{52} + x^{51} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{38} + x^{31} \\
&\quad + x^{30} + x^{28} + x^{27} + x^{26} + x^{25} + x^{22} + x^{21} + x^{20} + x^{19} + x^{16} + x^{15} \\
&\quad + x^{14} + x^{13} + x^{10} + x^{9} + x^{8} + x^{6}, \\
p_{12}(x) &= x^{128} + x^{124} + x^{120} + x^{104} + x^{92} + x^{76} + x^{72} + x^{56} + x^{44} + x^{28} + x^{24} \\
&\quad + x^{16} + x^{12} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} + x^{127} + x^{126} \\
&\quad + x^{123} + x^{122} + x^{119} + x^{118} + x^{114} + x^{111} + x^{110} + x^{108} + x^{106} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{100} + x^{99} + x^{93} + x^{92} + x^{90} + x^{87} + x^{86} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{76} + x^{73} + x^{72} \\
&\quad + x^{71} + x^{70} + x^{69} + x^{67} + x^{64} + x^{63} + x^{58} + x^{57} + x^{55} + x^{51} + x^{48} \\
&\quad + x^{46} + x^{45} + x^{43} + x^{42} + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33}, \\
p_3(x) &= x^{131} + x^{130} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{122} + x^{121} + x^{118} \\
&\quad + x^{117} + x^{116} + x^{114} + x^{111} + x^{110} + x^{109} + x^{107} + x^{104} + x^{103} \\
&\quad + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{90} + x^{87} + x^{86} \\
&\quad + x^{85} + x^{82} + x^{75} + x^{74} + x^{72} + x^{71} + x^{70} + x^{68} + x^{65} + x^{64} + x^{63} \\
&\quad + x^{61} + x^{59} + x^{57} + x^{55} + x^{52} + x^{51} + x^{50} + x^{48} + x^{45} + x^{44} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{39} + x^{37} + x^{35} + x^{33} + x^{31} + x^{28} + x^{23} + x^{22} + x^{21} \\
&\quad + x^{18}, \\
p_6(x) &= x^{132} + x^{128} + x^{126} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{104} + x^{98} \\
&\quad + x^{96} + x^{94} + x^{90} + x^{88} + x^{84} + x^{80} + x^{78} + x^{72} + x^{70} + x^{68} + x^{64} \\
&\quad + x^{60} + x^{58} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42} + x^{38} + x^{30} + x^{28} + x^{26} \\
&\quad + x^{22} + x^{16} + x^{14} + x^{12}, \\
p_9(x) &= x^{133} + x^{132} + x^{131} + x^{128} + x^{127} + x^{126} + x^{125} + x^{122} + x^{113} + x^{112} \\
&\quad + x^{111} + x^{108} + x^{107} + x^{106} + x^{105} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} \\
&\quad + x^{94} + x^{93} + x^{92} + x^{91} + x^{89} + x^{86} + x^{85} + x^{84} + x^{83} + x^{80} + x^{79} \\
&\quad + x^{78} + x^{77} + x^{74} + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{53} + x^{52} + x^{51} + x^{49} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{38} + x^{37}\\
&+ x^{36} + x^{35} + x^{32} + x^{31} + x^{30} + x^{29} + x^{26} + x^{21} + x^{20} + x^{19} + x^{17}\\
&+ x^{14} + x^{13} + x^{12} + x^{11} + x^{9} + x^{6},\\
p_{12}(x) = {}& x^{134} + x^{132} + x^{126} + x^{124} + x^{114} + x^{112} + x^{110} + x^{108} + x^{102} + x^{100}\\
&+ x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{66} + x^{64} + x^{62} + x^{60} + x^{54}\\
&+ x^{52} + x^{38} + x^{36} + x^{34} + x^{32} + x^{30} + x^{28} + x^{22} + x^{20} + x^{18} + x^{16}\\
&+ x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{129} + x^{127} + x^{125} + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114}\\
&+ x^{112} + x^{111} + x^{110} + x^{107} + x^{103} + x^{101} + x^{100} + x^{97} + x^{93} + x^{90}\\
&+ x^{89} + x^{87} + x^{86} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{76} + x^{73}\\
&+ x^{72} + x^{71} + x^{61} + x^{59} + x^{56} + x^{55} + x^{54} + x^{49} + x^{48} + x^{47} + x^{44}\\
&+ x^{42},\\
p_3(x) = {}& x^{128} + x^{127} + x^{126} + x^{121} + x^{115} + x^{114} + x^{113} + x^{112} + x^{111} + x^{110}\\
&+ x^{108} + x^{106} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{97} + x^{93} + x^{91}\\
&+ x^{90} + x^{89} + x^{88} + x^{86} + x^{72} + x^{71} + x^{70} + x^{65} + x^{64} + x^{63} + x^{62}\\
&+ x^{59} + x^{58} + x^{56} + x^{55} + x^{54} + x^{52} + x^{51} + x^{49} + x^{46} + x^{45} + x^{43}\\
&+ x^{42} + x^{41} + x^{40} + x^{39} + x^{36} + x^{34} + x^{32} + x^{30} + x^{29} + x^{27} + x^{26}\\
&+ x^{25} + x^{24} + x^{22},\\
p_6(x) = {}& x^{128} + x^{127} + x^{126} + x^{123} + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112}\\
&+ x^{111} + x^{108} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{97} + x^{96} + x^{94}\\
&+ x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{79} + x^{78} + x^{75} + x^{73} + x^{72} + x^{71}\\
&+ x^{70} + x^{69} + x^{63} + x^{62} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54}\\
&+ x^{53} + x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{44} + x^{41} + x^{40} + x^{37}\\
&+ x^{36} + x^{32} + x^{29} + x^{28} + x^{26} + x^{25} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17}\\
&+ x^{13} + x^{12} + x^{8} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) = {}& x^{128} + x^{126} + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{112}\\
&+ x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{94} + x^{93} + x^{90} + x^{89} + x^{88} + x^{80}\\
&+ x^{78} + x^{77} + x^{74} + x^{73} + x^{70} + x^{69} + x^{66} + x^{65} + x^{64} + x^{56} + x^{54}\\
&+ x^{53} + x^{50} + x^{49} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{32} + x^{30} + x^{29}\\
&+ x^{26} + x^{25} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{10} + x^{9} + x^{8},\\
p_{12}(x) = {}& x^{128} + x^{126} + x^{125} + x^{124} + x^{120} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110}\\
&+ x^{109} + x^{106} + x^{105} + x^{104} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} + x^{82}\\
&+ x^{81} + x^{78} + x^{77} + x^{76} + x^{72} + x^{70} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61}
\end{aligned}
$$

$$+ x^{58} + x^{57} + x^{56} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{34} + x^{33} + x^{30}$$
$$+ x^{29} + x^{28} + x^{24} + x^{22} + x^{21} + x^{18} + x^{17} + x^{16} + x^{12} + x^{10} + x^{9}$$
$$+ x^{6} + x^{5} + x^{2} + x + 1,$$

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

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

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

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1152	[1651, 482]	2304	[2797, 2798]	3456	[1417, 3782]
1	[3, 4]	1153	[42, 476]	2305	[2526, 1597]	3457	[578, 50]
2	[5, 6]	1154	[1652, 1653]	2306	[2641, 1354]	3458	[698, 2534]
3	[7, 8]	1155	[1654, 1304]	2307	[1715, 540]	3459	[223, 236]
4	[9, 10]	1156	[1655, 1656]	2308	[2463, 655]	3460	[2744, 3490]
5	[11, 12]	1157	[1657, 1482]	2309	[2799, 2663]	3461	[3783, 3625]
6	[13, 14]	1158	[1658, 550]	2310	[1426, 1579]	3462	[3517, 1629]
7	[15, 16]	1159	[1659, 1660]	2311	[466, 2686]	3463	[3784, 2669]
8	[17, 18]	1160	[1299, 1661]	2312	[2800, 2789]	3464	[3785, 1712]
9	[19, 20]	1161	[749, 1467]	2313	[2801, 1474]	3465	[1582, 1721]
10	[21, 22]	1162	[1662, 553]	2314	[2469, 748]	3466	[2854, 38]
11	[23, 24]	1163	[1464, 596]	2315	[2802, 2448]	3467	[2727, 2596]
12	[25, 26]	1164	[1663, 1553]	2316	[476, 2638]	3468	[1654, 1697]
13	[27, 28]	1165	[204, 1506]	2317	[2803, 234]	3469	[3786, 2643]
14	[29, 30]	1166	[1664, 152]	2318	[2804, 184]	3470	[3787, 1425]
15	[31, 32]	1167	[1462, 1315]	2319	[2805, 2806]	3471	[3738, 758]
16	[33, 34]	1168	[1665, 569]	2320	[203, 2602]	3472	[2856, 1379]
17	[35, 36]	1169	[609, 570]	2321	[2807, 167]	3473	[55, 1428]
18	[37, 38]	1170	[1537, 482]	2322	[2808, 2473]	3474	[2713, 141]
19	[39, 40]	1171	[1470, 763]	2323	[2637, 2605]	3475	[3788, 3789]
20	[41, 42]	1172	[1346, 463]	2324	[669, 762]	3476	[3790, 3791]
21	[43, 44]	1173	[1666, 1390]	2325	[229, 183]	3477	[1079, 3792]
22	[45, 46]	1174	[1667, 1380]	2326	[2809, 61]	3478	[3793, 3794]
23	[47, 48]	1175	[505, 557]	2327	[2810, 543]	3479	[1220, 3795]
24	[49, 50]	1176	[732, 581]	2328	[2538, 642]	3480	[3796, 1820]
25	[51, 52]	1177	[1593, 1462]	2329	[2811, 1352]	3481	[3797, 3260]
26	[53, 54]	1178	[1668, 1669]	2330	[2648, 2564]	3482	[3798, 1855]
27	[55, 56]	1179	[1670, 719]	2331	[539, 655]	3483	[3799, 3800]
28	[57, 58]	1180	[1360, 1671]	2332	[2812, 1488]	3484	[3801, 3802]
29	[59, 60]	1181	[690, 1672]	2333	[589, 1431]	3485	[3803, 773]
30	[61, 62]	1182	[1673, 1674]	2334	[166, 503]	3486	[3804, 3805]
31	[63, 64]	1183	[1675, 729]	2335	[2813, 564]	3487	[3806, 3807]
32	[65, 66]	1184	[1676, 731]	2336	[2763, 465]	3488	[3808, 21]
33	[67, 68]	1185	[1586, 657]	2337	[1581, 1730]	3489	[3809, 812]
34	[69, 70]	1186	[1677, 563]	2338	[2814, 214]	3490	[1013, 1944]

35	[71, 72]	1187	[1678, 1449]	2339	[2815, 654]	3491	[3810, 2260]
36	[73, 74]	1188	[1540, 632]	2340	[2642, 2816]	3492	[3811, 3812]
37	[75, 76]	1189	[1679, 1281]	2341	[514, 36]	3493	[3813, 3814]
38	[77, 78]	1190	[1680, 630]	2342	[2817, 2716]	3494	[3815, 3816]
39	[79, 80]	1191	[1681, 767]	2343	[2818, 2673]	3495	[3817, 3818]
40	[81, 82]	1192	[54, 1489]	2344	[1718, 1729]	3496	[3819, 1149]
41	[83, 84]	1193	[1682, 1683]	2345	[2757, 2819]	3497	[3820, 1229]
42	[85, 86]	1194	[1672, 1344]	2346	[1522, 1571]	3498	[3821, 3822]
43	[87, 88]	1195	[642, 471]	2347	[1499, 169]	3499	[3823, 3824]
44	[89, 90]	1196	[1475, 579]	2348	[1719, 2513]	3500	[3825, 2950]
45	[91, 92]	1197	[531, 226]	2349	[2820, 2689]	3501	[3826, 1194]
46	[93, 94]	1198	[1684, 673]	2350	[2821, 1423]	3502	[3827, 2923]
47	[95, 96]	1199	[1685, 196]	2351	[2457, 1463]	3503	[3828, 3829]
48	[97, 98]	1200	[494, 1564]	2352	[1393, 14]	3504	[3830, 3831]
49	[99, 100]	1201	[1554, 1686]	2353	[2822, 498]	3505	[3832, 3833]
50	[101, 102]	1202	[1687, 706]	2354	[2823, 230]	3506	[3834, 3835]
51	[103, 104]	1203	[650, 1688]	2355	[1471, 491]	3507	[3836, 3837]
52	[105, 106]	1204	[664, 1689]	2356	[2563, 1447]	3508	[3838, 2245]
53	[107, 108]	1205	[527, 182]	2357	[558, 598]	3509	[3839, 3840]
54	[109, 110]	1206	[623, 193]	2358	[2824, 547]	3510	[3841, 2949]
55	[111, 112]	1207	[1367, 60]	2359	[2811, 1361]	3511	[3842, 3843]
56	[113, 114]	1208	[1690, 1622]	2360	[1449, 1354]	3512	[3844, 3845]
57	[115, 116]	1209	[1620, 711]	2361	[1286, 1486]	3513	[392, 3846]
58	[117, 118]	1210	[1466, 159]	2362	[2496, 704]	3514	[3847, 2322]
59	[119, 120]	1211	[1691, 1692]	2363	[2825, 547]	3515	[3848, 3077]
60	[121, 122]	1212	[58, 190]	2364	[2826, 180]	3516	[3849, 3850]
61	[123, 124]	1213	[1693, 1529]	2365	[2827, 2828]	3517	[3851, 2874]
62	[125, 126]	1214	[1694, 1695]	2366	[2579, 2602]	3518	[3852, 3348]
63	[127, 128]	1215	[1659, 1696]	2367	[209, 239]	3519	[1231, 3853]
64	[129, 130]	1216	[1303, 1697]	2368	[2814, 237]	3520	[3854, 3855]
65	[131, 132]	1217	[1698, 1699]	2369	[1702, 1388]	3521	[3856, 1101]
66	[133, 134]	1218	[1700, 1701]	2370	[2829, 2830]	3522	[3857, 3858]
67	[135, 136]	1219	[1663, 1702]	2371	[2442, 1292]	3523	[3859, 3860]
68	[137, 138]	1220	[128, 1703]	2372	[2831, 653]	3524	[3861, 3862]
69	[139, 40]	1221	[1316, 1337]	2373	[2832, 2631]	3525	[3863, 3864]
70	[140, 141]	1222	[718, 1704]	2374	[468, 2833]	3526	[3865, 3866]
71	[142, 143]	1223	[510, 654]	2375	[2722, 1299]	3527	[3867, 3868]
72	[144, 145]	1224	[43, 1705]	2376	[502, 167]	3528	[3142, 1980]
73	[146, 147]	1225	[715, 1706]	2377	[2471, 58]	3529	[3869, 3870]
74	[148, 149]	1226	[1707, 1708]	2378	[1372, 556]	3530	[3871, 3872]
75	[150, 151]	1227	[1709, 1638]	2379	[1685, 1395]	3531	[3873, 3874]
76	[152, 153]	1228	[1710, 1583]	2380	[2834, 1705]	3532	[3875, 3192]
77	[154, 155]	1229	[1711, 1712]	2381	[2770, 1569]	3533	[1901, 3876]
78	[156, 157]	1230	[1713, 1714]	2382	[2835, 1402]	3534	[928, 3877]

79	[158, 159]	1231	[1636, 1674]	2383	[2778, 2836]	3535	[2216, 3878]
80	[160, 161]	1232	[524, 1715]	2384	[2837, 2725]	3536	[3879, 1206]
81	[162, 163]	1233	[1716, 1388]	2385	[672, 2838]	3537	[3880, 1237]
82	[164, 165]	1234	[737, 739]	2386	[2839, 1423]	3538	[3881, 3882]
83	[166, 167]	1235	[1717, 485]	2387	[2781, 2840]	3539	[3883, 3884]
84	[168, 164]	1236	[569, 1609]	2388	[2841, 134]	3540	[3885, 3886]
85	[59, 169]	1237	[1650, 658]	2389	[2842, 130]	3541	[3318, 3887]
86	[170, 171]	1238	[1718, 1581]	2390	[1421, 1704]	3542	[3888, 3889]
87	[172, 173]	1239	[1719, 1400]	2391	[1405, 2843]	3543	[3890, 3891]
88	[139, 174]	1240	[1675, 1571]	2392	[672, 134]	3544	[2262, 786]
89	[175, 176]	1241	[1523, 1720]	2393	[2844, 2845]	3545	[3369, 2179]
90	[177, 178]	1242	[599, 165]	2394	[1603, 2712]	3546	[2990, 3892]
91	[179, 180]	1243	[239, 660]	2395	[2846, 1484]	3547	[259, 2028]
92	[181, 182]	1244	[1721, 1569]	2396	[2847, 188]	3548	[3893, 3894]
93	[183, 184]	1245	[1722, 1723]	2397	[1599, 633]	3549	[3895, 894]
94	[185, 186]	1246	[1724, 1725]	2398	[2848, 137]	3550	[3896, 3897]
95	[187, 188]	1247	[191, 694]	2399	[2849, 2565]	3551	[3898, 3899]
96	[189, 190]	1248	[758, 1369]	2400	[2850, 1715]	3552	[3900, 387]
97	[191, 192]	1249	[210, 660]	2401	[2851, 1470]	3553	[3901, 2032]
98	[193, 194]	1250	[724, 1726]	2402	[614, 612]	3554	[3902, 3404]
99	[195, 196]	1251	[1727, 1455]	2403	[2852, 2853]	3555	[3903, 3904]
100	[197, 198]	1252	[1664, 1728]	2404	[2854, 1638]	3556	[3905, 3906]
101	[128, 199]	1253	[1729, 1730]	2405	[2553, 2512]	3557	[841, 3907]
102	[200, 181]	1254	[1731, 1732]	2406	[2769, 1635]	3558	[3908, 1775]
103	[201, 202]	1255	[541, 204]	2407	[519, 2673]	3559	[3909, 1098]
104	[203, 204]	1256	[1733, 1734]	2408	[2855, 2570]	3560	[3910, 3911]
105	[205, 206]	1257	[1559, 667]	2409	[2676, 1388]	3561	[3912, 3913]
106	[207, 208]	1258	[1735, 167]	2410	[1563, 2605]	3562	[3914, 2909]
107	[209, 210]	1259	[1736, 1441]	2411	[2856, 1587]	3563	[3915, 3916]
108	[211, 212]	1260	[1737, 595]	2412	[611, 180]	3564	[3917, 3918]
109	[213, 214]	1261	[1393, 666]	2413	[2565, 484]	3565	[82, 3919]
110	[193, 215]	1262	[701, 1543]	2414	[2857, 1553]	3566	[3920, 3921]
111	[216, 217]	1263	[1533, 223]	2415	[2858, 40]	3567	[3922, 3923]
112	[218, 219]	1264	[1526, 658]	2416	[1394, 196]	3568	[3924, 1097]
113	[220, 221]	1265	[165, 564]	2417	[2536, 2816]	3569	[3925, 3926]
114	[222, 223]	1266	[706, 1688]	2418	[2859, 2765]	3570	[3927, 3065]
115	[224, 149]	1267	[1485, 1738]	2419	[2860, 2861]	3571	[3928, 3929]
116	[225, 226]	1268	[1672, 646]	2420	[1324, 2701]	3572	[3930, 3931]
117	[227, 149]	1269	[1546, 1526]	2421	[2862, 2863]	3573	[3932, 3933]
118	[227, 228]	1270	[1622, 556]	2422	[2864, 467]	3574	[3934, 3827]
119	[229, 230]	1271	[1355, 1615]	2423	[2865, 2866]	3575	[3935, 2318]
120	[231, 232]	1272	[1541, 1661]	2424	[2575, 1535]	3576	[3936, 935]
121	[233, 234]	1273	[638, 1448]	2425	[2618, 2534]	3577	[3937, 1050]
122	[141, 235]	1274	[633, 1726]	2426	[2527, 2708]	3578	[3938, 3939]

123	[236, 159]	1275	[1739, 1740]	2427	[2708, 651]	3579	[3940, 3941]
124	[237, 238]	1276	[1570, 729]	2428	[624, 1647]	3580	[2899, 3146]
125	[239, 240]	1277	[1741, 1725]	2429	[2440, 14]	3581	[3942, 3943]
126	[241, 164]	1278	[1384, 225]	2430	[2867, 612]	3582	[3944, 3945]
127	[242, 243]	1279	[1432, 226]	2431	[2868, 1674]	3583	[3946, 244]
128	[244, 245]	1280	[1742, 1743]	2432	[2869, 2870]	3584	[3947, 3931]
129	[246, 247]	1281	[1744, 895]	2433	[2871, 2872]	3585	[3948, 3949]
130	[248, 249]	1282	[1745, 449]	2434	[2873, 2874]	3586	[3950, 1945]
131	[250, 251]	1283	[1746, 1747]	2435	[2875, 2876]	3587	[3951, 2357]
132	[252, 253]	1284	[1748, 1749]	2436	[2877, 2878]	3588	[3952, 3360]
133	[254, 255]	1285	[1750, 1751]	2437	[2879, 1113]	3589	[3953, 3179]
134	[256, 257]	1286	[412, 1752]	2438	[2880, 2881]	3590	[3954, 3085]
135	[258, 259]	1287	[1753, 1754]	2439	[2882, 78]	3591	[3955, 3956]
136	[260, 261]	1288	[1755, 1756]	2440	[2883, 1120]	3592	[3957, 1145]
137	[262, 263]	1289	[257, 1757]	2441	[1842, 2884]	3593	[3958, 3959]
138	[264, 265]	1290	[1758, 1117]	2442	[2885, 2886]	3594	[3960, 2099]
139	[266, 267]	1291	[1759, 1760]	2443	[2887, 2888]	3595	[3961, 3962]
140	[268, 269]	1292	[328, 1761]	2444	[2889, 63]	3596	[3963, 1172]
141	[270, 271]	1293	[1762, 1763]	2445	[2890, 2891]	3597	[3964, 3965]
142	[272, 273]	1294	[1764, 1765]	2446	[1938, 2892]	3598	[3966, 3929]
143	[274, 275]	1295	[1766, 1767]	2447	[2893, 2894]	3599	[3967, 3968]
144	[276, 277]	1296	[1768, 1769]	2448	[2895, 2092]	3600	[3969, 2019]
145	[278, 279]	1297	[1770, 1771]	2449	[793, 2896]	3601	[3970, 774]
146	[280, 281]	1298	[1772, 904]	2450	[1002, 2897]	3602	[3971, 2130]
147	[282, 283]	1299	[1773, 1774]	2451	[2898, 2899]	3603	[3972, 787]
148	[74, 284]	1300	[1775, 1776]	2452	[2900, 2901]	3604	[2002, 3973]
149	[285, 286]	1301	[1777, 1778]	2453	[2902, 2903]	3605	[3974, 3975]
150	[287, 288]	1302	[1779, 1780]	2454	[2904, 2905]	3606	[3976, 280]
151	[289, 290]	1303	[1781, 1782]	2455	[2059, 2906]	3607	[1229, 1070]
152	[291, 292]	1304	[1783, 1784]	2456	[2907, 1757]	3608	[3977, 3978]
153	[293, 294]	1305	[1785, 1786]	2457	[2908, 2909]	3609	[3979, 3980]
154	[295, 296]	1306	[1787, 309]	2458	[2910, 2911]	3610	[3981, 3471]
155	[297, 298]	1307	[1788, 1789]	2459	[2912, 1856]	3611	[3982, 1173]
156	[299, 300]	1308	[1790, 1791]	2460	[2200, 2913]	3612	[3983, 313]
157	[301, 302]	1309	[806, 1792]	2461	[2914, 2915]	3613	[3984, 3985]
158	[303, 304]	1310	[962, 1242]	2462	[2916, 2313]	3614	[3986, 3987]
159	[305, 306]	1311	[1793, 1087]	2463	[2917, 1172]	3615	[3467, 2301]
160	[307, 308]	1312	[1794, 1795]	2464	[2918, 1251]	3616	[3988, 3989]
161	[309, 259]	1313	[1796, 1797]	2465	[2919, 1827]	3617	[1212, 333]
162	[310, 311]	1314	[1798, 939]	2466	[2920, 2921]	3618	[3990, 2311]
163	[312, 313]	1315	[1799, 1800]	2467	[2922, 886]	3619	[3991, 3992]
164	[314, 315]	1316	[1801, 1802]	2468	[2923, 378]	3620	[3993, 3994]
165	[316, 317]	1317	[896, 1803]	2469	[2924, 2925]	3621	[3995, 1224]
166	[318, 319]	1318	[1804, 949]	2470	[2926, 2927]	3622	[3996, 3997]

167	[320, 321]	1319	[1805, 1806]	2471	[895, 1907]	3623	[3998, 778]
168	[322, 74]	1320	[1807, 1808]	2472	[2928, 2929]	3624	[3999, 4000]
169	[323, 324]	1321	[1809, 806]	2473	[2930, 2931]	3625	[4001, 773]
170	[325, 326]	1322	[1810, 1811]	2474	[2932, 2933]	3626	[4002, 3265]
171	[327, 328]	1323	[1812, 1813]	2475	[2934, 2935]	3627	[4003, 1252]
172	[329, 330]	1324	[1814, 1815]	2476	[2936, 818]	3628	[4004, 67]
173	[331, 332]	1325	[1816, 1817]	2477	[2937, 2938]	3629	[4005, 3287]
174	[333, 334]	1326	[1818, 1819]	2478	[2939, 2940]	3630	[4006, 4007]
175	[335, 336]	1327	[1820, 1821]	2479	[2941, 2942]	3631	[4008, 381]
176	[337, 338]	1328	[1822, 1823]	2480	[2943, 2074]	3632	[4009, 3996]
177	[339, 340]	1329	[1824, 1825]	2481	[2944, 2945]	3633	[4010, 441]
178	[341, 342]	1330	[1826, 1827]	2482	[2946, 458]	3634	[3837, 4011]
179	[343, 344]	1331	[1828, 794]	2483	[2947, 2948]	3635	[4012, 912]
180	[345, 346]	1332	[1829, 1186]	2484	[2949, 2950]	3636	[4013, 882]
181	[347, 348]	1333	[1830, 101]	2485	[2224, 2951]	3637	[3215, 4014]
182	[349, 350]	1334	[1831, 309]	2486	[2952, 2953]	3638	[4015, 3380]
183	[351, 352]	1335	[1119, 1832]	2487	[2954, 2955]	3639	[2292, 1913]
184	[353, 354]	1336	[1833, 28]	2488	[2956, 2957]	3640	[4016, 423]
185	[355, 356]	1337	[1834, 1835]	2489	[2958, 1885]	3641	[88, 4017]
186	[357, 358]	1338	[1836, 1837]	2490	[2959, 2960]	3642	[18, 3013]
187	[359, 360]	1339	[1838, 1786]	2491	[2961, 2061]	3643	[4018, 4019]
188	[361, 362]	1340	[1839, 1840]	2492	[2962, 1000]	3644	[4020, 4021]
189	[363, 364]	1341	[1841, 1842]	2493	[2963, 2964]	3645	[4022, 3300]
190	[116, 314]	1342	[1843, 1844]	2494	[2965, 2966]	3646	[4023, 4024]
191	[365, 366]	1343	[1845, 1846]	2495	[2967, 2094]	3647	[4025, 2362]
192	[367, 368]	1344	[1847, 1848]	2496	[2968, 2969]	3648	[4026, 2350]
193	[369, 370]	1345	[1849, 1850]	2497	[1881, 2970]	3649	[4027, 4028]
194	[371, 372]	1346	[348, 1851]	2498	[2335, 1805]	3650	[4029, 3207]
195	[373, 374]	1347	[1852, 1853]	2499	[2971, 347]	3651	[4030, 4031]
196	[375, 376]	1348	[1854, 1234]	2500	[2972, 828]	3652	[4032, 4033]
197	[377, 378]	1349	[1855, 1856]	2501	[2973, 983]	3653	[4034, 4035]
198	[379, 380]	1350	[1857, 1004]	2502	[2357, 2974]	3654	[4036, 2131]
199	[243, 381]	1351	[1858, 1859]	2503	[2901, 2975]	3655	[4037, 1771]
200	[382, 349]	1352	[1860, 1030]	2504	[2976, 246]	3656	[4038, 1147]
201	[383, 384]	1353	[1861, 1777]	2505	[2977, 248]	3657	[4039, 1753]
202	[385, 386]	1354	[1862, 1863]	2506	[2978, 2979]	3658	[4040, 4041]
203	[387, 388]	1355	[1864, 1865]	2507	[1876, 981]	3659	[3043, 4042]
204	[389, 390]	1356	[1866, 284]	2508	[795, 2980]	3660	[4043, 3839]
205	[391, 392]	1357	[1867, 1868]	2509	[2981, 1944]	3661	[4044, 4045]
206	[393, 394]	1358	[1869, 1845]	2510	[2982, 2983]	3662	[4046, 1907]
207	[395, 396]	1359	[1870, 1871]	2511	[2984, 2194]	3663	[4047, 302]
208	[397, 81]	1360	[1872, 1873]	2512	[2985, 2986]	3664	[1179, 4048]
209	[398, 399]	1361	[1874, 956]	2513	[68, 2987]	3665	[4049, 4050]
210	[400, 401]	1362	[1875, 1876]	2514	[2988, 2989]	3666	[4051, 2254]

211	[402, 403]	1363	[1877, 834]	2515	[2275, 2990]	3667	[4052, 4053]
212	[404, 402]	1364	[1878, 1879]	2516	[2991, 2992]	3668	[4054, 4055]
213	[405, 406]	1365	[1880, 1881]	2517	[2993, 2994]	3669	[4056, 99]
214	[407, 408]	1366	[112, 1882]	2518	[2995, 1269]	3670	[4057, 93]
215	[409, 410]	1367	[1883, 1884]	2519	[2996, 2997]	3671	[4058, 3872]
216	[411, 412]	1368	[396, 1885]	2520	[2998, 2999]	3672	[4059, 1268]
217	[413, 414]	1369	[1886, 807]	2521	[3000, 1948]	3673	[4060, 4061]
218	[415, 416]	1370	[1887, 1888]	2522	[3001, 3002]	3674	[4062, 4063]
219	[417, 418]	1371	[1889, 93]	2523	[3003, 2416]	3675	[4064, 876]
220	[419, 420]	1372	[1890, 446]	2524	[3004, 3005]	3676	[4065, 4066]
221	[421, 422]	1373	[1891, 297]	2525	[3006, 3007]	3677	[4067, 3361]
222	[423, 424]	1374	[1892, 357]	2526	[3008, 3009]	3678	[4068, 2124]
223	[425, 426]	1375	[1893, 1894]	2527	[3010, 3011]	3679	[4069, 1901]
224	[427, 428]	1376	[1090, 1860]	2528	[3012, 2070]	3680	[802, 4070]
225	[429, 430]	1377	[1895, 1031]	2529	[3013, 3014]	3681	[4071, 2323]
226	[431, 432]	1378	[1896, 1897]	2530	[3015, 1080]	3682	[4072, 4073]
227	[433, 434]	1379	[1898, 1899]	2531	[3016, 3017]	3683	[4074, 3938]
228	[430, 435]	1380	[1900, 1901]	2532	[3018, 2371]	3684	[2176, 4075]
229	[436, 353]	1381	[1902, 1903]	2533	[3019, 3020]	3685	[4076, 4077]
230	[437, 438]	1382	[1904, 1905]	2534	[3021, 272]	3686	[4078, 4079]
231	[439, 440]	1383	[833, 1906]	2535	[3022, 3023]	3687	[4080, 2114]
232	[441, 442]	1384	[1907, 433]	2536	[3024, 2206]	3688	[4081, 4082]
233	[443, 444]	1385	[1908, 1909]	2537	[3025, 3026]	3689	[4083, 2117]
234	[445, 446]	1386	[1910, 1911]	2538	[3027, 875]	3690	[374, 453]
235	[447, 448]	1387	[1912, 1065]	2539	[3028, 3029]	3691	[4084, 3375]
236	[449, 450]	1388	[1913, 303]	2540	[3030, 3031]	3692	[4085, 1021]
237	[451, 452]	1389	[1914, 1915]	2541	[3032, 3033]	3693	[2057, 836]
238	[453, 454]	1390	[1916, 1203]	2542	[3034, 94]	3694	[4086, 4087]
239	[455, 456]	1391	[1917, 1918]	2543	[3035, 3036]	3695	[4088, 3251]
240	[399, 457]	1392	[1919, 1920]	2544	[1151, 3037]	3696	[4089, 2253]
241	[458, 427]	1393	[1921, 1922]	2545	[3038, 3039]	3697	[4090, 3876]
242	[459, 212]	1394	[1923, 1924]	2546	[3040, 1160]	3698	[4091, 3049]
243	[460, 461]	1395	[1925, 1926]	2547	[3041, 418]	3699	[1873, 4092]
244	[462, 463]	1396	[1927, 1928]	2548	[3042, 3043]	3700	[3348, 4093]
245	[464, 465]	1397	[1929, 23]	2549	[3044, 2112]	3701	[4094, 454]
246	[466, 467]	1398	[330, 1930]	2550	[281, 3045]	3702	[4095, 4096]
247	[468, 469]	1399	[935, 1931]	2551	[3046, 364]	3703	[4097, 857]
248	[470, 471]	1400	[1932, 1933]	2552	[3047, 3048]	3704	[4098, 4099]
249	[472, 473]	1401	[1934, 1935]	2553	[3049, 1932]	3705	[4100, 1927]
250	[474, 475]	1402	[1936, 1937]	2554	[884, 3050]	3706	[4101, 913]
251	[476, 156]	1403	[1140, 1938]	2555	[3051, 3052]	3707	[4102, 3355]
252	[477, 478]	1404	[1939, 1940]	2556	[2886, 3053]	3708	[4103, 3197]
253	[479, 480]	1405	[1941, 1942]	2557	[3054, 2141]	3709	[4104, 4105]
254	[481, 482]	1406	[1943, 1756]	2558	[3055, 3056]	3710	[4106, 2968]

255	[483, 484]	1407	[1944, 1945]	2559	[3057, 1028]	3711	[4093, 4107]
256	[485, 486]	1408	[1946, 1947]	2560	[3058, 3059]	3712	[4108, 1010]
257	[487, 488]	1409	[1195, 1948]	2561	[3060, 3061]	3713	[4109, 4110]
258	[489, 185]	1410	[1949, 387]	2562	[3062, 3063]	3714	[4111, 447]
259	[490, 491]	1411	[1950, 1951]	2563	[3064, 958]	3715	[4112, 4113]
260	[12, 492]	1412	[1952, 1953]	2564	[3052, 1993]	3716	[4114, 4115]
261	[14, 493]	1413	[1954, 1955]	2565	[3065, 3025]	3717	[4116, 4117]
262	[494, 200]	1414	[1761, 1956]	2566	[3066, 3067]	3718	[4118, 3221]
263	[495, 496]	1415	[1957, 1958]	2567	[3068, 79]	3719	[4119, 4120]
264	[497, 176]	1416	[1959, 1960]	2568	[3069, 1790]	3720	[4121, 4122]
265	[498, 44]	1417	[1961, 1962]	2569	[3070, 1149]	3721	[2431, 4123]
266	[499, 500]	1418	[1266, 938]	2570	[3071, 3072]	3722	[3206, 4124]
267	[169, 501]	1419	[1963, 1964]	2571	[3073, 1753]	3723	[4125, 1973]
268	[502, 503]	1420	[804, 887]	2572	[3074, 3075]	3724	[2933, 2999]
269	[504, 505]	1421	[30, 1965]	2573	[3076, 2075]	3725	[100, 4126]
270	[506, 507]	1422	[1966, 1967]	2574	[120, 3077]	3726	[3223, 2217]
271	[508, 171]	1423	[1968, 1969]	2575	[3078, 874]	3727	[4127, 2333]
272	[509, 199]	1424	[1970, 1971]	2576	[3079, 2234]	3728	[4128, 951]
273	[510, 42]	1425	[1972, 1973]	2577	[3080, 3081]	3729	[4129, 4130]
274	[511, 512]	1426	[1974, 1212]	2578	[3082, 369]	3730	[4131, 4132]
275	[513, 46]	1427	[1975, 1976]	2579	[2925, 3083]	3731	[4133, 2230]
276	[514, 515]	1428	[1977, 1978]	2580	[1162, 1126]	3732	[4134, 270]
277	[516, 517]	1429	[1979, 1980]	2581	[3084, 978]	3733	[4135, 2002]
278	[518, 519]	1430	[1981, 1982]	2582	[3085, 859]	3734	[4136, 4137]
279	[520, 521]	1431	[995, 1983]	2583	[3086, 3087]	3735	[4138, 4139]
280	[32, 522]	1432	[315, 1176]	2584	[3088, 280]	3736	[4140, 4141]
281	[519, 523]	1433	[1197, 422]	2585	[3089, 3090]	3737	[4142, 1906]
282	[524, 525]	1434	[1803, 1278]	2586	[3091, 3092]	3738	[3115, 1886]
283	[526, 527]	1435	[1984, 1985]	2587	[3093, 3094]	3739	[2909, 2120]
284	[528, 529]	1436	[1986, 814]	2588	[3095, 3096]	3740	[1253, 4143]
285	[530, 531]	1437	[1987, 1988]	2589	[3097, 115]	3741	[1806, 1833]
286	[532, 531]	1438	[1989, 1990]	2590	[64, 101]	3742	[2070, 2193]
287	[533, 534]	1439	[1991, 1932]	2591	[986, 2996]	3743	[3244, 88]
288	[535, 536]	1440	[1992, 1993]	2592	[3098, 3099]	3744	[4144, 4145]
289	[537, 538]	1441	[1994, 1995]	2593	[3100, 3101]	3745	[4146, 1832]
290	[539, 476]	1442	[1996, 1997]	2594	[3102, 3103]	3746	[4147, 2034]
291	[525, 540]	1443	[1998, 1999]	2595	[2422, 3104]	3747	[4148, 1844]
292	[527, 541]	1444	[2000, 1791]	2596	[2424, 3056]	3748	[4149, 69]
293	[490, 542]	1445	[2001, 2002]	2597	[3105, 3106]	3749	[4150, 2011]
294	[543, 488]	1446	[2003, 938]	2598	[3107, 2303]	3750	[4151, 892]
295	[544, 545]	1447	[1976, 2004]	2599	[3108, 2891]	3751	[4152, 4153]
296	[546, 469]	1448	[1767, 1760]	2600	[3109, 3110]	3752	[4154, 960]
297	[547, 548]	1449	[2005, 1222]	2601	[3111, 1877]	3753	[4155, 2117]
298	[549, 550]	1450	[2006, 2007]	2602	[893, 3112]	3754	[4156, 4157]

299	[551, 552]	1451	[2008, 2009]	2603	[3113, 915]	3755	[4158, 4159]
300	[553, 554]	1452	[2010, 2011]	2604	[3114, 3115]	3756	[4160, 3862]
301	[555, 556]	1453	[2012, 2013]	2605	[3116, 2869]	3757	[4161, 4162]
302	[557, 558]	1454	[1165, 2014]	2606	[3117, 3118]	3758	[4163, 3309]
303	[559, 552]	1455	[2015, 2016]	2607	[3119, 424]	3759	[4164, 1257]
304	[560, 561]	1456	[2017, 2018]	2608	[2094, 2356]	3760	[2407, 4165]
305	[167, 562]	1457	[839, 845]	2609	[3120, 1867]	3761	[4166, 404]
306	[563, 564]	1458	[2019, 1118]	2610	[3121, 389]	3762	[4167, 4168]
307	[565, 566]	1459	[903, 2020]	2611	[3122, 3123]	3763	[4169, 341]
308	[567, 568]	1460	[2021, 1266]	2612	[3124, 3125]	3764	[4170, 1847]
309	[569, 570]	1461	[2022, 2023]	2613	[3126, 3127]	3765	[4171, 4172]
310	[571, 572]	1462	[2024, 19]	2614	[3128, 859]	3766	[4173, 4174]
311	[573, 574]	1463	[1199, 2025]	2615	[3063, 3129]	3767	[4175, 4176]
312	[575, 576]	1464	[2026, 1008]	2616	[269, 1174]	3768	[3194, 4177]
313	[577, 578]	1465	[2027, 2028]	2617	[3130, 1764]	3769	[4178, 4179]
314	[149, 579]	1466	[424, 2029]	2618	[3131, 2134]	3770	[2915, 4180]
315	[226, 228]	1467	[1248, 2030]	2619	[3132, 3133]	3771	[4181, 1806]
316	[580, 226]	1468	[2031, 2032]	2620	[3134, 3135]	3772	[4182, 4183]
317	[581, 582]	1469	[2033, 2034]	2621	[3136, 244]	3773	[4184, 965]
318	[583, 584]	1470	[2035, 1954]	2622	[1123, 1054]	3774	[4185, 4186]
319	[585, 576]	1471	[2036, 2037]	2623	[2983, 3137]	3775	[4187, 2314]
320	[586, 587]	1472	[2038, 2039]	2624	[3138, 1990]	3776	[4188, 4189]
321	[588, 589]	1473	[2040, 2041]	2625	[3139, 249]	3777	[4190, 4191]
322	[590, 529]	1474	[2042, 2043]	2626	[3140, 1911]	3778	[4192, 1107]
323	[591, 592]	1475	[944, 1876]	2627	[3141, 3142]	3779	[4193, 4194]
324	[593, 568]	1476	[366, 1129]	2628	[3143, 2985]	3780	[4195, 4196]
325	[594, 595]	1477	[2044, 2045]	2629	[2390, 3144]	3781	[4197, 4198]
326	[214, 238]	1478	[2046, 2047]	2630	[3145, 3146]	3782	[2170, 2427]
327	[596, 597]	1479	[2048, 2049]	2631	[3147, 3148]	3783	[4199, 4200]
328	[598, 599]	1480	[2050, 2051]	2632	[3149, 1085]	3784	[4201, 4202]
329	[600, 170]	1481	[2052, 2053]	2633	[3150, 3151]	3785	[4203, 3877]
330	[601, 602]	1482	[2054, 2055]	2634	[3152, 3153]	3786	[4204, 2241]
331	[603, 604]	1483	[2056, 2057]	2635	[422, 458]	3787	[4205, 4206]
332	[605, 505]	1484	[2058, 2059]	2636	[3154, 3155]	3788	[3641, 2819]
333	[606, 607]	1485	[2060, 2061]	2637	[3156, 3061]	3789	[4207, 1402]
334	[190, 598]	1486	[2062, 2063]	2638	[86, 3157]	3790	[3781, 3508]
335	[608, 609]	1487	[271, 2064]	2639	[3158, 1960]	3791	[3759, 3528]
336	[610, 491]	1488	[2065, 897]	2640	[3159, 3160]	3792	[4208, 50]
337	[611, 566]	1489	[108, 2066]	2641	[3161, 2955]	3793	[4209, 616]
338	[612, 208]	1490	[2067, 2068]	2642	[3162, 2220]	3794	[2510, 1315]
339	[613, 614]	1491	[2069, 2070]	2643	[2104, 1236]	3795	[1702, 593]
340	[39, 174]	1492	[2071, 2072]	2644	[3163, 3164]	3796	[3649, 2828]
341	[615, 616]	1493	[787, 2073]	2645	[3165, 851]	3797	[481, 1538]
342	[617, 178]	1494	[2074, 2075]	2646	[3166, 2090]	3798	[623, 2508]

343	[618, 619]	1495	[2076, 1140]	2647	[3167, 3168]	3799	[2696, 4210]
344	[620, 48]	1496	[2077, 2078]	2648	[3169, 3170]	3800	[4211, 3756]
345	[621, 622]	1497	[2079, 1182]	2649	[3171, 3172]	3801	[4212, 690]
346	[473, 623]	1498	[2080, 2081]	2650	[3173, 3148]	3802	[3636, 471]
347	[506, 624]	1499	[2082, 2083]	2651	[3174, 3175]	3803	[3586, 214]
348	[625, 62]	1500	[2084, 2085]	2652	[3176, 1888]	3804	[1627, 3752]
349	[626, 58]	1501	[2086, 1763]	2653	[1795, 3177]	3805	[2766, 4213]
350	[162, 461]	1502	[2087, 2088]	2654	[3178, 3179]	3806	[4214, 4215]
351	[627, 628]	1503	[2089, 2090]	2655	[3180, 3181]	3807	[2451, 1642]
352	[629, 630]	1504	[2091, 1072]	2656	[3182, 1185]	3808	[4216, 3681]
353	[631, 632]	1505	[2092, 2093]	2657	[2969, 3183]	3809	[2443, 1356]
354	[633, 634]	1506	[350, 2094]	2658	[3129, 2013]	3810	[1530, 1466]
355	[635, 628]	1507	[2095, 2096]	2659	[3184, 3185]	3811	[3514, 2536]
356	[636, 637]	1508	[2097, 2098]	2660	[3186, 3187]	3812	[3670, 45]
357	[638, 639]	1509	[2099, 2100]	2661	[3188, 1784]	3813	[2516, 2749]
358	[584, 640]	1510	[953, 898]	2662	[3189, 3190]	3814	[4217, 4218]
359	[641, 642]	1511	[2101, 2102]	2663	[3191, 3192]	3815	[3556, 642]
360	[643, 644]	1512	[2103, 2104]	2664	[3193, 3194]	3816	[3569, 1600]
361	[571, 221]	1513	[2105, 29]	2665	[3195, 3196]	3817	[2477, 4219]
362	[645, 646]	1514	[1774, 2106]	2666	[1148, 3197]	3818	[4220, 4213]
363	[590, 647]	1515	[388, 1050]	2667	[3198, 1005]	3819	[4221, 2587]
364	[648, 579]	1516	[2107, 298]	2668	[3199, 3200]	3820	[3599, 515]
365	[649, 650]	1517	[2108, 2109]	2669	[3201, 945]	3821	[4222, 3557]
366	[231, 651]	1518	[2110, 22]	2670	[3202, 3203]	3822	[2592, 2672]
367	[652, 653]	1519	[2111, 2112]	2671	[3204, 2062]	3823	[4223, 4224]
368	[654, 655]	1520	[2072, 2113]	2672	[3205, 3206]	3824	[478, 3680]
369	[656, 194]	1521	[1800, 2114]	2673	[876, 3059]	3825	[2773, 1644]
370	[657, 658]	1522	[2115, 2116]	2674	[3207, 3208]	3826	[2812, 743]
371	[659, 660]	1523	[2117, 2118]	2675	[3209, 3210]	3827	[208, 670]
372	[564, 505]	1524	[2119, 2120]	2676	[3211, 807]	3828	[3555, 3645]
373	[661, 662]	1525	[2121, 257]	2677	[3212, 3213]	3829	[1698, 1457]
374	[663, 486]	1526	[2122, 2123]	2678	[3214, 3215]	3830	[2691, 185]
375	[664, 665]	1527	[960, 2124]	2679	[2112, 3216]	3831	[2650, 1294]
376	[666, 667]	1528	[2125, 2126]	2680	[1928, 2994]	3832	[1555, 2567]
377	[668, 669]	1529	[2127, 2128]	2681	[3217, 2006]	3833	[235, 128]
378	[670, 40]	1530	[1956, 305]	2682	[3218, 255]	3834	[2447, 2806]
379	[671, 672]	1531	[2129, 2130]	2683	[3219, 1813]	3835	[127, 1313]
380	[673, 512]	1532	[2131, 2132]	2684	[3220, 3221]	3836	[3616, 3703]
381	[212, 212]	1533	[1920, 2133]	2685	[3222, 3223]	3837	[535, 1421]
382	[603, 162]	1534	[819, 2045]	2686	[3224, 1192]	3838	[2829, 4225]
383	[674, 675]	1535	[2134, 2135]	2687	[3225, 294]	3839	[1329, 688]
384	[676, 677]	1536	[2136, 1766]	2688	[3226, 2342]	3840	[3777, 2833]
385	[678, 679]	1537	[2137, 1749]	2689	[3227, 2275]	3841	[1511, 137]
386	[680, 215]	1538	[2138, 770]	2690	[3228, 2129]	3842	[2640, 545]

387	[212, 211]	1539	[2139, 2140]	2691	[3229, 3230]	3843	[3561, 4218]
388	[606, 681]	1540	[2141, 2142]	2692	[3231, 783]	3844	[3719, 498]
389	[682, 683]	1541	[2143, 2092]	2693	[3232, 3233]	3845	[3686, 1562]
390	[684, 465]	1542	[2144, 2145]	2694	[909, 3234]	3846	[4217, 3562]
391	[685, 686]	1543	[2146, 898]	2695	[1175, 3235]	3847	[2659, 1462]
392	[687, 688]	1544	[2147, 1857]	2696	[3236, 3237]	3848	[1623, 230]
393	[689, 690]	1545	[2148, 845]	2697	[3238, 1126]	3849	[4226, 675]
394	[691, 692]	1546	[2149, 2150]	2698	[3239, 2406]	3850	[4227, 3598]
395	[693, 694]	1547	[2151, 312]	2699	[3240, 2404]	3851	[4228, 3712]
396	[695, 696]	1548	[2152, 2153]	2700	[3241, 3242]	3852	[178, 2679]
397	[697, 164]	1549	[2154, 922]	2701	[3243, 2996]	3853	[1401, 2777]
398	[698, 699]	1550	[1033, 1914]	2702	[3106, 3244]	3854	[3479, 4229]
399	[218, 700]	1551	[1819, 2155]	2703	[3245, 3246]	3855	[4230, 2508]
400	[701, 702]	1552	[2156, 1060]	2704	[3247, 2375]	3856	[4231, 1329]
401	[703, 704]	1553	[2157, 961]	2705	[3248, 2917]	3857	[4232, 4233]
402	[581, 532]	1554	[2133, 2158]	2706	[3249, 3250]	3858	[3746, 3538]
403	[228, 579]	1555	[2159, 2160]	2707	[3251, 3252]	3859	[4234, 2794]
404	[224, 228]	1556	[2161, 1073]	2708	[3253, 3254]	3860	[4235, 1582]
405	[705, 706]	1557	[2162, 2163]	2709	[1931, 904]	3861	[2668, 3662]
406	[707, 708]	1558	[2164, 2165]	2710	[3255, 3256]	3862	[1637, 38]
407	[233, 709]	1559	[2166, 906]	2711	[3257, 3258]	3863	[1463, 2623]
408	[42, 655]	1560	[2167, 2168]	2712	[3259, 3260]	3864	[3734, 2590]
409	[596, 710]	1561	[2169, 2170]	2713	[3261, 126]	3865	[2719, 1565]
410	[563, 711]	1562	[2171, 2172]	2714	[2343, 3262]	3866	[4236, 666]
411	[712, 713]	1563	[2173, 2174]	2715	[3263, 1196]	3867	[4237, 1732]
412	[714, 715]	1564	[2175, 2176]	2716	[3264, 1165]	3868	[2615, 2556]
413	[716, 717]	1565	[2177, 2178]	2717	[3250, 3265]	3869	[1548, 490]
414	[718, 719]	1566	[2179, 1796]	2718	[3266, 3267]	3870	[3638, 765]
415	[720, 721]	1567	[1209, 2180]	2719	[3170, 3268]	3871	[668, 1669]
416	[722, 723]	1568	[2181, 2182]	2720	[3269, 328]	3872	[2556, 1414]
417	[724, 634]	1569	[2183, 2184]	2721	[3270, 3271]	3873	[533, 1732]
418	[725, 48]	1570	[2185, 2186]	2722	[3272, 1779]	3874	[3617, 670]
419	[726, 727]	1571	[2187, 2188]	2723	[2955, 3273]	3875	[2831, 1607]
420	[728, 729]	1572	[2189, 2190]	2724	[3274, 3275]	3876	[2562, 1282]
421	[730, 731]	1573	[1278, 1010]	2725	[3276, 2331]	3877	[1461, 1418]
422	[732, 733]	1574	[2191, 2192]	2726	[3277, 106]	3878	[4238, 1454]
423	[734, 507]	1575	[2193, 2194]	2727	[3278, 3279]	3879	[1660, 4239]
424	[735, 595]	1576	[2195, 2196]	2728	[2004, 3007]	3880	[4240, 687]
425	[736, 211]	1577	[2197, 2198]	2729	[1930, 3280]	3881	[4241, 2749]
426	[188, 597]	1578	[2199, 2200]	2730	[3281, 3282]	3882	[2703, 3615]
427	[733, 582]	1579	[2201, 1896]	2731	[931, 3283]	3883	[4242, 4224]
428	[737, 738]	1580	[2202, 971]	2732	[3284, 3285]	3884	[3728, 1700]
429	[579, 529]	1581	[2203, 2204]	2733	[3286, 1279]	3885	[3539, 4243]
430	[739, 738]	1582	[2205, 2183]	2734	[3287, 3288]	3886	[4244, 33]

431	[529, 733]	1583	[2206, 2207]	2735	[1133, 3289]	3887	[3563, 2684]
432	[647, 581]	1584	[2208, 2209]	2736	[3290, 2181]	3888	[3495, 3583]
433	[740, 647]	1585	[2210, 2211]	2737	[3291, 3292]	3889	[3718, 1323]
434	[582, 531]	1586	[2212, 1104]	2738	[2102, 3103]	3890	[3765, 3592]
435	[529, 581]	1587	[2213, 2214]	2739	[3293, 3294]	3891	[1322, 2699]
436	[741, 633]	1588	[2215, 2216]	2740	[1108, 2192]	3892	[2754, 1723]
437	[742, 743]	1589	[2217, 2218]	2741	[3295, 3296]	3893	[4245, 2519]
438	[744, 745]	1590	[2219, 2220]	2742	[3297, 2386]	3894	[4246, 145]
439	[746, 747]	1591	[2221, 2222]	2743	[2377, 3298]	3895	[4247, 147]
440	[748, 749]	1592	[2223, 2224]	2744	[3299, 3300]	3896	[4248, 1304]
441	[631, 750]	1593	[2225, 1799]	2745	[3301, 3302]	3897	[616, 2838]
442	[584, 751]	1594	[2226, 994]	2746	[3303, 3304]	3898	[3619, 4249]
443	[752, 753]	1595	[1260, 2227]	2747	[3305, 3306]	3899	[480, 2450]
444	[754, 755]	1596	[2228, 275]	2748	[3307, 3116]	3900	[4250, 604]
445	[548, 756]	1597	[2229, 2230]	2749	[3308, 3309]	3901	[2461, 3646]
446	[550, 223]	1598	[2231, 1916]	2750	[3310, 1966]	3902	[2822, 2834]
447	[57, 557]	1599	[2232, 2233]	2751	[3311, 1181]	3903	[4251, 4249]
448	[757, 681]	1600	[966, 2234]	2752	[3312, 3313]	3904	[4252, 2638]
449	[758, 759]	1601	[2118, 2235]	2753	[3061, 3314]	3905	[4253, 498]
450	[237, 760]	1602	[2236, 2237]	2754	[3315, 3316]	3906	[3529, 1728]
451	[591, 761]	1603	[2238, 2239]	2755	[3317, 379]	3907	[1312, 612]
452	[762, 763]	1604	[2240, 2241]	2756	[1138, 3318]	3908	[4254, 1563]
453	[662, 651]	1605	[2242, 2243]	2757	[874, 3319]	3909	[3741, 1467]
454	[764, 765]	1606	[2244, 2245]	2758	[3320, 3321]	3910	[4255, 2628]
455	[766, 767]	1607	[2246, 1106]	2759	[3322, 3323]	3911	[2456, 2473]
456	[573, 589]	1608	[2247, 2218]	2760	[3324, 2042]	3912	[2493, 3645]
457	[699, 692]	1609	[1024, 2248]	2761	[3325, 3326]	3913	[3786, 46]
458	[768, 532]	1610	[2249, 2250]	2762	[3327, 3328]	3914	[3770, 2740]
459	[432, 404]	1611	[2251, 2252]	2763	[3329, 3304]	3915	[35, 515]
460	[769, 770]	1612	[1765, 2253]	2764	[3330, 3331]	3916	[4256, 2671]
461	[771, 772]	1613	[2254, 2255]	2765	[3332, 2886]	3917	[3717, 4257]
462	[773, 774]	1614	[2256, 1046]	2766	[3333, 2211]	3918	[3497, 3756]
463	[775, 447]	1615	[2257, 428]	2767	[3334, 3321]	3919	[4258, 1447]
464	[776, 777]	1616	[2258, 2259]	2768	[3335, 3336]	3920	[3667, 699]
465	[778, 779]	1617	[2260, 1210]	2769	[3337, 3338]	3921	[3513, 1448]
466	[780, 781]	1618	[2261, 2262]	2770	[2230, 3339]	3922	[3682, 2843]
467	[782, 783]	1619	[2263, 1962]	2771	[3340, 1161]	3923	[3749, 3547]
468	[784, 785]	1620	[897, 1279]	2772	[3341, 1146]	3924	[1539, 628]
469	[786, 787]	1621	[2264, 942]	2773	[3342, 3343]	3925	[2625, 721]
470	[788, 789]	1622	[2265, 2266]	2774	[3344, 3345]	3926	[686, 3671]
471	[790, 791]	1623	[2267, 2268]	2775	[3346, 877]	3927	[630, 1467]
472	[792, 793]	1624	[2269, 85]	2776	[3347, 3348]	3928	[2852, 2715]
473	[794, 795]	1625	[2270, 800]	2777	[3349, 3350]	3929	[3716, 3733]
474	[796, 797]	1626	[1906, 2271]	2778	[3351, 3352]	3930	[2734, 1493]

475	[798, 799]	1627	[2272, 2273]	2779	[3353, 3354]	3931	[4259, 521]
476	[800, 301]	1628	[2274, 2275]	2780	[3355, 3356]	3932	[3477, 1651]
477	[801, 802]	1629	[2276, 1935]	2781	[3357, 3358]	3933	[4236, 14]
478	[803, 804]	1630	[2277, 2278]	2782	[3359, 3360]	3934	[4260, 2578]
479	[805, 806]	1631	[2279, 2280]	2783	[772, 2921]	3935	[3773, 609]
480	[807, 808]	1632	[2281, 2282]	2784	[1844, 3168]	3936	[1427, 56]
481	[809, 810]	1633	[2283, 1019]	2785	[3210, 921]	3937	[1735, 503]
482	[811, 812]	1634	[2284, 2285]	2786	[3361, 1773]	3938	[3565, 1313]
483	[813, 814]	1635	[2286, 1220]	2787	[3362, 3363]	3939	[4261, 1653]
484	[332, 815]	1636	[340, 2287]	2788	[3364, 3365]	3940	[3543, 3703]
485	[816, 817]	1637	[2288, 2289]	2789	[3366, 3367]	3941	[1399, 2729]
486	[818, 819]	1638	[2290, 1048]	2790	[3368, 3369]	3942	[1493, 1740]
487	[820, 821]	1639	[2291, 2292]	2791	[3370, 3026]	3943	[1722, 2684]
488	[822, 823]	1640	[2293, 2064]	2792	[2163, 3371]	3944	[4262, 3625]
489	[824, 825]	1641	[2294, 1148]	2793	[3372, 3373]	3945	[4227, 2585]
490	[826, 827]	1642	[2295, 2296]	2794	[3374, 3375]	3946	[4263, 4264]
491	[828, 829]	1643	[2297, 2298]	2795	[3376, 2143]	3947	[3721, 3761]
492	[24, 830]	1644	[2299, 100]	2796	[3377, 1145]	3948	[4265, 3745]
493	[28, 831]	1645	[2300, 2301]	2797	[3378, 887]	3949	[3776, 3680]
494	[832, 833]	1646	[2302, 2303]	2798	[3379, 3380]	3950	[3566, 609]
495	[834, 835]	1647	[1236, 1951]	2799	[3381, 3382]	3951	[4250, 162]
496	[836, 837]	1648	[2304, 2305]	2800	[3383, 3384]	3952	[1557, 2505]
497	[838, 839]	1649	[2306, 998]	2801	[3385, 2062]	3953	[3695, 4225]
498	[840, 841]	1650	[2307, 2308]	2802	[3386, 3387]	3954	[2743, 193]
499	[799, 842]	1651	[2309, 2310]	2803	[3388, 3389]	3955	[2577, 3737]
500	[843, 844]	1652	[2311, 2312]	2804	[3390, 2109]	3956	[3693, 2503]
501	[845, 293]	1653	[2313, 2314]	2805	[3391, 3392]	3957	[4266, 4267]
502	[846, 847]	1654	[2315, 2316]	2806	[3393, 1054]	3958	[4268, 2551]
503	[848, 849]	1655	[2317, 1044]	2807	[3394, 950]	3959	[4269, 1712]
504	[850, 851]	1656	[2318, 1169]	2808	[3395, 3396]	3960	[2742, 2536]
505	[317, 852]	1657	[2319, 2320]	2809	[1922, 775]	3961	[4270, 3596]
506	[853, 854]	1658	[2321, 1956]	2810	[3397, 822]	3962	[4271, 3518]
507	[855, 856]	1659	[2322, 2323]	2811	[3398, 3399]	3963	[4272, 4273]
508	[857, 858]	1660	[2051, 2324]	2812	[3400, 3401]	3964	[4274, 2669]
509	[859, 860]	1661	[837, 125]	2813	[984, 115]	3965	[1634, 2736]
510	[861, 372]	1662	[2325, 1889]	2814	[3402, 453]	3966	[44, 3641]
511	[862, 863]	1663	[2326, 1001]	2815	[3403, 410]	3967	[2735, 1494]
512	[864, 865]	1664	[2327, 293]	2816	[3404, 3405]	3968	[3780, 4275]
513	[866, 867]	1665	[2328, 2329]	2817	[3406, 3407]	3969	[1454, 4276]
514	[868, 869]	1666	[2330, 2331]	2818	[977, 3408]	3970	[3726, 2572]
515	[870, 316]	1667	[2332, 2047]	2819	[90, 3002]	3971	[4277, 1483]
516	[871, 872]	1668	[2333, 2035]	2820	[3409, 3410]	3972	[3545, 140]
517	[873, 874]	1669	[2334, 2335]	2821	[3411, 779]	3973	[2849, 1398]
518	[875, 876]	1670	[386, 2336]	2822	[3412, 89]	3974	[3475, 2733]

519	[877, 878]	1671	[1871, 2337]	2823	[3413, 3414]	3975	[4256, 3733]
520	[879, 880]	1672	[2338, 325]	2824	[3415, 3416]	3976	[1710, 519]
521	[881, 882]	1673	[1084, 2339]	2825	[3417, 927]	3977	[2674, 1651]
522	[883, 884]	1674	[2340, 2088]	2826	[3418, 3419]	3978	[3771, 181]
523	[885, 886]	1675	[2341, 2079]	2827	[3420, 3421]	3979	[3772, 202]
524	[887, 888]	1676	[2342, 2343]	2828	[3422, 2133]	3980	[1551, 670]
525	[889, 890]	1677	[286, 1196]	2829	[3423, 2251]	3981	[4278, 4279]
526	[891, 306]	1678	[2344, 1862]	2830	[3424, 3425]	3982	[4240, 1329]
527	[892, 893]	1679	[2345, 2346]	2831	[3426, 1079]	3983	[4277, 1727]
528	[894, 895]	1680	[2347, 386]	2832	[3427, 3051]	3984	[4280, 4215]
529	[435, 896]	1681	[2348, 2349]	2833	[3428, 863]	3985	[3612, 129]
530	[852, 897]	1682	[2350, 2351]	2834	[3429, 3430]	3986	[4281, 4282]
531	[898, 322]	1683	[988, 2352]	2835	[3431, 3432]	3987	[4244, 1509]
532	[899, 431]	1684	[2353, 264]	2836	[3433, 3434]	3988	[4283, 4219]
533	[900, 901]	1685	[2354, 2355]	2837	[3435, 3436]	3989	[4211, 3498]
534	[902, 903]	1686	[2356, 2357]	2838	[3187, 2243]	3990	[4284, 2800]
535	[904, 905]	1687	[2358, 2359]	2839	[3437, 1787]	3991	[3486, 4210]
536	[906, 907]	1688	[1188, 2360]	2840	[3438, 308]	3992	[4285, 2861]
537	[908, 909]	1689	[2361, 2362]	2841	[3439, 2055]	3993	[3783, 4286]
538	[910, 911]	1690	[2363, 1891]	2842	[3440, 3441]	3994	[4287, 4213]
539	[912, 299]	1691	[2364, 290]	2843	[3442, 2308]	3995	[4288, 2594]
540	[888, 913]	1692	[1980, 2355]	2844	[3443, 3444]	3996	[1567, 1313]
541	[306, 914]	1693	[2365, 2366]	2845	[3425, 3445]	3997	[4289, 2596]
542	[915, 916]	1694	[2367, 837]	2846	[3446, 1242]	3998	[1536, 230]
543	[917, 918]	1695	[2368, 123]	2847	[3447, 3448]	3999	[2583, 3752]
544	[919, 920]	1696	[882, 2369]	2848	[3449, 864]	4000	[4290, 4291]
545	[921, 922]	1697	[2370, 2371]	2849	[3450, 1175]	4001	[4221, 4292]
546	[923, 924]	1698	[2372, 2128]	2850	[444, 2046]	4002	[4293, 2491]
547	[925, 926]	1699	[336, 1884]	2851	[3451, 1151]	4003	[2523, 1729]
548	[927, 928]	1700	[2373, 2374]	2852	[3452, 3453]	4004	[1684, 137]
549	[929, 425]	1701	[2034, 2375]	2853	[3454, 981]	4005	[3560, 177]
550	[930, 931]	1702	[2376, 2377]	2854	[3455, 3456]	4006	[2630, 1501]
551	[932, 933]	1703	[448, 1847]	2855	[1791, 3457]	4007	[3687, 3671]
552	[934, 935]	1704	[2378, 108]	2856	[3458, 1900]	4008	[2611, 1622]
553	[936, 937]	1705	[2379, 2380]	2857	[3459, 2347]	4009	[3702, 2614]
554	[938, 939]	1706	[1951, 949]	2858	[2016, 3460]	4010	[3627, 584]
555	[940, 941]	1707	[2381, 2382]	2859	[3461, 3462]	4011	[1642, 3580]
556	[942, 943]	1708	[2383, 1803]	2860	[3463, 3464]	4012	[1344, 508]
557	[851, 944]	1709	[2384, 2385]	2861	[3465, 3466]	4013	[3639, 1702]
558	[945, 946]	1710	[2386, 885]	2862	[3292, 3467]	4014	[4294, 4218]
559	[98, 947]	1711	[2387, 2388]	2863	[3468, 3469]	4015	[2446, 747]
560	[948, 253]	1712	[2389, 2390]	2864	[3470, 3445]	4016	[637, 2455]
561	[949, 256]	1713	[2391, 2392]	2865	[3471, 1247]	4017	[173, 1398]
562	[950, 951]	1714	[2393, 789]	2866	[3472, 1061]	4018	[2850, 525]

563	[952, 953]	1715	[2394, 2395]	2867	[3473, 1819]	4019	[13, 666]
564	[954, 117]	1716	[2396, 1265]	2868	[789, 3474]	4020	[4241, 1517]
565	[955, 956]	1717	[2397, 1273]	2869	[2474, 2816]	4021	[3503, 2561]
566	[957, 958]	1718	[2398, 2205]	2870	[136, 1306]	4022	[477, 3776]
567	[959, 960]	1719	[78, 2399]	2871	[3475, 2589]	4023	[4212, 1340]
568	[961, 962]	1720	[2400, 2401]	2872	[37, 1638]	4024	[4295, 548]
569	[963, 964]	1721	[2204, 2402]	2873	[1463, 9]	4025	[1280, 1348]
570	[965, 966]	1722	[2403, 2404]	2874	[3476, 2646]	4026	[4296, 1563]
571	[967, 968]	1723	[2405, 2406]	2875	[3477, 2675]	4027	[4283, 1436]
572	[969, 970]	1724	[279, 2407]	2876	[2720, 762]	4028	[2698, 1323]
573	[971, 903]	1725	[2408, 2409]	2877	[1657, 2682]	4029	[3769, 1297]
574	[96, 972]	1726	[2233, 2410]	2878	[1298, 1695]	4030	[3688, 584]
575	[973, 974]	1727	[2411, 1074]	2879	[3478, 3479]	4031	[3493, 219]
576	[975, 23]	1728	[2412, 2413]	2880	[3480, 1406]	4032	[3760, 3549]
577	[976, 977]	1729	[2414, 2415]	2881	[3481, 46]	4033	[3713, 517]
578	[978, 979]	1730	[2416, 2417]	2882	[3482, 41]	4034	[2717, 2623]
579	[428, 980]	1731	[2418, 2419]	2883	[1547, 604]	4035	[4259, 1714]
580	[981, 285]	1732	[2420, 995]	2884	[2532, 2574]	4036	[3785, 2646]
581	[980, 982]	1733	[2421, 2422]	2885	[1662, 1441]	4037	[3696, 761]
582	[983, 984]	1734	[2423, 2424]	2886	[682, 171]	4038	[2760, 1285]
583	[985, 986]	1735	[2425, 2033]	2887	[1520, 10]	4039	[4272, 4267]
584	[987, 988]	1736	[2426, 2427]	2888	[2758, 2434]	4040	[3519, 2715]
585	[989, 990]	1737	[1856, 2428]	2889	[3483, 202]	4041	[4297, 1635]
586	[991, 992]	1738	[1751, 2429]	2890	[1733, 3484]	4042	[4298, 1308]
587	[993, 285]	1739	[414, 2430]	2891	[3485, 182]	4043	[4299, 3777]
588	[994, 995]	1740	[265, 924]	2892	[2433, 2689]	4044	[34, 2513]
589	[334, 934]	1741	[277, 2431]	2893	[3486, 2697]	4045	[4300, 3572]
590	[434, 996]	1742	[726, 2432]	2894	[1437, 677]	4046	[4247, 3573]
591	[997, 998]	1743	[2433, 2434]	2895	[3487, 3488]	4047	[3778, 210]
592	[999, 1000]	1744	[1676, 2435]	2896	[3489, 461]	4048	[1669, 1470]
593	[1001, 1002]	1745	[213, 237]	2897	[1430, 3490]	4049	[3699, 1400]
594	[110, 1003]	1746	[2436, 2437]	2898	[3491, 2866]	4050	[4301, 3653]
595	[1004, 1005]	1747	[2438, 723]	2899	[470, 1613]	4051	[3628, 2628]
596	[1006, 1007]	1748	[2439, 1671]	2900	[1334, 464]	4052	[4253, 2834]
597	[1008, 1009]	1749	[47, 755]	2901	[551, 696]	4053	[1512, 513]
598	[118, 952]	1750	[1513, 2440]	2902	[3492, 633]	4054	[1500, 2631]
599	[1010, 954]	1751	[2441, 199]	2903	[3493, 700]	4055	[4294, 3562]
600	[372, 1011]	1752	[713, 1463]	2904	[3494, 543]	4056	[4302, 713]
601	[1012, 1013]	1753	[1487, 683]	2905	[1386, 651]	4057	[1374, 185]
602	[1014, 1015]	1754	[1646, 1390]	2906	[192, 561]	4058	[3509, 2728]
603	[1016, 771]	1755	[565, 180]	2907	[2472, 706]	4059	[3581, 1281]
604	[1017, 1018]	1756	[2442, 763]	2908	[1392, 2440]	4060	[3595, 4257]
605	[982, 1019]	1757	[764, 486]	2909	[2556, 2658]	4061	[4303, 4304]
606	[1020, 830]	1758	[2443, 1615]	2910	[3495, 3496]	4062	[4305, 3537]

607	[1021, 1022]	1759	[2444, 2445]	2911	[3497, 3498]	4063	[3679, 2780]
608	[1023, 1024]	1760	[1544, 1579]	2912	[3499, 3500]	4064	[4288, 4306]
609	[1025, 1026]	1761	[757, 607]	2913	[3501, 556]	4065	[2485, 2432]
610	[1027, 1028]	1762	[2446, 587]	2914	[3502, 3503]	4066	[3571, 4275]
611	[1029, 1030]	1763	[1579, 1489]	2915	[2704, 1330]	4067	[4307, 4229]
612	[1031, 266]	1764	[1364, 1361]	2916	[2865, 2469]	4068	[4308, 544]
613	[1032, 1033]	1765	[1492, 751]	2917	[3504, 694]	4069	[4309, 2562]
614	[1034, 397]	1766	[1602, 1600]	2918	[3505, 1452]	4070	[1328, 4310]
615	[1035, 1036]	1767	[1353, 1450]	2919	[2540, 572]	4071	[4281, 3730]
616	[1037, 1038]	1768	[2447, 2448]	2920	[3506, 1425]	4072	[2613, 3703]
617	[1039, 1040]	1769	[2449, 2450]	2921	[549, 1282]	4073	[4311, 2638]
618	[1041, 1042]	1770	[205, 2451]	2922	[3507, 3508]	4074	[2606, 2828]
619	[1043, 1044]	1771	[2452, 484]	2923	[3509, 2596]	4075	[3647, 710]
620	[1045, 82]	1772	[2453, 162]	2924	[2634, 56]	4076	[3558, 2628]
621	[1046, 1047]	1773	[2454, 464]	2925	[2507, 563]	4077	[2821, 136]
622	[1048, 1049]	1774	[2455, 1369]	2926	[3510, 1358]	4078	[2545, 1471]
623	[1050, 1051]	1775	[2456, 176]	2927	[3511, 576]	4079	[3758, 184]
624	[1052, 1053]	1776	[2457, 1315]	2928	[3512, 217]	4080	[4312, 3589]
625	[1054, 1055]	1777	[2441, 1703]	2929	[3513, 639]	4081	[2535, 2474]
626	[996, 945]	1778	[1669, 762]	2930	[525, 1478]	4082	[3701, 1461]
627	[1056, 1057]	1779	[189, 558]	2931	[666, 493]	4083	[3665, 2645]
628	[1058, 1059]	1780	[1587, 1531]	2932	[2656, 1564]	4084	[2660, 616]
629	[1060, 799]	1781	[2458, 2459]	2933	[2858, 174]	4085	[2825, 577]
630	[1061, 843]	1782	[2460, 139]	2934	[3514, 2474]	4086	[3624, 4286]
631	[1062, 1063]	1783	[2461, 2462]	2935	[3515, 152]	4087	[3658, 3753]
632	[1064, 1065]	1784	[2463, 476]	2936	[1678, 1353]	4088	[4313, 3561]
633	[1066, 1067]	1785	[2464, 709]	2937	[3516, 675]	4089	[3591, 1297]
634	[1068, 1069]	1786	[483, 1399]	2938	[3517, 3518]	4090	[3683, 52]
635	[1070, 1071]	1787	[2465, 1376]	2939	[3519, 2853]	4091	[3685, 673]
636	[1072, 1073]	1788	[2466, 721]	2940	[2483, 1714]	4092	[2867, 1550]
637	[1074, 1075]	1789	[2467, 2468]	2941	[3520, 3521]	4093	[2818, 523]
638	[1076, 1077]	1790	[1333, 578]	2942	[478, 2780]	4094	[2823, 183]
639	[1078, 1079]	1791	[2469, 1617]	2943	[3522, 3523]	4095	[3620, 4257]
640	[1080, 1081]	1792	[684, 161]	2944	[2868, 2680]	4096	[4314, 2861]
641	[1082, 790]	1793	[1489, 1737]	2945	[3524, 3525]	4097	[3757, 3500]
642	[1083, 1084]	1794	[2470, 239]	2946	[1403, 3526]	4098	[2494, 1339]
643	[1085, 1086]	1795	[2471, 557]	2947	[3527, 1304]	4099	[3663, 748]
644	[829, 810]	1796	[499, 1336]	2948	[152, 3528]	4100	[4315, 498]
645	[1087, 857]	1797	[602, 1692]	2949	[3529, 152]	4101	[2529, 1362]
646	[1088, 327]	1798	[2472, 650]	2950	[3530, 178]	4102	[4316, 3709]
647	[1059, 899]	1799	[175, 2473]	2951	[1312, 1550]	4103	[3506, 1619]
648	[364, 1059]	1800	[2474, 1710]	2952	[3531, 2840]	4104	[2724, 2598]
649	[1089, 1090]	1801	[2475, 1353]	2953	[3532, 153]	4105	[3481, 2643]
650	[1091, 1092]	1802	[1382, 644]	2954	[1419, 3533]	4106	[745, 2455]

651	[1093, 1064]	1803	[148, 228]	2955	[2638, 157]	4107	[4317, 145]
652	[1094, 1095]	1804	[2476, 485]	2956	[50, 3534]	4108	[3642, 3608]
653	[1096, 1097]	1805	[1667, 1531]	2957	[704, 2508]	4109	[3527, 1697]
654	[1098, 932]	1806	[564, 57]	2958	[3535, 2832]	4110	[1461, 3782]
655	[410, 1099]	1807	[2477, 1436]	2959	[3536, 3537]	4111	[3656, 757]
656	[1100, 1101]	1808	[2478, 1629]	2960	[538, 3538]	4112	[4245, 1569]
657	[1102, 1103]	1809	[2479, 2480]	2961	[3539, 3540]	4113	[3605, 3653]
658	[1104, 839]	1810	[2481, 2482]	2962	[3541, 1356]	4114	[4318, 3589]
659	[1105, 1106]	1811	[2483, 521]	2963	[3542, 2806]	4115	[3723, 3782]
660	[1107, 1108]	1812	[2484, 2485]	2964	[1551, 139]	4116	[4319, 1436]
661	[1109, 1093]	1813	[2486, 2487]	2965	[3543, 2614]	4117	[4320, 2585]
662	[1110, 1111]	1814	[2488, 2489]	2966	[541, 2602]	4118	[4321, 3549]
663	[1112, 1113]	1815	[206, 1642]	2967	[1560, 1622]	4119	[4255, 1508]
664	[1114, 1115]	1816	[2490, 2491]	2968	[2612, 553]	4120	[4209, 672]
665	[1116, 1117]	1817	[1645, 1705]	2969	[2455, 759]	4121	[4270, 4257]
666	[1118, 1119]	1818	[2492, 562]	2970	[669, 1470]	4122	[4322, 2767]
667	[1120, 1121]	1819	[711, 505]	2971	[1661, 625]	4123	[4301, 3606]
668	[1122, 1123]	1820	[208, 139]	2972	[741, 1365]	4124	[3714, 141]
669	[1124, 1125]	1821	[1700, 1308]	2973	[2756, 1524]	4125	[2464, 234]
670	[1126, 1127]	1822	[2493, 151]	2974	[1440, 681]	4126	[196, 3690]
671	[1128, 1129]	1823	[1655, 1706]	2975	[464, 161]	4127	[1660, 4323]
672	[1130, 1131]	1824	[2494, 1452]	2976	[3544, 468]	4128	[4324, 47]
673	[1132, 1133]	1825	[2495, 2496]	2977	[1331, 472]	4129	[4325, 3678]
674	[1134, 1135]	1826	[1726, 2497]	2978	[2706, 633]	4130	[538, 1700]
675	[1136, 906]	1827	[54, 1350]	2979	[585, 1534]	4131	[2793, 4326]
676	[1137, 1138]	1828	[2498, 236]	2980	[694, 561]	4132	[3748, 33]
677	[1139, 1140]	1829	[187, 596]	2981	[2617, 543]	4133	[172, 2604]
678	[1141, 1142]	1830	[2499, 200]	2982	[3545, 717]	4134	[646, 508]
679	[1143, 1144]	1831	[2500, 490]	2983	[2503, 2709]	4135	[3644, 155]
680	[1145, 1146]	1832	[1606, 238]	2984	[3546, 1543]	4136	[4318, 2652]
681	[1147, 1148]	1833	[2492, 1469]	2985	[1378, 2709]	4137	[3532, 3528]
682	[1149, 1150]	1834	[766, 2501]	2986	[1625, 654]	4138	[4327, 1406]
683	[1011, 1151]	1835	[645, 1344]	2987	[136, 3547]	4139	[1562, 1418]
684	[1152, 1153]	1836	[201, 475]	2988	[3548, 3549]	4140	[4328, 3625]
685	[288, 1154]	1837	[2502, 2503]	2989	[3550, 2671]	4141	[4329, 1323]
686	[1155, 1156]	1838	[2504, 2505]	2990	[1583, 2673]	4142	[3585, 679]
687	[1157, 1158]	1839	[2506, 757]	2991	[3551, 2682]	4143	[1728, 153]
688	[1159, 1160]	1840	[2507, 165]	2992	[3552, 1617]	4144	[4330, 4331]
689	[1161, 1162]	1841	[2454, 684]	2993	[1456, 132]	4145	[745, 758]
690	[1163, 1088]	1842	[2508, 194]	2994	[1423, 3547]	4146	[4332, 2832]
691	[1164, 1165]	1843	[2509, 1395]	2995	[2809, 625]	4147	[2786, 2722]
692	[1166, 1167]	1844	[2510, 1463]	2996	[2549, 178]	4148	[4234, 4326]
693	[1168, 1169]	1845	[1670, 1704]	2997	[45, 2643]	4149	[3732, 140]
694	[1170, 1171]	1846	[2440, 666]	2998	[11, 2648]	4150	[2570, 761]

695	[1172, 1173]	1847	[557, 190]	2999	[2851, 762]	4151	[2616, 1431]
696	[1174, 1175]	1848	[503, 562]	3000	[2721, 2712]	4152	[4262, 4286]
697	[1176, 316]	1849	[1385, 1375]	3001	[3507, 3553]	4153	[4333, 4291]
698	[1177, 1166]	1850	[2511, 570]	3002	[176, 1699]	4154	[2586, 4292]
699	[1178, 1179]	1851	[560, 1476]	3003	[3554, 2536]	4155	[4334, 1636]
700	[1180, 1181]	1852	[2512, 2513]	3004	[3494, 487]	4156	[3673, 3496]
701	[1182, 1183]	1853	[2514, 1585]	3005	[2511, 1609]	4157	[4303, 4291]
702	[1184, 850]	1854	[2515, 1572]	3006	[2662, 753]	4158	[4335, 2853]
703	[1185, 369]	1855	[734, 624]	3007	[2787, 1695]	4159	[4336, 2590]
704	[1186, 409]	1856	[1527, 159]	3008	[3555, 151]	4160	[198, 2485]
705	[1187, 1188]	1857	[1677, 165]	3009	[1305, 3547]	4161	[4337, 4338]
706	[1189, 1190]	1858	[2516, 1517]	3010	[3556, 1480]	4162	[4339, 1642]
707	[1191, 1192]	1859	[2517, 1590]	3011	[2762, 1448]	4163	[2752, 767]
708	[825, 1180]	1860	[1365, 1726]	3012	[1528, 2445]	4164	[2675, 1538]
709	[1193, 1194]	1861	[2518, 1669]	3013	[1673, 2680]	4165	[2776, 1402]
710	[360, 1195]	1862	[1460, 1562]	3014	[2820, 2434]	4166	[3654, 1404]
711	[1196, 1197]	1863	[1729, 1582]	3015	[2755, 1592]	4167	[4340, 2598]
712	[1198, 1199]	1864	[1721, 2519]	3016	[3557, 143]	4168	[1562, 3782]
713	[1200, 1201]	1865	[1495, 1585]	3017	[2624, 1585]	4169	[3763, 617]
714	[1202, 1203]	1866	[1741, 2520]	3018	[2751, 2564]	4170	[2807, 503]
715	[1204, 1205]	1867	[2521, 467]	3019	[2753, 2432]	4171	[4319, 4219]
716	[1206, 1207]	1868	[2522, 1577]	3020	[1584, 1496]	4172	[4341, 4291]
717	[1208, 1209]	1869	[1458, 2440]	3021	[1580, 2604]	4173	[4274, 3662]
718	[1210, 1211]	1870	[2523, 1581]	3022	[3558, 1508]	4174	[1713, 521]
719	[831, 1212]	1871	[1314, 513]	3023	[2509, 196]	4175	[4342, 4343]
720	[1213, 1214]	1872	[1504, 717]	3024	[3559, 41]	4176	[3602, 3680]
721	[1215, 440]	1873	[509, 1703]	3025	[1467, 500]	4177	[3538, 1308]
722	[1216, 1217]	1874	[2439, 621]	3026	[2639, 561]	4178	[4344, 2459]
723	[1218, 877]	1875	[730, 2435]	3027	[3560, 617]	4179	[182, 2602]
724	[1219, 1220]	1876	[1433, 738]	3028	[2436, 2798]	4180	[3503, 2468]
725	[1221, 242]	1877	[2524, 1430]	3029	[3561, 3562]	4181	[3779, 1587]
726	[1222, 1223]	1878	[2525, 545]	3030	[2512, 1400]	4182	[3582, 3496]
727	[1224, 1225]	1879	[2526, 1577]	3031	[3563, 1723]	4183	[4314, 3753]
728	[1226, 1227]	1880	[1668, 669]	3032	[3564, 2578]	4184	[2530, 1492]
729	[1228, 1229]	1881	[1459, 157]	3033	[3565, 128]	4185	[1424, 1619]
730	[1230, 1231]	1882	[217, 1286]	3034	[3566, 569]	4186	[3764, 1341]
731	[1232, 1233]	1883	[2527, 662]	3035	[2525, 2559]	4187	[3787, 1619]
732	[946, 983]	1884	[609, 1609]	3036	[3567, 1519]	4188	[2705, 1544]
733	[1234, 429]	1885	[1666, 1647]	3037	[3568, 240]	4189	[1445, 1474]
734	[1235, 1236]	1886	[1290, 710]	3038	[2761, 547]	4190	[3480, 2843]
735	[814, 1237]	1887	[2528, 665]	3039	[3569, 1491]	4191	[2726, 1706]
736	[284, 894]	1888	[479, 568]	3040	[746, 587]	4192	[3666, 642]
737	[1019, 970]	1889	[1608, 570]	3041	[3505, 1339]	4193	[3510, 1360]
738	[970, 363]	1890	[2529, 628]	3042	[2759, 1732]	4194	[4345, 1649]

739	[739, 739]	1891	[643, 1284]	3043	[1567, 128]	4195	[3711, 1708]
740	[403, 1234]	1892	[2530, 584]	3044	[3570, 2604]	4196	[3762, 2672]
741	[1238, 1068]	1893	[2531, 743]	3045	[3571, 3572]	4197	[4346, 1556]
742	[1239, 1240]	1894	[1680, 749]	3046	[146, 3573]	4198	[4252, 156]
743	[1241, 433]	1895	[630, 499]	3047	[3574, 2652]	4199	[3516, 3657]
744	[1207, 79]	1896	[1737, 1326]	3048	[2841, 2838]	4200	[4287, 2767]
745	[1242, 1243]	1897	[2532, 501]	3049	[3575, 715]	4201	[2735, 1740]
746	[1244, 1245]	1898	[2533, 2501]	3050	[3576, 2565]	4202	[2835, 2777]
747	[1246, 1176]	1899	[222, 1530]	3051	[3577, 2496]	4203	[150, 3645]
748	[1247, 1248]	1900	[1283, 644]	3052	[640, 2629]	4204	[3774, 1607]
749	[302, 1249]	1901	[2534, 692]	3053	[1441, 1371]	4205	[4344, 4249]
750	[1250, 1251]	1902	[2535, 2536]	3054	[3578, 2526]	4206	[484, 2729]
751	[1252, 1253]	1903	[1411, 715]	3055	[3579, 619]	4207	[4347, 4348]
752	[1254, 1255]	1904	[1574, 1589]	3056	[2866, 748]	4208	[3911, 3345]
753	[1256, 1257]	1905	[686, 1519]	3057	[1300, 2723]	4209	[4349, 256]
754	[1258, 334]	1906	[2537, 595]	3058	[2745, 2840]	4210	[4350, 396]
755	[1259, 1260]	1907	[1510, 582]	3059	[1412, 1706]	4211	[4351, 2188]
756	[926, 1261]	1908	[2538, 1480]	3060	[2665, 3580]	4212	[4352, 395]
757	[1262, 1263]	1909	[2539, 632]	3061	[1309, 1686]	4213	[4353, 2342]
758	[1073, 1264]	1910	[2540, 221]	3062	[2506, 1337]	4214	[4354, 3798]
759	[1243, 1265]	1911	[1455, 637]	3063	[2635, 558]	4215	[4355, 1754]
760	[406, 1266]	1912	[2541, 1482]	3064	[3581, 1348]	4216	[4356, 4357]
761	[1267, 1268]	1913	[2542, 624]	3065	[2542, 507]	4217	[4358, 2987]
762	[1269, 1100]	1914	[508, 683]	3066	[3582, 3583]	4218	[4359, 2983]
763	[1125, 1270]	1915	[1468, 760]	3067	[3584, 1438]	4219	[4360, 2901]
764	[1271, 1272]	1916	[1293, 488]	3068	[3585, 1439]	4220	[4361, 1230]
765	[1273, 1274]	1917	[1381, 1358]	3069	[3491, 2469]	4221	[4362, 4363]
766	[1275, 1276]	1918	[2543, 219]	3070	[3586, 237]	4222	[3233, 274]
767	[1277, 1278]	1919	[2544, 236]	3071	[1618, 1425]	4223	[4364, 4365]
768	[1279, 850]	1920	[2524, 602]	3072	[3587, 1455]	4224	[4366, 1915]
769	[1280, 1281]	1921	[2470, 210]	3073	[3504, 192]	4225	[4367, 4368]
770	[1282, 223]	1922	[504, 57]	3074	[1296, 3588]	4226	[4369, 4370]
771	[1283, 1284]	1923	[2545, 490]	3075	[1658, 1282]	4227	[4371, 4035]
772	[1285, 1286]	1924	[2546, 1376]	3076	[2651, 3589]	4228	[4372, 4373]
773	[1287, 500]	1925	[2547, 492]	3077	[230, 184]	4229	[3794, 2285]
774	[1288, 1289]	1926	[612, 1551]	3078	[3590, 614]	4230	[1265, 371]
775	[1290, 597]	1927	[135, 1423]	3079	[3591, 3588]	4231	[344, 4374]
776	[1291, 653]	1928	[498, 1705]	3080	[2859, 3592]	4232	[4375, 4376]
777	[762, 1292]	1929	[2548, 1297]	3081	[3593, 677]	4233	[4377, 933]
778	[1293, 1294]	1930	[170, 683]	3082	[2700, 1325]	4234	[4378, 4379]
779	[230, 1295]	1931	[56, 1447]	3083	[3501, 1373]	4235	[4380, 2198]
780	[1296, 1297]	1932	[2549, 1396]	3084	[3594, 1508]	4236	[4381, 844]
781	[1298, 1299]	1933	[715, 1656]	3085	[2687, 1430]	4237	[4382, 4383]
782	[1300, 1301]	1934	[2550, 2551]	3086	[3595, 3596]	4238	[4077, 4384]

783	[1299, 1302]	1935	[2552, 517]	3087	[3597, 3598]	4239	[2255, 4110]
784	[1303, 1304]	1936	[2553, 34]	3088	[3599, 36]	4240	[1967, 4385]
785	[1305, 1306]	1937	[520, 1714]	3089	[2484, 2753]	4241	[4386, 1967]
786	[1307, 1308]	1938	[2554, 523]	3090	[2817, 517]	4242	[4387, 832]
787	[1309, 1310]	1939	[2555, 12]	3091	[3600, 3601]	4243	[4388, 3794]
788	[1311, 1312]	1940	[526, 181]	3092	[3602, 2780]	4244	[4389, 3367]
789	[1313, 199]	1941	[474, 202]	3093	[1643, 2774]	4245	[1067, 4390]
790	[1314, 45]	1942	[763, 2556]	3094	[3603, 512]	4246	[4391, 4392]
791	[713, 1315]	1943	[2557, 538]	3095	[3604, 1740]	4247	[3916, 2944]
792	[1316, 757]	1944	[183, 1295]	3096	[3605, 3606]	4248	[4393, 1996]
793	[1317, 241]	1945	[543, 1294]	3097	[3607, 3608]	4249	[4394, 834]
794	[1318, 694]	1946	[2558, 2559]	3098	[3609, 3508]	4250	[4395, 4396]
795	[236, 1319]	1947	[2560, 2561]	3099	[133, 2838]	4251	[4397, 4398]
796	[1320, 1321]	1948	[2562, 550]	3100	[3610, 3611]	4252	[381, 1949]
797	[1322, 1323]	1949	[2563, 1366]	3101	[3612, 2792]	4253	[4399, 2060]
798	[1324, 1325]	1950	[489, 1375]	3102	[3613, 3614]	4254	[4400, 4401]
799	[735, 1326]	1951	[485, 765]	3103	[197, 2605]	4255	[4402, 4403]
800	[626, 557]	1952	[2547, 2564]	3104	[2863, 3615]	4256	[4404, 4143]
801	[1327, 1328]	1953	[2565, 1399]	3105	[3616, 2614]	4257	[4405, 299]
802	[1329, 1330]	1954	[1431, 552]	3106	[3617, 139]	4258	[4406, 346]
803	[1331, 1332]	1955	[60, 501]	3107	[3618, 2462]	4259	[4407, 4408]
804	[1333, 548]	1956	[599, 563]	3108	[2675, 482]	4260	[4409, 4410]
805	[1334, 684]	1957	[2566, 2567]	3109	[3619, 2459]	4261	[4411, 4412]
806	[1335, 1336]	1958	[2460, 670]	3110	[235, 1313]	4262	[4413, 4414]
807	[711, 57]	1959	[537, 2568]	3111	[2653, 594]	4263	[4415, 4416]
808	[1337, 681]	1960	[2569, 1567]	3112	[1430, 1692]	4264	[4417, 3288]
809	[1338, 1339]	1961	[2570, 592]	3113	[2681, 1449]	4265	[4418, 3909]
810	[1340, 1341]	1962	[2571, 667]	3114	[2710, 210]	4266	[4419, 4420]
811	[1342, 1343]	1963	[2572, 1575]	3115	[2813, 711]	4267	[4421, 4422]
812	[1341, 1344]	1964	[2573, 469]	3116	[2839, 136]	4268	[4423, 4424]
813	[1345, 237]	1965	[60, 2574]	3117	[3620, 3596]	4269	[4425, 4126]
814	[1346, 62]	1966	[2575, 692]	3118	[3584, 677]	4270	[4426, 4427]
815	[604, 461]	1967	[472, 2496]	3119	[3499, 3621]	4271	[4428, 4429]
816	[1347, 1348]	1968	[2576, 665]	3120	[3622, 2438]	4272	[4430, 4431]
817	[1349, 1350]	1969	[1550, 208]	3121	[3623, 684]	4273	[4432, 274]
818	[1351, 1352]	1970	[2577, 2578]	3122	[2475, 1449]	4274	[4433, 4434]
819	[1353, 1354]	1971	[2579, 204]	3123	[2543, 700]	4275	[16, 1988]
820	[1355, 1356]	1972	[2504, 1558]	3124	[2649, 487]	4276	[1167, 76]
821	[629, 749]	1973	[2580, 1551]	3125	[2692, 708]	4277	[4435, 3070]
822	[1357, 639]	1974	[2453, 604]	3126	[3624, 3625]	4278	[863, 2081]
823	[1358, 621]	1975	[2581, 547]	3127	[676, 1438]	4279	[4436, 2392]
824	[1359, 1360]	1976	[1611, 1649]	3128	[3487, 3626]	4280	[4437, 4438]
825	[1351, 1361]	1977	[586, 747]	3129	[460, 163]	4281	[4439, 4440]
826	[635, 1362]	1978	[2582, 1344]	3130	[3627, 1492]	4282	[4441, 1776]

827	[1363, 1350]	1979	[2500, 1471]	3131	[3628, 1508]	4283	[4442, 4443]
828	[1364, 1352]	1980	[662, 232]	3132	[3629, 2534]	4284	[2009, 3366]
829	[1365, 634]	1981	[652, 1607]	3133	[3630, 1352]	4285	[4444, 3864]
830	[48, 574]	1982	[1566, 235]	3134	[2711, 1604]	4286	[4445, 389]
831	[56, 1366]	1983	[1526, 1289]	3135	[3631, 1672]	4287	[4446, 2078]
832	[637, 758]	1984	[2583, 1321]	3136	[3623, 464]	4288	[4447, 4448]
833	[1367, 169]	1985	[2584, 2585]	3137	[717, 1566]	4289	[4449, 4450]
834	[1368, 1369]	1986	[2586, 2587]	3138	[2550, 2482]	4290	[4451, 3350]
835	[1370, 1371]	1987	[2588, 2589]	3139	[3632, 2712]	4291	[4452, 2186]
836	[1372, 1373]	1988	[32, 2590]	3140	[1726, 3479]	4292	[4453, 2340]
837	[190, 241]	1989	[2591, 1721]	3141	[3633, 662]	4293	[4454, 4455]
838	[1374, 1375]	1990	[2592, 2487]	3142	[2465, 1688]	4294	[4456, 1933]
839	[706, 1376]	1991	[2593, 2594]	3143	[3559, 1625]	4295	[4457, 884]
840	[1377, 1312]	1992	[1610, 1488]	3144	[200, 527]	4296	[4458, 1843]
841	[1378, 496]	1993	[2496, 623]	3145	[3632, 1604]	4297	[4459, 4460]
842	[657, 1289]	1994	[1565, 761]	3146	[2866, 1617]	4298	[4461, 4462]
843	[1379, 1380]	1995	[654, 476]	3147	[3478, 2497]	4299	[3874, 3428]
844	[241, 599]	1996	[667, 536]	3148	[1695, 1302]	4300	[4463, 3090]
845	[1375, 186]	1997	[2595, 2596]	3149	[3634, 722]	4301	[4464, 3466]
846	[1381, 1360]	1998	[2597, 2598]	3150	[3635, 1578]	4302	[4465, 3793]
847	[1382, 1284]	1999	[2599, 1699]	3151	[3636, 1613]	4303	[4466, 4467]
848	[220, 572]	2000	[2600, 753]	3152	[3492, 1365]	4304	[4468, 2116]
849	[1383, 704]	2001	[2601, 41]	3153	[3637, 644]	4305	[4469, 4470]
850	[1384, 531]	2002	[2602, 1506]	3154	[2741, 485]	4306	[4471, 4384]
851	[768, 582]	2003	[2603, 1471]	3155	[3638, 486]	4307	[2415, 6]
852	[226, 149]	2004	[547, 578]	3156	[3570, 173]	4308	[3056, 3057]
853	[1385, 185]	2005	[1594, 2604]	3157	[169, 2574]	4309	[4145, 1745]
854	[1386, 232]	2006	[1507, 513]	3158	[2826, 566]	4310	[1821, 69]
855	[1387, 234]	2007	[1592, 2605]	3159	[3551, 1482]	4311	[1840, 4472]
856	[1388, 480]	2008	[2606, 2607]	3160	[3577, 473]	4312	[4473, 4474]
857	[1389, 759]	2009	[2608, 2450]	3161	[3639, 1553]	4313	[3033, 4475]
858	[624, 1390]	2010	[2609, 2451]	3162	[3640, 2440]	4314	[4476, 279]
859	[158, 1319]	2011	[2610, 182]	3163	[3641, 143]	4315	[4477, 2379]
860	[1370, 554]	2012	[2611, 555]	3164	[8, 3572]	4316	[3382, 3060]
861	[1391, 188]	2013	[558, 241]	3165	[3642, 3643]	4317	[4478, 3822]
862	[1392, 1393]	2014	[1553, 593]	3166	[3644, 1422]	4318	[4479, 4480]
863	[670, 174]	2015	[2612, 1441]	3167	[2779, 3645]	4319	[4481, 4482]
864	[1394, 1395]	2016	[2508, 215]	3168	[1395, 1407]	4320	[4483, 4484]
865	[617, 1396]	2017	[2613, 2614]	3169	[752, 2663]	4321	[4, 4485]
866	[1397, 540]	2018	[2615, 1413]	3170	[3587, 1484]	4322	[4486, 4487]
867	[1398, 1399]	2019	[2616, 559]	3171	[3629, 699]	4323	[3860, 872]
868	[34, 1400]	2020	[160, 465]	3172	[2694, 632]	4324	[4488, 2900]
869	[1401, 1402]	2021	[2617, 487]	3173	[1616, 572]	4325	[4489, 1895]
870	[1403, 1404]	2022	[12, 2564]	3174	[2802, 2806]	4326	[4490, 2351]

871	[1405, 1406]	2023	[181, 541]	3175	[763, 1413]	4327	[4491, 4492]
872	[196, 1407]	2024	[1624, 41]	3176	[3618, 3646]	4328	[4493, 4494]
873	[1408, 1409]	2025	[673, 138]	3177	[3647, 597]	4329	[4495, 3351]
874	[156, 1410]	2026	[2618, 699]	3178	[2648, 492]	4330	[378, 1940]
875	[1411, 1412]	2027	[2619, 662]	3179	[2569, 235]	4331	[1863, 4139]
876	[511, 138]	2028	[185, 708]	3180	[2824, 577]	4332	[998, 4496]
877	[1413, 1414]	2029	[507, 1647]	3181	[2539, 750]	4333	[4497, 1937]
878	[717, 141]	2030	[694, 1476]	3182	[2544, 1466]	4334	[3416, 3094]
879	[1415, 1416]	2031	[2620, 665]	3183	[1691, 3490]	4335	[4498, 4499]
880	[1417, 1418]	2032	[2621, 1567]	3184	[3648, 1729]	4336	[4500, 4501]
881	[1419, 1420]	2033	[1648, 1612]	3185	[2636, 1423]	4337	[4502, 4503]
882	[1421, 719]	2034	[2534, 1535]	3186	[3633, 2708]	4338	[4504, 304]
883	[154, 1422]	2035	[1545, 60]	3187	[2804, 1295]	4339	[4505, 1022]
884	[536, 719]	2036	[2531, 1488]	3188	[2620, 1689]	4340	[4506, 4507]
885	[177, 1396]	2037	[2622, 1661]	3189	[2805, 2448]	4341	[4508, 4036]
886	[1423, 1306]	2038	[2623, 10]	3190	[2502, 2729]	4342	[4509, 2156]
887	[1332, 473]	2039	[2624, 1496]	3191	[2678, 2750]	4343	[4510, 1150]
888	[548, 50]	2040	[2625, 2626]	3192	[207, 1551]	4344	[4511, 4512]
889	[1424, 1425]	2041	[1576, 1597]	3193	[3649, 2607]	4345	[4513, 4514]
890	[1426, 54]	2042	[2627, 152]	3194	[667, 1421]	4346	[4515, 4516]
891	[1427, 1428]	2043	[2628, 1509]	3195	[3650, 2626]	4347	[3548, 3761]
892	[1429, 1430]	2044	[2444, 1529]	3196	[2573, 2833]	4348	[1709, 38]
893	[1431, 696]	2045	[1340, 1672]	3197	[2787, 1299]	4349	[2810, 487]
894	[1432, 227]	2046	[1682, 2629]	3198	[3651, 1587]	4350	[4266, 4273]
895	[528, 647]	2047	[755, 589]	3199	[142, 2819]	4351	[4517, 3712]
896	[738, 739]	2048	[2630, 2631]	3200	[3652, 3653]	4352	[4518, 170]
897	[1433, 739]	2049	[2522, 1597]	3201	[3654, 3526]	4353	[4334, 2679]
898	[1434, 581]	2050	[2518, 669]	3202	[131, 1416]	4354	[622, 4519]
899	[579, 647]	2051	[1514, 1506]	3203	[3655, 1407]	4355	[4308, 2640]
900	[1435, 1436]	2052	[1731, 534]	3204	[2842, 2783]	4356	[4520, 4521]
901	[1437, 1438]	2053	[1399, 2503]	3205	[2844, 1409]	4357	[1558, 2792]
902	[678, 1439]	2054	[2632, 2633]	3206	[2602, 1515]	4358	[4522, 2840]
903	[1368, 759]	2055	[2610, 541]	3207	[3552, 748]	4359	[1307, 1701]
904	[164, 563]	2056	[2634, 1428]	3208	[751, 2629]	4360	[2479, 4264]
905	[1440, 607]	2057	[2635, 190]	3209	[618, 52]	4361	[1632, 2645]
906	[1335, 500]	2058	[1318, 192]	3210	[2846, 1455]	4362	[4523, 3611]
907	[1441, 554]	2059	[594, 1326]	3211	[3656, 1337]	4363	[2451, 2747]
908	[1442, 1443]	2060	[2636, 136]	3212	[674, 3657]	4364	[4307, 4524]
909	[1444, 1330]	2061	[2637, 198]	3213	[3658, 2861]	4365	[3684, 1467]
910	[689, 1340]	2062	[2638, 1410]	3214	[3659, 3567]	4366	[2785, 2640]
911	[1445, 1286]	2063	[1564, 527]	3215	[2685, 467]	4367	[3635, 1544]
912	[1446, 553]	2064	[2639, 1476]	3216	[2604, 2565]	4368	[4295, 578]
913	[473, 704]	2065	[1724, 2520]	3217	[2748, 1592]	4369	[4525, 4210]
914	[1428, 1447]	2066	[210, 240]	3218	[3660, 3484]	4370	[4220, 2767]

915	[1357, 1448]	2067	[2640, 2559]	3219	[3661, 3662]	4371	[4517, 1708]
916	[1449, 1450]	2068	[2438, 1590]	3220	[512, 2735]	4372	[4526, 1521]
917	[1347, 1281]	2069	[2641, 1450]	3221	[3476, 1712]	4373	[3652, 3606]
918	[744, 637]	2070	[1727, 1484]	3222	[2737, 1529]	4374	[1535, 1454]
919	[1451, 1452]	2071	[716, 140]	3223	[3663, 1617]	4375	[1301, 4527]
920	[1453, 1282]	2072	[1595, 157]	3224	[692, 3664]	4376	[574, 1431]
921	[692, 1454]	2073	[140, 1566]	3225	[2619, 2708]	4377	[3742, 1588]
922	[1455, 745]	2074	[2642, 1710]	3226	[3665, 1633]	4378	[4528, 1640]
923	[1456, 1416]	2075	[513, 2643]	3227	[518, 1583]	4379	[1558, 129]
924	[176, 1457]	2076	[2644, 2645]	3228	[3666, 1480]	4380	[2795, 1669]
925	[1458, 1393]	2077	[33, 2512]	3229	[3667, 2534]	4381	[3651, 1379]
926	[1459, 1410]	2078	[1711, 2646]	3230	[3668, 1600]	4382	[4328, 4286]
927	[1460, 1461]	2079	[2647, 2487]	3231	[1542, 702]	4383	[3755, 3498]
928	[1462, 1463]	2080	[2555, 2648]	3232	[3669, 617]	4384	[3731, 1582]
929	[1464, 188]	2081	[1716, 593]	3233	[3670, 513]	4385	[4529, 2723]
930	[1465, 464]	2082	[2649, 543]	3234	[1518, 3671]	4386	[3579, 52]
931	[1466, 1319]	2083	[2650, 488]	3235	[3672, 1469]	4387	[4530, 4239]
932	[1467, 1336]	2084	[1693, 2445]	3236	[3673, 3583]	4388	[4531, 3747]
933	[1468, 238]	2085	[1453, 550]	3237	[3597, 2585]	4389	[3640, 1393]
934	[167, 1469]	2086	[471, 1660]	3238	[3674, 3675]	4390	[2815, 42]
935	[598, 164]	2087	[2651, 2652]	3239	[3676, 2733]	4391	[1707, 3712]
936	[1387, 709]	2088	[1412, 1656]	3240	[44, 3557]	4392	[3550, 3733]
937	[1470, 1292]	2089	[2601, 1625]	3241	[3677, 3678]	4393	[4260, 3737]
938	[487, 1294]	2090	[1313, 1703]	3242	[3679, 3680]	4394	[3767, 3626]
939	[1471, 542]	2091	[2653, 1737]	3243	[3522, 3681]	4395	[3698, 1353]
940	[1472, 702]	2092	[2537, 1326]	3244	[2747, 3580]	4396	[4345, 1612]
941	[588, 574]	2093	[2654, 554]	3245	[3682, 1406]	4397	[3751, 1321]
942	[1473, 576]	2094	[58, 558]	3246	[2599, 1457]	4398	[3593, 1438]
943	[217, 1474]	2095	[2655, 485]	3247	[3683, 619]	4399	[4302, 1462]
944	[531, 227]	2096	[2546, 1688]	3248	[3684, 499]	4400	[4532, 1729]
945	[1475, 590]	2097	[2656, 200]	3249	[3685, 137]	4401	[2808, 176]
946	[733, 532]	2098	[2657, 2658]	3250	[3686, 1461]	4402	[3648, 1581]
947	[192, 1476]	2099	[615, 672]	3251	[2521, 2686]	4403	[195, 1395]
948	[1477, 1478]	2100	[2536, 1710]	3252	[3687, 1519]	4404	[4327, 2843]
949	[1375, 708]	2101	[2659, 713]	3253	[1679, 1348]	4405	[1630, 3675]
950	[1479, 700]	2102	[2660, 672]	3254	[2622, 1302]	4406	[3541, 1615]
951	[1480, 471]	2103	[608, 569]	3255	[3688, 1492]	4407	[3574, 3589]
952	[149, 590]	2104	[663, 765]	3256	[3637, 1284]	4408	[2782, 3690]
953	[228, 590]	2105	[1661, 61]	3257	[3483, 475]	4409	[1435, 4219]
954	[225, 227]	2106	[2661, 2574]	3258	[2449, 1309]	4410	[4285, 3753]
955	[1481, 1482]	2107	[2662, 2663]	3259	[3660, 1734]	4411	[3775, 1575]
956	[1483, 1484]	2108	[1450, 1301]	3260	[2580, 208]	4412	[4533, 3615]
957	[1485, 1486]	2109	[1579, 1350]	3261	[2847, 596]	4413	[4534, 2697]
958	[755, 574]	2110	[2664, 1416]	3262	[3689, 3653]	4414	[4320, 3598]

959	[1345, 214]	2111	[2665, 2666]	3263	[3607, 3643]	4415	[4535, 2791]
960	[1487, 171]	2112	[2503, 496]	3264	[2780, 3533]	4416	[4339, 2747]
961	[697, 599]	2113	[2667, 612]	3265	[3530, 1396]	4417	[2490, 4536]
962	[555, 1373]	2114	[2473, 1699]	3266	[3609, 3553]	4418	[4537, 4276]
963	[742, 1488]	2115	[2668, 2669]	3267	[3655, 3690]	4419	[4538, 4233]
964	[1349, 1489]	2116	[2670, 2671]	3268	[3691, 2629]	4420	[3776, 2780]
965	[1490, 1491]	2117	[2486, 2672]	3269	[3692, 757]	4421	[4293, 4536]
966	[1492, 640]	2118	[2554, 2673]	3270	[2827, 2607]	4422	[2775, 2816]
967	[1493, 1494]	2119	[2674, 2675]	3271	[3693, 2729]	4423	[9, 1521]
968	[1495, 1496]	2120	[2676, 593]	3272	[2690, 1587]	4424	[4207, 2777]
969	[1497, 1498]	2121	[2476, 764]	3273	[1553, 1388]	4425	[2837, 2598]
970	[530, 225]	2122	[1651, 1538]	3274	[3694, 2607]	4426	[3720, 2765]
971	[1499, 60]	2123	[141, 1567]	3275	[655, 2638]	4427	[4290, 4304]
972	[188, 710]	2124	[1288, 658]	3276	[3695, 2830]	4428	[3784, 3662]
973	[1500, 1501]	2125	[2677, 1556]	3277	[3696, 592]	4429	[3735, 522]
974	[1502, 723]	2126	[484, 2503]	3278	[3697, 2437]	4430	[4539, 4521]
975	[1503, 751]	2127	[2678, 2633]	3279	[2560, 2468]	4431	[1641, 2747]
976	[1504, 140]	2128	[2452, 1399]	3280	[602, 3490]	4432	[4216, 3523]
977	[1505, 1506]	2129	[575, 1534]	3281	[3698, 1449]	4433	[3722, 2432]
978	[1507, 45]	2130	[1480, 1613]	3282	[3511, 1534]	4434	[4317, 3525]
979	[1508, 1509]	2131	[2679, 2680]	3283	[2661, 501]	4435	[1344, 170]
980	[582, 225]	2132	[2514, 1496]	3284	[3699, 2513]	4436	[4235, 1730]
981	[1510, 532]	2133	[680, 194]	3285	[3524, 145]	4437	[1738, 4540]
982	[738, 738]	2134	[1591, 715]	3286	[3700, 2836]	4438	[4541, 1431]
983	[1434, 733]	2135	[1508, 33]	3287	[3701, 1562]	4439	[4542, 2489]
984	[532, 225]	2136	[2681, 1353]	3288	[3603, 138]	4440	[4543, 129]
985	[1511, 673]	2137	[1481, 2682]	3289	[1625, 42]	4441	[3729, 4282]
986	[1512, 45]	2138	[1286, 1738]	3290	[1408, 2845]	4442	[4544, 3496]
987	[1513, 1393]	2139	[2623, 1521]	3291	[3702, 3703]	4443	[4322, 4213]
988	[1514, 1515]	2140	[2683, 2684]	3292	[568, 2450]	4444	[4228, 1708]
989	[1516, 1517]	2141	[2685, 2686]	3293	[3704, 2798]	4445	[4263, 2480]
990	[1518, 1519]	2142	[1502, 1590]	3294	[546, 2833]	4446	[2588, 2733]
991	[1520, 1521]	2143	[2687, 602]	3295	[3512, 1285]	4447	[4545, 3601]
992	[1522, 729]	2144	[1568, 2519]	3296	[3668, 1491]	4448	[2568, 3538]
993	[1523, 1524]	2145	[2688, 2689]	3297	[3705, 177]	4449	[2572, 1589]
994	[1525, 1526]	2146	[2515, 1498]	3298	[3706, 1380]	4450	[4546, 2789]
995	[1527, 1319]	2147	[2690, 1379]	3299	[1477, 540]	4451	[4321, 3761]
996	[647, 733]	2148	[2603, 490]	3300	[2796, 1292]	4452	[4222, 3641]
997	[1528, 1529]	2149	[2691, 1375]	3301	[3542, 2448]	4453	[2593, 4306]
998	[725, 755]	2150	[2692, 186]	3302	[493, 1421]	4454	[4547, 2772]
999	[621, 1343]	2151	[2581, 577]	3303	[3707, 478]	4455	[4543, 2792]
1000	[550, 1530]	2152	[2693, 217]	3304	[2621, 235]	4456	[4548, 3508]
1001	[601, 1430]	2153	[2694, 750]	3305	[3708, 1501]	4457	[3482, 1625]
1002	[61, 463]	2154	[1681, 2501]	3306	[3709, 2468]	4458	[4296, 1592]

1003	[214, 760]	2155	[1428, 1366]	3307	[3554, 2474]	4459	[4340, 2725]
1004	[1379, 1531]	2156	[2695, 2455]	3308	[2738, 3664]	4460	[1728, 3528]
1005	[165, 711]	2157	[1690, 555]	3309	[1695, 1661]	4461	[544, 2559]
1006	[1532, 747]	2158	[2654, 1371]	3310	[3710, 472]	4462	[4549, 2789]
1007	[1533, 1530]	2159	[2696, 2697]	3311	[2541, 2682]	4463	[3661, 2669]
1008	[1473, 1534]	2160	[2698, 2699]	3312	[3557, 2819]	4464	[3715, 2482]
1009	[699, 1535]	2161	[2700, 2701]	3313	[2683, 1723]	4465	[4254, 1592]
1010	[580, 227]	2162	[2702, 2703]	3314	[173, 2565]	4466	[2481, 2551]
1011	[659, 240]	2163	[2704, 688]	3315	[3711, 3712]	4467	[4297, 2736]
1012	[1536, 183]	2164	[2705, 1578]	3316	[3713, 2716]	4468	[198, 2753]
1013	[707, 186]	2165	[691, 1535]	3317	[2848, 673]	4469	[3479, 4524]
1014	[1537, 1538]	2166	[1446, 1441]	3318	[2679, 1674]	4470	[4541, 559]
1015	[1388, 568]	2167	[2706, 1365]	3319	[3714, 1566]	4471	[4550, 3540]
1016	[216, 1285]	2168	[2707, 1612]	3320	[3715, 2551]	4472	[3489, 163]
1017	[1532, 587]	2169	[661, 2708]	3321	[3716, 2671]	4473	[2458, 4249]
1018	[703, 623]	2170	[610, 542]	3322	[3717, 3596]	4474	[4551, 1421]
1019	[648, 590]	2171	[2576, 1689]	3323	[3718, 2699]	4475	[4552, 3580]
1020	[1539, 1362]	2172	[1398, 484]	3324	[3594, 2628]	4476	[2768, 36]
1021	[1479, 219]	2173	[1552, 1702]	3325	[3719, 2834]	4477	[4315, 2834]
1022	[577, 548]	2174	[495, 2709]	3326	[3575, 1412]	4478	[2714, 2853]
1023	[1359, 1358]	2175	[2710, 239]	3327	[2797, 2437]	4479	[4237, 534]
1024	[1540, 750]	2176	[168, 599]	3328	[3567, 3671]	4480	[4311, 156]
1025	[627, 1362]	2177	[2711, 2712]	3329	[1715, 1478]	4481	[4534, 4210]
1026	[1541, 1302]	2178	[53, 1579]	3330	[3720, 3592]	4482	[4341, 4304]
1027	[1542, 1543]	2179	[1429, 602]	3331	[2584, 3598]	4483	[4335, 2715]
1028	[748, 630]	2180	[1622, 1373]	3332	[3674, 1631]	4484	[4269, 2646]
1029	[1338, 1452]	2181	[536, 1704]	3333	[3721, 3549]	4485	[8, 4275]
1030	[1544, 54]	2182	[2713, 1566]	3334	[1582, 2770]	4486	[4268, 2482]
1031	[1545, 169]	2183	[137, 512]	3335	[3722, 727]	4487	[4336, 522]
1032	[600, 508]	2184	[2473, 1457]	3336	[3689, 3606]	4488	[4518, 508]
1033	[1546, 657]	2185	[2714, 2715]	3337	[3531, 2746]	4489	[4530, 4323]
1034	[1547, 162]	2186	[2552, 2716]	3338	[3723, 1418]	4490	[4550, 4243]
1035	[1548, 1471]	2187	[2717, 9]	3339	[2604, 1398]	4491	[2566, 1556]
1036	[1549, 491]	2188	[2718, 1635]	3340	[3724, 3725]	4492	[4551, 536]
1037	[1397, 1478]	2189	[2719, 2570]	3341	[3726, 1588]	4493	[4544, 3583]
1038	[1550, 1551]	2190	[2720, 1470]	3342	[3727, 3521]	4494	[4271, 1629]
1039	[1552, 1553]	2191	[2721, 1604]	3343	[3728, 3538]	4495	[4553, 2645]
1040	[1554, 1310]	2192	[2722, 1695]	3344	[3729, 3730]	4496	[1354, 2723]
1041	[1555, 1556]	2193	[1450, 2723]	3345	[3731, 1730]	4497	[3676, 2589]
1042	[480, 1309]	2194	[1484, 637]	3346	[3732, 717]	4498	[4526, 10]
1043	[1557, 1558]	2195	[2724, 2725]	3347	[2644, 1633]	4499	[144, 3525]
1044	[1559, 493]	2196	[2726, 1656]	3348	[2670, 3733]	4500	[4248, 1697]
1045	[1560, 555]	2197	[2727, 2728]	3349	[512, 1493]	4501	[1395, 3690]
1046	[1561, 1562]	2198	[2729, 2709]	3350	[3734, 522]	4502	[50, 3725]

1047	[1563, 198]	2199	[2730, 56]	3351	[3735, 2590]	4503	[574, 559]
1048	[204, 1515]	2200	[1317, 598]	3352	[1636, 2680]	4504	[4332, 1500]
1049	[1564, 181]	2201	[1465, 684]	3353	[3736, 2578]	4505	[4324, 725]
1050	[211, 211]	2202	[1489, 594]	3354	[1292, 2556]	4506	[4346, 2567]
1051	[503, 1469]	2203	[1377, 614]	3355	[2864, 2686]	4507	[4554, 2556]
1052	[1565, 592]	2204	[2731, 1686]	3356	[3709, 2561]	4508	[4553, 1633]
1053	[1566, 1567]	2205	[497, 2473]	3357	[3736, 3737]	4509	[4537, 4555]
1054	[656, 215]	2206	[2731, 1310]	3358	[655, 156]	4510	[3535, 1500]
1055	[507, 1390]	2207	[41, 654]	3359	[2803, 709]	4511	[3754, 675]
1056	[1568, 1569]	2208	[2732, 2733]	3360	[3485, 541]	4512	[4329, 2699]
1057	[1570, 1571]	2209	[516, 2716]	3361	[3738, 2455]	4513	[1588, 1575]
1058	[1497, 1572]	2210	[2734, 2735]	3362	[2730, 1428]	4514	[1443, 4218]
1059	[740, 529]	2211	[2718, 2736]	3363	[459, 211]	4515	[1320, 3752]
1060	[1525, 657]	2212	[649, 706]	3364	[1451, 1339]	4516	[3766, 3498]
1061	[1573, 241]	2213	[1472, 1543]	3365	[1694, 1299]	4517	[3352, 4556]
1062	[1574, 1575]	2214	[2582, 646]	3366	[2739, 1653]	4518	[84, 4557]
1063	[1576, 1577]	2215	[2737, 2445]	3367	[2450, 1686]	4519	[1047, 4168]
1064	[1360, 621]	2216	[2495, 473]	3368	[3739, 3740]	4520	[4558, 3248]
1065	[1578, 1579]	2217	[2738, 1454]	3369	[3741, 499]	4521	[4559, 1851]
1066	[1580, 173]	2218	[1617, 749]	3370	[3742, 2572]	4522	[4560, 4561]
1067	[1505, 1515]	2219	[2739, 2740]	3371	[2703, 3743]	4523	[4562, 3927]
1068	[714, 1412]	2220	[2729, 496]	3372	[3744, 3745]	4524	[2410, 4460]
1069	[1581, 1582]	2221	[2741, 764]	3373	[3746, 1700]	4525	[4563, 4564]
1070	[1583, 523]	2222	[1549, 542]	3374	[3613, 3747]	4526	[2090, 4565]
1071	[1584, 1585]	2223	[613, 1312]	3375	[3748, 1509]	4527	[4132, 4501]
1072	[1586, 1526]	2224	[1626, 2658]	3376	[2695, 758]	4528	[4566, 4567]
1073	[1389, 1369]	2225	[2742, 2474]	3377	[693, 192]	4529	[4403, 4132]
1074	[736, 212]	2226	[2743, 2508]	3378	[2600, 2663]	4530	[3872, 3978]
1075	[1587, 1380]	2227	[2744, 1692]	3379	[471, 1696]	4531	[4568, 4569]
1076	[1588, 1589]	2228	[2745, 2746]	3380	[1484, 745]	4532	[4570, 4084]
1077	[722, 1590]	2229	[2747, 2666]	3381	[3564, 3737]	4533	[4571, 2870]
1078	[1503, 640]	2230	[1413, 2658]	3382	[2608, 1309]	4534	[4572, 4573]
1079	[1483, 1455]	2231	[705, 650]	3383	[2597, 2725]	4535	[4574, 4106]
1080	[1591, 1412]	2232	[2748, 1563]	3384	[3749, 1306]	4536	[4575, 4436]
1081	[1592, 198]	2233	[2627, 1728]	3385	[3750, 1564]	4537	[3430, 3933]
1082	[1593, 713]	2234	[1578, 54]	3386	[3751, 3752]	4538	[4576, 2226]
1083	[1594, 173]	2235	[728, 1571]	3387	[2860, 3753]	4539	[4577, 4016]
1084	[1595, 1410]	2236	[1516, 2749]	3388	[51, 619]	4540	[2043, 2948]
1085	[1444, 688]	2237	[1596, 1577]	3389	[3631, 1341]	4541	[126, 4578]
1086	[1596, 1597]	2238	[2677, 2567]	3390	[3546, 702]	4542	[4579, 4151]
1087	[1598, 624]	2239	[182, 204]	3391	[3754, 3657]	4543	[4580, 772]
1088	[1573, 598]	2240	[2632, 2750]	3392	[3755, 3756]	4544	[4581, 4582]
1089	[1599, 1365]	2241	[2571, 493]	3393	[3757, 3621]	4545	[4583, 4584]
1090	[1490, 1600]	2242	[1665, 609]	3394	[641, 1480]	4546	[4585, 2997]

1091	[1601, 1356]	2243	[2708, 232]	3395	[2655, 764]	4547	[4586, 3376]
1092	[636, 745]	2244	[2751, 492]	3396	[3758, 1295]	4548	[4587, 4588]
1093	[1602, 1491]	2245	[567, 480]	3397	[1614, 1358]	4549	[4589, 2184]
1094	[1603, 1604]	2246	[640, 1683]	3398	[720, 2626]	4550	[4590, 4591]
1095	[620, 755]	2247	[2752, 2501]	3399	[1443, 3562]	4551	[3363, 2378]
1096	[49, 756]	2248	[1358, 1671]	3400	[1739, 1494]	4552	[4592, 4593]
1097	[1341, 646]	2249	[2753, 727]	3401	[2688, 2434]	4553	[4594, 4595]
1098	[1605, 657]	2250	[2754, 2684]	3402	[1717, 764]	4554	[2013, 4596]
1099	[1337, 607]	2251	[687, 1330]	3403	[3692, 1337]	4555	[3103, 2385]
1100	[625, 463]	2252	[2517, 723]	3404	[671, 616]	4556	[4300, 4275]
1101	[1606, 760]	2253	[690, 1341]	3405	[2834, 44]	4557	[3706, 1531]
1102	[1291, 1607]	2254	[1561, 1461]	3406	[1415, 132]	4558	[4278, 4540]
1103	[593, 480]	2255	[2628, 33]	3407	[3759, 153]	4559	[4231, 687]
1104	[1608, 1609]	2256	[2755, 1563]	3408	[2667, 1550]	4560	[4251, 2459]
1105	[1610, 743]	2257	[2756, 1720]	3409	[3760, 3761]	4561	[4554, 1413]
1106	[1282, 1530]	2258	[2757, 143]	3410	[3762, 2487]	4562	[4597, 2784]
1107	[1611, 1612]	2259	[2758, 2689]	3411	[1687, 650]	4563	[4226, 3657]
1108	[642, 1613]	2260	[1736, 553]	3412	[3763, 177]	4564	[4333, 4304]
1109	[1614, 1360]	2261	[2759, 534]	3413	[2693, 1285]	4565	[3576, 1398]
1110	[1601, 1615]	2262	[568, 1309]	3414	[3630, 1361]	4566	[1738, 4279]
1111	[1363, 1489]	2263	[2609, 206]	3415	[3669, 177]	4567	[4230, 193]
1112	[1616, 221]	2264	[2760, 217]	3416	[3515, 1728]	4568	[4598, 4343]
1113	[1617, 630]	2265	[2533, 767]	3417	[712, 1462]	4569	[2568, 1700]
1114	[1618, 1619]	2266	[1383, 623]	3418	[2799, 753]	4570	[4532, 1581]
1115	[754, 48]	2267	[2761, 577]	3419	[3764, 1672]	4571	[4312, 2652]
1116	[1342, 622]	2268	[2762, 639]	3420	[3765, 2765]	4572	[4525, 2697]
1117	[48, 589]	2269	[646, 170]	3421	[3766, 3756]	4573	[2478, 3518]
1118	[1605, 1526]	2270	[1621, 555]	3422	[3767, 3488]	4574	[3724, 3534]
1119	[559, 696]	2271	[2763, 161]	3423	[3768, 1576]	4575	[4531, 3614]
1120	[1620, 564]	2272	[2764, 2765]	3424	[3710, 1332]	4576	[1454, 4555]
1121	[604, 163]	2273	[2766, 2767]	3425	[2801, 1286]	4577	[4597, 4519]
1122	[223, 1466]	2274	[2768, 515]	3426	[2548, 3588]	4578	[3568, 660]
1123	[1598, 507]	2275	[2769, 2736]	3427	[3769, 3588]	4579	[1683, 3740]
1124	[1621, 1622]	2276	[2591, 2770]	3428	[3770, 1653]	4580	[4309, 549]
1125	[605, 57]	2277	[2771, 2772]	3429	[2857, 1702]	4581	[2764, 3592]
1126	[462, 62]	2278	[206, 2747]	3430	[2657, 1414]	4582	[1628, 3518]
1127	[553, 1371]	2279	[2773, 2774]	3431	[2732, 2589]	4583	[1301, 4331]
1128	[1623, 183]	2280	[2775, 1710]	3432	[2647, 2672]	4584	[704, 193]
1129	[650, 1376]	2281	[2485, 727]	3433	[2855, 1565]	4585	[4548, 3553]
1130	[179, 566]	2282	[2776, 2777]	3434	[3771, 527]	4586	[3739, 4599]
1131	[14, 667]	2283	[2778, 2]	3435	[3772, 475]	4587	[3694, 2828]
1132	[1624, 1625]	2284	[2779, 151]	3436	[493, 536]	4588	[1292, 1413]
1133	[1626, 1414]	2285	[616, 134]	3437	[3773, 569]	4589	[4522, 2746]
1134	[1627, 1321]	2286	[2780, 1420]	3438	[2557, 2568]	4590	[4600, 4338]

1135	[1628, 1629]	2287	[614, 1550]	3439	[3774, 653]	4591	[2505, 129]
1136	[1630, 1631]	2288	[2781, 2746]	3440	[3775, 1589]	4592	[2558, 545]
1137	[1632, 1633]	2289	[2782, 1407]	3441	[2467, 2561]	4593	[4601, 3615]
1138	[1634, 1635]	2290	[129, 2783]	3442	[3707, 3776]	4594	[3604, 1494]
1139	[178, 1636]	2291	[622, 2784]	3443	[2788, 2749]	4595	[4246, 3525]
1140	[1637, 1638]	2292	[589, 559]	3444	[3777, 469]	4596	[4258, 1366]
1141	[1639, 1640]	2293	[2785, 544]	3445	[1332, 2496]	4597	[2098, 2876]
1142	[1641, 1642]	2294	[2786, 2787]	3446	[3778, 239]	4598	[4602, 4603]
1143	[1643, 1644]	2295	[2788, 1517]	3447	[583, 1492]	4599	[3375, 3897]
1144	[1645, 44]	2296	[1328, 2789]	3448	[2707, 1649]	4600	[4604, 3954]
1145	[1287, 1336]	2297	[2790, 2791]	3449	[3705, 617]	4601	[4605, 1225]
1146	[1646, 1647]	2298	[2505, 2792]	3450	[3779, 1379]	4602	[4330, 4527]
1147	[1648, 1649]	2299	[2793, 2794]	3451	[1391, 596]	4603	[749, 499]
1148	[1285, 1474]	2300	[2795, 669]	3452	[2770, 2519]	4604	[1683, 4599]
1149	[695, 552]	2301	[2450, 1310]	3453	[3780, 3572]	4605	[2664, 132]
1150	[1650, 1289]	2302	[2528, 1689]	3454	[3700, 2]		
1151	[505, 58]	2303	[2796, 763]	3455	[3781, 3553]		

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	768	1	1536	0	2304	0	3072	1	3840	0
1	0	769	1	1537	1	2305	1	3073	1	3841	1
2	0	770	0	1538	1	2306	0	3074	0	3842	0
3	0	771	0	1539	0	2307	0	3075	0	3843	1
4	1	772	0	1540	1	2308	1	3076	1	3844	1
5	0	773	0	1541	1	2309	1	3077	0	3845	1
6	0	774	1	1542	1	2310	1	3078	1	3846	1
7	0	775	0	1543	0	2311	0	3079	1	3847	1
8	1	776	0	1544	0	2312	0	3080	1	3848	1
9	1	777	1	1545	0	2313	0	3081	1	3849	1
10	0	778	1	1546	1	2314	1	3082	0	3850	1
11	0	779	0	1547	0	2315	1	3083	1	3851	1
12	0	780	0	1548	1	2316	0	3084	0	3852	1
13	0	781	1	1549	0	2317	0	3085	1	3853	0
14	0	782	1	1550	1	2318	1	3086	0	3854	0
15	0	783	1	1551	1	2319	0	3087	0	3855	0
16	0	784	1	1552	1	2320	0	3088	0	3856	1
17	1	785	0	1553	0	2321	0	3089	1	3857	0
18	0	786	0	1554	0	2322	1	3090	1	3858	0
19	1	787	1	1555	0	2323	0	3091	1	3859	0
20	1	788	1	1556	0	2324	0	3092	1	3860	1
21	0	789	1	1557	0	2325	0	3093	1	3861	1
22	0	790	1	1558	1	2326	0	3094	0	3862	0
23	0	791	1	1559	0	2327	0	3095	0	3863	1

24	0	792	1	1560	1	2328	1	3096	1	3864	0
25	0	793	1	1561	0	2329	1	3097	0	3865	1
26	0	794	0	1562	1	2330	1	3098	1	3866	1
27	0	795	0	1563	1	2331	0	3099	0	3867	0
28	0	796	1	1564	1	2332	1	3100	0	3868	0
29	0	797	1	1565	0	2333	0	3101	1	3869	1
30	0	798	0	1566	0	2334	1	3102	0	3870	1
31	0	799	1	1567	1	2335	0	3103	1	3871	1
32	1	800	0	1568	1	2336	0	3104	1	3872	1
33	0	801	0	1569	1	2337	0	3105	0	3873	0
34	1	802	1	1570	0	2338	0	3106	0	3874	0
35	1	803	0	1571	1	2339	0	3107	0	3875	1
36	1	804	0	1572	1	2340	1	3108	0	3876	1
37	0	805	0	1573	0	2341	1	3109	0	3877	0
38	1	806	1	1574	1	2342	1	3110	0	3878	1
39	1	807	1	1575	1	2343	0	3111	1	3879	1
40	1	808	1	1576	0	2344	0	3112	0	3880	1
41	1	809	0	1577	1	2345	0	3113	0	3881	1
42	0	810	1	1578	1	2346	1	3114	1	3882	0
43	0	811	0	1579	1	2347	1	3115	0	3883	1
44	0	812	1	1580	1	2348	0	3116	0	3884	1
45	0	813	1	1581	0	2349	0	3117	1	3885	1
46	1	814	1	1582	0	2350	1	3118	1	3886	1
47	0	815	0	1583	1	2351	1	3119	0	3887	1
48	0	816	0	1584	1	2352	1	3120	1	3888	1
49	0	817	0	1585	1	2353	0	3121	0	3889	1
50	0	818	0	1586	0	2354	1	3122	1	3890	1
51	0	819	0	1587	0	2355	0	3123	0	3891	1
52	1	820	1	1588	1	2356	1	3124	1	3892	0
53	0	821	0	1589	0	2357	1	3125	1	3893	0
54	0	822	1	1590	1	2358	1	3126	0	3894	0
55	0	823	0	1591	1	2359	1	3127	0	3895	1
56	1	824	0	1592	0	2360	1	3128	1	3896	0
57	0	825	0	1593	0	2361	1	3129	1	3897	1
58	0	826	1	1594	1	2362	1	3130	0	3898	0
59	0	827	1	1595	0	2363	0	3131	0	3899	1
60	1	828	0	1596	1	2364	1	3132	1	3900	1
61	0	829	0	1597	0	2365	1	3133	1	3901	0
62	1	830	0	1598	0	2366	1	3134	0	3902	0
63	0	831	1	1599	0	2367	0	3135	1	3903	1
64	0	832	1	1600	1	2368	0	3136	0	3904	0
65	1	833	1	1601	1	2369	1	3137	0	3905	1
66	0	834	1	1602	0	2370	1	3138	0	3906	1
67	0	835	0	1603	0	2371	0	3139	1	3907	1

68	1	836	0	1604	1	2372	1	3140	0	3908	1
69	1	837	0	1605	1	2373	0	3141	0	3909	0
70	1	838	0	1606	1	2374	1	3142	0	3910	1
71	1	839	0	1607	1	2375	0	3143	0	3911	1
72	1	840	0	1608	0	2376	1	3144	0	3912	1
73	1	841	0	1609	1	2377	1	3145	1	3913	1
74	1	842	0	1610	1	2378	0	3146	0	3914	1
75	0	843	1	1611	0	2379	1	3147	0	3915	1
76	1	844	1	1612	1	2380	1	3148	0	3916	1
77	1	845	0	1613	0	2381	0	3149	1	3917	1
78	0	846	1	1614	0	2382	1	3150	1	3918	0
79	1	847	1	1615	0	2383	1	3151	0	3919	0
80	1	848	1	1616	0	2384	1	3152	1	3920	1
81	1	849	1	1617	1	2385	0	3153	1	3921	0
82	1	850	0	1618	1	2386	0	3154	1	3922	0
83	1	851	1	1619	1	2387	0	3155	1	3923	1
84	1	852	1	1620	1	2388	1	3156	0	3924	0
85	0	853	1	1621	0	2389	0	3157	0	3925	1
86	1	854	0	1622	1	2390	0	3158	1	3926	1
87	0	855	1	1623	1	2391	1	3159	0	3927	0
88	1	856	1	1624	0	2392	0	3160	0	3928	0
89	0	857	0	1625	0	2393	1	3161	0	3929	0
90	0	858	0	1626	0	2394	0	3162	1	3930	1
91	0	859	1	1627	0	2395	0	3163	1	3931	0
92	1	860	0	1628	0	2396	1	3164	1	3932	1
93	1	861	1	1629	0	2397	0	3165	0	3933	1
94	1	862	1	1630	0	2398	0	3166	1	3934	0
95	0	863	0	1631	1	2399	1	3167	0	3935	0
96	1	864	1	1632	0	2400	0	3168	0	3936	0
97	0	865	1	1633	1	2401	1	3169	1	3937	0
98	1	866	1	1634	0	2402	0	3170	1	3938	1
99	0	867	0	1635	0	2403	0	3171	1	3939	0
100	1	868	1	1636	1	2404	1	3172	0	3940	1
101	0	869	0	1637	0	2405	0	3173	0	3941	0
102	0	870	0	1638	0	2406	0	3174	1	3942	1
103	0	871	1	1639	1	2407	0	3175	1	3943	0
104	0	872	1	1640	0	2408	1	3176	0	3944	1
105	1	873	1	1641	0	2409	0	3177	1	3945	1
106	1	874	0	1642	1	2410	1	3178	1	3946	0
107	0	875	0	1643	1	2411	0	3179	1	3947	1
108	1	876	1	1644	0	2412	0	3180	1	3948	1
109	0	877	0	1645	1	2413	1	3181	0	3949	1
110	1	878	0	1646	0	2414	1	3182	1	3950	1
111	0	879	1	1647	0	2415	0	3183	1	3951	1

112	1	880	1	1648	0	2416	1	3184	1	3952	0
113	1	881	0	1649	0	2417	0	3185	1	3953	1
114	0	882	0	1650	0	2418	1	3186	0	3954	1
115	0	883	1	1651	1	2419	0	3187	1	3955	1
116	0	884	1	1652	0	2420	0	3188	0	3956	0
117	0	885	0	1653	0	2421	0	3189	0	3957	1
118	0	886	1	1654	1	2422	0	3190	1	3958	1
119	0	887	0	1655	0	2423	0	3191	1	3959	1
120	1	888	0	1656	1	2424	1	3192	1	3960	0
121	1	889	1	1657	0	2425	0	3193	0	3961	0
122	1	890	1	1658	0	2426	1	3194	1	3962	0
123	0	891	0	1659	1	2427	0	3195	0	3963	1
124	0	892	0	1660	1	2428	0	3196	1	3964	0
125	1	893	0	1661	0	2429	0	3197	1	3965	0
126	1	894	1	1662	0	2430	0	3198	1	3966	0
127	0	895	1	1663	0	2431	1	3199	1	3967	0
128	0	896	1	1664	0	2432	1	3200	0	3968	0
129	0	897	1	1665	1	2433	1	3201	0	3969	1
130	1	898	1	1666	1	2434	1	3202	1	3970	0
131	1	899	0	1667	1	2435	1	3203	1	3971	1
132	0	900	0	1668	0	2436	0	3204	0	3972	0
133	0	901	0	1669	1	2437	0	3205	1	3973	1
134	0	902	1	1670	0	2438	0	3206	0	3974	1
135	0	903	1	1671	1	2439	1	3207	1	3975	1
136	0	904	1	1672	0	2440	0	3208	0	3976	0
137	1	905	1	1673	0	2441	0	3209	0	3977	1
138	0	906	1	1674	1	2442	0	3210	0	3978	1
139	1	907	0	1675	1	2443	0	3211	0	3979	1
140	1	908	1	1676	1	2444	0	3212	0	3980	1
141	1	909	0	1677	0	2445	0	3213	1	3981	0
142	1	910	1	1678	0	2446	1	3214	1	3982	1
143	1	911	1	1679	0	2447	0	3215	1	3983	1
144	1	912	0	1680	1	2448	1	3216	1	3984	0
145	0	913	0	1681	0	2449	1	3217	0	3985	1
146	1	914	0	1682	1	2450	0	3218	0	3986	1
147	0	915	1	1683	1	2451	0	3219	1	3987	1
148	1	916	1	1684	0	2452	0	3220	1	3988	0
149	1	917	0	1685	1	2453	1	3221	1	3989	1
150	0	918	1	1686	1	2454	1	3222	1	3990	0
151	1	919	1	1687	1	2455	1	3223	0	3991	0
152	1	920	1	1688	1	2456	1	3224	0	3992	1
153	1	921	0	1689	1	2457	1	3225	1	3993	1
154	1	922	1	1690	0	2458	1	3226	1	3994	0
155	0	923	0	1691	1	2459	0	3227	0	3995	0

156	0	924	0	1692	1	2460	1	3228	0	3996	1
157	0	925	0	1693	1	2461	0	3229	1	3997	0
158	1	926	1	1694	0	2462	0	3230	1	3998	0
159	0	927	0	1695	0	2463	1	3231	1	3999	0
160	1	928	0	1696	0	2464	0	3232	1	4000	1
161	0	929	0	1697	1	2465	0	3233	0	4001	1
162	1	930	1	1698	1	2466	0	3234	0	4002	1
163	1	931	1	1699	1	2467	0	3235	1	4003	0
164	1	932	0	1700	0	2468	1	3236	0	4004	0
165	0	933	0	1701	1	2469	1	3237	0	4005	1
166	1	934	0	1702	1	2470	1	3238	0	4006	1
167	0	935	0	1703	0	2471	1	3239	0	4007	1
168	1	936	1	1704	0	2472	1	3240	0	4008	1
169	0	937	0	1705	1	2473	1	3241	0	4009	1
170	1	938	1	1706	0	2474	1	3242	0	4010	0
171	0	939	0	1707	0	2475	1	3243	0	4011	1
172	0	940	0	1708	1	2476	0	3244	0	4012	1
173	0	941	0	1709	1	2477	1	3245	0	4013	0
174	0	942	1	1710	0	2478	1	3246	0	4014	0
175	0	943	1	1711	0	2479	0	3247	1	4015	1
176	0	944	1	1712	0	2480	0	3248	1	4016	1
177	0	945	1	1713	1	2481	1	3249	1	4017	0
178	1	946	0	1714	1	2482	0	3250	1	4018	0
179	0	947	0	1715	0	2483	0	3251	1	4019	0
180	0	948	0	1716	1	2484	1	3252	1	4020	1
181	1	949	0	1717	0	2485	0	3253	0	4021	1
182	0	950	1	1718	0	2486	0	3254	0	4022	0
183	1	951	0	1719	0	2487	0	3255	1	4023	1
184	1	952	1	1720	0	2488	0	3256	1	4024	1
185	1	953	0	1721	1	2489	1	3257	0	4025	1
186	1	954	0	1722	0	2490	1	3258	1	4026	1
187	0	955	1	1723	0	2491	1	3259	0	4027	0
188	1	956	1	1724	1	2492	0	3260	0	4028	0
189	1	957	1	1725	1	2493	1	3261	1	4029	0
190	0	958	1	1726	0	2494	1	3262	1	4030	1
191	0	959	1	1727	0	2495	1	3263	0	4031	0
192	0	960	0	1728	0	2496	1	3264	0	4032	0
193	1	961	0	1729	1	2497	1	3265	1	4033	0
194	1	962	0	1730	1	2498	0	3266	1	4034	1
195	0	963	0	1731	1	2499	0	3267	1	4035	0
196	1	964	0	1732	0	2500	0	3268	0	4036	0
197	1	965	0	1733	0	2501	0	3269	0	4037	1
198	1	966	1	1734	0	2502	1	3270	1	4038	0
199	1	967	1	1735	0	2503	0	3271	0	4039	1

200	0	968	1	1736	1	2504	0	3272	0	4040	1
201	0	969	0	1737	0	2505	0	3273	0	4041	1
202	1	970	1	1738	0	2506	1	3274	0	4042	1
203	0	971	1	1739	1	2507	1	3275	1	4043	0
204	1	972	1	1740	0	2508	0	3276	1	4044	1
205	1	973	1	1741	1	2509	0	3277	1	4045	1
206	1	974	1	1742	1	2510	0	3278	1	4046	1
207	1	975	1	1743	1	2511	1	3279	1	4047	0
208	0	976	1	1744	1	2512	0	3280	1	4048	1
209	0	977	0	1745	0	2513	1	3281	1	4049	1
210	0	978	1	1746	0	2514	0	3282	0	4050	0
211	1	979	1	1747	0	2515	0	3283	0	4051	0
212	0	980	1	1748	1	2516	0	3284	1	4052	1
213	0	981	0	1749	0	2517	0	3285	1	4053	0
214	1	982	1	1750	0	2518	0	3286	1	4054	1
215	0	983	1	1751	0	2519	0	3287	1	4055	0
216	0	984	0	1752	1	2520	0	3288	0	4056	1
217	1	985	1	1753	0	2521	1	3289	0	4057	0
218	1	986	0	1754	0	2522	0	3290	1	4058	1
219	0	987	0	1755	1	2523	0	3291	1	4059	1
220	1	988	1	1756	0	2524	1	3292	0	4060	0
221	1	989	0	1757	1	2525	0	3293	1	4061	1
222	0	990	0	1758	0	2526	1	3294	0	4062	0
223	1	991	0	1759	0	2527	1	3295	1	4063	0
224	0	992	1	1760	0	2528	0	3296	1	4064	0
225	0	993	0	1761	0	2529	0	3297	0	4065	0
226	1	994	0	1762	1	2530	0	3298	0	4066	0
227	0	995	0	1763	1	2531	0	3299	0	4067	0
228	0	996	0	1764	0	2532	1	3300	1	4068	0
229	0	997	0	1765	1	2533	1	3301	1	4069	0
230	0	998	1	1766	0	2534	1	3302	0	4070	1
231	1	999	0	1767	0	2535	1	3303	0	4071	1
232	1	1000	1	1768	0	2536	0	3304	0	4072	0
233	1	1001	0	1769	1	2537	0	3305	0	4073	1
234	0	1002	0	1770	1	2538	1	3306	0	4074	1
235	0	1003	1	1771	0	2539	0	3307	0	4075	1
236	0	1004	1	1772	1	2540	0	3308	0	4076	1
237	0	1005	0	1773	1	2541	1	3309	0	4077	1
238	1	1006	0	1774	1	2542	1	3310	0	4078	1
239	1	1007	1	1775	1	2543	0	3311	1	4079	0
240	1	1008	1	1776	1	2544	1	3312	0	4080	1
241	1	1009	0	1777	0	2545	1	3313	1	4081	1
242	0	1010	0	1778	1	2546	1	3314	0	4082	1
243	1	1011	1	1779	1	2547	0	3315	0	4083	1

244	0	1012	0	1780	0	2548	1	3316	0	4084	0
245	0	1013	0	1781	1	2549	0	3317	0	4085	0
246	0	1014	1	1782	1	2550	0	3318	0	4086	0
247	1	1015	1	1783	0	2551	1	3319	0	4087	1
248	1	1016	0	1784	1	2552	0	3320	0	4088	1
249	1	1017	0	1785	0	2553	0	3321	0	4089	1
250	1	1018	0	1786	1	2554	1	3322	1	4090	1
251	0	1019	0	1787	0	2555	0	3323	1	4091	1
252	0	1020	0	1788	0	2556	1	3324	0	4092	0
253	0	1021	1	1789	0	2557	1	3325	1	4093	0
254	0	1022	1	1790	0	2558	1	3326	0	4094	1
255	1	1023	0	1791	1	2559	1	3327	0	4095	1
256	0	1024	1	1792	1	2560	1	3328	0	4096	0
257	1	1025	1	1793	1	2561	0	3329	0	4097	0
258	0	1026	1	1794	1	2562	1	3330	0	4098	1
259	1	1027	1	1795	1	2563	1	3331	0	4099	0
260	0	1028	0	1796	1	2564	1	3332	0	4100	0
261	0	1029	0	1797	1	2565	1	3333	1	4101	0
262	1	1030	0	1798	1	2566	1	3334	0	4102	0
263	1	1031	0	1799	0	2567	1	3335	0	4103	0
264	0	1032	0	1800	1	2568	0	3336	1	4104	0
265	0	1033	1	1801	1	2569	1	3337	0	4105	0
266	1	1034	0	1802	1	2570	1	3338	0	4106	0
267	0	1035	1	1803	1	2571	1	3339	1	4107	0
268	1	1036	0	1804	0	2572	0	3340	0	4108	0
269	0	1037	1	1805	1	2573	1	3341	0	4109	0
270	1	1038	1	1806	0	2574	1	3342	1	4110	0
271	0	1039	1	1807	1	2575	1	3343	1	4111	0
272	1	1040	0	1808	1	2576	1	3344	1	4112	0
273	1	1041	0	1809	0	2577	1	3345	0	4113	1
274	1	1042	1	1810	1	2578	0	3346	0	4114	0
275	1	1043	0	1811	0	2579	1	3347	1	4115	0
276	1	1044	0	1812	1	2580	0	3348	1	4116	1
277	1	1045	1	1813	0	2581	0	3349	1	4117	1
278	0	1046	0	1814	0	2582	1	3350	0	4118	1
279	1	1047	1	1815	1	2583	0	3351	1	4119	1
280	1	1048	1	1816	1	2584	0	3352	1	4120	0
281	0	1049	1	1817	1	2585	1	3353	0	4121	0
282	0	1050	1	1818	0	2586	1	3354	0	4122	1
283	0	1051	1	1819	1	2587	1	3355	0	4123	0
284	1	1052	0	1820	0	2588	0	3356	0	4124	0
285	1	1053	0	1821	0	2589	0	3357	0	4125	0
286	0	1054	1	1822	1	2590	0	3358	1	4126	1
287	0	1055	1	1823	0	2591	0	3359	0	4127	1

288	1	1056	1	1824	1	2592	1	3360	1	4128	1
289	1	1057	0	1825	1	2593	0	3361	0	4129	1
290	0	1058	0	1826	0	2594	0	3362	1	4130	1
291	1	1059	0	1827	0	2595	0	3363	0	4131	0
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293	1	1061	0	1829	0	2597	0	3365	0	4133	0
294	0	1062	1	1830	0	2598	0	3366	1	4134	0
295	1	1063	0	1831	0	2599	0	3367	0	4135	1
296	0	1064	1	1832	1	2600	0	3368	1	4136	0
297	0	1065	1	1833	0	2601	1	3369	0	4137	1
298	0	1066	1	1834	1	2602	0	3370	0	4138	1
299	0	1067	0	1835	0	2603	0	3371	0	4139	1
300	1	1068	1	1836	0	2604	1	3372	0	4140	0
301	0	1069	0	1837	1	2605	0	3373	0	4141	0
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303	1	1071	1	1839	1	2607	0	3375	0	4143	0
304	0	1072	0	1840	1	2608	0	3376	1	4144	0
305	0	1073	0	1841	1	2609	1	3377	1	4145	0
306	1	1074	1	1842	0	2610	0	3378	0	4146	1
307	1	1075	0	1843	0	2611	1	3379	1	4147	0
308	1	1076	1	1844	0	2612	1	3380	0	4148	0
309	0	1077	1	1845	0	2613	0	3381	1	4149	0
310	1	1078	1	1846	0	2614	1	3382	0	4150	1
311	1	1079	1	1847	1	2615	0	3383	0	4151	0
312	1	1080	1	1848	1	2616	0	3384	1	4152	1
313	1	1081	0	1849	1	2617	0	3385	0	4153	0
314	1	1082	0	1850	1	2618	0	3386	1	4154	1
315	1	1083	1	1851	0	2619	1	3387	0	4155	1
316	0	1084	0	1852	0	2620	0	3388	0	4156	0
317	1	1085	0	1853	0	2621	0	3389	1	4157	1
318	1	1086	1	1854	0	2622	0	3390	1	4158	1
319	0	1087	0	1855	0	2623	0	3391	0	4159	0
320	0	1088	0	1856	0	2624	0	3392	1	4160	1
321	0	1089	0	1857	0	2625	1	3393	0	4161	0
322	1	1090	0	1858	0	2626	0	3394	0	4162	1
323	0	1091	1	1859	0	2627	0	3395	1	4163	0
324	0	1092	0	1860	0	2628	0	3396	0	4164	0
325	1	1093	0	1861	0	2629	0	3397	0	4165	1
326	1	1094	0	1862	0	2630	1	3398	1	4166	0
327	0	1095	1	1863	1	2631	0	3399	0	4167	1
328	0	1096	0	1864	1	2632	1	3400	1	4168	1
329	0	1097	1	1865	1	2633	1	3401	1	4169	0
330	0	1098	1	1866	1	2634	1	3402	0	4170	0
331	0	1099	1	1867	1	2635	0	3403	0	4171	1

332	1	1100	1	1868	0	2636	1	3404	1	4172	0
333	0	1101	1	1869	0	2637	0	3405	1	4173	0
334	0	1102	0	1870	0	2638	1	3406	1	4174	1
335	0	1103	0	1871	1	2639	1	3407	0	4175	1
336	1	1104	0	1872	1	2640	0	3408	1	4176	1
337	0	1105	1	1873	1	2641	0	3409	0	4177	1
338	0	1106	0	1874	1	2642	1	3410	1	4178	0
339	0	1107	0	1875	1	2643	0	3411	1	4179	0
340	1	1108	1	1876	1	2644	1	3412	0	4180	1
341	1	1109	0	1877	1	2645	0	3413	1	4181	1
342	1	1110	1	1878	0	2646	1	3414	1	4182	1
343	0	1111	1	1879	1	2647	0	3415	1	4183	0
344	1	1112	0	1880	0	2648	1	3416	1	4184	0
345	0	1113	1	1881	1	2649	1	3417	0	4185	1
346	0	1114	1	1882	1	2650	0	3418	1	4186	0
347	1	1115	0	1883	1	2651	1	3419	0	4187	0
348	1	1116	0	1884	1	2652	0	3420	1	4188	1
349	0	1117	0	1885	1	2653	1	3421	0	4189	1
350	1	1118	1	1886	0	2654	1	3422	1	4190	0
351	1	1119	1	1887	0	2655	1	3423	1	4191	1
352	0	1120	1	1888	0	2656	1	3424	0	4192	0
353	1	1121	0	1889	0	2657	1	3425	0	4193	1
354	1	1122	1	1890	0	2658	1	3426	1	4194	1
355	1	1123	0	1891	0	2659	1	3427	0	4195	0
356	0	1124	0	1892	0	2660	0	3428	1	4196	1
357	1	1125	1	1893	0	2661	0	3429	1	4197	1
358	0	1126	0	1894	1	2662	0	3430	1	4198	0
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360	0	1128	1	1896	0	2664	0	3432	0	4200	0
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362	0	1130	0	1898	1	2666	0	3434	1	4202	1
363	1	1131	0	1899	0	2667	1	3435	1	4203	0
364	0	1132	0	1900	0	2668	1	3436	0	4204	1
365	0	1133	0	1901	1	2669	0	3437	0	4205	0
366	1	1134	0	1902	1	2670	1	3438	1	4206	1
367	0	1135	0	1903	0	2671	0	3439	1	4207	0
368	1	1136	0	1904	1	2672	1	3440	0	4208	1
369	1	1137	0	1905	1	2673	1	3441	0	4209	0
370	0	1138	0	1906	0	2674	1	3442	0	4210	1
371	1	1139	1	1907	0	2675	0	3443	1	4211	1
372	0	1140	0	1908	1	2676	0	3444	0	4212	1
373	0	1141	1	1909	0	2677	0	3445	0	4213	1
374	0	1142	0	1910	0	2678	1	3446	0	4214	1
375	1	1143	1	1911	1	2679	0	3447	1	4215	0

376	1	1144	1	1912	1	2680	0	3448	1	4216	0
377	1	1145	0	1913	1	2681	0	3449	0	4217	1
378	0	1146	0	1914	0	2682	0	3450	1	4218	0
379	1	1147	0	1915	0	2683	1	3451	1	4219	0
380	0	1148	0	1916	1	2684	1	3452	0	4220	0
381	0	1149	1	1917	1	2685	1	3453	0	4221	1
382	0	1150	0	1918	0	2686	0	3454	1	4222	0
383	0	1151	1	1919	1	2687	1	3455	1	4223	0
384	0	1152	1	1920	1	2688	1	3456	1	4224	0
385	1	1153	0	1921	1	2689	0	3457	1	4225	1
386	0	1154	0	1922	0	2690	0	3458	0	4226	1
387	0	1155	1	1923	1	2691	1	3459	1	4227	1
388	0	1156	0	1924	1	2692	1	3460	0	4228	1
389	1	1157	0	1925	0	2693	1	3461	1	4229	0
390	1	1158	0	1926	0	2694	0	3462	1	4230	0
391	1	1159	1	1927	0	2695	1	3463	0	4231	1
392	0	1160	1	1928	0	2696	0	3464	0	4232	0
393	1	1161	1	1929	1	2697	0	3465	0	4233	0
394	0	1162	0	1930	1	2698	0	3466	1	4234	0
395	1	1163	0	1931	1	2699	0	3467	1	4235	1
396	1	1164	0	1932	0	2700	0	3468	1	4236	1
397	0	1165	1	1933	1	2701	0	3469	1	4237	0
398	0	1166	0	1934	0	2702	0	3470	0	4238	1
399	1	1167	0	1935	0	2703	0	3471	0	4239	0
400	0	1168	1	1936	0	2704	1	3472	0	4240	1
401	0	1169	1	1937	1	2705	1	3473	0	4241	1
402	1	1170	1	1938	1	2706	1	3474	1	4242	1
403	0	1171	0	1939	0	2707	1	3475	1	4243	0
404	0	1172	1	1940	0	2708	0	3476	1	4244	1
405	0	1173	1	1941	1	2709	1	3477	1	4245	0
406	0	1174	1	1942	1	2710	1	3478	0	4246	0
407	1	1175	1	1943	1	2711	0	3479	0	4247	1
408	0	1176	0	1944	1	2712	0	3480	0	4248	0
409	0	1177	0	1945	0	2713	1	3481	0	4249	1
410	1	1178	0	1946	1	2714	0	3482	1	4250	1
411	0	1179	0	1947	1	2715	0	3483	0	4251	1
412	1	1180	1	1948	1	2716	0	3484	1	4252	0
413	1	1181	0	1949	1	2717	1	3485	1	4253	1
414	1	1182	0	1950	0	2718	1	3486	0	4254	1
415	1	1183	1	1951	0	2719	1	3487	1	4255	1
416	1	1184	1	1952	0	2720	0	3488	0	4256	1
417	0	1185	0	1953	1	2721	1	3489	0	4257	0
418	1	1186	0	1954	0	2722	0	3490	0	4258	0
419	1	1187	0	1955	1	2723	1	3491	0	4259	0

420	0	1188	1	1956	0	2724	0	3492	1	4260	0
421	1	1189	0	1957	1	2725	1	3493	0	4261	0
422	0	1190	1	1958	1	2726	1	3494	1	4262	1
423	0	1191	0	1959	1	2727	1	3495	1	4263	0
424	1	1192	0	1960	1	2728	0	3496	1	4264	1
425	1	1193	1	1961	1	2729	1	3497	0	4265	1
426	1	1194	0	1962	1	2730	1	3498	0	4266	1
427	0	1195	1	1963	0	2731	1	3499	0	4267	1
428	0	1196	1	1964	1	2732	1	3500	1	4268	1
429	0	1197	1	1965	1	2733	1	3501	1	4269	1
430	0	1198	0	1966	1	2734	1	3502	0	4270	0
431	1	1199	1	1967	1	2735	0	3503	1	4271	0
432	0	1200	1	1968	1	2736	1	3504	1	4272	1
433	0	1201	0	1969	1	2737	1	3505	0	4273	0
434	1	1202	1	1970	1	2738	0	3506	0	4274	0
435	1	1203	1	1971	1	2739	1	3507	0	4275	0
436	0	1204	1	1972	0	2740	1	3508	1	4276	0
437	0	1205	0	1973	0	2741	1	3509	1	4277	1
438	1	1206	1	1974	1	2742	0	3510	1	4278	0
439	1	1207	1	1975	0	2743	1	3511	0	4279	1
440	0	1208	0	1976	0	2744	0	3512	1	4280	0
441	1	1209	1	1977	0	2745	1	3513	0	4281	1
442	0	1210	1	1978	1	2746	0	3514	1	4282	1
443	1	1211	1	1979	0	2747	0	3515	1	4283	0
444	0	1212	0	1980	1	2748	0	3516	1	4284	0
445	0	1213	1	1981	0	2749	0	3517	1	4285	1
446	1	1214	0	1982	0	2750	0	3518	1	4286	0
447	0	1215	1	1983	1	2751	1	3519	1	4287	0
448	0	1216	1	1984	0	2752	0	3520	0	4288	0
449	0	1217	1	1985	0	2753	1	3521	1	4289	0
450	0	1218	0	1986	1	2754	0	3522	0	4290	1
451	0	1219	0	1987	0	2755	0	3523	0	4291	0
452	1	1220	0	1988	1	2756	0	3524	1	4292	0
453	1	1221	1	1989	0	2757	0	3525	1	4293	1
454	1	1222	1	1990	1	2758	0	3526	1	4294	0
455	1	1223	1	1991	0	2759	1	3527	0	4295	1
456	1	1224	0	1992	1	2760	0	3528	0	4296	1
457	0	1225	1	1993	1	2761	1	3529	1	4297	1
458	1	1226	0	1994	0	2762	0	3530	1	4298	1
459	0	1227	1	1995	1	2763	0	3531	0	4299	0
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461	0	1229	0	1997	0	2765	0	3533	1	4301	0
462	0	1230	1	1998	0	2766	1	3534	0	4302	1
463	0	1231	1	1999	0	2767	0	3535	1	4303	1

464	0	1232	0	2000	0	2768	0	3536	1	4304	1
465	1	1233	1	2001	1	2769	0	3537	1	4305	0
466	0	1234	0	2002	0	2770	0	3538	1	4306	1
467	1	1235	0	2003	0	2771	0	3539	1	4307	0
468	1	1236	0	2004	0	2772	0	3540	1	4308	0
469	0	1237	0	2005	1	2773	1	3541	0	4309	0
470	1	1238	0	2006	1	2774	1	3542	1	4310	0
471	1	1239	0	2007	0	2775	0	3543	1	4311	1
472	1	1240	1	2008	1	2776	1	3544	0	4312	1
473	0	1241	0	2009	0	2777	1	3545	0	4313	1
474	1	1242	0	2010	1	2778	1	3546	1	4314	0
475	0	1243	1	2011	0	2779	0	3547	1	4315	0
476	0	1244	1	2012	1	2780	0	3548	0	4316	0
477	0	1245	0	2013	1	2781	0	3549	1	4317	0
478	0	1246	1	2014	0	2782	0	3550	0	4318	0
479	0	1247	0	2015	1	2783	0	3551	0	4319	1
480	1	1248	0	2016	0	2784	0	3552	1	4320	1
481	0	1249	0	2017	0	2785	0	3553	0	4321	1
482	0	1250	0	2018	0	2786	0	3554	0	4322	1
483	1	1251	0	2019	0	2787	1	3555	1	4323	1
484	1	1252	0	2020	1	2788	1	3556	1	4324	1
485	0	1253	1	2021	0	2789	1	3557	0	4325	1
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487	1	1255	1	2023	1	2791	0	3559	0	4327	1
488	1	1256	0	2024	0	2792	1	3560	1	4328	0
489	0	1257	0	2025	0	2793	0	3561	1	4329	0
490	1	1258	0	2026	0	2794	0	3562	1	4330	0
491	0	1259	1	2027	1	2795	1	3563	1	4331	1
492	0	1260	0	2028	1	2796	1	3564	1	4332	1
493	0	1261	1	2029	1	2797	0	3565	1	4333	0
494	1	1262	0	2030	1	2798	1	3566	1	4334	1
495	1	1263	1	2031	0	2799	1	3567	0	4335	1
496	0	1264	1	2032	0	2800	0	3568	0	4336	0
497	0	1265	0	2033	0	2801	0	3569	1	4337	0
498	0	1266	0	2034	1	2802	1	3570	0	4338	1
499	1	1267	1	2035	0	2803	0	3571	0	4339	1
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