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

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

1. Introduction

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

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

as the limit of the finite continued fractions

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

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

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

admits a continued fraction expansion of form (1.1).

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

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

that we shall denote

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

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Theorem 1.1. *When* $(a,b)=(z^3, z^4+z^3+z^2+1)$, *the two power series* $\mathrm{CF}(a,b)$ *and* $\mathrm{CF}(b,a)$ *are algebraic over* $\mathbb{F}_2(z)$, *with minimal polynomials of the form*

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

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

$$\begin{aligned}
p_0(z) &= z^{21}+z^{20}+z^{18}+z^{17}+z^{15}+z^{13}+z^{12}+z^{11}+z^8+z^5+z^3+1,\\
p_1(z) &= z^{25}+z^{24}+z^{23}+z^{20}+z^{18}+z^{17}+z^{16}+z^{15}+z^{14}+z^{11}+z^9+z^8+z^6\\
&\quad +z^3,\\
p_2(z) &= z^{28}+z^{24}+z^{22}+z^{16}+z^{14}+z^6,\\
p_3(z) &= z^{25}+z^{24}+z^{23}+z^{20}+z^{18}+z^{17}+z^{16}+z^{15}+z^{14}+z^{11}+z^9+z^8+z^6\\
&\quad +z^3,\\
p_4(z) &= z^{22}+z^{21}+z^{18}+z^{17}+z^{15}+z^{14}+z^{13}+z^{11}+z^6+z^5+z^3,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z) &= z^{21}+z^{20}+z^{18}+z^{17}+z^{16}+z^{15}+z^{13}+z^{12}+z^{11}+z^5+z^3,\\
p_1(z) &= z^{25}+z^{24}+z^{23}+z^{20}+z^{18}+z^{17}+z^{16}+z^{15}+z^{14}+z^{11}+z^9+z^8+z^6\\
&\quad +z^3,\\
p_2(z) &= z^{28}+z^{24}+z^{22}+z^{16}+z^{14}+z^6,\\
p_3(z) &= z^{25}+z^{24}+z^{23}+z^{20}+z^{18}+z^{17}+z^{16}+z^{15}+z^{14}+z^{11}+z^9+z^8+z^6\\
&\quad +z^3,\\
p_4(z) &= z^{22}+z^{21}+z^{18}+z^{17}+z^{16}+z^{15}+z^{14}+z^{13}+z^{11}+z^8+z^6+z^5+z^3\\
&\quad +1.
\end{aligned}$$

2. Proof

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

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

By the basic properties of continued fractions, we have

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

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

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

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

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

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

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

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

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

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 $0 \leq i,j \leq 1$ 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 $0 \leq i,j \leq 1$, $T_{i,j}$ 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 $0 \leq i,j \leq 1$, 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 $n \geq 0$. If for some $n \geq 0$ 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 $j \geq 0$, $q_1(0) = 1$, 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. $\square$

Define

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

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

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

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

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

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

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

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

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

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

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

which can be rewritten as

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

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

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

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4430 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

$$\begin{aligned}(2.21)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,110)) + \tau(A(s,111)),\end{aligned}$$

$$\begin{aligned}(2.22)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,101)) + \tau(A(s,1000)),\end{aligned}$$

$$\begin{aligned}(2.23)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)),\end{aligned}$$

$$\begin{aligned}(2.24)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,1010)),\end{aligned}$$

$$\begin{aligned}(2.25)\quad & 0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,1011)),\end{aligned}$$

$$\begin{aligned}(2.26)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,110)) + \tau(A(s,1100)),\end{aligned}$$

$$(2.27)\quad 0 = \tau(A(s,1101)),$$

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

$$\begin{aligned}(2.28)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,110)) + \tau(A(s,111)),\end{aligned}$$

$$\begin{aligned}(2.29)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,101)) + \tau(A(s,1000)),\end{aligned}$$

$$\begin{aligned}(2.30)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)),\end{aligned}$$

$$\begin{aligned}(2.31)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & \quad + \tau(A(s,1010)),\end{aligned}$$

$$\begin{aligned}(2.32)\quad & 0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,1011)),\end{aligned}$$

$$\begin{aligned}(2.33)\quad & 0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,101)) \\ & \quad + \tau(A(s,110)) + \tau(A(s,1100)),\end{aligned}$$

$$(2.34)\quad 0 = \tau(A(s,1101)),$$

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{28}), E_{28}) = (A(i, 0^{20}), E_{20})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \leq k \leq 14$, which turns out to be true. □

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

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

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

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

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

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

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

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

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

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

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

$$\begin{aligned}q_0(x) &= x^{28}+x^{25}+x^{23}+x^{20}+x^{17}+x^{16}+x^{15}+x^{13}+x^{11}+x^{10}+x^{8}+x^{7},\\ q_1(x) &= x^{25}+x^{22}+x^{20}+x^{19}+x^{17}+x^{14}+x^{13}+x^{12}+x^{11}+x^{10}+x^{8}+x^{5}\\ &\quad +x^4+x^3,\\ q_2(x) &= x^{22}+x^{14}+x^{12}+x^{6}+x^{4}+1,\\ q_3(x) &= x^{25}+x^{22}+x^{20}+x^{19}+x^{17}+x^{14}+x^{13}+x^{12}+x^{11}+x^{10}+x^{8}+x^{5}\\ &\quad +x^4+x^3,\\ q_4(x) &= x^{25}+x^{23}+x^{22}+x^{17}+x^{15}+x^{14}+x^{13}+x^{11}+x^{10}+x^{7}+x^{6}.\end{aligned}$$

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

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

$$p_0(x) = x^{150}+x^{146}+x^{144}+x^{142}+x^{136}+x^{132}+x^{130}+x^{128}+x^{122}+x^{118}$$

$$
\begin{aligned}
&+ x^{116} + x^{112} + x^{108} + x^{106} + x^{94} + x^{90} + x^{88} + x^{80} + x^{76} + x^{68}\\
&+ x^{66} + x^{60} + x^{58} + x^{54} + x^{48} + x^{46} + x^{44} + x^{42} + x^{40} + x^{38} + x^{36},\\
p_3(x) &= x^{140} + x^{138} + x^{132} + x^{130} + x^{128} + x^{126} + x^{122} + x^{114} + x^{112} + x^{102}\\
&+ x^{100} + x^{96} + x^{94} + x^{80} + x^{78} + x^{70} + x^{66} + x^{58} + x^{46} + x^{44} + x^{40}\\
&+ x^{38} + x^{36} + x^{34} + x^{32} + x^{28} + x^{24} + x^{20},\\
p_6(x) &= x^{140} + x^{134} + x^{130} + x^{128} + x^{118} + x^{114} + x^{112} + x^{108} + x^{102} + x^{100}\\
&+ x^{96} + x^{92} + x^{90} + x^{88} + x^{82} + x^{80} + x^{76} + x^{70} + x^{68} + x^{58} + x^{56}\\
&+ x^{54} + x^{48} + x^{46} + x^{44} + x^{42} + x^{40} + x^{38} + x^{36} + x^{32} + x^{30} + x^{26}\\
&+ x^{22} + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{6} + 1,\\
p_9(x) &= x^{144} + x^{138} + x^{126} + x^{122} + x^{120} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104}\\
&+ x^{100} + x^{96} + x^{90} + x^{88} + x^{86} + x^{80} + x^{78} + x^{76} + x^{70} + x^{64} + x^{60}\\
&+ x^{56} + x^{50} + x^{46} + x^{44} + x^{42} + x^{40} + x^{30} + x^{28} + x^{20} + x^{12} + x^{10}\\
&+ x^{8} + x^{6},\\
p_{12}(x) &= x^{144} + x^{128} + x^{120} + x^{88} + x^{80} + x^{72} + x^{64} + x^{56} + x^{48} + x^{40} + x^{32}\\
&+ x^{24} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{144} + x^{143} + x^{142} + x^{139} + x^{138} + x^{137} + x^{134} + x^{129} + x^{127}\\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{116} + x^{114} + x^{112}\\
&+ x^{108} + x^{107} + x^{106} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{91}\\
&+ x^{90} + x^{88} + x^{87} + x^{85} + x^{83} + x^{82} + x^{79} + x^{77} + x^{76} + x^{70} + x^{66}\\
&+ x^{65} + x^{64} + x^{61} + x^{56} + x^{54} + x^{50} + x^{49} + x^{47} + x^{44} + x^{40} + x^{39},\\
p_3(x) &= x^{141} + x^{139} + x^{137} + x^{133} + x^{127} + x^{125} + x^{113} + x^{107} + x^{105} + x^{103}\\
&+ x^{95} + x^{93} + x^{89} + x^{85} + x^{81} + x^{79} + x^{71} + x^{67} + x^{57} + x^{51} + x^{49}\\
&+ x^{47} + x^{39} + x^{35} + x^{29} + x^{27},\\
p_6(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125}\\
&+ x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116}\\
&+ x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{96}\\
&+ x^{94} + x^{93} + x^{89} + x^{87} + x^{86} + x^{82} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74}\\
&+ x^{73} + x^{70} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{54}\\
&+ x^{51} + x^{49} + x^{48} + x^{46} + x^{43} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{135} + x^{133} + x^{131} + x^{129} + x^{117} + x^{113} + x^{109} + x^{107} + x^{105} + x^{103}\\
&+ x^{101} + x^{99} + x^{95} + x^{93} + x^{91} + x^{89} + x^{87} + x^{85} + x^{81} + x^{79} + x^{71}\\
&+ x^{65} + x^{63} + x^{61} + x^{55} + x^{53} + x^{51} + x^{49} + x^{45} + x^{43} + x^{41} + x^{39}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{37} + x^{31} + x^{29} + x^{27} + x^{21} + x^{17} + x^{15} + x^{9},\\
p_{12}(x) &= x^{132} + x^{130} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114}\\
&+ x^{113} + x^{112} + x^{100} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85}\\
&+ x^{84} + x^{76} + x^{74} + x^{73} + x^{70} + x^{69} + x^{68} + x^{60} + x^{58} + x^{57} + x^{54}\\
&+ x^{53} + x^{52} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{36} + x^{28} + x^{26} + x^{25}\\
&+ x^{22} + x^{21} + x^{20} + x^{12} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{144} + x^{143} + x^{142} + x^{139} + x^{138} + x^{137} + x^{134} + x^{129} + x^{127}\\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{116} + x^{114} + x^{112}\\
&+ x^{108} + x^{107} + x^{106} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{91}\\
&+ x^{90} + x^{88} + x^{87} + x^{85} + x^{83} + x^{82} + x^{79} + x^{77} + x^{76} + x^{70} + x^{66}\\
&+ x^{65} + x^{64} + x^{61} + x^{56} + x^{54} + x^{50} + x^{49} + x^{47} + x^{44} + x^{40} + x^{39},\\
p_3(x) &= x^{141} + x^{139} + x^{137} + x^{133} + x^{127} + x^{125} + x^{113} + x^{107} + x^{105} + x^{103}\\
&+ x^{95} + x^{93} + x^{89} + x^{85} + x^{81} + x^{79} + x^{71} + x^{67} + x^{57} + x^{51} + x^{49}\\
&+ x^{47} + x^{39} + x^{35} + x^{29} + x^{27},\\
p_6(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125}\\
&+ x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116}\\
&+ x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{96}\\
&+ x^{94} + x^{93} + x^{89} + x^{87} + x^{86} + x^{82} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74}\\
&+ x^{73} + x^{70} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{54}\\
&+ x^{51} + x^{49} + x^{48} + x^{46} + x^{43} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{135} + x^{133} + x^{131} + x^{129} + x^{117} + x^{113} + x^{109} + x^{107} + x^{105} + x^{103}\\
&+ x^{101} + x^{99} + x^{95} + x^{93} + x^{91} + x^{89} + x^{87} + x^{85} + x^{81} + x^{79} + x^{71}\\
&+ x^{65} + x^{63} + x^{61} + x^{55} + x^{53} + x^{51} + x^{49} + x^{45} + x^{43} + x^{41} + x^{39}\\
&+ x^{37} + x^{31} + x^{29} + x^{27} + x^{21} + x^{17} + x^{15} + x^{9},\\
p_{12}(x) &= x^{132} + x^{130} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114}\\
&+ x^{113} + x^{112} + x^{100} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85}\\
&+ x^{84} + x^{76} + x^{74} + x^{73} + x^{70} + x^{69} + x^{68} + x^{60} + x^{58} + x^{57} + x^{54}\\
&+ x^{53} + x^{52} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{36} + x^{28} + x^{26} + x^{25}\\
&+ x^{22} + x^{21} + x^{20} + x^{12} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

$$p_0(x) = x^{144} + x^{140} + x^{136} + x^{126} + x^{114} + x^{112} + x^{106} + x^{96} + x^{94} + x^{92}$$

$$
\begin{aligned}
&+x^{82}+x^{80}+x^{78}+x^{74}+x^{68}+x^{66}+x^{60}+x^{58}+x^{56}+x^{54}+x^{52}\\
&+x^{46}+x^{42},\\
p_3(x)&=x^{126}+x^{122}+x^{118}+x^{116}+x^{112}+x^{110}+x^{108}+x^{106}+x^{102}+x^{98}\\
&+x^{96}+x^{92}+x^{86}+x^{80}+x^{76}+x^{74}+x^{70}+x^{68}+x^{66}+x^{62}+x^{58}\\
&+x^{52}+x^{50}+x^{48}+x^{42}+x^{40}+x^{38}+x^{36}+x^{34}+x^{32}+x^{30}+x^{22}\\
&+x^{20}+x^{18},\\
p_6(x)&=x^{126}+x^{122}+x^{120}+x^{118}+x^{110}+x^{106}+x^{104}+x^{102}+x^{94}+x^{90}\\
&+x^{88}+x^{86}+x^{84}+x^{74}+x^{70}+x^{58}+x^{54}+x^{48}+x^{44}+x^{42}+x^{38}\\
&+x^{36}+x^{32}+x^{28}+x^{24}+x^{16}+x^{10}+x^{8}+x^{6}+x^{4}+x^{2}+1,\\
p_9(x)&=x^{120}+x^{116}+x^{112}+x^{110}+x^{108}+x^{106}+x^{104}+x^{102}+x^{100}+x^{94}\\
&+x^{84}+x^{80}+x^{74}+x^{70}+x^{64}+x^{62}+x^{60}+x^{54}+x^{52}+x^{50}+x^{48}\\
&+x^{46}+x^{40}+x^{32}+x^{26}+x^{24}+x^{20}+x^{12}+x^{10}+x^{6},\\
p_{12}(x)&=x^{120}+x^{116}+x^{114}+x^{112}+x^{88}+x^{84}+x^{82}+x^{80}+x^{72}+x^{68}+x^{66}\\
&+x^{64}+x^{56}+x^{52}+x^{50}+x^{48}+x^{40}+x^{36}+x^{34}+x^{32}+x^{24}+x^{20}\\
&+x^{18}+x^{16}+x^{8}+x^{4}+x^{2}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)&=x^{144}+x^{140}+x^{136}+x^{132}+x^{128}+x^{124}+x^{120}+x^{116}+x^{114}+x^{106}\\
&+x^{96}+x^{92}+x^{88}+x^{82}+x^{80}+x^{74}+x^{68}+x^{60}+x^{56}+x^{54}+x^{50}\\
&+x^{44}+x^{42}+x^{40}+x^{36},\\
p_3(x)&=x^{126}+x^{122}+x^{118}+x^{116}+x^{114}+x^{112}+x^{108}+x^{96}+x^{92}+x^{86}\\
&+x^{80}+x^{78}+x^{76}+x^{68}+x^{66}+x^{54}+x^{52}+x^{50}+x^{48}+x^{40}+x^{36}\\
&+x^{32}+x^{30}+x^{26}+x^{22}+x^{20},\\
p_6(x)&=x^{126}+x^{122}+x^{120}+x^{118}+x^{114}+x^{108}+x^{102}+x^{100}+x^{98}+x^{96}\\
&+x^{94}+x^{92}+x^{88}+x^{86}+x^{84}+x^{82}+x^{72}+x^{70}+x^{68}+x^{64}+x^{62}\\
&+x^{58}+x^{56}+x^{54}+x^{52}+x^{50}+x^{46}+x^{44}+x^{42}+x^{26}+x^{24}+x^{22}\\
&+x^{20}+x^{16}+x^{14}+x^{12}+x^{10}+x^{8}+x^{6}+x^{4}+x^{2}+1,\\
p_9(x)&=x^{120}+x^{116}+x^{112}+x^{110}+x^{108}+x^{106}+x^{104}+x^{102}+x^{100}+x^{94}\\
&+x^{84}+x^{80}+x^{74}+x^{70}+x^{64}+x^{62}+x^{60}+x^{54}+x^{52}+x^{50}+x^{48}\\
&+x^{46}+x^{40}+x^{32}+x^{26}+x^{24}+x^{20}+x^{12}+x^{10}+x^{6},\\
p_{12}(x)&=x^{120}+x^{116}+x^{114}+x^{112}+x^{88}+x^{84}+x^{82}+x^{80}+x^{72}+x^{68}+x^{66}\\
&+x^{64}+x^{56}+x^{52}+x^{50}+x^{48}+x^{40}+x^{36}+x^{34}+x^{32}+x^{24}+x^{20}\\
&+x^{18}+x^{16}+x^{8}+x^{4}+x^{2}+1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{139} + x^{138} + x^{136} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} \\
&\quad + x^{127} + x^{123} + x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} \\
&\quad + x^{107} + x^{106} + x^{99} + x^{98} + x^{96} + x^{94} + x^{91} + x^{90} + x^{87} + x^{83} + x^{82} \\
&\quad + x^{81} + x^{76} + x^{74} + x^{71} + x^{68} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} \\
&\quad + x^{53} + x^{52} + x^{50} + x^{45} + x^{40} + x^{39}, \\
p_3(x) &= x^{141} + x^{139} + x^{137} + x^{133} + x^{127} + x^{125} + x^{113} + x^{107} + x^{105} + x^{103} \\
&\quad + x^{95} + x^{93} + x^{89} + x^{85} + x^{81} + x^{79} + x^{71} + x^{67} + x^{57} + x^{51} + x^{49} \\
&\quad + x^{47} + x^{39} + x^{35} + x^{29} + x^{27}, \\
p_6(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} \\
&\quad + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} \\
&\quad + x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{96} \\
&\quad + x^{94} + x^{93} + x^{89} + x^{87} + x^{86} + x^{82} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74} \\
&\quad + x^{73} + x^{70} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{54} \\
&\quad + x^{51} + x^{49} + x^{48} + x^{46} + x^{43} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{30} \\
&\quad + x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18}, \\
p_9(x) &= x^{135} + x^{133} + x^{131} + x^{129} + x^{117} + x^{113} + x^{109} + x^{107} + x^{105} + x^{103} \\
&\quad + x^{101} + x^{99} + x^{95} + x^{93} + x^{91} + x^{89} + x^{87} + x^{85} + x^{81} + x^{79} + x^{71} \\
&\quad + x^{65} + x^{63} + x^{61} + x^{55} + x^{53} + x^{51} + x^{49} + x^{45} + x^{43} + x^{41} + x^{39} \\
&\quad + x^{37} + x^{31} + x^{29} + x^{27} + x^{21} + x^{17} + x^{15} + x^{9}, \\
p_{12}(x) &= x^{132} + x^{130} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} \\
&\quad + x^{113} + x^{112} + x^{100} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} \\
&\quad + x^{84} + x^{76} + x^{74} + x^{73} + x^{70} + x^{69} + x^{68} + x^{60} + x^{58} + x^{57} + x^{54} \\
&\quad + x^{53} + x^{52} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{36} + x^{28} + x^{26} + x^{25} \\
&\quad + x^{22} + x^{21} + x^{20} + 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, 1, 1, 0, 1, 0, 0, 1, 1, 1, 0, 1, 0].

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{139} + x^{138} + x^{136} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} \\
&\quad + x^{127} + x^{123} + x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{110} + x^{109} \\
&\quad + x^{107} + x^{106} + x^{99} + x^{98} + x^{96} + x^{94} + x^{91} + x^{90} + x^{87} + x^{83} + x^{82} \\
&\quad + x^{81} + x^{76} + x^{74} + x^{71} + x^{68} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} \\
&\quad + x^{53} + x^{52} + x^{50} + x^{45} + x^{40} + x^{39}, \\
p_3(x) &= x^{141} + x^{139} + x^{137} + x^{133} + x^{127} + x^{125} + x^{113} + x^{107} + x^{105} + x^{103} \\
&\quad + x^{95} + x^{93} + x^{89} + x^{85} + x^{81} + x^{79} + x^{71} + x^{67} + x^{57} + x^{51} + x^{49} \\
&\quad + x^{47} + x^{39} + x^{35} + x^{29} + x^{27},
\end{aligned}$$

$$\begin{aligned}
p_6(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} \\
&+ x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} \\
&+ x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{102} + x^{100} + x^{99} + x^{98} + x^{96} \\
&+ x^{94} + x^{93} + x^{89} + x^{87} + x^{86} + x^{82} + x^{80} + x^{79} + x^{78} + x^{76} + x^{74} \\
&+ x^{73} + x^{70} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{54} \\
&+ x^{51} + x^{49} + x^{48} + x^{46} + x^{43} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{30} \\
&+ x^{29} + x^{28} + x^{26} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18}, \\
p_9(x) &= x^{135} + x^{133} + x^{131} + x^{129} + x^{117} + x^{113} + x^{109} + x^{107} + x^{105} + x^{103} \\
&+ x^{101} + x^{99} + x^{95} + x^{93} + x^{91} + x^{89} + x^{87} + x^{85} + x^{81} + x^{79} + x^{71} \\
&+ x^{65} + x^{63} + x^{61} + x^{55} + x^{53} + x^{51} + x^{49} + x^{45} + x^{43} + x^{41} + x^{39} \\
&+ x^{37} + x^{31} + x^{29} + x^{27} + x^{21} + x^{17} + x^{15} + x^{9}, \\
p_{12}(x) &= x^{132} + x^{130} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} \\
&+ x^{113} + x^{112} + x^{100} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{86} + x^{85} \\
&+ x^{84} + x^{76} + x^{74} + x^{73} + x^{70} + x^{69} + x^{68} + x^{60} + x^{58} + x^{57} + x^{54} \\
&+ x^{53} + x^{52} + x^{44} + x^{42} + x^{41} + x^{38} + x^{37} + x^{36} + x^{28} + x^{26} + x^{25} \\
&+ x^{22} + x^{21} + x^{20} + x^{12} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{150} + x^{146} + x^{142} + x^{138} + x^{134} + x^{132} + x^{130} + x^{120} + x^{112} + x^{108} \\
&+ x^{100} + x^{96} + x^{94} + x^{90} + x^{82} + x^{80} + x^{76} + x^{72} + x^{70} + x^{68} + x^{60} \\
&+ x^{58} + x^{54} + x^{50} + x^{46} + x^{44} + x^{42}, \\
p_3(x) &= x^{140} + x^{130} + x^{126} + x^{120} + x^{114} + x^{108} + x^{102} + x^{98} + x^{94} + x^{92} \\
&+ x^{90} + x^{82} + x^{80} + x^{78} + x^{76} + x^{72} + x^{70} + x^{66} + x^{64} + x^{60} + x^{46} \\
&+ x^{44} + x^{42} + x^{40} + x^{38} + x^{34} + x^{28} + x^{18}, \\
p_6(x) &= x^{140} + x^{138} + x^{134} + x^{130} + x^{122} + x^{118} + x^{116} + x^{114} + x^{112} + x^{104} \\
&+ x^{102} + x^{98} + x^{92} + x^{84} + x^{80} + x^{76} + x^{72} + x^{70} + x^{68} + x^{60} + x^{54} \\
&+ x^{52} + x^{48} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} + x^{30} + x^{26} + x^{22} + x^{20} \\
&+ x^{14} + x^{10} + x^{6} + 1, \\
p_9(x) &= x^{144} + x^{138} + x^{126} + x^{122} + x^{120} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104} \\
&+ x^{100} + x^{96} + x^{90} + x^{88} + x^{86} + x^{80} + x^{78} + x^{76} + x^{70} + x^{64} + x^{60} \\
&+ x^{56} + x^{50} + x^{46} + x^{44} + x^{42} + x^{40} + x^{30} + x^{28} + x^{20} + x^{12} + x^{10} \\
&+ x^{8} + x^{6}, \\
p_{12}(x) &= x^{144} + x^{128} + x^{120} + x^{88} + x^{80} + x^{72} + x^{64} + x^{56} + x^{48} + x^{40} + x^{32} \\
&+ x^{24} + x^{8} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{144} + x^{143} + x^{142} + x^{141} + x^{139} + x^{138} + x^{133} + x^{132} + x^{131} \\
& + x^{129} + x^{128} + x^{127} + x^{126} + x^{122} + x^{121} + x^{117} + x^{114} + x^{113} \\
& + x^{111} + x^{110} + x^{107} + x^{106} + x^{99} + x^{97} + x^{95} + x^{92} + x^{89} + x^{88} \\
& + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{77} + x^{76} + x^{72} + x^{71} + x^{70} + x^{69} \\
& + x^{67} + x^{66} + x^{63} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{53} + x^{50} + x^{47} \\
& + x^{45} + x^{39} + x^{37} + x^{36}, \\
p_3(x) = {} & x^{144} + x^{142} + x^{140} + x^{138} + x^{135} + x^{132} + x^{131} + x^{130} + x^{128} + x^{127} \\
& + x^{125} + x^{124} + x^{122} + x^{120} + x^{119} + x^{116} + x^{115} + x^{113} + x^{112} \\
& + x^{110} + x^{105} + x^{102} + x^{101} + x^{98} + x^{97} + x^{95} + x^{94} + x^{93} + x^{91} \\
& + x^{89} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{73} + x^{69} + x^{68} + x^{66} + x^{64} \\
& + x^{63} + x^{62} + x^{60} + x^{58} + x^{56} + x^{55} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} \\
& + x^{45} + x^{43} + x^{42} + x^{39} + x^{38} + x^{37} + x^{36} + x^{32} + x^{27} + x^{25} + x^{24}, \\
p_6(x) = {} & x^{144} + x^{142} + x^{140} + x^{138} + x^{135} + x^{132} + x^{131} + x^{130} + x^{129} + x^{128} \\
& + x^{127} + x^{126} + x^{125} + x^{123} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116} \\
& + x^{113} + x^{111} + x^{110} + x^{108} + x^{105} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} \\
& + x^{95} + x^{93} + x^{88} + x^{83} + x^{80} + x^{76} + x^{75} + x^{72} + x^{71} + x^{70} + x^{67} \\
& + x^{60} + x^{59} + x^{58} + x^{56} + x^{49} + x^{47} + x^{46} + x^{41} + x^{39} + x^{38} + x^{37} \\
& + x^{33} + x^{29} + x^{27} + x^{22} + x^{21} + x^{19} + x^{17} + x^{16} + x^{15} + x^{13} + x^{10} \\
& + x^{9} + x^{6} + x^{5} + x^{2} + x + 1, \\
p_9(x) = {} & x^{144} + x^{142} + x^{141} + x^{140} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{126} \\
& + x^{125} + x^{124} + x^{112} + x^{110} + x^{109} + x^{108} + x^{104} + x^{102} + x^{101} \\
& + x^{100} + x^{88} + x^{86} + x^{85} + x^{84} + x^{72} + x^{70} + x^{69} + x^{68} + x^{56} + x^{54} \\
& + x^{53} + x^{52} + x^{40} + x^{38} + x^{37} + x^{36} + x^{24} + x^{22} + x^{21} + x^{20} + x^{16} \\
& + x^{14} + x^{13} + x^{12}, \\
p_{12}(x) = {} & x^{144} + x^{142} + x^{141} + x^{140} + x^{136} + x^{134} + x^{133} + x^{130} + x^{129} + x^{126} \\
& + x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110} + x^{109} \\
& + x^{108} + x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} \\
& + x^{88} + x^{76} + x^{74} + x^{73} + x^{72} + x^{60} + x^{58} + x^{57} + x^{56} + x^{44} + x^{42} \\
& + x^{41} + x^{40} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{10} + x^{9} \\
& + x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{152} + x^{144} + x^{143} + x^{142} + x^{141} + x^{137} + x^{134} + x^{131} + x^{130} + x^{129} \\
& + x^{127} + x^{126} + x^{124} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114} + x^{113}
\end{aligned}$$

$$+ x^{111} + x^{105} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{96} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} + x^{86} + x^{82} + x^{74} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} + x^{57} + x^{54} + x^{52} + x^{51} + x^{49} + x^{48} + x^{44} + x^{43} + x^{42} + x^{41} + x^{39},$$

$$p_3(x) = x^{131} + x^{128} + x^{126} + x^{125} + x^{123} + x^{121} + x^{120} + x^{117} + x^{116} + x^{115} + x^{107} + x^{104} + x^{102} + x^{101} + x^{97} + x^{94} + x^{92} + x^{89} + x^{88} + x^{85} + x^{84} + x^{80} + x^{78} + x^{77} + x^{73} + x^{70} + x^{68} + x^{65} + x^{64} + x^{61} + x^{60} + x^{59} + x^{51} + x^{48} + x^{46} + x^{45} + x^{41} + x^{38} + x^{36} + x^{33} + x^{32} + x^{29} + x^{28} + x^{27},$$

$$p_6(x) = x^{134} + x^{128} + x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{114} + x^{112} + x^{108} + x^{106} + x^{98} + x^{92} + x^{88} + x^{86} + x^{78} + x^{72} + x^{68} + x^{60} + x^{56} + x^{50} + x^{48} + x^{42} + x^{40} + x^{32} + x^{28} + x^{22} + x^{20} + x^{18},$$

$$p_9(x) = x^{137} + x^{134} + x^{132} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{105} + x^{102} + x^{100} + x^{97} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{81} + x^{80} + x^{76} + x^{74} + x^{70} + x^{68} + x^{65} + x^{64} + x^{60} + x^{58} + x^{54} + x^{52} + x^{49} + x^{48} + x^{44} + x^{42} + x^{38} + x^{36} + x^{33} + x^{32} + x^{28} + x^{26} + x^{22} + x^{20} + x^{17} + x^{16} + x^{12} + x^{10} + x^{9},$$

$$p_{12}(x) = x^{140} + x^{132} + x^{128} + x^{124} + x^{120} + x^{116} + x^{112} + x^{108} + x^{100} + x^{96} + x^{88} + x^{72} + x^{56} + x^{40} + x^{24} + x^{12} + x^{8} + x^{4} + 1,$$

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

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

$$p_0(x) = x^{150} + x^{147} + x^{146} + x^{145} + x^{144} + x^{142} + x^{139} + x^{137} + x^{136} + x^{133} + x^{132} + x^{131} + x^{128} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104} + x^{102} + x^{98} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{82} + x^{81} + x^{75} + x^{74} + x^{73} + x^{70} + x^{68} + x^{65} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{51} + x^{50} + x^{49} + x^{48} + x^{45} + x^{42} + x^{41} + x^{39},$$

$$p_3(x) = x^{147} + x^{144} + x^{142} + x^{141} + x^{137} + x^{135} + x^{134} + x^{131} + x^{130} + x^{127} + x^{126} + x^{125} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{113} + x^{112} + x^{111} + x^{109} + x^{107} + x^{106} + x^{105} + x^{101} + x^{98} + x^{96} + x^{93} + x^{92} + x^{89} + x^{88} + x^{84} + x^{82} + x^{81} + x^{77} + x^{75} + x^{74} + x^{70} + x^{68} + x^{64} + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{55} + x^{53} + x^{51} + x^{50} + x^{49} + x^{45} + x^{43} + x^{42} + x^{38} + x^{36} + x^{35} + x^{31} + x^{29} + x^{28} + x^{27},$$

$$p_6(x) = x^{150} + x^{144} + x^{140} + x^{134} + x^{132} + x^{130} + x^{126} + x^{120} + x^{116} + x^{114}$$

$$
\begin{aligned}
&+ x^{110} + x^{104} + x^{100} + x^{98} + x^{90} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{72}\\
&+ x^{66} + x^{64} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46} + x^{42} + x^{38} + x^{36} + x^{34}\\
&+ x^{30} + x^{24} + x^{20} + x^{18},\\
p_9(x) &= x^{153} + x^{150} + x^{148} + x^{144} + x^{142} + x^{141} + x^{137} + x^{134} + x^{133} + x^{132}\\
&+ x^{130} + x^{126} + x^{125} + x^{124} + x^{122} + x^{118} + x^{116} + x^{112} + x^{110}\\
&+ x^{109} + x^{101} + x^{98} + x^{96} + x^{92} + x^{90} + x^{89} + x^{85} + x^{82} + x^{80} + x^{76}\\
&+ x^{74} + x^{73} + x^{69} + x^{66} + x^{64} + x^{60} + x^{58} + x^{57} + x^{53} + x^{50} + x^{48}\\
&+ x^{44} + x^{42} + x^{41} + x^{37} + x^{34} + x^{32} + x^{28} + x^{26} + x^{22} + x^{21} + x^{20}\\
&+ x^{18} + x^{14} + x^{13} + x^{12} + x^{10} + x^{9},\\
p_{12}(x) &= x^{156} + x^{140} + x^{136} + x^{120} + x^{112} + x^{104} + x^{92} + x^{80} + x^{76} + x^{64}\\
&+ x^{60} + x^{48} + x^{44} + x^{32} + x^{16} + x^{12} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{141} + x^{139} + x^{137} + x^{133} + x^{132} + x^{131} + x^{130} + x^{128}\\
&+ x^{127} + x^{125} + x^{121} + x^{119} + x^{115} + x^{113} + x^{112} + x^{111} + x^{110}\\
&+ x^{108} + x^{107} + x^{103} + x^{102} + x^{99} + x^{98} + x^{96} + x^{92} + x^{91} + x^{84}\\
&+ x^{81} + x^{79} + x^{78} + x^{77} + x^{74} + x^{71} + x^{68} + x^{67} + x^{66} + x^{64} + x^{62}\\
&+ x^{61} + x^{60} + x^{58} + x^{54} + x^{51} + x^{50} + x^{49} + x^{47} + x^{45} + x^{43} + x^{42},\\
p_3(x) &= x^{144} + x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{131} + x^{128} + x^{120} + x^{117}\\
&+ x^{116} + x^{115} + x^{112} + x^{111} + x^{105} + x^{104} + x^{100} + x^{98} + x^{97} + x^{95}\\
&+ x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{86} + x^{85} + x^{80} + x^{79} + x^{78} + x^{76}\\
&+ x^{73} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{54}\\
&+ x^{50} + x^{49} + x^{47} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{37} + x^{33} + x^{31}\\
&+ x^{29} + x^{27} + x^{26},\\
p_6(x) &= x^{144} + x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{131} + x^{129} + x^{128} + x^{121}\\
&+ x^{120} + x^{119} + x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{108} + x^{107}\\
&+ x^{103} + x^{102} + x^{95} + x^{93} + x^{92} + x^{89} + x^{88} + x^{87} + x^{86} + x^{83} + x^{82}\\
&+ x^{79} + x^{78} + x^{75} + x^{74} + x^{73} + x^{71} + x^{70} + x^{67} + x^{64} + x^{62} + x^{61}\\
&+ x^{59} + x^{58} + x^{53} + x^{51} + x^{50} + x^{49} + x^{47} + x^{43} + x^{39} + x^{34} + x^{32}\\
&+ x^{29} + x^{28} + x^{27} + x^{25} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{15}\\
&+ x^{14} + x^{12} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) &= x^{144} + x^{142} + x^{141} + x^{140} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{126}\\
&+ x^{125} + x^{124} + x^{112} + x^{110} + x^{109} + x^{108} + x^{104} + x^{102} + x^{101}\\
&+ x^{100} + x^{88} + x^{86} + x^{85} + x^{84} + x^{72} + x^{70} + x^{69} + x^{68} + x^{56} + x^{54}\\
&+ x^{53} + x^{52} + x^{40} + x^{38} + x^{37} + x^{36} + x^{24} + x^{22} + x^{21} + x^{20} + x^{16}
\end{aligned}
$$

$$
\begin{aligned}
&+x^{14}+x^{13}+x^{12},\\
p_{12}(x)=\,&x^{144}+x^{142}+x^{141}+x^{140}+x^{136}+x^{134}+x^{133}+x^{130}+x^{129}+x^{126}\\
&+x^{125}+x^{122}+x^{121}+x^{118}+x^{117}+x^{114}+x^{113}+x^{110}+x^{109}\\
&+x^{108}+x^{104}+x^{102}+x^{101}+x^{98}+x^{97}+x^{96}+x^{92}+x^{90}+x^{89}\\
&+x^{88}+x^{76}+x^{74}+x^{73}+x^{72}+x^{60}+x^{58}+x^{57}+x^{56}+x^{44}+x^{42}\\
&+x^{41}+x^{40}+x^{28}+x^{26}+x^{25}+x^{24}+x^{16}+x^{14}+x^{13}+x^{10}+x^{9}\\
&+x^{6}+x^{5}+x^{2}+x+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)=\,&x^{147}+x^{144}+x^{143}+x^{142}+x^{141}+x^{139}+x^{138}+x^{133}+x^{132}+x^{131}\\
&+x^{129}+x^{128}+x^{127}+x^{126}+x^{122}+x^{121}+x^{117}+x^{114}+x^{113}\\
&+x^{111}+x^{110}+x^{107}+x^{106}+x^{99}+x^{97}+x^{95}+x^{92}+x^{89}+x^{88}\\
&+x^{86}+x^{85}+x^{83}+x^{82}+x^{81}+x^{77}+x^{76}+x^{72}+x^{71}+x^{70}+x^{69}\\
&+x^{67}+x^{66}+x^{63}+x^{61}+x^{60}+x^{58}+x^{57}+x^{56}+x^{53}+x^{50}+x^{47}\\
&+x^{45}+x^{39}+x^{37}+x^{36},\\
p_3(x)=\,&x^{144}+x^{142}+x^{140}+x^{138}+x^{135}+x^{132}+x^{131}+x^{130}+x^{128}+x^{127}\\
&+x^{125}+x^{124}+x^{122}+x^{120}+x^{119}+x^{116}+x^{115}+x^{113}+x^{112}\\
&+x^{110}+x^{105}+x^{102}+x^{101}+x^{98}+x^{97}+x^{95}+x^{94}+x^{93}+x^{91}\\
&+x^{89}+x^{82}+x^{81}+x^{80}+x^{79}+x^{77}+x^{73}+x^{69}+x^{68}+x^{66}+x^{64}\\
&+x^{63}+x^{62}+x^{60}+x^{58}+x^{56}+x^{55}+x^{50}+x^{49}+x^{48}+x^{47}+x^{46}\\
&+x^{45}+x^{43}+x^{42}+x^{39}+x^{38}+x^{37}+x^{36}+x^{32}+x^{27}+x^{25}+x^{24},\\
p_6(x)=\,&x^{144}+x^{142}+x^{140}+x^{138}+x^{135}+x^{132}+x^{131}+x^{130}+x^{129}+x^{128}\\
&+x^{127}+x^{126}+x^{125}+x^{123}+x^{121}+x^{120}+x^{118}+x^{117}+x^{116}\\
&+x^{113}+x^{111}+x^{110}+x^{108}+x^{105}+x^{103}+x^{102}+x^{101}+x^{99}+x^{98}\\
&+x^{95}+x^{93}+x^{88}+x^{83}+x^{80}+x^{76}+x^{75}+x^{72}+x^{71}+x^{70}+x^{67}\\
&+x^{60}+x^{59}+x^{58}+x^{56}+x^{49}+x^{47}+x^{46}+x^{41}+x^{39}+x^{38}+x^{37}\\
&+x^{33}+x^{29}+x^{27}+x^{22}+x^{21}+x^{19}+x^{17}+x^{16}+x^{15}+x^{13}+x^{10}\\
&+x^{9}+x^{6}+x^{5}+x^{2}+x+1,\\
p_9(x)=\,&x^{144}+x^{142}+x^{141}+x^{140}+x^{136}+x^{134}+x^{133}+x^{132}+x^{128}+x^{126}\\
&+x^{125}+x^{124}+x^{112}+x^{110}+x^{109}+x^{108}+x^{104}+x^{102}+x^{101}\\
&+x^{100}+x^{88}+x^{86}+x^{85}+x^{84}+x^{72}+x^{70}+x^{69}+x^{68}+x^{56}+x^{54}\\
&+x^{53}+x^{52}+x^{40}+x^{38}+x^{37}+x^{36}+x^{24}+x^{22}+x^{21}+x^{20}+x^{16}\\
&+x^{14}+x^{13}+x^{12},\\
p_{12}(x)=\,&x^{144}+x^{142}+x^{141}+x^{140}+x^{136}+x^{134}+x^{133}+x^{130}+x^{129}+x^{126}\\
&+x^{125}+x^{122}+x^{121}+x^{118}+x^{117}+x^{114}+x^{113}+x^{110}+x^{109}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{108} + x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89}\\
&+ x^{88} + x^{76} + x^{74} + x^{73} + x^{72} + x^{60} + x^{58} + x^{57} + x^{56} + x^{44} + x^{42}\\
&+ x^{41} + x^{40} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{10} + x^{9}\\
&+ x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

$$
\begin{aligned}
p_0(x) = {}& x^{150} + x^{147} + x^{146} + x^{145} + x^{144} + x^{142} + x^{139} + x^{137} + x^{136} + x^{133}\\
&+ x^{132} + x^{131} + x^{128} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120}\\
&+ x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{110} + x^{108} + x^{106} + x^{104}\\
&+ x^{102} + x^{98} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{90} + x^{88} + x^{87} + x^{86}\\
&+ x^{84} + x^{83} + x^{82} + x^{81} + x^{75} + x^{74} + x^{73} + x^{70} + x^{68} + x^{65} + x^{63}\\
&+ x^{61} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{51} + x^{50} + x^{49} + x^{48}\\
&+ x^{45} + x^{42} + x^{41} + x^{39},\\
p_3(x) = {}& x^{147} + x^{144} + x^{142} + x^{141} + x^{137} + x^{135} + x^{134} + x^{131} + x^{130} + x^{127}\\
&+ x^{126} + x^{125} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{113} + x^{112}\\
&+ x^{111} + x^{109} + x^{107} + x^{106} + x^{105} + x^{101} + x^{98} + x^{96} + x^{93} + x^{92}\\
&+ x^{89} + x^{88} + x^{84} + x^{82} + x^{81} + x^{77} + x^{75} + x^{74} + x^{70} + x^{68} + x^{64}\\
&+ x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{55} + x^{53} + x^{51} + x^{50} + x^{49} + x^{45}\\
&+ x^{43} + x^{42} + x^{38} + x^{36} + x^{35} + x^{31} + x^{29} + x^{28} + x^{27},\\
p_6(x) = {}& x^{150} + x^{144} + x^{140} + x^{134} + x^{132} + x^{130} + x^{126} + x^{120} + x^{116} + x^{114}\\
&+ x^{110} + x^{104} + x^{100} + x^{98} + x^{90} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{72}\\
&+ x^{66} + x^{64} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46} + x^{42} + x^{38} + x^{36} + x^{34}\\
&+ x^{30} + x^{24} + x^{20} + x^{18},\\
p_9(x) = {}& x^{153} + x^{150} + x^{148} + x^{144} + x^{142} + x^{141} + x^{137} + x^{134} + x^{133} + x^{132}\\
&+ x^{130} + x^{126} + x^{125} + x^{124} + x^{122} + x^{118} + x^{116} + x^{112} + x^{110}\\
&+ x^{109} + x^{101} + x^{98} + x^{96} + x^{92} + x^{90} + x^{89} + x^{85} + x^{82} + x^{80} + x^{76}\\
&+ x^{74} + x^{73} + x^{69} + x^{66} + x^{64} + x^{60} + x^{58} + x^{57} + x^{53} + x^{50} + x^{48}\\
&+ x^{44} + x^{42} + x^{41} + x^{37} + x^{34} + x^{32} + x^{28} + x^{26} + x^{22} + x^{21} + x^{20}\\
&+ x^{18} + x^{14} + x^{13} + x^{12} + x^{10} + x^{9},\\
p_{12}(x) = {}& x^{156} + x^{140} + x^{136} + x^{120} + x^{112} + x^{104} + x^{92} + x^{80} + x^{76} + x^{64}\\
&+ x^{60} + x^{48} + x^{44} + x^{32} + x^{16} + x^{12} + x^{8} + 1,
\end{aligned}
$$

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

$$
\begin{aligned}
p_0(x) = {}& x^{152} + x^{144} + x^{143} + x^{142} + x^{141} + x^{137} + x^{134} + x^{131} + x^{130} + x^{129}\\
&+ x^{127} + x^{126} + x^{124} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114} + x^{113}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{111} + x^{105} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{96} + x^{93} + x^{92}\\
&+ x^{91} + x^{88} + x^{87} + x^{86} + x^{82} + x^{74} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64}\\
&+ x^{62} + x^{60} + x^{58} + x^{57} + x^{54} + x^{52} + x^{51} + x^{49} + x^{48} + x^{44} + x^{43}\\
&+ x^{42} + x^{41} + x^{39},\\
p_3(x) &= x^{131} + x^{128} + x^{126} + x^{125} + x^{123} + x^{121} + x^{120} + x^{117} + x^{116} + x^{115}\\
&+ x^{107} + x^{104} + x^{102} + x^{101} + x^{97} + x^{94} + x^{92} + x^{89} + x^{88} + x^{85}\\
&+ x^{84} + x^{80} + x^{78} + x^{77} + x^{73} + x^{70} + x^{68} + x^{65} + x^{64} + x^{61} + x^{60}\\
&+ x^{59} + x^{51} + x^{48} + x^{46} + x^{45} + x^{41} + x^{38} + x^{36} + x^{33} + x^{32} + x^{29}\\
&+ x^{28} + x^{27},\\
p_6(x) &= x^{134} + x^{128} + x^{126} + x^{124} + x^{122} + x^{120} + x^{118} + x^{116} + x^{114} + x^{112}\\
&+ x^{108} + x^{106} + x^{98} + x^{92} + x^{88} + x^{86} + x^{78} + x^{72} + x^{68} + x^{60} + x^{56}\\
&+ x^{50} + x^{48} + x^{42} + x^{40} + x^{32} + x^{28} + x^{22} + x^{20} + x^{18},\\
p_9(x) &= x^{137} + x^{134} + x^{132} + x^{129} + x^{128} + x^{124} + x^{122} + x^{121} + x^{105} + x^{102}\\
&+ x^{100} + x^{97} + x^{96} + x^{92} + x^{90} + x^{86} + x^{84} + x^{81} + x^{80} + x^{76} + x^{74}\\
&+ x^{70} + x^{68} + x^{65} + x^{64} + x^{60} + x^{58} + x^{54} + x^{52} + x^{49} + x^{48} + x^{44}\\
&+ x^{42} + x^{38} + x^{36} + x^{33} + x^{32} + x^{28} + x^{26} + x^{22} + x^{20} + x^{17} + x^{16}\\
&+ x^{12} + x^{10} + x^{9},\\
p_{12}(x) &= x^{140} + x^{132} + x^{128} + x^{124} + x^{120} + x^{116} + x^{112} + x^{108} + x^{100} + x^{96}\\
&+ x^{88} + x^{72} + x^{56} + x^{40} + x^{24} + x^{12} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{143} + x^{141} + x^{139} + x^{137} + x^{133} + x^{132} + x^{131} + x^{130} + x^{128}\\
&+ x^{127} + x^{125} + x^{121} + x^{119} + x^{115} + x^{113} + x^{112} + x^{111} + x^{110}\\
&+ x^{108} + x^{107} + x^{103} + x^{102} + x^{99} + x^{98} + x^{96} + x^{92} + x^{91} + x^{84}\\
&+ x^{81} + x^{79} + x^{78} + x^{77} + x^{74} + x^{71} + x^{68} + x^{67} + x^{66} + x^{64} + x^{62}\\
&+ x^{61} + x^{60} + x^{58} + x^{54} + x^{51} + x^{50} + x^{49} + x^{47} + x^{45} + x^{43} + x^{42},\\
p_3(x) &= x^{144} + x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{131} + x^{128} + x^{120} + x^{117}\\
&+ x^{116} + x^{115} + x^{112} + x^{111} + x^{105} + x^{104} + x^{100} + x^{98} + x^{97} + x^{95}\\
&+ x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{86} + x^{85} + x^{80} + x^{79} + x^{78} + x^{76}\\
&+ x^{73} + x^{69} + x^{66} + x^{65} + x^{62} + x^{61} + x^{60} + x^{58} + x^{57} + x^{56} + x^{54}\\
&+ x^{50} + x^{49} + x^{47} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{37} + x^{33} + x^{31}\\
&+ x^{29} + x^{27} + x^{26},\\
p_6(x) &= x^{144} + x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{131} + x^{129} + x^{128} + x^{121}\\
&+ x^{120} + x^{119} + x^{116} + x^{115} + x^{114} + x^{113} + x^{111} + x^{108} + x^{107}\\
&+ x^{103} + x^{102} + x^{95} + x^{93} + x^{92} + x^{89} + x^{88} + x^{87} + x^{86} + x^{83} + x^{82}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{79} + x^{78} + x^{75} + x^{74} + x^{73} + x^{71} + x^{70} + x^{67} + x^{64} + x^{62} + x^{61}\\
&+ x^{59} + x^{58} + x^{53} + x^{51} + x^{50} + x^{49} + x^{47} + x^{43} + x^{39} + x^{34} + x^{32}\\
&+ x^{29} + x^{28} + x^{27} + x^{25} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{15}\\
&+ x^{14} + x^{12} + x^{10} + x^{9} + x^{6} + x^{5} + x^{2} + x + 1,\\
p_9(x) = {}& x^{144} + x^{142} + x^{141} + x^{140} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{126}\\
&+ x^{125} + x^{124} + x^{112} + x^{110} + x^{109} + x^{108} + x^{104} + x^{102} + x^{101}\\
&+ x^{100} + x^{88} + x^{86} + x^{85} + x^{84} + x^{72} + x^{70} + x^{69} + x^{68} + x^{56} + x^{54}\\
&+ x^{53} + x^{52} + x^{40} + x^{38} + x^{37} + x^{36} + x^{24} + x^{22} + x^{21} + x^{20} + x^{16}\\
&+ x^{14} + x^{13} + x^{12},\\
p_{12}(x) = {}& x^{144} + x^{142} + x^{141} + x^{140} + x^{136} + x^{134} + x^{133} + x^{130} + x^{129} + x^{126}\\
&+ x^{125} + x^{122} + x^{121} + x^{118} + x^{117} + x^{114} + x^{113} + x^{110} + x^{109}\\
&+ x^{108} + x^{104} + x^{102} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89}\\
&+ x^{88} + x^{76} + x^{74} + x^{73} + x^{72} + x^{60} + x^{58} + x^{57} + x^{56} + x^{44} + x^{42}\\
&+ x^{41} + x^{40} + x^{28} + x^{26} + x^{25} + x^{24} + x^{16} + x^{14} + x^{13} + x^{10} + x^{9}\\
&+ x^{6} + x^{5} + x^{2} + x + 1,
\end{aligned}
$$

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

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

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

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1108	[1768, 2]	2216	[748, 191]	3324	[3435, 1388]
1	[3, 4]	1109	[514, 787]	2217	[1705, 207]	3325	[3846, 873]
2	[5, 6]	1110	[1769, 1728]	2218	[2969, 3025]	3326	[3847, 2299]
3	[7, 8]	1111	[1770, 1771]	2219	[1537, 3026]	3327	[3848, 3849]
4	[9, 10]	1112	[493, 1615]	2220	[1978, 1959]	3328	[3850, 821]
5	[11, 12]	1113	[1431, 1450]	2221	[3027, 215]	3329	[3851, 3852]
6	[13, 14]	1114	[1772, 40]	2222	[1943, 225]	3330	[3853, 3854]
7	[15, 16]	1115	[1773, 1774]	2223	[1702, 2925]	3331	[2251, 2885]
8	[17, 18]	1116	[1712, 666]	2224	[600, 128]	3332	[3855, 329]
9	[19, 20]	1117	[1775, 1565]	2225	[1812, 2971]	3333	[894, 3829]
10	[21, 22]	1118	[1776, 1464]	2226	[3028, 1894]	3334	[3856, 3466]
11	[23, 24]	1119	[1777, 36]	2227	[2008, 3029]	3335	[3857, 2471]
12	[25, 26]	1120	[1778, 1545]	2228	[3030, 542]	3336	[3858, 1171]
13	[27, 28]	1121	[781, 528]	2229	[1546, 3031]	3337	[3859, 3860]
14	[29, 30]	1122	[1630, 1779]	2230	[128, 60]	3338	[3843, 3861]
15	[31, 32]	1123	[1780, 1732]	2231	[3032, 624]	3339	[3862, 3863]
16	[33, 34]	1124	[634, 1781]	2232	[244, 3033]	3340	[3864, 419]
17	[35, 36]	1125	[189, 1782]	2233	[633, 1735]	3341	[2326, 250]
18	[37, 38]	1126	[1783, 484]	2234	[1867, 636]	3342	[386, 3865]
19	[39, 40]	1127	[1784, 1785]	2235	[761, 3034]	3343	[2197, 3866]

20	[41, 42]	1128	[1669, 1786]	2236	[3035, 38]	3344	[3867, 3868]
21	[43, 44]	1129	[1787, 232]	2237	[2038, 3036]	3345	[3869, 2419]
22	[45, 46]	1130	[1788, 1789]	2238	[3037, 1844]	3346	[3870, 3871]
23	[47, 48]	1131	[1790, 1511]	2239	[3038, 192]	3347	[3872, 1334]
24	[49, 50]	1132	[1791, 1792]	2240	[1457, 1868]	3348	[3496, 3543]
25	[51, 52]	1133	[1702, 1793]	2241	[659, 1564]	3349	[3873, 2627]
26	[53, 54]	1134	[472, 1794]	2242	[774, 1929]	3350	[3874, 3875]
27	[55, 56]	1135	[1795, 1616]	2243	[1700, 471]	3351	[2335, 3876]
28	[57, 58]	1136	[1796, 1797]	2244	[1582, 3039]	3352	[3877, 3878]
29	[59, 60]	1137	[677, 1798]	2245	[1684, 804]	3353	[3879, 3880]
30	[61, 62]	1138	[1799, 1737]	2246	[1875, 3040]	3354	[3881, 367]
31	[63, 64]	1139	[527, 1800]	2247	[3041, 3042]	3355	[3863, 3882]
32	[65, 66]	1140	[769, 1548]	2248	[1992, 1918]	3356	[3883, 1400]
33	[67, 68]	1141	[707, 774]	2249	[3043, 1771]	3357	[3884, 3885]
34	[69, 70]	1142	[485, 1801]	2250	[573, 774]	3358	[2428, 3886]
35	[71, 72]	1143	[537, 684]	2251	[1784, 2993]	3359	[3887, 3470]
36	[73, 74]	1144	[1570, 1722]	2252	[668, 3005]	3360	[480, 3256]
37	[75, 76]	1145	[1467, 1802]	2253	[2954, 3044]	3361	[3888, 3196]
38	[77, 78]	1146	[1803, 1804]	2254	[1836, 506]	3362	[3136, 586]
39	[79, 80]	1147	[1805, 723]	2255	[1961, 185]	3363	[1468, 36]
40	[81, 82]	1148	[1806, 1807]	2256	[1953, 3045]	3364	[1470, 1979]
41	[83, 84]	1149	[1808, 1760]	2257	[1477, 10]	3365	[227, 1702]
42	[85, 86]	1150	[1809, 1810]	2258	[1789, 636]	3366	[803, 1624]
43	[87, 88]	1151	[1811, 1812]	2259	[1465, 1581]	3367	[1808, 228]
44	[89, 90]	1152	[578, 1813]	2260	[3046, 641]	3368	[3889, 494]
45	[91, 92]	1153	[1814, 497]	2261	[684, 643]	3369	[192, 795]
46	[93, 94]	1154	[1815, 1816]	2262	[154, 1492]	3370	[604, 47]
47	[95, 96]	1155	[1664, 1817]	2263	[1756, 3047]	3371	[3890, 756]
48	[97, 98]	1156	[1818, 526]	2264	[1809, 652]	3372	[1895, 3891]
49	[99, 100]	1157	[1819, 1820]	2265	[177, 3048]	3373	[3892, 178]
50	[101, 102]	1158	[653, 1786]	2266	[3049, 1689]	3374	[3270, 2005]
51	[103, 104]	1159	[1821, 1473]	2267	[3050, 239]	3375	[3893, 2910]
52	[105, 106]	1160	[556, 1822]	2268	[3051, 2034]	3376	[3894, 3179]
53	[107, 108]	1161	[635, 1823]	2269	[3052, 1842]	3377	[3118, 45]
54	[109, 110]	1162	[576, 1824]	2270	[3053, 1636]	3378	[1636, 1739]
55	[111, 112]	1163	[491, 1825]	2271	[1619, 1888]	3379	[1854, 1756]
56	[113, 114]	1164	[1826, 1508]	2272	[174, 600]	3380	[705, 1433]
57	[115, 116]	1165	[159, 817]	2273	[1756, 534]	3381	[535, 563]
58	[117, 118]	1166	[42, 1827]	2274	[2991, 1511]	3382	[1912, 1467]
59	[119, 120]	1167	[1828, 1472]	2275	[8, 2972]	3383	[1826, 3179]
60	[121, 122]	1168	[1806, 1726]	2276	[1519, 12]	3384	[3895, 3161]
61	[123, 124]	1169	[1829, 1830]	2277	[1764, 2995]	3385	[1448, 3896]
62	[125, 126]	1170	[1831, 1697]	2278	[621, 1858]	3386	[3173, 1948]
63	[127, 128]	1171	[1832, 1794]	2279	[3054, 643]	3387	[3216, 3897]

64	[129, 130]	1172	[814, 1833]	2280	[3055, 172]	3388	[548, 1676]
65	[131, 132]	1173	[1834, 633]	2281	[645, 1648]	3389	[3237, 3898]
66	[133, 134]	1174	[1835, 501]	2282	[1658, 1566]	3390	[1871, 3150]
67	[135, 136]	1175	[1836, 526]	2283	[1864, 140]	3391	[3143, 1673]
68	[137, 138]	1176	[1619, 603]	2284	[1497, 1856]	3392	[3253, 2923]
69	[139, 140]	1177	[469, 769]	2285	[2957, 3040]	3393	[3899, 244]
70	[141, 142]	1178	[1483, 1496]	2286	[500, 3056]	3394	[3078, 3123]
71	[143, 144]	1179	[1828, 1693]	2287	[2959, 3057]	3395	[3900, 1475]
72	[145, 146]	1180	[1837, 616]	2288	[3058, 3059]	3396	[1440, 2935]
73	[147, 148]	1181	[1424, 1838]	2289	[1537, 1759]	3397	[551, 3137]
74	[31, 149]	1182	[1839, 746]	2290	[1468, 678]	3398	[2986, 492]
75	[150, 38]	1183	[1474, 1840]	2291	[3054, 685]	3399	[3901, 1924]
76	[151, 152]	1184	[1841, 1744]	2292	[2980, 3060]	3400	[3902, 3903]
77	[153, 154]	1185	[1586, 584]	2293	[3061, 554]	3401	[3904, 3292]
78	[155, 156]	1186	[1842, 181]	2294	[651, 1810]	3402	[3905, 1928]
79	[157, 158]	1187	[1843, 474]	2295	[2943, 635]	3403	[3906, 3907]
80	[159, 160]	1188	[1844, 1845]	2296	[639, 3062]	3404	[3908, 3909]
81	[161, 162]	1189	[1846, 32]	2297	[169, 666]	3405	[3149, 1782]
82	[163, 164]	1190	[1690, 1847]	2298	[3063, 3060]	3406	[3096, 3238]
83	[165, 166]	1191	[1848, 1849]	2299	[1762, 1955]	3407	[3910, 3329]
84	[167, 168]	1192	[690, 1850]	2300	[3028, 3064]	3408	[3911, 3912]
85	[169, 170]	1193	[244, 1851]	2301	[1600, 1709]	3409	[3913, 3914]
86	[171, 172]	1194	[594, 740]	2302	[3065, 3066]	3410	[3189, 156]
87	[39, 173]	1195	[1852, 506]	2303	[3067, 731]	3411	[626, 1907]
88	[174, 175]	1196	[1853, 1785]	2304	[3068, 192]	3412	[3915, 774]
89	[176, 177]	1197	[1520, 567]	2305	[3025, 487]	3413	[1628, 3062]
90	[178, 179]	1198	[1854, 533]	2306	[1480, 1438]	3414	[3916, 2039]
91	[180, 181]	1199	[1455, 693]	2307	[1963, 1937]	3415	[3297, 54]
92	[182, 183]	1200	[1855, 1856]	2308	[166, 1507]	3416	[3917, 1511]
93	[184, 185]	1201	[1857, 1858]	2309	[494, 666]	3417	[3918, 1428]
94	[186, 187]	1202	[1859, 1578]	2310	[3069, 600]	3418	[1499, 803]
95	[188, 189]	1203	[1835, 1860]	2311	[696, 3070]	3419	[1973, 792]
96	[190, 191]	1204	[819, 570]	2312	[1631, 3071]	3420	[2979, 3125]
97	[192, 179]	1205	[1550, 677]	2313	[610, 1568]	3421	[784, 1651]
98	[145, 193]	1206	[1567, 611]	2314	[533, 3047]	3422	[1522, 3919]
99	[194, 195]	1207	[762, 1861]	2315	[2982, 477]	3423	[3359, 1459]
100	[196, 44]	1208	[1862, 45]	2316	[2999, 3072]	3424	[1742, 3308]
101	[197, 198]	1209	[1863, 1427]	2317	[1991, 147]	3425	[3212, 1896]
102	[199, 31]	1210	[1864, 1865]	2318	[1713, 1822]	3426	[3154, 3066]
103	[200, 201]	1211	[1866, 605]	2319	[3073, 2010]	3427	[3920, 2932]
104	[202, 203]	1212	[1867, 1823]	2320	[2918, 1491]	3428	[754, 3088]
105	[204, 205]	1213	[633, 186]	2321	[2955, 642]	3429	[3921, 3125]
106	[206, 207]	1214	[1603, 1868]	2322	[170, 3074]	3430	[3043, 3922]
107	[208, 209]	1215	[1486, 510]	2323	[3075, 749]	3431	[3923, 3342]

108	[210, 211]	1216	[1869, 1591]	2324	[1, 751]	3432	[3924, 3896]
109	[212, 213]	1217	[1453, 1627]	2325	[3076, 2]	3433	[3317, 3187]
110	[214, 215]	1218	[1870, 1871]	2326	[214, 728]	3434	[2926, 1439]
111	[13, 216]	1219	[1644, 1872]	2327	[580, 3077]	3435	[1731, 532]
112	[217, 218]	1220	[681, 1689]	2328	[1640, 662]	3436	[1843, 1570]
113	[219, 220]	1221	[1787, 1467]	2329	[3078, 737]	3437	[3925, 168]
114	[221, 222]	1222	[1873, 627]	2330	[3079, 576]	3438	[194, 803]
115	[223, 224]	1223	[1874, 570]	2331	[3080, 213]	3439	[1945, 682]
116	[225, 225]	1224	[1875, 1876]	2332	[51, 2]	3440	[647, 1529]
117	[226, 227]	1225	[1877, 44]	2333	[1528, 776]	3441	[783, 3221]
118	[228, 229]	1226	[1878, 1792]	2334	[1565, 3081]	3442	[1555, 1965]
119	[230, 231]	1227	[1879, 750]	2335	[703, 1504]	3443	[3198, 200]
120	[232, 233]	1228	[1880, 557]	2336	[3082, 779]	3444	[3926, 3927]
121	[234, 235]	1229	[676, 34]	2337	[3083, 1765]	3445	[3228, 225]
122	[170, 236]	1230	[677, 1461]	2338	[3084, 158]	3446	[3013, 1804]
123	[237, 238]	1231	[227, 203]	2339	[1979, 700]	3447	[3296, 1472]
124	[239, 240]	1232	[1881, 646]	2340	[3085, 1533]	3448	[2018, 224]
125	[241, 242]	1233	[1721, 1689]	2341	[1812, 3086]	3449	[2985, 618]
126	[243, 244]	1234	[1795, 1882]	2342	[712, 3087]	3450	[3188, 1426]
127	[245, 246]	1235	[1883, 33]	2343	[2987, 3088]	3451	[1974, 3180]
128	[247, 248]	1236	[1884, 1872]	2344	[3089, 741]	3452	[3059, 1866]
129	[249, 250]	1237	[1885, 469]	2345	[3090, 3091]	3453	[3086, 1666]
130	[251, 252]	1238	[1777, 678]	2346	[3092, 766]	3454	[3022, 1600]
131	[253, 254]	1239	[1500, 1886]	2347	[1873, 1907]	3455	[1982, 1678]
132	[255, 256]	1240	[501, 1887]	2348	[1846, 149]	3456	[3111, 1977]
133	[257, 258]	1241	[1735, 187]	2349	[1766, 1490]	3457	[733, 1775]
134	[259, 260]	1242	[602, 1888]	2350	[561, 1989]	3458	[3197, 229]
135	[261, 262]	1243	[574, 775]	2351	[675, 32]	3459	[760, 1811]
136	[263, 264]	1244	[1889, 703]	2352	[1879, 1535]	3460	[3138, 524]
137	[265, 266]	1245	[1890, 1502]	2353	[560, 677]	3461	[3252, 680]
138	[267, 268]	1246	[1569, 474]	2354	[496, 2945]	3462	[3916, 3036]
139	[269, 270]	1247	[564, 768]	2355	[180, 504]	3463	[511, 1832]
140	[271, 272]	1248	[48, 1711]	2356	[3093, 232]	3464	[2919, 3294]
141	[273, 274]	1249	[1891, 1430]	2357	[778, 633]	3465	[3928, 3025]
142	[275, 276]	1250	[1892, 1757]	2358	[757, 711]	3466	[3063, 2981]
143	[277, 278]	1251	[547, 209]	2359	[1621, 719]	3467	[3929, 178]
144	[279, 280]	1252	[728, 723]	2360	[2912, 3044]	3468	[1714, 1634]
145	[281, 282]	1253	[1473, 211]	2361	[3094, 2913]	3469	[554, 1781]
146	[283, 284]	1254	[1893, 1894]	2362	[685, 644]	3470	[1512, 1915]
147	[285, 286]	1255	[1895, 1896]	2363	[777, 1825]	3471	[3019, 719]
148	[287, 15]	1256	[59, 1897]	2364	[763, 2979]	3472	[2912, 1589]
149	[288, 289]	1257	[1839, 1898]	2365	[1934, 3095]	3473	[1980, 1600]
150	[290, 291]	1258	[547, 722]	2366	[3035, 804]	3474	[3038, 178]
151	[292, 293]	1259	[1899, 1845]	2367	[1791, 1687]	3475	[3107, 1589]

152	[294, 295]	1260	[156, 1900]	2368	[1885, 768]	3476	[1704, 183]
153	[296, 297]	1261	[643, 1901]	2369	[1579, 3096]	3477	[600, 529]
154	[298, 299]	1262	[1902, 1903]	2370	[1832, 473]	3478	[476, 709]
155	[300, 301]	1263	[1904, 62]	2371	[3097, 549]	3479	[1820, 1983]
156	[302, 303]	1264	[208, 722]	2372	[3098, 1623]	3480	[1530, 1950]
157	[304, 305]	1265	[212, 212]	2373	[1727, 3099]	3481	[3050, 1450]
158	[306, 307]	1266	[1905, 1621]	2374	[3100, 791]	3482	[3179, 1574]
159	[308, 309]	1267	[727, 214]	2375	[3101, 1480]	3483	[1869, 3078]
160	[310, 311]	1268	[54, 215]	2376	[1889, 1849]	3484	[3148, 1563]
161	[312, 313]	1269	[723, 1473]	2377	[2970, 487]	3485	[3080, 212]
162	[314, 315]	1270	[1533, 719]	2378	[3102, 693]	3486	[3014, 684]
163	[316, 317]	1271	[720, 724]	2379	[1935, 560]	3487	[3930, 1578]
164	[318, 319]	1272	[53, 214]	2380	[44, 1937]	3488	[759, 136]
165	[320, 321]	1273	[727, 54]	2381	[593, 1689]	3489	[3140, 1866]
166	[322, 323]	1274	[724, 1621]	2382	[3103, 3104]	3490	[3931, 1795]
167	[324, 325]	1275	[1906, 1907]	2383	[1790, 2992]	3491	[3246, 210]
168	[326, 327]	1276	[186, 1908]	2384	[1719, 144]	3492	[1622, 3227]
169	[328, 329]	1277	[1909, 1910]	2385	[1564, 490]	3493	[3068, 178]
170	[330, 331]	1278	[1437, 1481]	2386	[2036, 748]	3494	[3932, 1502]
171	[332, 333]	1279	[1911, 1619]	2387	[3105, 3106]	3495	[3933, 53]
172	[334, 335]	1280	[1775, 1658]	2388	[1708, 1637]	3496	[3020, 727]
173	[336, 337]	1281	[1912, 232]	2389	[749, 1535]	3497	[2958, 1625]
174	[338, 339]	1282	[1913, 1680]	2390	[3107, 3044]	3498	[1859, 695]
175	[340, 341]	1283	[1685, 1558]	2391	[2952, 544]	3499	[700, 1678]
176	[342, 343]	1284	[1914, 1850]	2392	[3070, 687]	3500	[3275, 3140]
177	[344, 345]	1285	[1866, 47]	2393	[666, 3074]	3501	[3300, 14]
178	[346, 347]	1286	[1915, 1537]	2394	[1769, 3099]	3502	[560, 649]
179	[348, 349]	1287	[1916, 1676]	2395	[3108, 1994]	3503	[2995, 1932]
180	[350, 351]	1288	[1917, 1693]	2396	[1432, 1679]	3504	[3093, 1467]
181	[276, 352]	1289	[788, 1918]	2397	[1611, 12]	3505	[3934, 726]
182	[353, 354]	1290	[1919, 242]	2398	[3109, 3110]	3506	[3166, 3260]
183	[355, 356]	1291	[693, 663]	2399	[1738, 2973]	3507	[3293, 3250]
184	[357, 358]	1292	[1593, 1920]	2400	[1443, 1799]	3508	[2973, 2029]
185	[359, 255]	1293	[1921, 1922]	2401	[607, 218]	3509	[654, 3358]
186	[360, 361]	1294	[1923, 1924]	2402	[3111, 2929]	3510	[3101, 1437]
187	[362, 363]	1295	[1925, 1926]	2403	[3112, 1620]	3511	[3893, 152]
188	[364, 365]	1296	[1880, 1822]	2404	[3113, 3114]	3512	[2015, 1582]
189	[366, 367]	1297	[1927, 1928]	2405	[3115, 2932]	3513	[1735, 1908]
190	[368, 369]	1298	[574, 1929]	2406	[3082, 633]	3514	[2975, 1838]
191	[370, 371]	1299	[1930, 1931]	2407	[3116, 3001]	3515	[2928, 3135]
192	[372, 373]	1300	[1765, 1932]	2408	[196, 1963]	3516	[1736, 3935]
193	[374, 375]	1301	[1933, 242]	2409	[1647, 646]	3517	[204, 1688]
194	[376, 377]	1302	[559, 522]	2410	[3001, 1460]	3518	[3936, 3168]
195	[378, 379]	1303	[1934, 1577]	2411	[149, 1948]	3519	[1953, 3066]

196	[380, 381]	1304	[1935, 522]	2412	[3117, 727]	3520	[2037, 1702]
197	[381, 382]	1305	[761, 1812]	2413	[1588, 3044]	3521	[816, 160]
198	[383, 95]	1306	[1936, 198]	2414	[1620, 1811]	3522	[1578, 1630]
199	[384, 65]	1307	[599, 175]	2415	[753, 2987]	3523	[566, 1967]
200	[385, 386]	1308	[1937, 524]	2416	[3118, 1913]	3524	[3235, 2923]
201	[387, 376]	1309	[1938, 176]	2417	[1677, 699]	3525	[1970, 1963]
202	[388, 389]	1310	[1939, 479]	2418	[42, 1782]	3526	[3015, 2910]
203	[390, 391]	1311	[1533, 721]	2419	[571, 609]	3527	[1969, 3937]
204	[392, 393]	1312	[1741, 1940]	2420	[3119, 45]	3528	[3084, 782]
205	[394, 395]	1313	[1941, 1901]	2421	[1960, 771]	3529	[3163, 136]
206	[396, 397]	1314	[1729, 1942]	2422	[782, 500]	3530	[3055, 3352]
207	[398, 399]	1315	[210, 758]	2423	[650, 1822]	3531	[1650, 785]
208	[400, 401]	1316	[225, 1943]	2424	[3120, 1513]	3532	[3076, 52]
209	[402, 403]	1317	[1943, 1943]	2425	[1957, 1998]	3533	[685, 1901]
210	[404, 405]	1318	[175, 529]	2426	[3121, 147]	3534	[715, 1548]
211	[406, 107]	1319	[817, 1944]	2427	[2949, 3122]	3535	[619, 3938]
212	[407, 408]	1320	[1945, 166]	2428	[203, 2925]	3536	[3892, 192]
213	[213, 213]	1321	[1946, 1571]	2429	[736, 3123]	3537	[3939, 474]
214	[409, 410]	1322	[697, 773]	2430	[1422, 3124]	3538	[3193, 3940]
215	[108, 411]	1323	[1857, 622]	2431	[1560, 3125]	3539	[3067, 483]
216	[412, 413]	1324	[1947, 32]	2432	[3126, 3127]	3540	[1605, 3016]
217	[414, 415]	1325	[738, 1797]	2433	[2032, 3128]	3541	[3301, 766]
218	[416, 417]	1326	[32, 1948]	2434	[2971, 1666]	3542	[1768, 52]
219	[418, 96]	1327	[40, 1949]	2435	[1890, 647]	3543	[3157, 3919]
220	[419, 420]	1328	[1601, 1950]	2436	[1975, 1688]	3544	[3921, 1718]
221	[421, 422]	1329	[1951, 1508]	2437	[2961, 1748]	3545	[1993, 3941]
222	[423, 424]	1330	[1952, 781]	2438	[1936, 762]	3546	[3942, 3224]
223	[425, 426]	1331	[695, 1630]	2439	[772, 698]	3547	[1509, 3279]
224	[427, 428]	1332	[569, 1953]	2440	[1739, 2974]	3548	[1902, 3898]
225	[429, 430]	1333	[1954, 630]	2441	[33, 3129]	3549	[1816, 3943]
226	[431, 432]	1334	[588, 1955]	2442	[740, 1671]	3550	[3222, 542]
227	[433, 434]	1335	[1627, 1833]	2443	[1563, 1882]	3551	[1591, 3123]
228	[435, 436]	1336	[1956, 1599]	2444	[3130, 501]	3552	[656, 1926]
229	[437, 438]	1337	[1957, 1844]	2445	[1466, 1582]	3553	[1653, 1695]
230	[439, 440]	1338	[1958, 512]	2446	[1629, 512]	3554	[3090, 3944]
231	[441, 442]	1339	[1543, 1959]	2447	[1855, 1498]	3555	[1536, 1758]
232	[443, 444]	1340	[1960, 1886]	2448	[3131, 138]	3556	[3945, 722]
233	[445, 446]	1341	[1961, 1962]	2449	[1927, 1820]	3557	[615, 3217]
234	[447, 448]	1342	[1827, 220]	2450	[3032, 497]	3558	[529, 1897]
235	[449, 450]	1343	[43, 1963]	2451	[662, 3132]	3559	[3220, 469]
236	[451, 452]	1344	[1964, 1965]	2452	[3075, 1534]	3560	[1986, 1685]
237	[453, 454]	1345	[1966, 1466]	2453	[49, 1527]	3561	[3946, 1901]
238	[455, 456]	1346	[133, 1967]	2454	[1939, 3042]	3562	[1770, 3922]
239	[457, 458]	1347	[1968, 228]	2455	[1488, 677]	3563	[531, 1732]

240	[459, 460]	1348	[706, 1462]	2456	[3133, 1847]	3564	[3302, 758]
241	[461, 462]	1349	[1969, 756]	2457	[3134, 2019]	3565	[2989, 3947]
242	[463, 464]	1350	[628, 1735]	2458	[617, 2986]	3566	[3948, 726]
243	[465, 466]	1351	[608, 572]	2459	[717, 3135]	3567	[1698, 814]
244	[467, 468]	1352	[1970, 44]	2460	[3136, 3137]	3568	[3949, 554]
245	[469, 470]	1353	[1971, 1519]	2461	[1435, 2987]	3569	[3950, 748]
246	[129, 471]	1354	[1848, 703]	2462	[3138, 3139]	3570	[3016, 3951]
247	[472, 473]	1355	[1667, 1972]	2463	[1753, 3087]	3571	[3952, 721]
248	[474, 475]	1356	[1421, 685]	2464	[3058, 3140]	3572	[729, 220]
249	[476, 477]	1357	[1973, 665]	2465	[3141, 3142]	3573	[3888, 3239]
250	[478, 479]	1358	[566, 134]	2466	[676, 3129]	3574	[1444, 1737]
251	[480, 481]	1359	[1974, 1639]	2467	[3143, 3128]	3575	[1906, 627]
252	[482, 483]	1360	[1975, 205]	2468	[155, 3006]	3576	[3199, 3233]
253	[137, 484]	1361	[1976, 1977]	2469	[2035, 763]	3577	[1451, 2932]
254	[485, 486]	1362	[1978, 201]	2470	[3144, 184]	3578	[2948, 1546]
255	[487, 488]	1363	[1677, 1979]	2471	[1551, 3145]	3579	[775, 1588]
256	[489, 490]	1364	[1980, 1708]	2472	[3041, 479]	3580	[1799, 3935]
257	[491, 492]	1365	[1981, 1743]	2473	[3146, 3147]	3581	[802, 195]
258	[493, 494]	1366	[1982, 705]	2474	[3148, 1795]	3582	[3229, 3255]
259	[495, 496]	1367	[1983, 1984]	2475	[1527, 554]	3583	[3932, 647]
260	[497, 498]	1368	[1446, 216]	2476	[3149, 1827]	3584	[3953, 1743]
261	[499, 500]	1369	[1985, 1986]	2477	[1816, 3150]	3585	[2021, 3932]
262	[501, 502]	1370	[1987, 1988]	2478	[3151, 508]	3586	[3126, 2014]
263	[503, 504]	1371	[1989, 1990]	2479	[3152, 606]	3587	[3930, 695]
264	[505, 506]	1372	[241, 1942]	2480	[3153, 1977]	3588	[1734, 3096]
265	[507, 508]	1373	[1991, 542]	2481	[3154, 3045]	3589	[3954, 1658]
266	[509, 510]	1374	[1992, 789]	2482	[3155, 222]	3590	[3929, 192]
267	[511, 472]	1375	[1993, 1994]	2483	[7, 1926]	3591	[3203, 1850]
268	[243, 512]	1376	[1630, 1920]	2484	[3012, 1620]	3592	[3955, 56]
269	[513, 213]	1377	[1995, 1972]	2485	[1750, 3156]	3593	[1670, 741]
270	[514, 515]	1378	[596, 1547]	2486	[1964, 1556]	3594	[1696, 3261]
271	[516, 517]	1379	[1582, 1996]	2487	[2966, 1681]	3595	[1780, 532]
272	[518, 227]	1380	[1997, 1872]	2488	[232, 1802]	3596	[3113, 1988]
273	[176, 141]	1381	[1998, 1999]	2489	[819, 1953]	3597	[3946, 644]
274	[519, 520]	1382	[2000, 2001]	2490	[624, 498]	3598	[3108, 3941]
275	[521, 522]	1383	[2002, 2003]	2491	[3073, 1599]	3599	[3956, 1475]
276	[147, 523]	1384	[2004, 2005]	2492	[513, 212]	3600	[3165, 3957]
277	[524, 525]	1385	[2006, 2007]	2493	[3157, 1523]	3601	[1542, 1849]
278	[505, 526]	1386	[576, 2008]	2494	[3158, 1801]	3602	[3958, 1598]
279	[527, 528]	1387	[2009, 2010]	2495	[507, 1597]	3603	[3336, 3959]
280	[529, 60]	1388	[2011, 2012]	2496	[1803, 1429]	3604	[3960, 3961]
281	[530, 141]	1389	[2013, 2014]	2497	[139, 1865]	3605	[3962, 3963]
282	[531, 532]	1390	[2015, 1494]	2498	[670, 2906]	3606	[3913, 3964]
283	[41, 189]	1391	[781, 1800]	2499	[783, 3056]	3607	[3254, 1439]

284	[533, 534]	1392	[503, 181]	2500	[3159, 1959]	3608	[3952, 719]
285	[535, 536]	1393	[2016, 567]	2501	[1863, 680]	3609	[1450, 3965]
286	[537, 538]	1394	[2017, 723]	2502	[3070, 3160]	3610	[3244, 470]
287	[539, 33]	1395	[2018, 2019]	2503	[498, 2956]	3611	[1521, 214]
288	[540, 541]	1396	[2020, 749]	2504	[1606, 3161]	3612	[786, 515]
289	[542, 148]	1397	[2021, 1890]	2505	[495, 1989]	3613	[3966, 189]
290	[543, 544]	1398	[188, 42]	2506	[3162, 819]	3614	[3967, 3070]
291	[509, 545]	1399	[762, 2022]	2507	[3163, 578]	3615	[1608, 3294]
292	[546, 547]	1400	[2023, 2024]	2508	[1636, 2973]	3616	[1928, 1983]
293	[548, 549]	1401	[2025, 2026]	2509	[3164, 3165]	3617	[3214, 1830]
294	[550, 551]	1402	[2027, 2028]	2510	[3166, 1442]	3618	[3175, 3944]
295	[552, 43]	1403	[1739, 2029]	2511	[2911, 1588]	3619	[32, 3174]
296	[553, 510]	1404	[2030, 2031]	2512	[3167, 216]	3620	[3263, 1888]
297	[554, 555]	1405	[160, 1944]	2513	[3141, 3168]	3621	[3906, 3968]
298	[556, 557]	1406	[2032, 1673]	2514	[1510, 2992]	3622	[1921, 3969]
299	[558, 144]	1407	[2033, 762]	2515	[3009, 652]	3623	[3970, 3971]
300	[559, 560]	1408	[815, 600]	2516	[3159, 201]	3624	[745, 1898]
301	[561, 496]	1409	[1952, 527]	2517	[1860, 1887]	3625	[1485, 1439]
302	[562, 563]	1410	[672, 2034]	2518	[570, 3045]	3626	[1604, 1804]
303	[564, 469]	1411	[2035, 164]	2519	[3169, 735]	3627	[1571, 570]
304	[565, 566]	1412	[2036, 190]	2520	[1595, 177]	3628	[3097, 1676]
305	[567, 568]	1413	[2037, 203]	2521	[3152, 1733]	3629	[3257, 3147]
306	[569, 570]	1414	[2038, 2039]	2522	[1549, 3170]	3630	[3972, 525]
307	[571, 572]	1415	[2040, 703]	2523	[3171, 1801]	3631	[3973, 1697]
308	[573, 574]	1416	[1716, 508]	2524	[702, 1626]	3632	[1607, 3006]
309	[575, 576]	1417	[2041, 762]	2525	[497, 1817]	3633	[3974, 646]
310	[577, 578]	1418	[2042, 1774]	2526	[3172, 173]	3634	[1578, 1593]
311	[543, 579]	1419	[1874, 1953]	2527	[674, 31]	3635	[3975, 164]
312	[580, 581]	1420	[2043, 671]	2528	[707, 574]	3636	[3259, 133]
313	[582, 530]	1421	[2044, 2045]	2529	[136, 1659]	3637	[1951, 3179]
314	[583, 584]	1422	[2046, 2047]	2530	[3081, 200]	3638	[3183, 1556]
315	[585, 586]	1423	[2048, 2049]	2531	[518, 202]	3639	[3976, 3961]
316	[587, 166]	1424	[2050, 2051]	2532	[12, 1445]	3640	[3977, 3978]
317	[588, 589]	1425	[2052, 2053]	2533	[3173, 3174]	3641	[3979, 3980]
318	[590, 128]	1426	[2054, 1199]	2534	[3175, 3091]	3642	[1580, 3981]
319	[591, 592]	1427	[2055, 2056]	2535	[3172, 40]	3643	[3191, 141]
320	[593, 594]	1428	[1391, 2057]	2536	[3081, 1978]	3644	[1829, 3215]
321	[595, 596]	1429	[2058, 2059]	2537	[1469, 1677]	3645	[3177, 3128]
322	[597, 598]	1430	[1288, 2060]	2538	[1747, 2962]	3646	[3086, 689]
323	[599, 600]	1431	[2061, 2062]	2539	[583, 1587]	3647	[3982, 490]
324	[601, 138]	1432	[2063, 1211]	2540	[3176, 1948]	3648	[3966, 42]
325	[602, 603]	1433	[2064, 2065]	2541	[3177, 1673]	3649	[3983, 1665]
326	[604, 605]	1434	[2066, 374]	2542	[3178, 3179]	3650	[591, 1649]
327	[606, 607]	1435	[2067, 2068]	2543	[1525, 3180]	3651	[3945, 209]

328	[158, 500]	1436	[2069, 2070]	2544	[3181, 3106]	3652	[1725, 1807]
329	[608, 609]	1437	[856, 441]	2545	[205, 3182]	3653	[3984, 713]
330	[610, 611]	1438	[877, 2071]	2546	[3183, 1965]	3654	[3985, 1984]
331	[40, 612]	1439	[2072, 2073]	2547	[3184, 3185]	3655	[3986, 3358]
332	[613, 614]	1440	[2074, 2075]	2548	[2030, 3186]	3656	[1627, 3003]
333	[615, 616]	1441	[2076, 2077]	2549	[3104, 3187]	3657	[3987, 3909]
334	[617, 618]	1442	[2078, 2079]	2550	[3051, 673]	3658	[779, 186]
335	[619, 620]	1443	[2080, 823]	2551	[2963, 1548]	3659	[517, 678]
336	[621, 622]	1444	[325, 2048]	2552	[3188, 62]	3660	[3158, 486]
337	[623, 624]	1445	[24, 2081]	2553	[722, 757]	3661	[44, 3988]
338	[625, 133]	1446	[2082, 2083]	2554	[585, 3137]	3662	[1804, 1430]
339	[626, 627]	1447	[2084, 21]	2555	[1776, 1540]	3663	[3989, 1795]
340	[628, 186]	1448	[2085, 2086]	2556	[198, 2022]	3664	[1844, 1999]
341	[629, 630]	1449	[2087, 2088]	2557	[175, 128]	3665	[2925, 1799]
342	[631, 566]	1450	[2089, 2090]	2558	[136, 1813]	3666	[3928, 2970]
343	[632, 633]	1451	[2091, 2092]	2559	[3189, 3006]	3667	[1905, 1533]
344	[50, 634]	1452	[2093, 919]	2560	[654, 3190]	3668	[3984, 3087]
345	[635, 636]	1453	[2094, 2095]	2561	[3191, 177]	3669	[3990, 581]
346	[637, 638]	1454	[2096, 926]	2562	[3192, 1619]	3670	[1824, 3991]
347	[639, 640]	1455	[2097, 1165]	2563	[1692, 3042]	3671	[3266, 3313]
348	[641, 642]	1456	[2098, 326]	2564	[3193, 3194]	3672	[3992, 3993]
349	[643, 644]	1457	[2099, 2100]	2565	[3195, 3196]	3673	[3894, 1508]
350	[645, 646]	1458	[2101, 364]	2566	[3197, 1761]	3674	[652, 3293]
351	[647, 648]	1459	[2102, 2103]	2567	[3198, 1978]	3675	[3103, 3317]
352	[522, 649]	1460	[2104, 2105]	2568	[3199, 3200]	3676	[3942, 1642]
353	[650, 557]	1461	[922, 2106]	2569	[1904, 1426]	3677	[1817, 793]
354	[651, 652]	1462	[2107, 1345]	2570	[3201, 560]	3678	[3936, 3142]
355	[653, 654]	1463	[2108, 2109]	2571	[1870, 1816]	3679	[496, 1990]
356	[655, 533]	1464	[2110, 2111]	2572	[1789, 1823]	3680	[3986, 3190]
357	[656, 8]	1465	[2112, 2113]	2573	[1792, 1688]	3681	[1987, 3114]
358	[657, 658]	1466	[2114, 2115]	2574	[2924, 166]	3682	[1765, 2996]
359	[659, 489]	1467	[2116, 2117]	2575	[1646, 684]	3683	[3989, 1563]
360	[660, 661]	1468	[2073, 2118]	2576	[3202, 1438]	3684	[3925, 231]
361	[662, 663]	1469	[2119, 2120]	2577	[3203, 691]	3685	[590, 529]
362	[664, 665]	1470	[2121, 2122]	2578	[3204, 1659]	3686	[3994, 1632]
363	[666, 236]	1471	[2123, 1141]	2579	[2966, 2953]	3687	[675, 149]
364	[667, 232]	1472	[2124, 2125]	2580	[1783, 138]	3688	[3995, 581]
365	[668, 568]	1473	[2126, 1272]	2581	[575, 3122]	3689	[3212, 3891]
366	[669, 186]	1474	[2127, 1089]	2582	[570, 3066]	3690	[3099, 563]
367	[670, 671]	1475	[2128, 2129]	2583	[3006, 1900]	3691	[3996, 3997]
368	[672, 673]	1476	[2130, 2131]	2584	[151, 2910]	3692	[3998, 3999]
369	[674, 675]	1477	[2132, 2133]	2585	[546, 208]	3693	[4000, 4001]
370	[539, 676]	1478	[2134, 1265]	2586	[478, 3042]	3694	[3902, 801]
371	[522, 677]	1479	[2135, 2136]	2587	[3205, 1638]	3695	[3987, 3927]

372	[35, 678]	1480	[2137, 2138]	2588	[3206, 1890]	3696	[3983, 743]
373	[679, 680]	1481	[858, 878]	2589	[3201, 522]	3697	[2010, 1600]
374	[681, 594]	1482	[2139, 1079]	2590	[3207, 1961]	3698	[1657, 748]
375	[682, 683]	1483	[2140, 2141]	2591	[3208, 2979]	3699	[3208, 1560]
376	[684, 685]	1484	[2142, 2143]	2592	[686, 3160]	3700	[4002, 1710]
377	[686, 687]	1485	[2144, 2145]	2593	[3209, 1711]	3701	[3167, 14]
378	[688, 689]	1486	[2146, 2147]	2594	[1852, 526]	3702	[1707, 2926]
379	[690, 691]	1487	[2148, 2149]	2595	[3079, 3122]	3703	[1754, 742]
380	[692, 693]	1488	[2150, 2151]	2596	[3210, 211]	3704	[4003, 1910]
381	[694, 695]	1489	[2152, 2153]	2597	[3211, 1437]	3705	[3121, 542]
382	[696, 686]	1490	[2154, 2155]	2598	[1447, 1477]	3706	[4004, 144]
383	[597, 162]	1491	[2156, 2157]	2599	[1966, 1581]	3707	[177, 142]
384	[565, 133]	1492	[2158, 2159]	2600	[1557, 1686]	3708	[4005, 469]
385	[697, 698]	1493	[2160, 2161]	2601	[3036, 3212]	3709	[4006, 764]
386	[699, 700]	1494	[2113, 2162]	2602	[1576, 3095]	3710	[4007, 4008]
387	[166, 683]	1495	[2163, 2164]	2603	[2988, 2019]	3711	[4009, 3338]
388	[701, 702]	1496	[2165, 2166]	2604	[3213, 3072]	3712	[4010, 2028]
389	[623, 497]	1497	[2167, 385]	2605	[3214, 3215]	3713	[4011, 533]
390	[530, 177]	1498	[1283, 2168]	2606	[3216, 1656]	3714	[3204, 1813]
391	[703, 704]	1499	[2169, 2170]	2607	[1782, 730]	3715	[1963, 3988]
392	[700, 705]	1500	[2171, 2172]	2608	[1956, 2010]	3716	[3917, 2992]
393	[706, 707]	1501	[2173, 2174]	2609	[1979, 807]	3717	[3162, 1571]
394	[708, 709]	1502	[2175, 2176]	2610	[1860, 502]	3718	[2965, 8]
395	[710, 711]	1503	[2177, 2156]	2611	[1782, 220]	3719	[3949, 634]
396	[712, 713]	1504	[2178, 2179]	2612	[1805, 725]	3720	[3918, 1624]
397	[714, 58]	1505	[970, 2180]	2613	[1837, 3217]	3721	[3948, 3020]
398	[715, 716]	1506	[1220, 2181]	2614	[3205, 1525]	3722	[1614, 494]
399	[717, 718]	1507	[1036, 2044]	2615	[1938, 530]	3723	[3025, 2909]
400	[719, 547]	1508	[2182, 2183]	2616	[3218, 710]	3724	[4002, 48]
401	[710, 720]	1509	[2184, 2185]	2617	[1534, 750]	3725	[3236, 3087]
402	[721, 208]	1510	[2186, 2187]	2618	[3094, 1746]	3726	[3316, 3127]
403	[722, 710]	1511	[2188, 2189]	2619	[3219, 1840]	3727	[3982, 3165]
404	[215, 723]	1512	[2190, 2191]	2620	[3220, 768]	3728	[4012, 1613]
405	[711, 724]	1513	[2192, 2193]	2621	[550, 585]	3729	[4013, 1943]
406	[725, 210]	1514	[2194, 436]	2622	[2926, 145]	3730	[3020, 53]
407	[215, 725]	1515	[2195, 831]	2623	[1849, 704]	3731	[3955, 1436]
408	[726, 727]	1516	[2196, 2197]	2624	[512, 3033]	3732	[4014, 1627]
409	[728, 725]	1517	[2198, 2199]	2625	[500, 3221]	3733	[1494, 3039]
410	[719, 208]	1518	[2200, 2074]	2626	[3222, 147]	3734	[3116, 1459]
411	[209, 710]	1519	[2201, 2202]	2627	[3223, 3224]	3735	[1810, 3293]
412	[729, 730]	1520	[2203, 1032]	2628	[3225, 1505]	3736	[3218, 757]
413	[482, 731]	1521	[2204, 2205]	2629	[1925, 8]	3737	[3164, 490]
414	[732, 614]	1522	[2206, 2207]	2630	[1570, 475]	3738	[4015, 757]
415	[721, 547]	1523	[2208, 2209]	2631	[3226, 720]	3739	[4016, 1428]

416	[733, 734]	1524	[2210, 2211]	2632	[3098, 3227]	3740	[4017, 782]
417	[735, 504]	1525	[2212, 1285]	2633	[3169, 1842]	3741	[4018, 1540]
418	[736, 737]	1526	[2213, 2214]	2634	[3112, 760]	3742	[4019, 4020]
419	[738, 739]	1527	[2215, 982]	2635	[3228, 1943]	3743	[2940, 3969]
420	[740, 741]	1528	[411, 1180]	2636	[1514, 1832]	3744	[4021, 4022]
421	[237, 742]	1529	[323, 2216]	2637	[587, 682]	3745	[4023, 2960]
422	[743, 744]	1530	[2217, 2218]	2638	[2979, 1718]	3746	[3985, 4024]
423	[745, 746]	1531	[2219, 2220]	2639	[2968, 1651]	3747	[4025, 773]
424	[747, 748]	1532	[2221, 2222]	2640	[1758, 3026]	3748	[4026, 4027]
425	[749, 750]	1533	[1253, 968]	2641	[1678, 1433]	3749	[3115, 1452]
426	[751, 752]	1534	[2176, 2223]	2642	[3010, 1625]	3750	[3096, 3981]
427	[753, 754]	1535	[2216, 2224]	2643	[512, 1851]	3751	[3915, 574]
428	[755, 756]	1536	[2225, 1369]	2644	[3229, 3156]	3752	[1694, 1654]
429	[757, 720]	1537	[250, 409]	2645	[1986, 1557]	3753	[1672, 3128]
430	[758, 726]	1538	[2226, 2227]	2646	[3230, 3086]	3754	[3230, 2971]
431	[759, 578]	1539	[2228, 288]	2647	[490, 3231]	3755	[3179, 1509]
432	[760, 761]	1540	[2229, 2230]	2648	[2915, 2929]	3756	[3133, 1691]
433	[197, 762]	1541	[2231, 2232]	2649	[3053, 1738]	3757	[1811, 3034]
434	[163, 763]	1542	[2233, 1240]	2650	[3232, 3233]	3758	[4028, 1905]
435	[8, 764]	1543	[2234, 2235]	2651	[3104, 3234]	3759	[1745, 2913]
436	[10, 765]	1544	[2236, 2237]	2652	[3130, 1860]	3760	[3931, 1563]
437	[766, 767]	1545	[2238, 1187]	2653	[3235, 766]	3761	[1941, 644]
438	[768, 769]	1546	[2239, 2240]	2654	[1633, 10]	3762	[3100, 1910]
439	[770, 771]	1547	[2241, 2242]	2655	[2950, 1458]	3763	[1760, 229]
440	[772, 773]	1548	[2243, 2244]	2656	[517, 36]	3764	[3248, 1466]
441	[774, 775]	1549	[2245, 1282]	2657	[3236, 713]	3765	[3278, 3308]
442	[776, 12]	1550	[1125, 2246]	2658	[3237, 1903]	3766	[3140, 604]
443	[777, 492]	1551	[2247, 980]	2659	[1580, 3238]	3767	[3341, 1915]
444	[778, 779]	1552	[2248, 2249]	2660	[3065, 3045]	3768	[3241, 743]
445	[780, 781]	1553	[2250, 2251]	2661	[3195, 3239]	3769	[2927, 60]
446	[782, 783]	1554	[2252, 2064]	2662	[3240, 803]	3770	[2976, 3938]
447	[784, 785]	1555	[2253, 2254]	2663	[1470, 699]	3771	[2946, 1898]
448	[786, 787]	1556	[2255, 2256]	2664	[141, 3048]	3772	[3305, 3255]
449	[788, 789]	1557	[2257, 2258]	2665	[3069, 175]	3773	[4029, 598]
450	[790, 791]	1558	[2259, 1033]	2666	[3241, 1665]	3774	[4030, 3963]
451	[664, 792]	1559	[2260, 2261]	2667	[3002, 486]	3775	[3977, 2003]
452	[498, 793]	1560	[2262, 2263]	2668	[152, 57]	3776	[3346, 1931]
453	[794, 795]	1561	[2264, 2265]	2669	[158, 783]	3777	[3281, 4031]
454	[796, 797]	1562	[2266, 2267]	2670	[629, 3242]	3778	[1733, 217]
455	[798, 799]	1563	[2268, 283]	2671	[3243, 3194]	3779	[4032, 1792]
456	[800, 801]	1564	[2269, 2270]	2672	[3155, 812]	3780	[4033, 4034]
457	[802, 803]	1565	[1280, 2271]	2673	[3244, 769]	3781	[4035, 3896]
458	[37, 804]	1566	[2272, 2273]	2674	[817, 3245]	3782	[4036, 4037]
459	[805, 806]	1567	[2274, 2275]	2675	[3209, 638]	3783	[4038, 3289]

460	[699, 807]	1568	[913, 2276]	2676	[3037, 1998]	3784	[4039, 4040]
461	[808, 809]	1569	[1247, 2277]	2677	[165, 682]	3785	[4041, 4042]
462	[743, 810]	1570	[2278, 275]	2678	[768, 470]	3786	[4000, 2026]
463	[811, 812]	1571	[2279, 2280]	2679	[1853, 2993]	3787	[4043, 3340]
464	[813, 814]	1572	[2281, 2282]	2680	[3246, 1473]	3788	[1618, 602]
465	[815, 175]	1573	[2283, 2158]	2681	[3146, 3247]	3789	[4044, 1813]
466	[816, 817]	1574	[2284, 2211]	2682	[3248, 1581]	3790	[4045, 3249]
467	[562, 536]	1575	[2285, 2286]	2683	[1730, 1868]	3791	[1746, 4046]
468	[818, 819]	1576	[2287, 2288]	2684	[1849, 1504]	3792	[149, 3174]
469	[820, 821]	1577	[2289, 2290]	2685	[1634, 1586]	3793	[4047, 46]
470	[822, 823]	1578	[2291, 2292]	2686	[1612, 3249]	3794	[4033, 3185]
471	[824, 825]	1579	[2293, 2294]	2687	[1478, 3250]	3795	[3099, 536]
472	[826, 827]	1580	[2295, 2296]	2688	[1788, 635]	3796	[4048, 4049]
473	[436, 828]	1581	[2297, 2298]	2689	[1883, 676]	3797	[4010, 4050]
474	[829, 830]	1582	[2299, 974]	2690	[3251, 740]	3798	[4029, 162]
475	[831, 832]	1583	[2300, 2301]	2691	[3252, 1427]	3799	[2042, 3342]
476	[833, 834]	1584	[2302, 2303]	2692	[2017, 725]	3800	[4051, 3353]
477	[835, 836]	1585	[2304, 2305]	2693	[708, 477]	3801	[4052, 162]
478	[837, 838]	1586	[1395, 1269]	2694	[3052, 735]	3802	[2000, 3999]
479	[839, 840]	1587	[2218, 2306]	2695	[2916, 43]	3803	[3911, 4053]
480	[841, 842]	1588	[1344, 2307]	2696	[1638, 3180]	3804	[4054, 3186]
481	[843, 844]	1589	[2308, 2309]	2697	[153, 1491]	3805	[2910, 714]
482	[845, 846]	1590	[2310, 2311]	2698	[3253, 766]	3806	[4055, 1865]
483	[847, 848]	1591	[1296, 2137]	2699	[3018, 1785]	3807	[4056, 4057]
484	[849, 850]	1592	[1034, 2312]	2700	[3254, 145]	3808	[3288, 4058]
485	[851, 852]	1593	[2313, 2314]	2701	[2951, 1733]	3809	[4059, 3993]
486	[853, 854]	1594	[2315, 2316]	2702	[3119, 1913]	3810	[3276, 3295]
487	[855, 856]	1595	[2317, 275]	2703	[1544, 3008]	3811	[1610, 215]
488	[857, 858]	1596	[2318, 2319]	2704	[1750, 3255]	3812	[1877, 1963]
489	[859, 860]	1597	[2320, 2112]	2705	[1796, 739]	3813	[3899, 512]
490	[861, 862]	1598	[2321, 2322]	2706	[2907, 1662]	3814	[1641, 3224]
491	[863, 864]	1599	[2323, 2324]	2707	[2990, 3256]	3815	[1746, 2914]
492	[865, 866]	1600	[2325, 2326]	2708	[221, 812]	3816	[1814, 624]
493	[867, 330]	1601	[2327, 1397]	2709	[3226, 711]	3817	[3144, 1961]
494	[868, 869]	1602	[2328, 2329]	2710	[3257, 3247]	3818	[1532, 1621]
495	[870, 871]	1603	[1022, 2330]	2711	[1503, 704]	3819	[3972, 4060]
496	[872, 873]	1604	[2331, 2332]	2712	[3131, 484]	3820	[3305, 3156]
497	[874, 875]	1605	[2333, 2334]	2713	[1456, 1481]	3821	[3923, 1774]
498	[876, 877]	1606	[1416, 2335]	2714	[3061, 634]	3822	[3307, 1718]
499	[878, 879]	1607	[2336, 2337]	2715	[3120, 1915]	3823	[790, 1910]
500	[880, 73]	1608	[2338, 331]	2716	[3258, 3078]	3824	[4061, 156]
501	[881, 882]	1609	[2275, 2339]	2717	[596, 3031]	3825	[1728, 563]
502	[883, 884]	1610	[2340, 1269]	2718	[1593, 1779]	3826	[3343, 3332]
503	[885, 886]	1611	[2341, 844]	2719	[1615, 666]	3827	[4062, 4063]

504	[887, 888]	1612	[2342, 2343]	2720	[1665, 810]	3828	[4064, 3914]
505	[889, 890]	1613	[2344, 2345]	2721	[3259, 566]	3829	[4041, 3265]
506	[891, 892]	1614	[2346, 2347]	2722	[1602, 1615]	3830	[1519, 1440]
507	[893, 894]	1615	[2348, 2349]	2723	[775, 2912]	3831	[4065, 3036]
508	[895, 896]	1616	[2350, 2351]	2724	[1441, 3260]	3832	[2006, 4066]
509	[897, 898]	1617	[2352, 2167]	2725	[1893, 3064]	3833	[4067, 3127]
510	[899, 900]	1618	[2353, 2354]	2726	[1430, 1940]	3834	[3994, 3071]
511	[901, 902]	1619	[2355, 290]	2727	[3176, 3174]	3835	[4025, 698]
512	[903, 904]	1620	[2356, 2357]	2728	[1831, 3261]	3836	[4068, 3320]
513	[905, 906]	1621	[2358, 2359]	2729	[724, 1533]	3837	[3192, 602]
514	[907, 908]	1622	[2360, 1117]	2730	[470, 716]	3838	[3291, 4069]
515	[909, 910]	1623	[2361, 2217]	2731	[811, 222]	3839	[3890, 3937]
516	[911, 73]	1624	[377, 2362]	2732	[1562, 1795]	3840	[1430, 4070]
517	[912, 913]	1625	[2363, 2259]	2733	[3262, 1545]	3841	[4071, 4072]
518	[914, 390]	1626	[1235, 2364]	2734	[1827, 730]	3842	[3290, 3332]
519	[915, 916]	1627	[2365, 2231]	2735	[3263, 603]	3843	[4007, 4037]
520	[917, 918]	1628	[2366, 2367]	2736	[3264, 3265]	3844	[4073, 3332]
521	[919, 920]	1629	[2368, 2369]	2737	[3266, 3267]	3845	[3356, 3335]
522	[921, 922]	1630	[2370, 887]	2738	[3268, 3269]	3846	[3139, 4060]
523	[923, 924]	1631	[2371, 2372]	2739	[3270, 3271]	3847	[1728, 536]
524	[925, 926]	1632	[2373, 2374]	2740	[3272, 579]	3848	[4074, 4075]
525	[927, 928]	1633	[464, 1220]	2741	[1785, 1746]	3849	[4076, 4077]
526	[929, 930]	1634	[2375, 2218]	2742	[769, 716]	3850	[3280, 4078]
527	[931, 278]	1635	[2376, 2377]	2743	[3273, 3274]	3851	[4036, 4008]
528	[932, 933]	1636	[2378, 2379]	2744	[2917, 812]	3852	[510, 1751]
529	[934, 935]	1637	[2324, 425]	2745	[595, 1546]	3853	[4079, 2039]
530	[936, 937]	1638	[22, 2380]	2746	[1715, 689]	3854	[4080, 4081]
531	[938, 939]	1639	[2181, 1040]	2747	[1995, 1668]	3855	[4082, 1903]
532	[940, 941]	1640	[2381, 2382]	2748	[1968, 1760]	3856	[3351, 3896]
533	[942, 943]	1641	[2383, 2384]	2749	[3275, 3059]	3857	[3321, 3168]
534	[944, 945]	1642	[2242, 2385]	2750	[3276, 3277]	3858	[4083, 1872]
535	[946, 947]	1643	[2386, 876]	2751	[2970, 2909]	3859	[4084, 4049]
536	[948, 949]	1644	[2387, 416]	2752	[3278, 1743]	3860	[3339, 4085]
537	[950, 951]	1645	[2388, 2389]	2753	[1, 3021]	3861	[1599, 1708]
538	[952, 953]	1646	[1407, 1206]	2754	[3232, 3200]	3862	[3905, 1820]
539	[954, 69]	1647	[2390, 2391]	2755	[160, 3245]	3863	[3264, 4042]
540	[955, 956]	1648	[2392, 2393]	2756	[1574, 3279]	3864	[4086, 1988]
541	[957, 958]	1649	[2394, 2395]	2757	[3280, 809]	3865	[545, 2930]
542	[959, 960]	1650	[2396, 89]	2758	[3281, 3282]	3866	[2023, 4087]
543	[961, 962]	1651	[2397, 2398]	2759	[652, 1478]	3867	[4088, 489]
544	[963, 964]	1652	[2290, 2399]	2760	[3283, 806]	3868	[4019, 3350]
545	[965, 864]	1653	[2400, 2401]	2761	[3284, 2012]	3869	[4089, 3909]
546	[966, 967]	1654	[2402, 2403]	2762	[3285, 3200]	3870	[4090, 795]
547	[968, 969]	1655	[2404, 2178]	2763	[499, 783]	3871	[4091, 3959]

548	[417, 970]	1656	[2405, 999]	2764	[184, 1962]	3872	[4083, 1645]
549	[971, 972]	1657	[2406, 2407]	2765	[637, 1711]	3873	[3940, 1858]
550	[973, 974]	1658	[2408, 2409]	2766	[3210, 758]	3874	[3901, 3335]
551	[975, 976]	1659	[2410, 2411]	2767	[1675, 549]	3875	[4043, 4085]
552	[977, 978]	1660	[2412, 26]	2768	[1723, 1468]	3876	[4026, 4092]
553	[979, 980]	1661	[2413, 2414]	2769	[542, 523]	3877	[3243, 3940]
554	[100, 981]	1662	[2415, 312]	2770	[3286, 3287]	3878	[3920, 1452]
555	[982, 983]	1663	[2416, 2417]	2771	[3288, 3289]	3879	[4093, 2001]
556	[984, 985]	1664	[2418, 2419]	2772	[3290, 3269]	3880	[4094, 3997]
557	[986, 987]	1665	[2420, 2421]	2773	[2909, 488]	3881	[4095, 4096]
558	[988, 989]	1666	[935, 2422]	2774	[3291, 3292]	3882	[1820, 3985]
559	[990, 991]	1667	[2423, 2424]	2775	[3105, 3110]	3883	[3348, 1928]
560	[992, 993]	1668	[2425, 2426]	2776	[1998, 1845]	3884	[3354, 4097]
561	[994, 995]	1669	[2427, 2428]	2777	[3046, 2955]	3885	[4098, 3971]
562	[972, 996]	1670	[2429, 1399]	2778	[173, 1949]	3886	[3122, 1824]
563	[997, 998]	1671	[2430, 2431]	2779	[3240, 195]	3887	[3225, 10]
564	[999, 1000]	1672	[2432, 1139]	2780	[3059, 604]	3888	[4099, 3406]
565	[1001, 259]	1673	[2433, 867]	2781	[230, 168]	3889	[4100, 1171]
566	[1002, 1003]	1674	[1331, 1121]	2782	[2923, 1682]	3890	[4101, 4102]
567	[373, 1004]	1675	[2434, 2435]	2783	[1933, 1942]	3891	[4103, 2177]
568	[976, 1005]	1676	[2436, 2437]	2784	[203, 1793]	3892	[2261, 348]
569	[945, 1006]	1677	[2438, 1398]	2785	[3207, 184]	3893	[2222, 115]
570	[1007, 927]	1678	[2439, 2440]	2786	[624, 1817]	3894	[4104, 2184]
571	[1008, 1009]	1679	[1399, 2418]	2787	[234, 3124]	3895	[4105, 1232]
572	[1010, 1011]	1680	[2441, 2442]	2788	[128, 1897]	3896	[4106, 4107]
573	[1012, 82]	1681	[286, 2443]	2789	[3293, 1479]	3897	[4108, 2144]
574	[1013, 1014]	1682	[2444, 2445]	2790	[3294, 3295]	3898	[4109, 4110]
575	[1015, 1016]	1683	[2446, 2447]	2791	[3016, 3161]	3899	[1411, 4111]
576	[1017, 1018]	1684	[2448, 2449]	2792	[2921, 1565]	3900	[4112, 4113]
577	[1019, 1020]	1685	[838, 975]	2793	[131, 3170]	3901	[2715, 4114]
578	[1021, 1022]	1686	[2450, 2451]	2794	[156, 3007]	3902	[4115, 4116]
579	[1023, 1024]	1687	[2452, 2453]	2795	[3296, 1693]	3903	[4117, 1041]
580	[840, 842]	1688	[2454, 2205]	2796	[1505, 765]	3904	[4118, 3866]
581	[1025, 1026]	1689	[2455, 2456]	2797	[510, 2930]	3905	[2553, 3448]
582	[1027, 344]	1690	[2457, 1310]	2798	[3297, 214]	3906	[4119, 3394]
583	[1028, 979]	1691	[2458, 2459]	2799	[553, 545]	3907	[4120, 4121]
584	[1029, 1030]	1692	[2460, 2257]	2800	[2947, 538]	3908	[2558, 4122]
585	[1031, 1032]	1693	[2461, 2342]	2801	[3298, 3104]	3909	[4123, 4124]
586	[1033, 1034]	1694	[2462, 2301]	2802	[763, 1560]	3910	[4125, 1333]
587	[1035, 1036]	1695	[2463, 2464]	2803	[1818, 506]	3911	[4126, 4127]
588	[1037, 925]	1696	[2465, 2466]	2804	[1862, 1913]	3912	[4128, 3530]
589	[1038, 1039]	1697	[2467, 2468]	2805	[50, 554]	3913	[1065, 4129]
590	[1040, 1041]	1698	[2469, 2470]	2806	[558, 1720]	3914	[4130, 4131]
591	[1042, 1043]	1699	[2161, 2471]	2807	[3202, 1481]	3915	[1373, 337]

592	[1044, 1045]	1700	[2472, 2473]	2808	[1509, 1575]	3916	[4132, 4133]
593	[1046, 1047]	1701	[2474, 303]	2809	[1590, 1625]	3917	[3476, 2701]
594	[1048, 1049]	1702	[2475, 440]	2810	[3223, 1642]	3918	[4134, 2245]
595	[1050, 894]	1703	[2476, 2477]	2811	[1615, 170]	3919	[4135, 3668]
596	[1051, 1052]	1704	[2478, 2479]	2812	[3299, 164]	3920	[4136, 2110]
597	[1053, 1054]	1705	[2480, 2051]	2813	[3300, 216]	3921	[4137, 1346]
598	[1055, 1056]	1706	[2481, 2482]	2814	[3301, 2923]	3922	[4138, 2814]
599	[892, 247]	1707	[2483, 2072]	2815	[3302, 211]	3923	[4139, 22]
600	[1057, 121]	1708	[1043, 400]	2816	[3213, 3000]	3924	[4140, 4141]
601	[1058, 1059]	1709	[2484, 2485]	2817	[3258, 1591]	3925	[18, 4142]
602	[1060, 1061]	1710	[2486, 2487]	2818	[3303, 52]	3926	[4143, 4144]
603	[1062, 1063]	1711	[2488, 2489]	2819	[3304, 704]	3927	[4145, 4146]
604	[1064, 1065]	1712	[2490, 451]	2820	[2974, 3305]	3928	[4147, 4148]
605	[1066, 1067]	1713	[1340, 2491]	2821	[3017, 1775]	3929	[4149, 3679]
606	[1068, 1069]	1714	[2492, 2493]	2822	[205, 3306]	3930	[4150, 2313]
607	[1070, 1071]	1715	[2494, 1038]	2823	[3307, 3125]	3931	[830, 2350]
608	[1072, 1073]	1716	[2495, 2496]	2824	[1919, 1942]	3932	[4151, 1143]
609	[1074, 1075]	1717	[2497, 2235]	2825	[1658, 3081]	3933	[4152, 2553]
610	[1076, 1077]	1718	[2498, 2499]	2826	[2974, 1750]	3934	[4153, 2864]
611	[72, 1078]	1719	[2500, 2501]	2827	[1981, 3308]	3935	[1335, 2719]
612	[1079, 1080]	1720	[2502, 2503]	2828	[1824, 3029]	3936	[4154, 4155]
613	[1081, 1082]	1721	[2149, 2504]	2829	[3309, 1571]	3937	[4156, 4157]
614	[1083, 1084]	1722	[2505, 2150]	2830	[758, 3020]	3938	[4158, 1114]
615	[1056, 1085]	1723	[2506, 1358]	2831	[1842, 504]	3939	[82, 2505]
616	[1086, 1087]	1724	[2507, 1013]	2832	[1674, 1789]	3940	[4159, 4160]
617	[1088, 1089]	1725	[2220, 2508]	2833	[3102, 662]	3941	[4161, 3698]
618	[1090, 1091]	1726	[2509, 2510]	2834	[2937, 46]	3942	[4162, 1014]
619	[1092, 1062]	1727	[2511, 948]	2835	[3310, 3311]	3943	[3462, 2579]
620	[1093, 1094]	1728	[2512, 2135]	2836	[3312, 3313]	3944	[4163, 3436]
621	[1095, 117]	1729	[2513, 940]	2837	[3314, 3315]	3945	[4164, 2729]
622	[1096, 1097]	1730	[2514, 2515]	2838	[2040, 1849]	3946	[4165, 2891]
623	[1098, 1099]	1731	[2516, 1037]	2839	[3049, 594]	3947	[4166, 3731]
624	[1100, 1101]	1732	[2517, 2518]	2840	[1749, 3305]	3948	[4167, 1273]
625	[1102, 1103]	1733	[2519, 416]	2841	[1688, 3306]	3949	[2468, 904]
626	[458, 1104]	1734	[2520, 2521]	2842	[3316, 2014]	3950	[2133, 4168]
627	[460, 1105]	1735	[2522, 437]	2843	[3317, 3234]	3951	[2784, 4169]
628	[1106, 1107]	1736	[2523, 2105]	2844	[3318, 3261]	3952	[4170, 400]
629	[1108, 1109]	1737	[2524, 2525]	2845	[3151, 1597]	3953	[4171, 4172]
630	[1110, 1111]	1738	[2526, 2527]	2846	[3004, 3145]	3954	[1338, 943]
631	[1112, 1113]	1739	[2528, 2529]	2847	[1554, 741]	3955	[1365, 1055]
632	[1114, 1115]	1740	[2530, 2531]	2848	[3319, 1442]	3956	[4173, 865]
633	[1116, 362]	1741	[2332, 2126]	2849	[1476, 9]	3957	[860, 3363]
634	[1117, 1118]	1742	[6, 2532]	2850	[1865, 2987]	3958	[4174, 2683]
635	[1119, 1120]	1743	[2533, 2534]	2851	[3286, 3320]	3959	[4175, 4176]

636	[1121, 1122]	1744	[2535, 2469]	2852	[3321, 3142]	3960	[4177, 2115]
637	[1123, 1124]	1745	[2536, 2537]	2853	[3322, 1687]	3961	[3710, 4178]
638	[96, 1125]	1746	[2047, 2222]	2854	[2938, 3323]	3962	[4179, 4180]
639	[1126, 1127]	1747	[2538, 2539]	2855	[3324, 238]	3963	[4181, 2243]
640	[1128, 1129]	1748	[2540, 2541]	2856	[3325, 520]	3964	[4182, 4183]
641	[1130, 1131]	1749	[2542, 1135]	2857	[3326, 3327]	3965	[2062, 2282]
642	[1132, 1133]	1750	[2157, 1151]	2858	[3328, 3329]	3966	[4184, 4185]
643	[1134, 1135]	1751	[2147, 906]	2859	[3330, 2001]	3967	[4186, 2679]
644	[1136, 1137]	1752	[900, 2543]	2860	[618, 492]	3968	[4187, 4188]
645	[1138, 882]	1753	[2544, 2545]	2861	[1786, 3190]	3969	[3785, 4189]
646	[1139, 1140]	1754	[2546, 2547]	2862	[3331, 2028]	3970	[4190, 3785]
647	[1141, 1142]	1755	[2548, 2549]	2863	[3268, 3332]	3971	[4191, 4192]
648	[1143, 1144]	1756	[2550, 2272]	2864	[720, 1905]	3972	[4193, 957]
649	[920, 1145]	1757	[2551, 2552]	2865	[3211, 1480]	3973	[4194, 4195]
650	[311, 1146]	1758	[2191, 2553]	2866	[1985, 1744]	3974	[4196, 1160]
651	[1147, 1148]	1759	[2193, 2554]	2867	[3194, 622]	3975	[4197, 2262]
652	[1149, 947]	1760	[2555, 902]	2868	[3333, 3334]	3976	[4198, 2298]
653	[1150, 1151]	1761	[2556, 2557]	2869	[1923, 3335]	3977	[4199, 4200]
654	[278, 1152]	1762	[68, 2558]	2870	[3336, 3337]	3978	[4201, 4202]
655	[1153, 1154]	1763	[2559, 2560]	2871	[798, 3338]	3979	[1014, 4203]
656	[1155, 846]	1764	[2561, 291]	2872	[3339, 3340]	3980	[4204, 4205]
657	[1156, 1157]	1765	[2562, 1175]	2873	[3341, 1513]	3981	[2521, 3707]
658	[1158, 1012]	1766	[2563, 414]	2874	[3117, 53]	3982	[4206, 4207]
659	[1159, 861]	1767	[2564, 2565]	2875	[200, 1959]	3983	[4208, 2584]
660	[1160, 1161]	1768	[2566, 2377]	2876	[1740, 1430]	3984	[2510, 4209]
661	[926, 1162]	1769	[2567, 2343]	2877	[3299, 763]	3985	[3448, 2358]
662	[1163, 1164]	1770	[2568, 1391]	2878	[2936, 1913]	3986	[4210, 97]
663	[1165, 1166]	1771	[2569, 1221]	2879	[494, 170]	3987	[4211, 4212]
664	[1167, 1168]	1772	[2570, 2571]	2880	[1695, 2034]	3988	[1003, 3656]
665	[1169, 1170]	1773	[1131, 2572]	2881	[1773, 3342]	3989	[937, 4213]
666	[1171, 1172]	1774	[1133, 2573]	2882	[3343, 3269]	3990	[4214, 4215]
667	[1173, 1174]	1775	[2574, 2575]	2883	[3344, 3345]	3991	[2403, 2413]
668	[1175, 1176]	1776	[2576, 2577]	2884	[3346, 2944]	3992	[4216, 3777]
669	[1177, 1178]	1777	[2578, 2579]	2885	[3347, 2007]	3993	[4217, 2285]
670	[1179, 1180]	1778	[2580, 2581]	2886	[2993, 2913]	3994	[4218, 1028]
671	[1181, 1182]	1779	[1224, 2582]	2887	[3348, 1820]	3995	[4219, 4220]
672	[1183, 1184]	1780	[1097, 1192]	2888	[3349, 3350]	3996	[1215, 3851]
673	[1185, 1186]	1781	[904, 2583]	2889	[3351, 1449]	3997	[4221, 3756]
674	[1187, 1188]	1782	[365, 2488]	2890	[171, 3352]	3998	[4222, 4129]
675	[1189, 1190]	1783	[2090, 2584]	2891	[693, 3132]	3999	[4223, 1006]
676	[1191, 1192]	1784	[2585, 2586]	2892	[3326, 3353]	4000	[4224, 319]
677	[991, 1193]	1785	[2587, 2588]	2893	[3354, 3355]	4001	[3782, 4225]
678	[375, 1194]	1786	[2501, 2486]	2894	[3356, 1924]	4002	[4226, 2643]
679	[1195, 1196]	1787	[2589, 2590]	2895	[3273, 3357]	4003	[4227, 4228]

680	[1197, 1198]	1788	[2591, 2592]	2896	[1643, 624]	4004	[3763, 1355]
681	[1199, 1200]	1789	[2593, 2383]	2897	[3139, 525]	4005	[4229, 2861]
682	[1201, 1202]	1790	[2594, 2595]	2898	[1786, 3358]	4006	[2543, 324]
683	[1203, 1204]	1791	[2596, 2454]	2899	[1821, 210]	4007	[4230, 2262]
684	[1205, 1136]	1792	[2597, 2598]	2900	[732, 1662]	4008	[4231, 4232]
685	[1206, 1207]	1793	[2599, 1260]	2901	[2020, 1534]	4009	[4233, 1101]
686	[1208, 1209]	1794	[2600, 2601]	2902	[3251, 1554]	4010	[4234, 3782]
687	[1210, 1211]	1795	[2602, 2145]	2903	[1763, 1466]	4011	[2722, 4235]
688	[1212, 70]	1796	[2603, 2604]	2904	[3359, 3001]	4012	[4236, 948]
689	[120, 1213]	1797	[2605, 2606]	2905	[3303, 2]	4013	[4237, 3667]
690	[1214, 1215]	1798	[2246, 2607]	2906	[3360, 3361]	4014	[1237, 2652]
691	[1216, 1217]	1799	[440, 297]	2907	[3362, 344]	4015	[4238, 1265]
692	[369, 1218]	1800	[2608, 2609]	2908	[3363, 3364]	4016	[2485, 358]
693	[1219, 1220]	1801	[2610, 2611]	2909	[3365, 3366]	4017	[4239, 880]
694	[1221, 1222]	1802	[1174, 2233]	2910	[3367, 117]	4018	[2554, 2090]
695	[1223, 1224]	1803	[2612, 2613]	2911	[3368, 2308]	4019	[4240, 876]
696	[1225, 1226]	1804	[2614, 2615]	2912	[3369, 3370]	4020	[4241, 4242]
697	[1227, 1228]	1805	[2616, 2060]	2913	[2586, 1264]	4021	[4243, 3843]
698	[1229, 1230]	1806	[2617, 2475]	2914	[2537, 1362]	4022	[4244, 3419]
699	[1231, 1232]	1807	[2618, 2619]	2915	[3371, 3372]	4023	[4245, 4246]
700	[1233, 1234]	1808	[2620, 437]	2916	[3373, 89]	4024	[4247, 3846]
701	[434, 1235]	1809	[1274, 2164]	2917	[3374, 853]	4025	[2897, 311]
702	[1236, 1237]	1810	[2621, 996]	2918	[3375, 2048]	4026	[4248, 4185]
703	[1238, 1239]	1811	[2622, 2623]	2919	[3376, 1172]	4027	[4249, 4250]
704	[1240, 1241]	1812	[1304, 2624]	2920	[3377, 3378]	4028	[4251, 2830]
705	[1242, 1243]	1813	[262, 2625]	2921	[3379, 2272]	4029	[4252, 4253]
706	[1244, 1245]	1814	[2626, 2627]	2922	[3380, 2240]	4030	[3526, 4254]
707	[1246, 1247]	1815	[2628, 2187]	2923	[3381, 1233]	4031	[4255, 4256]
708	[1248, 1064]	1816	[2629, 2274]	2924	[2117, 1203]	4032	[403, 394]
709	[1249, 1250]	1817	[1099, 2630]	2925	[389, 2524]	4033	[4257, 2793]
710	[401, 1251]	1818	[989, 1226]	2926	[3382, 3383]	4034	[4258, 4259]
711	[1252, 1253]	1819	[2631, 2632]	2927	[3384, 2624]	4035	[1232, 3863]
712	[1254, 1255]	1820	[2633, 2634]	2928	[3385, 1020]	4036	[4260, 3814]
713	[1256, 1257]	1821	[2635, 415]	2929	[3386, 3387]	4037	[4261, 4262]
714	[293, 1258]	1822	[2636, 2637]	2930	[3388, 407]	4038	[4263, 2456]
715	[1259, 1260]	1823	[2592, 2638]	2931	[3389, 3390]	4039	[4264, 4265]
716	[821, 1261]	1824	[2639, 1273]	2932	[3391, 3392]	4040	[4266, 1107]
717	[1262, 262]	1825	[2640, 2641]	2933	[3393, 3394]	4041	[4267, 880]
718	[1263, 338]	1826	[2642, 2284]	2934	[3395, 3396]	4042	[4268, 4269]
719	[1264, 402]	1827	[2447, 2643]	2935	[2202, 3397]	4043	[4270, 3876]
720	[1265, 1266]	1828	[2644, 2645]	2936	[1213, 93]	4044	[4271, 1209]
721	[1267, 1268]	1829	[2646, 2647]	2937	[2790, 2703]	4045	[4272, 997]
722	[967, 1252]	1830	[2648, 2649]	2938	[3398, 2252]	4046	[3465, 4273]
723	[1269, 1270]	1831	[2650, 2651]	2939	[3399, 3400]	4047	[3820, 2274]

724	[1251, 1271]	1832	[2254, 2555]	2940	[3401, 307]	4048	[2515, 2758]
725	[410, 406]	1833	[2652, 245]	2941	[3402, 3403]	4049	[4274, 879]
726	[1272, 109]	1834	[2653, 2522]	2942	[3404, 2246]	4050	[4275, 2498]
727	[1273, 1274]	1835	[2654, 1336]	2943	[3405, 3406]	4051	[4276, 2560]
728	[395, 404]	1836	[2655, 1210]	2944	[3407, 3408]	4052	[4277, 4103]
729	[1275, 1067]	1837	[2656, 1231]	2945	[995, 886]	4053	[4278, 2045]
730	[367, 1276]	1838	[2657, 2531]	2946	[3409, 279]	4054	[4279, 3851]
731	[1277, 83]	1839	[2658, 2659]	2947	[3410, 3411]	4055	[430, 3629]
732	[1278, 273]	1840	[2660, 2661]	2948	[3412, 2241]	4056	[4280, 2522]
733	[1279, 1280]	1841	[2662, 2663]	2949	[408, 2639]	4057	[4281, 4282]
734	[1281, 1112]	1842	[274, 2664]	2950	[3413, 3414]	4058	[4200, 4283]
735	[1282, 1283]	1843	[2665, 2666]	2951	[3415, 1070]	4059	[4284, 4203]
736	[1284, 856]	1844	[264, 2667]	2952	[3416, 2608]	4060	[3656, 4285]
737	[1285, 1286]	1845	[1243, 2668]	2953	[1307, 2556]	4061	[3383, 3481]
738	[1287, 1288]	1846	[2669, 2670]	2954	[3417, 2242]	4062	[4286, 4287]
739	[1289, 1290]	1847	[2671, 2672]	2955	[3418, 2186]	4063	[4288, 2151]
740	[1200, 1291]	1848	[2673, 2674]	2956	[3419, 3420]	4064	[4289, 2851]
741	[1049, 1292]	1849	[2675, 298]	2957	[3421, 3422]	4065	[405, 1009]
742	[1293, 1294]	1850	[2676, 2677]	2958	[303, 3423]	4066	[4290, 4291]
743	[1295, 1296]	1851	[2369, 2678]	2959	[3424, 3425]	4067	[2667, 4265]
744	[1297, 1298]	1852	[1355, 2679]	2960	[3426, 3427]	4068	[4292, 3551]
745	[1299, 1300]	1853	[2680, 2681]	2961	[836, 3428]	4069	[4293, 4294]
746	[1301, 1098]	1854	[2682, 944]	2962	[3429, 3430]	4070	[2059, 4271]
747	[1302, 370]	1855	[2683, 2684]	2963	[3431, 2524]	4071	[2187, 3871]
748	[1303, 1304]	1856	[886, 2685]	2964	[3432, 2502]	4072	[4295, 2670]
749	[956, 1305]	1857	[2686, 295]	2965	[2557, 3433]	4073	[871, 4296]
750	[1145, 1177]	1858	[2687, 2434]	2966	[3434, 3435]	4074	[2595, 4297]
751	[1306, 1307]	1859	[2637, 2370]	2967	[3436, 3437]	4075	[4298, 2787]
752	[4, 435]	1860	[2688, 1160]	2968	[2081, 2805]	4076	[4299, 3800]
753	[1308, 1309]	1861	[2689, 2490]	2969	[3438, 3365]	4077	[4300, 2846]
754	[1310, 1311]	1862	[2690, 2441]	2970	[3439, 2368]	4078	[4301, 4302]
755	[1084, 1312]	1863	[2691, 2104]	2971	[1176, 3440]	4079	[116, 1073]
756	[1313, 1314]	1864	[2692, 2693]	2972	[2764, 3441]	4080	[4303, 3411]
757	[1315, 1316]	1865	[2694, 2695]	2973	[104, 3442]	4081	[4304, 4305]
758	[415, 1317]	1866	[834, 97]	2974	[444, 2782]	4082	[2180, 2854]
759	[1318, 1319]	1867	[2696, 1052]	2975	[3443, 397]	4083	[4306, 4307]
760	[1320, 1321]	1868	[2697, 2698]	2976	[3444, 2477]	4084	[2330, 4308]
761	[908, 1322]	1869	[2699, 2380]	2977	[3445, 1315]	4085	[4309, 3650]
762	[1323, 79]	1870	[2700, 2701]	2978	[3446, 2339]	4086	[4142, 3403]
763	[1324, 1325]	1871	[2702, 2703]	2979	[317, 2308]	4087	[4310, 4311]
764	[16, 1326]	1872	[2539, 2704]	2980	[3447, 3448]	4088	[1316, 333]
765	[20, 1327]	1873	[2109, 912]	2981	[3449, 3450]	4089	[2806, 4127]
766	[1328, 1329]	1874	[888, 2705]	2982	[3451, 3452]	4090	[4312, 1175]
767	[1330, 1331]	1875	[2706, 115]	2983	[3453, 281]	4091	[4313, 2347]

768	[1332, 1333]	1876	[2707, 2708]	2984	[3454, 1095]	4092	[4314, 4315]
769	[1334, 1335]	1877	[987, 1003]	2985	[3455, 2640]	4093	[985, 4316]
770	[916, 1336]	1878	[2709, 2710]	2986	[3456, 3457]	4094	[4317, 2892]
771	[1337, 1338]	1879	[2711, 460]	2987	[2693, 967]	4095	[4318, 3829]
772	[1339, 1340]	1880	[2712, 359]	2988	[3458, 1245]	4096	[4319, 4320]
773	[1341, 1342]	1881	[2713, 955]	2989	[2831, 3459]	4097	[4141, 4321]
774	[1343, 1344]	1882	[2267, 1106]	2990	[3460, 2227]	4098	[4322, 4323]
775	[1345, 1346]	1883	[2714, 2715]	2991	[3461, 3462]	4099	[3926, 3909]
776	[1347, 1348]	1884	[2125, 1069]	2992	[3463, 2317]	4100	[4014, 814]
777	[1349, 900]	1885	[2056, 822]	2993	[3464, 3465]	4101	[4324, 1613]
778	[850, 360]	1886	[2716, 2328]	2994	[260, 3466]	4102	[1751, 4325]
779	[1350, 1351]	1887	[1336, 957]	2995	[3467, 1377]	4103	[226, 202]
780	[1352, 1353]	1888	[2717, 2718]	2996	[3468, 3469]	4104	[4061, 3006]
781	[1354, 1355]	1889	[2719, 2720]	2997	[1120, 3470]	4105	[4326, 658]
782	[1356, 1357]	1890	[2721, 2722]	2998	[3471, 1311]	4106	[4009, 799]
783	[305, 1358]	1891	[2723, 2053]	2999	[3472, 855]	4107	[4327, 4072]
784	[1359, 978]	1892	[2724, 2401]	3000	[3473, 2300]	4108	[4003, 791]
785	[1360, 1361]	1893	[2725, 2726]	3001	[3474, 2156]	4109	[3976, 4328]
786	[1362, 1363]	1894	[2727, 2728]	3002	[3475, 3476]	4110	[4329, 3912]
787	[1364, 1365]	1895	[1009, 2729]	3003	[1409, 3477]	4111	[1815, 1871]
788	[1366, 1367]	1896	[1054, 837]	3004	[3478, 3388]	4112	[3995, 3077]
789	[1368, 1369]	1897	[246, 2730]	3005	[2773, 3479]	4113	[1741, 4070]
790	[1370, 1371]	1898	[2731, 2732]	3006	[3480, 2599]	4114	[4056, 797]
791	[1372, 1373]	1899	[2733, 2258]	3007	[3481, 3482]	4115	[4088, 1564]
792	[1374, 1375]	1900	[301, 2353]	3008	[3483, 3484]	4116	[4330, 2024]
793	[1101, 1376]	1901	[2045, 2734]	3009	[3485, 2134]	4117	[4331, 1988]
794	[1030, 1377]	1902	[2735, 2736]	3010	[3486, 2260]	4118	[4332, 1888]
795	[1378, 1379]	1903	[2737, 2738]	3011	[3487, 2162]	4119	[4333, 3095]
796	[1380, 1381]	1904	[2739, 1229]	3012	[3488, 3489]	4120	[3996, 3963]
797	[1382, 1383]	1905	[26, 1267]	3013	[969, 1288]	4121	[3962, 3997]
798	[1384, 875]	1906	[2740, 282]	3014	[3490, 1134]	4122	[3184, 4034]
799	[1385, 1386]	1907	[2223, 2741]	3015	[3491, 3492]	4123	[3960, 4328]
800	[1387, 1388]	1908	[1178, 2742]	3016	[1228, 2439]	4124	[3998, 2001]
801	[1389, 246]	1909	[2743, 2321]	3017	[3493, 3494]	4125	[3904, 4069]
802	[1390, 1391]	1910	[2744, 2642]	3018	[2864, 448]	4126	[4334, 606]
803	[1392, 253]	1911	[2071, 2717]	3019	[3495, 2326]	4127	[796, 4057]
804	[1393, 304]	1912	[1329, 2745]	3020	[1258, 3496]	4128	[4335, 238]
805	[1394, 1395]	1913	[2746, 1076]	3021	[3497, 3498]	4129	[4091, 3337]
806	[1396, 1397]	1914	[2747, 2062]	3022	[3499, 3500]	4130	[2025, 4001]
807	[1398, 1399]	1915	[2748, 2749]	3023	[3501, 2647]	4131	[4336, 4072]
808	[1004, 1400]	1916	[2750, 21]	3024	[3502, 3503]	4132	[2998, 547]
809	[1401, 1402]	1917	[2136, 2751]	3025	[3504, 857]	4133	[2983, 3947]
810	[1059, 1403]	1918	[2752, 2753]	3026	[2753, 2206]	4134	[1609, 3295]
811	[1404, 1405]	1919	[2754, 2755]	3027	[3505, 979]	4135	[4337, 1537]

812	[1406, 1407]	1920	[2471, 2756]	3028	[3506, 3507]	4136	[3924, 1449]
813	[1408, 1409]	1921	[2757, 1357]	3029	[1018, 2696]	4137	[1899, 1999]
814	[1410, 1411]	1922	[2758, 2759]	3030	[102, 287]	4138	[3973, 3261]
815	[1412, 934]	1923	[2760, 2761]	3031	[2319, 3508]	4139	[4338, 640]
816	[1413, 1414]	1924	[2762, 2312]	3032	[1024, 3509]	4140	[3958, 520]
817	[1415, 1416]	1925	[2763, 2764]	3033	[466, 1318]	4141	[4339, 3282]
818	[1417, 1418]	1926	[2765, 893]	3034	[2357, 120]	4142	[1881, 1648]
819	[1419, 1420]	1927	[2766, 2767]	3035	[2421, 3468]	4143	[4018, 1464]
820	[1421, 643]	1928	[2768, 2288]	3036	[3510, 1054]	4144	[4330, 4087]
821	[1422, 235]	1929	[337, 2769]	3037	[3511, 1243]	4145	[3312, 3267]
822	[154, 1423]	1930	[282, 2770]	3038	[3512, 1378]	4146	[4340, 4040]
823	[173, 612]	1931	[2771, 2772]	3039	[2115, 3513]	4147	[3024, 1789]
824	[1424, 1425]	1932	[2449, 2773]	3040	[3514, 3515]	4148	[1744, 1557]
825	[61, 1426]	1933	[2774, 2517]	3041	[3516, 2663]	4149	[2994, 1509]
826	[679, 1427]	1934	[2775, 2634]	3042	[3517, 1183]	4150	[4341, 533]
827	[195, 1428]	1935	[2677, 2776]	3043	[3518, 2170]	4151	[3939, 1570]
828	[1429, 1430]	1936	[258, 2777]	3044	[2769, 2786]	4152	[3027, 728]
829	[161, 598]	1937	[88, 2778]	3045	[1420, 3519]	4153	[4013, 225]
830	[199, 675]	1938	[2779, 1082]	3046	[3520, 1132]	4154	[794, 179]
831	[1431, 239]	1939	[949, 2780]	3047	[3521, 3522]	4155	[4051, 3327]
832	[538, 643]	1940	[2531, 103]	3048	[343, 3523]	4156	[3089, 1671]
833	[1432, 1433]	1941	[2781, 2782]	3049	[3524, 2252]	4157	[1655, 3897]
834	[1434, 145]	1942	[2783, 316]	3050	[3525, 3526]	4158	[3318, 1697]
835	[1435, 754]	1943	[862, 429]	3051	[3527, 1018]	4159	[3953, 3308]
836	[55, 1436]	1944	[1414, 2784]	3052	[3528, 2314]	4160	[582, 176]
837	[1437, 1438]	1945	[2527, 2785]	3053	[3529, 2528]	4161	[1755, 1426]
838	[1434, 1439]	1946	[2189, 1007]	3054	[928, 3530]	4162	[4342, 1668]
839	[11, 1440]	1947	[2786, 2787]	3055	[3531, 3532]	4163	[1909, 791]
840	[1441, 1442]	1948	[64, 2788]	3056	[1357, 3533]	4164	[4028, 724]
841	[1443, 1444]	1949	[80, 2669]	3057	[3534, 3535]	4165	[3895, 3951]
842	[1440, 1445]	1950	[2789, 2790]	3058	[3536, 834]	4166	[4337, 1758]
843	[1446, 14]	1951	[2199, 2791]	3059	[3537, 1066]	4167	[4343, 724]
844	[1447, 9]	1952	[2792, 932]	3060	[3538, 3539]	4168	[3967, 686]
845	[1448, 1449]	1953	[2793, 2794]	3061	[3484, 468]	4169	[2039, 3212]
846	[1450, 240]	1954	[2795, 394]	3062	[3540, 3541]	4170	[4015, 710]
847	[1451, 1452]	1955	[2796, 2797]	3063	[3542, 3543]	4171	[4344, 1757]
848	[1453, 814]	1956	[2798, 2325]	3064	[3544, 3545]	4172	[57, 4345]
849	[1454, 660]	1957	[2799, 2440]	3065	[3546, 2778]	4173	[4346, 207]
850	[1455, 662]	1958	[2800, 2801]	3066	[2705, 3547]	4174	[228, 1761]
851	[1456, 1438]	1959	[289, 2802]	3067	[3548, 2764]	4175	[3333, 3993]
852	[1457, 1458]	1960	[2803, 883]	3068	[2065, 3549]	4176	[3970, 4049]
853	[1459, 1460]	1961	[2804, 2245]	3069	[3550, 3551]	4177	[4095, 3980]
854	[649, 1461]	1962	[2491, 1124]	3070	[3552, 3413]	4178	[1429, 1741]
855	[1462, 774]	1963	[2805, 2806]	3071	[3553, 3554]	4179	[4032, 1687]

856	[1463, 1464]	1964	[2807, 2747]	3072	[3555, 1349]	4180	[3347, 4066]
857	[1465, 1466]	1965	[2466, 2808]	3073	[3556, 3557]	4181	[4347, 3233]
858	[1467, 233]	1966	[2809, 2810]	3074	[869, 3558]	4182	[4348, 3355]
859	[516, 1468]	1967	[1113, 2811]	3075	[3559, 1145]	4183	[4062, 2942]
860	[1469, 1470]	1968	[2812, 361]	3076	[2389, 3560]	4184	[4011, 1756]
861	[1471, 1472]	1969	[2813, 2687]	3077	[3561, 3562]	4185	[1606, 3951]
862	[1473, 758]	1970	[2814, 258]	3078	[1061, 3563]	4186	[3954, 1565]
863	[1474, 1475]	1971	[2815, 2816]	3079	[3564, 3565]	4187	[4349, 4050]
864	[1476, 1477]	1972	[2817, 950]	3080	[3566, 407]	4188	[3314, 4077]
865	[1478, 1479]	1973	[2818, 2639]	3081	[2575, 387]	4189	[489, 3165]
866	[1480, 1481]	1974	[2819, 1403]	3082	[3567, 1381]	4190	[4350, 489]
867	[1482, 40]	1975	[2820, 2821]	3083	[3568, 3468]	4191	[4351, 3168]
868	[127, 529]	1976	[1361, 2822]	3084	[3569, 3570]	4192	[1489, 1767]
869	[1483, 1484]	1977	[2823, 2824]	3085	[3571, 1264]	4193	[4352, 1732]
870	[1485, 145]	1978	[2271, 2825]	3086	[1322, 2796]	4194	[808, 4078]
871	[1486, 545]	1979	[2120, 1242]	3087	[3572, 3573]	4195	[239, 3965]
872	[577, 136]	1980	[2826, 2484]	3088	[2068, 3574]	4196	[551, 586]
873	[182, 1487]	1981	[2827, 2828]	3089	[3575, 1234]	4197	[4341, 1756]
874	[1488, 649]	1982	[2829, 2064]	3090	[3576, 1378]	4198	[4353, 3357]
875	[1489, 1490]	1983	[2767, 2830]	3091	[3577, 2474]	4199	[4354, 140]
876	[1491, 1492]	1984	[2634, 2831]	3092	[960, 3578]	4200	[4339, 4031]
877	[748, 1493]	1985	[2832, 2257]	3093	[2122, 445]	4201	[4089, 3927]
878	[1466, 1494]	1986	[2833, 2450]	3094	[3579, 2649]	4202	[1954, 3242]
879	[1495, 1496]	1987	[2834, 2835]	3095	[3507, 3580]	4203	[4355, 3323]
880	[1497, 1498]	1988	[2836, 2837]	3096	[3581, 826]	4204	[3328, 4356]
881	[1499, 195]	1989	[2838, 2683]	3097	[3582, 2131]	4205	[4094, 3963]
882	[1500, 771]	1990	[1157, 351]	3098	[866, 3583]	4206	[1937, 3139]
883	[1501, 489]	1991	[2839, 923]	3099	[3584, 3585]	4207	[3206, 3932]
884	[1502, 648]	1992	[2840, 2841]	3100	[3586, 917]	4208	[1701, 203]
885	[1503, 1504]	1993	[2842, 2843]	3101	[3587, 877]	4209	[3165, 3231]
886	[1505, 1506]	1994	[2844, 1417]	3102	[1321, 3588]	4210	[4357, 183]
887	[682, 1507]	1995	[2845, 2497]	3103	[3589, 2330]	4211	[4006, 2972]
888	[1508, 1509]	1996	[2846, 2847]	3104	[3590, 3591]	4212	[2011, 4358]
889	[1510, 1511]	1997	[2848, 2849]	3105	[3592, 1367]	4213	[3083, 2995]
890	[1512, 1513]	1998	[1209, 1031]	3106	[3593, 3594]	4214	[4359, 3106]
891	[1514, 472]	1999	[1211, 2850]	3107	[3595, 3508]	4215	[2913, 4046]
892	[1515, 474]	2000	[1146, 2851]	3108	[3596, 2441]	4216	[4360, 1733]
893	[1516, 1517]	2001	[2852, 2705]	3109	[2437, 2841]	4217	[4361, 1903]
894	[1518, 1519]	2002	[2853, 2854]	3110	[3597, 3598]	4218	[3134, 224]
895	[1520, 668]	2003	[2855, 2430]	3111	[3599, 3600]	4219	[4362, 2960]
896	[747, 190]	2004	[2856, 2857]	3112	[3601, 2622]	4220	[714, 4345]
897	[1521, 54]	2005	[2858, 2859]	3113	[3602, 3603]	4221	[4351, 3142]
898	[1522, 1523]	2006	[2860, 2861]	3114	[3604, 3605]	4222	[4360, 606]
899	[1524, 1525]	2007	[2862, 2863]	3115	[3606, 2229]	4223	[3285, 3233]

900	[1526, 1527]	2008	[1016, 2864]	3116	[3607, 2283]	4224	[4064, 3964]
901	[1528, 1519]	2009	[1270, 1043]	3117	[3608, 409]	4225	[1634, 583]
902	[1502, 1529]	2010	[2865, 2866]	3118	[2811, 3609]	4226	[4363, 31]
903	[1530, 1531]	2011	[2867, 288]	3119	[3610, 2843]	4227	[3979, 4096]
904	[632, 779]	2012	[2868, 2869]	3120	[3611, 3612]	4228	[1871, 3943]
905	[1532, 1533]	2013	[2258, 2870]	3121	[3613, 3614]	4229	[3092, 2923]
906	[209, 757]	2014	[2871, 2872]	3122	[3615, 1184]	4230	[1654, 673]
907	[1534, 1535]	2015	[924, 2846]	3123	[1298, 3616]	4231	[4364, 3334]
908	[9, 1505]	2016	[2873, 976]	3124	[3617, 3618]	4232	[2941, 4063]
909	[1536, 1537]	2017	[2874, 2126]	3125	[1325, 3619]	4233	[4054, 2031]
910	[1538, 581]	2018	[2875, 1343]	3126	[3620, 3621]	4234	[3283, 1634]
911	[1539, 31]	2019	[2876, 2725]	3127	[3622, 3623]	4235	[3298, 3317]
912	[1463, 1540]	2020	[2877, 1193]	3128	[3624, 3379]	4236	[3153, 2929]
913	[487, 1541]	2021	[2878, 2175]	3129	[2367, 1038]	4237	[3933, 727]
914	[1542, 703]	2022	[2777, 2879]	3130	[3625, 3626]	4238	[4343, 1905]
915	[1543, 201]	2023	[2880, 2881]	3131	[2577, 1297]	4239	[3030, 147]
916	[1544, 1545]	2024	[2882, 2883]	3132	[3588, 3627]	4240	[4052, 598]
917	[1546, 1547]	2025	[2884, 1325]	3133	[3628, 3629]	4241	[4073, 3269]
918	[470, 1548]	2026	[2885, 2886]	3134	[3630, 1013]	4242	[4098, 4049]
919	[667, 1467]	2027	[2887, 2888]	3135	[3631, 3632]	4243	[2009, 1599]
920	[1549, 132]	2028	[2889, 2890]	3136	[3633, 2773]	4244	[3324, 742]
921	[1550, 649]	2029	[2379, 2891]	3137	[2162, 3634]	4245	[4365, 1757]
922	[1551, 1552]	2030	[1161, 2892]	3138	[3635, 927]	4246	[1983, 4024]
923	[1553, 641]	2031	[2893, 2894]	3139	[90, 2265]	4247	[1663, 3021]
924	[594, 1554]	2032	[2895, 2392]	3140	[3636, 3637]	4248	[1695, 673]
925	[1555, 1556]	2033	[2896, 2689]	3141	[3638, 1385]	4249	[4093, 3999]
926	[1557, 1558]	2034	[2301, 2897]	3142	[3639, 3640]	4250	[3330, 3999]
927	[702, 1559]	2035	[1129, 2898]	3143	[3641, 3642]	4251	[3934, 3020]
928	[164, 1560]	2036	[1164, 2160]	3144	[3643, 1146]	4252	[4366, 1748]
929	[1561, 660]	2037	[78, 2599]	3145	[3644, 3645]	4253	[552, 196]
930	[1562, 1563]	2038	[2899, 2900]	3146	[3646, 3434]	4254	[3349, 4020]
931	[135, 578]	2039	[2901, 313]	3147	[3647, 2775]	4255	[4364, 3993]
932	[1501, 1564]	2040	[2902, 2178]	3148	[3648, 3649]	4256	[4021, 3345]
933	[1565, 1566]	2041	[2903, 2904]	3149	[2678, 3650]	4257	[4367, 1950]
934	[1567, 1568]	2042	[852, 2212]	3150	[2701, 72]	4258	[4349, 2028]
935	[190, 1493]	2043	[2905, 25]	3151	[3591, 2241]	4259	[4340, 4368]
936	[1569, 1570]	2044	[189, 1827]	3152	[3651, 3652]	4260	[4333, 1577]
937	[818, 1571]	2045	[2043, 2906]	3153	[3653, 3654]	4261	[4048, 3971]
938	[1572, 1535]	2046	[2907, 614]	3154	[3655, 3656]	4262	[4327, 4075]
939	[657, 1517]	2047	[2908, 709]	3155	[3657, 2610]	4263	[2004, 3271]
940	[1459, 1573]	2048	[2909, 1541]	3156	[2782, 3658]	4264	[3322, 1792]
941	[1574, 1575]	2049	[2910, 57]	3157	[3659, 2408]	4265	[3310, 4081]
942	[1576, 1577]	2050	[2911, 2912]	3158	[3397, 1131]	4266	[4331, 3114]
943	[694, 1578]	2051	[2913, 2914]	3159	[3660, 1133]	4267	[3194, 1858]

944	[1579, 1580]	2052	[2915, 1977]	3160	[1226, 3661]	4268	[3331, 4050]
945	[1581, 1582]	2053	[2916, 196]	3161	[2339, 3662]	4269	[3992, 3334]
946	[1583, 1584]	2054	[2917, 222]	3162	[3663, 3664]	4270	[4369, 1634]
947	[1585, 1470]	2055	[2918, 154]	3163	[74, 2410]	4271	[1609, 3277]
948	[1586, 1587]	2056	[1482, 173]	3164	[3665, 3666]	4272	[4370, 3937]
949	[1588, 1589]	2057	[1494, 1996]	3165	[3532, 3667]	4273	[3294, 3277]
950	[1590, 702]	2058	[2919, 1609]	3166	[3668, 2219]	4274	[4347, 3200]
951	[1591, 737]	2059	[2920, 1434]	3167	[3669, 3670]	4275	[4361, 3898]
952	[1592, 1593]	2060	[726, 53]	3168	[3671, 3672]	4276	[4371, 1531]
953	[1594, 592]	2061	[2921, 1658]	3169	[3673, 887]	4277	[4372, 56]
954	[1595, 141]	2062	[1819, 1928]	3170	[98, 3674]	4278	[3908, 3927]
955	[1596, 1597]	2063	[2922, 636]	3171	[3580, 2186]	4279	[4373, 773]
956	[519, 1598]	2064	[2923, 767]	3172	[3637, 3675]	4280	[2986, 1825]
957	[10, 1506]	2065	[1571, 1953]	3173	[3676, 2273]	4281	[4071, 4075]
958	[1599, 1600]	2066	[2924, 682]	3174	[2787, 3677]	4282	[4059, 3334]
959	[1601, 1531]	2067	[2925, 1444]	3175	[3678, 3679]	4283	[140, 754]
960	[1602, 494]	2068	[2920, 2926]	3176	[3680, 387]	4284	[4079, 3036]
961	[1603, 1458]	2069	[2927, 1897]	3177	[3681, 3682]	4285	[538, 685]
962	[1604, 1429]	2070	[2928, 718]	3178	[3683, 3684]	4286	[4369, 806]
963	[1605, 1606]	2071	[695, 1593]	3179	[3685, 3686]	4287	[4068, 3287]
964	[1607, 156]	2072	[1527, 634]	3180	[2211, 3687]	4288	[4335, 742]
965	[1608, 1609]	2073	[1926, 764]	3181	[3688, 3689]	4289	[4374, 2972]
966	[1610, 728]	2074	[1917, 1472]	3182	[2453, 2617]	4290	[4030, 3997]
967	[725, 1473]	2075	[711, 1905]	3183	[3574, 826]	4291	[4329, 4053]
968	[723, 210]	2076	[1976, 2929]	3184	[3690, 3664]	4292	[3940, 622]
969	[211, 726]	2077	[2930, 1752]	3185	[3691, 3692]	4293	[3910, 4356]
970	[734, 1565]	2078	[219, 730]	3186	[3693, 3694]	4294	[2002, 3978]
971	[1611, 1440]	2079	[2931, 2932]	3187	[2100, 326]	4295	[4082, 3898]
972	[1612, 1613]	2080	[2933, 1578]	3188	[3695, 1341]	4296	[3284, 4358]
973	[1614, 1615]	2081	[48, 638]	3189	[2145, 3696]	4297	[4080, 3311]
974	[1563, 1616]	2082	[2934, 1706]	3190	[2609, 3697]	4298	[4035, 1449]
975	[1617, 520]	2083	[12, 2935]	3191	[3698, 830]	4299	[4334, 1733]
976	[1439, 193]	2084	[2936, 45]	3192	[3699, 1062]	4300	[4086, 3114]
977	[1618, 1619]	2085	[2937, 1680]	3193	[3700, 1312]	4301	[4348, 4097]
978	[1620, 761]	2086	[2938, 2939]	3194	[3701, 3702]	4302	[3344, 4022]
979	[1621, 721]	2087	[2940, 1922]	3195	[3703, 2592]	4303	[4371, 1950]
980	[1622, 1623]	2088	[2941, 2942]	3196	[3704, 3705]	4304	[4375, 1924]
981	[195, 1624]	2089	[2943, 1789]	3197	[3706, 3707]	4305	[4336, 4075]
982	[521, 560]	2090	[1516, 658]	3198	[3708, 66]	4306	[4376, 1894]
983	[1625, 1626]	2091	[1930, 2944]	3199	[3709, 3710]	4307	[1526, 50]
984	[150, 804]	2092	[1989, 2945]	3200	[3711, 3712]	4308	[4355, 2939]
985	[1518, 776]	2093	[2946, 746]	3201	[3713, 2881]	4309	[4067, 2014]
986	[1561, 540]	2094	[2947, 684]	3202	[3714, 3715]	4310	[4375, 3335]
987	[813, 1627]	2095	[2948, 596]	3203	[3716, 459]	4311	[2027, 4050]

988	[1572, 750]	2096	[2949, 576]	3204	[2704, 3413]	4312	[1525, 1639]
989	[1628, 640]	2097	[1683, 42]	3205	[3717, 2185]	4313	[618, 1825]
990	[1629, 244]	2098	[143, 1720]	3206	[3718, 2645]	4314	[4074, 4072]
991	[660, 541]	2099	[2950, 1868]	3207	[3719, 2491]	4315	[4039, 4368]
992	[1592, 1630]	2100	[2951, 606]	3208	[446, 2498]	4316	[4377, 3968]
993	[1631, 1632]	2101	[2016, 668]	3209	[3720, 255]	4317	[4055, 140]
994	[1633, 1505]	2102	[1703, 1619]	3210	[3721, 1258]	4318	[4378, 1540]
995	[805, 1634]	2103	[2952, 579]	3211	[3722, 2630]	4319	[4038, 4058]
996	[1635, 1636]	2104	[1878, 1687]	3212	[2900, 1315]	4320	[4076, 3315]
997	[1600, 1637]	2105	[752, 2953]	3213	[2306, 3723]	4321	[1513, 1758]
998	[1638, 1639]	2106	[649, 1798]	3214	[3724, 3425]	4322	[4379, 1599]
999	[1640, 693]	2107	[631, 133]	3215	[3725, 2537]	4323	[4380, 4092]
1000	[1641, 1642]	2108	[2954, 1589]	3216	[3726, 2674]	4324	[4381, 4382]
1001	[1643, 497]	2109	[601, 484]	3217	[3727, 3728]	4325	[3457, 2360]
1002	[1644, 1645]	2110	[2955, 1717]	3218	[3729, 3730]	4326	[92, 871]
1003	[1646, 538]	2111	[1817, 2956]	3219	[3731, 2640]	4327	[4383, 4384]
1004	[1647, 1648]	2112	[2033, 198]	3220	[3732, 1334]	4328	[3832, 4385]
1005	[1513, 1537]	2113	[1491, 1423]	3221	[879, 3733]	4329	[4386, 4122]
1006	[1594, 1649]	2114	[669, 1735]	3222	[468, 3734]	4330	[4387, 991]
1007	[540, 661]	2115	[2957, 1876]	3223	[2240, 3369]	4331	[391, 4287]
1008	[1650, 1651]	2116	[1884, 1645]	3224	[3370, 3735]	4332	[4273, 2421]
1009	[1652, 1651]	2117	[1946, 819]	3225	[3541, 1164]	4333	[4388, 4389]
1010	[1653, 1654]	2118	[634, 555]	3226	[3736, 2075]	4334	[1268, 2153]
1011	[1655, 1656]	2119	[1911, 602]	3227	[3737, 3501]	4335	[827, 4116]
1012	[1657, 190]	2120	[1462, 574]	3228	[3738, 862]	4336	[4390, 2770]
1013	[734, 1658]	2121	[2958, 702]	3229	[3739, 933]	4337	[4391, 2753]
1014	[578, 1659]	2122	[157, 782]	3230	[3740, 935]	4338	[2103, 69]
1015	[1660, 720]	2123	[735, 181]	3231	[3666, 1138]	4339	[4392, 2184]
1016	[1661, 1662]	2124	[1891, 1741]	3232	[3741, 3742]	4340	[4393, 2870]
1017	[1524, 1638]	2125	[2959, 2960]	3233	[3743, 3744]	4341	[1202, 3521]
1018	[1663, 751]	2126	[213, 212]	3234	[3414, 3715]	4342	[1192, 2251]
1019	[1664, 498]	2127	[2961, 2962]	3235	[3498, 1330]	4343	[4394, 2358]
1020	[1665, 744]	2128	[2963, 716]	3236	[3745, 3746]	4344	[4395, 4396]
1021	[688, 1666]	2129	[2964, 1898]	3237	[3747, 3748]	4345	[3702, 3646]
1022	[1667, 1668]	2130	[2965, 1926]	3238	[2237, 2600]	4346	[4397, 4398]
1023	[1669, 654]	2131	[751, 2966]	3239	[3749, 2809]	4347	[2529, 3832]
1024	[625, 566]	2132	[692, 662]	3240	[3627, 3750]	4348	[4399, 86]
1025	[1670, 1671]	2133	[2967, 782]	3241	[3751, 1297]	4349	[2424, 2857]
1026	[1672, 1673]	2134	[2968, 785]	3242	[3752, 3753]	4350	[2075, 3532]
1027	[1674, 635]	2135	[2969, 2970]	3243	[3754, 2687]	4351	[981, 3868]
1028	[1675, 1676]	2136	[2971, 689]	3244	[3755, 3756]	4352	[4400, 68]
1029	[1585, 1677]	2137	[1926, 2972]	3245	[2479, 3757]	4353	[4401, 4308]
1030	[1678, 1679]	2138	[2973, 2974]	3246	[3758, 1071]	4354	[3667, 1310]
1031	[45, 1680]	2139	[1834, 779]	3247	[3759, 2480]	4355	[4402, 1047]

1032	[752, 1681]	2140	[1916, 549]	3248	[3760, 2299]	4356	[4180, 4403]
1033	[766, 1682]	2141	[1661, 614]	3249	[3761, 3762]	4357	[358, 1414]
1034	[1581, 1494]	2142	[2975, 1425]	3250	[947, 3763]	4358	[4404, 4405]
1035	[1683, 189]	2143	[2976, 620]	3251	[2802, 2430]	4359	[4406, 4407]
1036	[780, 527]	2144	[1958, 244]	3252	[1052, 2283]	4360	[1311, 414]
1037	[1684, 38]	2145	[2967, 158]	3253	[3764, 2444]	4361	[2572, 4200]
1038	[1685, 1686]	2146	[2977, 209]	3254	[1198, 283]	4362	[4408, 4409]
1039	[1687, 1688]	2147	[223, 2019]	3255	[1207, 328]	4363	[4410, 3799]
1040	[1689, 740]	2148	[2978, 1606]	3256	[3765, 24]	4364	[2496, 4411]
1041	[1690, 1691]	2149	[1772, 173]	3257	[1186, 3766]	4365	[4412, 1185]
1042	[1692, 479]	2150	[164, 2979]	3258	[3767, 1285]	4366	[4413, 4414]
1043	[1471, 1693]	2151	[2980, 2981]	3259	[943, 3768]	4367	[4415, 1029]
1044	[1694, 1695]	2152	[2982, 709]	3260	[3769, 3770]	4368	[4416, 1178]
1045	[1696, 1697]	2153	[2983, 2984]	3261	[3771, 384]	4369	[2830, 2372]
1046	[1698, 1627]	2154	[2985, 2986]	3262	[882, 2294]	4370	[4417, 1096]
1047	[167, 231]	2155	[2964, 746]	3263	[3772, 1296]	4371	[4418, 4419]
1048	[1699, 1593]	2156	[1596, 508]	3264	[3773, 3570]	4372	[4420, 314]
1049	[1700, 130]	2157	[178, 795]	3265	[3774, 3775]	4373	[118, 1416]
1050	[1701, 1702]	2158	[1439, 146]	3266	[3776, 2183]	4374	[2641, 3591]
1051	[1703, 602]	2159	[140, 2987]	3267	[3777, 3778]	4375	[1127, 3794]
1052	[1704, 1487]	2160	[1553, 2955]	3268	[3779, 3780]	4376	[4421, 2289]
1053	[1705, 1706]	2161	[1508, 1574]	3269	[3781, 451]	4377	[4422, 2313]
1054	[1707, 1434]	2162	[198, 1861]	3270	[2684, 3782]	4378	[4423, 458]
1055	[1708, 1709]	2163	[2988, 224]	3271	[3783, 3784]	4379	[1071, 2316]
1056	[1710, 1711]	2164	[2989, 2984]	3272	[347, 1353]	4380	[4424, 2447]
1057	[1712, 170]	2165	[2990, 481]	3273	[3366, 3785]	4381	[3900, 1840]
1058	[1713, 557]	2166	[2931, 1452]	3274	[3786, 3787]	4382	[607, 4425]
1059	[1714, 806]	2167	[2991, 2992]	3275	[3788, 3452]	4383	[4350, 1564]
1060	[1715, 1666]	2168	[2993, 1746]	3276	[3789, 2784]	4384	[4377, 3907]
1061	[1716, 1597]	2169	[2994, 1574]	3277	[1172, 3755]	4385	[3036, 1895]
1062	[641, 1717]	2170	[2995, 2996]	3278	[3790, 3791]	4386	[4065, 2039]
1063	[1560, 1718]	2171	[2997, 1427]	3279	[2183, 3792]	4387	[4426, 3095]
1064	[1477, 1505]	2172	[1971, 776]	3280	[3793, 3794]	4388	[3319, 3260]
1065	[1719, 1720]	2173	[2998, 208]	3281	[3795, 3684]	4389	[1841, 1986]
1066	[1721, 594]	2174	[2999, 3000]	3282	[3796, 3797]	4390	[4379, 2010]
1067	[474, 1722]	2175	[202, 1702]	3283	[1266, 1028]	4391	[47, 1710]
1068	[1723, 517]	2176	[1913, 46]	3284	[3798, 3799]	4392	[4367, 1531]
1069	[1724, 1462]	2177	[705, 1679]	3285	[299, 3800]	4393	[4354, 1865]
1070	[1652, 785]	2178	[3001, 1573]	3286	[3801, 934]	4394	[3085, 1621]
1071	[54, 728]	2179	[1554, 1671]	3287	[3802, 3803]	4395	[4362, 3057]
1072	[613, 1662]	2180	[3002, 1801]	3288	[3804, 1049]	4396	[2987, 4427]
1073	[1725, 1726]	2181	[814, 3003]	3289	[2736, 3805]	4397	[4370, 756]
1074	[1727, 1728]	2182	[1947, 149]	3290	[3806, 3807]	4398	[2008, 3991]
1075	[1729, 242]	2183	[3004, 1552]	3291	[254, 3780]	4399	[4353, 3274]

1076	[1730, 1458]	2184	[567, 3005]	3292	[3808, 3809]	4400	[524, 4060]
1077	[1731, 1732]	2185	[3006, 3007]	3293	[2141, 3730]	4401	[4428, 1556]
1078	[1733, 607]	2186	[1778, 3008]	3294	[1118, 2334]	4402	[1997, 1645]
1079	[1734, 1580]	2187	[3009, 1810]	3295	[983, 3502]	4403	[1687, 205]
1080	[779, 1735]	2188	[1454, 540]	3296	[3810, 2175]	4404	[4084, 3971]
1081	[1736, 1737]	2189	[3010, 702]	3297	[3811, 395]	4405	[800, 3903]
1082	[1738, 1739]	2190	[2977, 722]	3298	[3812, 3414]	4406	[4346, 1706]
1083	[1740, 1741]	2191	[2908, 477]	3299	[3813, 3814]	4407	[490, 3957]
1084	[1742, 1743]	2192	[3011, 585]	3300	[1087, 3815]	4408	[4324, 3249]
1085	[1744, 1685]	2193	[3012, 760]	3301	[3816, 3817]	4409	[1688, 3182]
1086	[1745, 1746]	2194	[3013, 1429]	3302	[3818, 116]	4410	[3950, 190]
1087	[1747, 1748]	2195	[3014, 538]	3303	[3819, 2528]	4411	[4380, 4027]
1088	[1749, 1750]	2196	[2997, 680]	3304	[998, 2103]	4412	[4359, 3110]
1089	[1751, 1752]	2197	[3015, 152]	3305	[3442, 2428]	4413	[2934, 207]
1090	[1753, 713]	2198	[2978, 3016]	3306	[2821, 3820]	4414	[217, 4425]
1091	[1724, 707]	2199	[2041, 198]	3307	[3821, 2769]	4415	[4372, 1436]
1092	[1754, 238]	2200	[1660, 711]	3308	[3822, 3823]	4416	[2013, 3127]
1093	[1755, 62]	2201	[3011, 551]	3309	[3824, 2793]	4417	[4365, 1584]
1094	[655, 1756]	2202	[3017, 734]	3310	[3825, 1134]	4418	[4366, 2962]
1095	[1583, 1757]	2203	[3018, 2993]	3311	[3826, 3827]	4419	[1635, 1738]
1096	[1758, 1759]	2204	[3019, 721]	3312	[3828, 3686]	4420	[4045, 1613]
1097	[1760, 1761]	2205	[211, 3020]	3313	[3829, 3830]	4421	[4023, 3057]
1098	[1515, 1570]	2206	[1710, 638]	3314	[3831, 3832]	4422	[1654, 2034]
1099	[1762, 589]	2207	[3021, 752]	3315	[3833, 3834]	4423	[1444, 3935]
1100	[1699, 1630]	2208	[3022, 1708]	3316	[3835, 3836]	4424	[4426, 1577]
1101	[1495, 1484]	2209	[3023, 2960]	3317	[3837, 324]	4425	[4307, 4400]
1102	[1763, 1581]	2210	[1539, 675]	3318	[3838, 2255]	4426	[4429, 4247]
1103	[1764, 1765]	2211	[1625, 1559]	3319	[3839, 3840]	4427	[272, 2656]
1104	[803, 1428]	2212	[1617, 1598]	3320	[3841, 3842]	4428	[315, 2296]
1105	[806, 1586]	2213	[3024, 635]	3321	[1077, 3843]	4429	[4376, 3064]
1106	[1689, 1554]	2214	[3021, 2966]	3322	[3730, 1109]		
1107	[1766, 1767]	2215	[701, 1625]	3323	[3844, 3845]		

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	739	0	1478	1	2217	1	2956	1	3695	1
1	0	740	0	1479	0	2218	0	2957	0	3696	1
2	0	741	0	1480	0	2219	1	2958	1	3697	1
3	0	742	1	1481	0	2220	0	2959	0	3698	1
4	0	743	0	1482	0	2221	1	2960	1	3699	0
5	0	744	0	1483	1	2222	0	2961	0	3700	1
6	0	745	0	1484	1	2223	0	2962	0	3701	1
7	0	746	1	1485	1	2224	0	2963	1	3702	0
8	1	747	0	1486	0	2225	1	2964	1	3703	1

9	0	748	1	1487	0	2226	1	2965	1	3704	0
10	0	749	0	1488	1	2227	0	2966	1	3705	1
11	0	750	0	1489	0	2228	0	2967	1	3706	0
12	1	751	0	1490	0	2229	0	2968	1	3707	1
13	0	752	0	1491	1	2230	0	2969	0	3708	1
14	1	753	1	1492	0	2231	1	2970	1	3709	1
15	0	754	0	1493	1	2232	0	2971	0	3710	1
16	0	755	0	1494	1	2233	0	2972	1	3711	1
17	1	756	1	1495	0	2234	0	2973	0	3712	0
18	0	757	1	1496	0	2235	0	2974	0	3713	1
19	0	758	1	1497	1	2236	1	2975	1	3714	0
20	1	759	1	1498	0	2237	0	2976	0	3715	1
21	0	760	1	1499	1	2238	0	2977	0	3716	1
22	0	761	0	1500	0	2239	0	2978	0	3717	1
23	0	762	0	1501	1	2240	1	2979	1	3718	1
24	0	763	0	1502	0	2241	0	2980	1	3719	0
25	1	764	0	1503	1	2242	0	2981	0	3720	1
26	0	765	1	1504	0	2243	0	2982	0	3721	0
27	0	766	0	1505	1	2244	0	2983	1	3722	1
28	0	767	0	1506	0	2245	1	2984	1	3723	0
29	1	768	1	1507	1	2246	1	2985	0	3724	1
30	0	769	1	1508	0	2247	0	2986	1	3725	1
31	0	770	1	1509	0	2248	1	2987	1	3726	0
32	0	771	1	1510	0	2249	0	2988	0	3727	1
33	0	772	0	1511	0	2250	1	2989	0	3728	1
34	1	773	0	1512	0	2251	0	2990	0	3729	1
35	1	774	0	1513	0	2252	1	2991	1	3730	1
36	1	775	1	1514	0	2253	1	2992	1	3731	1
37	0	776	1	1515	0	2254	1	2993	0	3732	0
38	1	777	1	1516	0	2255	0	2994	1	3733	1
39	0	778	0	1517	0	2256	0	2995	1	3734	0
40	0	779	1	1518	0	2257	1	2996	1	3735	1
41	1	780	1	1519	0	2258	1	2997	0	3736	1
42	1	781	1	1520	1	2259	0	2998	1	3737	0
43	0	782	0	1521	1	2260	0	2999	1	3738	0
44	0	783	0	1522	0	2261	0	3000	0	3739	0
45	0	784	0	1523	1	2262	0	3001	0	3740	0
46	1	785	0	1524	0	2263	1	3002	0	3741	0
47	0	786	0	1525	1	2264	1	3003	0	3742	1
48	1	787	0	1526	1	2265	1	3004	1	3743	0
49	0	788	0	1527	0	2266	0	3005	1	3744	0
50	1	789	0	1528	1	2267	1	3006	1	3745	1
51	1	790	0	1529	0	2268	1	3007	1	3746	1
52	1	791	0	1530	1	2269	1	3008	1	3747	0

53	0	792	1	1531	1	2270	0	3009	0	3748	0
54	1	793	0	1532	1	2271	0	3010	0	3749	1
55	0	794	0	1533	0	2272	1	3011	0	3750	0
56	1	795	1	1534	1	2273	1	3012	1	3751	0
57	0	796	0	1535	1	2274	1	3013	0	3752	0
58	1	797	1	1536	1	2275	1	3014	0	3753	1
59	1	798	0	1537	1	2276	0	3015	1	3754	0
60	0	799	0	1538	1	2277	1	3016	1	3755	1
61	0	800	0	1539	0	2278	1	3017	1	3756	0
62	0	801	1	1540	0	2279	1	3018	1	3757	1
63	0	802	0	1541	1	2280	1	3019	1	3758	1
64	1	803	1	1542	0	2281	0	3020	1	3759	0
65	0	804	0	1543	0	2282	1	3021	1	3760	0
66	0	805	0	1544	1	2283	0	3022	1	3761	1
67	0	806	1	1545	0	2284	1	3023	1	3762	1
68	0	807	0	1546	0	2285	0	3024	1	3763	0
69	1	808	0	1547	0	2286	1	3025	0	3764	0
70	0	809	1	1548	0	2287	0	3026	0	3765	1
71	1	810	1	1549	1	2288	0	3027	1	3766	1
72	1	811	0	1550	0	2289	1	3028	1	3767	0
73	1	812	1	1551	0	2290	0	3029	1	3768	0
74	0	813	0	1552	1	2291	1	3030	0	3769	0
75	0	814	0	1553	1	2292	1	3031	1	3770	0
76	0	815	0	1554	1	2293	1	3032	1	3771	1
77	1	816	0	1555	1	2294	1	3033	0	3772	1
78	0	817	0	1556	0	2295	1	3034	0	3773	0
79	0	818	1	1557	1	2296	0	3035	1	3774	1
80	1	819	0	1558	0	2297	1	3036	0	3775	0
81	0	820	0	1559	0	2298	0	3037	0	3776	1
82	0	821	1	1560	0	2299	0	3038	0	3777	0
83	1	822	0	1561	1	2300	1	3039	0	3778	0
84	1	823	1	1562	0	2301	0	3040	1	3779	0
85	1	824	0	1563	1	2302	0	3041	0	3780	1
86	0	825	0	1564	1	2303	1	3042	1	3781	1
87	0	826	0	1565	0	2304	1	3043	0	3782	0
88	1	827	0	1566	1	2305	0	3044	0	3783	0
89	0	828	0	1567	1	2306	0	3045	1	3784	1
90	0	829	0	1568	0	2307	1	3046	0	3785	1
91	0	830	0	1569	1	2308	1	3047	0	3786	0
92	0	831	0	1570	1	2309	0	3048	1	3787	1
93	1	832	1	1571	1	2310	1	3049	0	3788	1
94	0	833	1	1572	0	2311	0	3050	1	3789	1
95	0	834	0	1573	0	2312	0	3051	1	3790	1
96	0	835	0	1574	1	2313	0	3052	1	3791	0

97	1	836	0	1575	0	2314	0	3053	0	3792	1
98	1	837	1	1576	0	2315	0	3054	1	3793	1
99	0	838	0	1577	1	2316	1	3055	1	3794	1
100	1	839	0	1578	1	2317	0	3056	1	3795	0
101	1	840	0	1579	1	2318	1	3057	0	3796	0
102	0	841	1	1580	1	2319	1	3058	0	3797	0
103	1	842	0	1581	1	2320	0	3059	0	3798	0
104	0	843	0	1582	0	2321	1	3060	1	3799	1
105	1	844	0	1583	1	2322	0	3061	1	3800	0
106	0	845	0	1584	0	2323	0	3062	1	3801	1
107	0	846	1	1585	1	2324	0	3063	0	3802	1
108	1	847	0	1586	1	2325	0	3064	0	3803	1
109	1	848	1	1587	0	2326	0	3065	0	3804	1
110	0	849	0	1588	0	2327	0	3066	0	3805	0
111	0	850	0	1589	1	2328	1	3067	1	3806	1
112	1	851	1	1590	1	2329	0	3068	1	3807	1
113	1	852	1	1591	1	2330	1	3069	1	3808	1
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115	0	854	1	1593	0	2332	1	3071	1	3810	1
116	1	855	0	1594	0	2333	1	3072	1	3811	0
117	1	856	1	1595	0	2334	0	3073	1	3812	0
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119	1	858	0	1597	0	2336	1	3075	0	3814	0
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121	0	860	0	1599	0	2338	1	3077	0	3816	1
122	0	861	1	1600	0	2339	0	3078	0	3817	1
123	0	862	0	1601	0	2340	0	3079	1	3818	1
124	0	863	0	1602	1	2341	1	3080	0	3819	1
125	0	864	1	1603	0	2342	0	3081	0	3820	1
126	0	865	1	1604	0	2343	1	3082	1	3821	1
127	0	866	0	1605	1	2344	0	3083	0	3822	1
128	0	867	0	1606	0	2345	1	3084	1	3823	0
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131	0	870	1	1609	1	2348	1	3087	0	3826	1
132	0	871	0	1610	0	2349	1	3088	1	3827	1
133	0	872	1	1611	1	2350	0	3089	0	3828	0
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135	0	874	1	1613	0	2352	1	3091	0	3830	0
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137	0	876	1	1615	1	2354	1	3093	0	3832	0
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140	0	879	0	1618	1	2357	0	3096	0	3835	0

141	0	880	1	1619	0	2358	1	3097	0	3836	0
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143	1	882	0	1621	1	2360	1	3099	0	3838	1
144	0	883	1	1622	1	2361	1	3100	1	3839	0
145	1	884	0	1623	1	2362	1	3101	0	3840	0
146	1	885	1	1624	0	2363	1	3102	0	3841	0
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148	0	887	0	1626	1	2365	1	3104	1	3843	1
149	1	888	0	1627	1	2366	1	3105	1	3844	0
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151	0	890	0	1629	0	2368	0	3107	0	3846	0
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153	1	892	0	1631	0	2370	1	3109	0	3848	1
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155	0	894	0	1633	0	2372	0	3111	1	3850	1
156	0	895	1	1634	0	2373	0	3112	0	3851	0
157	0	896	0	1635	1	2374	1	3113	1	3852	0
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159	1	898	0	1637	0	2376	1	3115	1	3854	0
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161	0	900	1	1639	0	2378	0	3117	0	3856	0
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164	1	903	1	1642	0	2381	1	3120	1	3859	1
165	1	904	1	1643	0	2382	1	3121	1	3860	0
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167	1	906	1	1645	1	2384	1	3123	1	3862	0
168	1	907	1	1646	0	2385	1	3124	1	3863	0
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171	0	910	1	1649	1	2388	1	3127	1	3866	0
172	1	911	0	1650	1	2389	0	3128	0	3867	1
173	1	912	1	1651	1	2390	0	3129	0	3868	1
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176	0	915	0	1654	1	2393	1	3132	0	3871	0
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180	0	919	0	1658	1	2397	1	3136	1	3875	1
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183	1	922	0	1661	0	2400	1	3139	0	3878	1
184	1	923	1	1662	1	2401	0	3140	1	3879	0

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189	0	928	1	1667	0	2406	1	3145	0	3884	1
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192	1	931	0	1670	1	2409	0	3148	1	3887	1
193	0	932	1	1671	1	2410	0	3149	1	3888	0
194	0	933	0	1672	1	2411	1	3150	0	3889	0
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202	0	941	1	1680	0	2419	1	3158	1	3897	0
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207	0	946	1	1685	0	2424	1	3163	0	3902	1
208	0	947	1	1686	1	2425	1	3164	0	3903	0
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215	1	954	0	1693	0	2432	1	3171	0	3910	0
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217	1	956	0	1695	0	2434	0	3173	0	3912	0
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222	0	961	0	1700	0	2439	0	3178	1	3917	1
223	0	962	0	1701	1	2440	1	3179	1	3918	1
224	1	963	1	1702	0	2441	0	3180	1	3919	0
225	1	964	1	1703	1	2442	0	3181	0	3920	1
226	1	965	1	1704	1	2443	1	3182	0	3921	0
227	1	966	0	1705	1	2444	1	3183	1	3922	0
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232	1	971	1	1710	0	2449	0	3188	1	3927	0
233	1	972	0	1711	1	2450	1	3189	1	3928	1
234	0	973	1	1712	0	2451	0	3190	0	3929	1
235	0	974	1	1713	1	2452	0	3191	1	3930	0
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237	0	976	0	1715	1	2454	0	3193	1	3932	0
238	0	977	1	1716	0	2455	1	3194	1	3933	1
239	0	978	0	1717	1	2456	0	3195	1	3934	1
240	0	979	1	1718	0	2457	1	3196	0	3935	1
241	0	980	1	1719	1	2458	1	3197	0	3936	0
242	0	981	0	1720	1	2459	1	3198	1	3937	0
243	0	982	0	1721	1	2460	1	3199	1	3938	1
244	0	983	1	1722	1	2461	0	3200	1	3939	0
245	0	984	0	1723	1	2462	0	3201	1	3940	0
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249	1	988	0	1727	0	2466	1	3205	1	3944	1
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251	1	990	0	1729	1	2468	0	3207	0	3946	0
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253	0	992	1	1731	1	2470	1	3209	1	3948	0
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267	1	1006	0	1745	0	2484	1	3223	1	3962	0
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269	1	1008	1	1747	1	2486	0	3225	1	3964	0
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271	0	1010	1	1749	1	2488	1	3227	0	3966	1
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275	0	1014	0	1753	0	2492	1	3231	1	3970	0
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278	0	1017	0	1756	1	2495	0	3234	1	3973	0
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280	1	1019	1	1758	0	2497	1	3236	1	3975	0
281	1	1020	1	1759	1	2498	0	3237	0	3976	0
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283	1	1022	0	1761	1	2500	1	3239	1	3978	0
284	0	1023	0	1762	0	2501	1	3240	1	3979	0
285	1	1024	1	1763	1	2502	1	3241	0	3980	1
286	1	1025	1	1764	1	2503	1	3242	0	3981	1
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295	1	1034	1	1773	0	2512	1	3251	0	3990	1
296	1	1035	0	1774	0	2513	1	3252	1	3991	0
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299	0	1038	0	1777	0	2516	1	3255	0	3994	1
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323	0	1062	0	1801	0	2540	1	3279	1	4018	0
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325	1	1064	1	1803	1	2542	1	3281	0	4020	0
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368	0	1107	1	1846	1	2585	0	3324	1	4063	0
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372	1	1111	1	1850	0	2589	1	3328	1	4067	0
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380	1	1119	0	1858	1	2597	1	3336	1	4075	1
381	1	1120	0	1859	0	2598	0	3337	1	4076	1
382	0	1121	1	1860	0	2599	1	3338	1	4077	1
383	1	1122	1	1861	1	2600	1	3339	0	4078	0
384	0	1123	0	1862	0	2601	0	3340	1	4079	1
385	1	1124	0	1863	1	2602	0	3341	0	4080	0
386	1	1125	0	1864	0	2603	0	3342	1	4081	0
387	1	1126	0	1865	1	2604	0	3343	1	4082	0
388	0	1127	0	1866	0	2605	1	3344	1	4083	1
389	0	1128	0	1867	0	2606	0	3345	0	4084	1
390	1	1129	1	1868	1	2607	1	3346	1	4085	0
391	0	1130	0	1869	1	2608	0	3347	1	4086	1
392	1	1131	0	1870	0	2609	0	3348	1	4087	0
393	1	1132	0	1871	1	2610	0	3349	0	4088	1
394	1	1133	0	1872	0	2611	1	3350	1	4089	0
395	0	1134	0	1873	1	2612	1	3351	0	4090	1
396	0	1135	0	1874	0	2613	1	3352	0	4091	0
397	1	1136	0	1875	1	2614	1	3353	0	4092	1
398	0	1137	0	1876	0	2615	1	3354	1	4093	0
399	1	1138	0	1877	0	2616	1	3355	0	4094	1
400	0	1139	0	1878	1	2617	1	3356	1	4095	1
401	0	1140	1	1879	1	2618	1	3357	1	4096	0
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403	0	1142	1	1881	1	2620	0	3359	1	4098	1
404	1	1143	1	1882	1	2621	1	3360	1	4099	0

405	0	1144	1	1883	1	2622	1	3361	0	4100	0
406	0	1145	0	1884	0	2623	1	3362	1	4101	0
407	1	1146	1	1885	0	2624	1	3363	0	4102	0
408	0	1147	1	1886	0	2625	1	3364	1	4103	1
409	0	1148	1	1887	0	2626	1	3365	1	4104	0
410	0	1149	0	1888	1	2627	1	3366	1	4105	0
411	1	1150	1	1889	1	2628	1	3367	0	4106	1
412	0	1151	1	1890	1	2629	0	3368	0	4107	0
413	0	1152	0	1891	1	2630	1	3369	1	4108	0
414	1	1153	1	1892	0	2631	1	3370	1	4109	0
415	1	1154	1	1893	0	2632	0	3371	0	4110	0
416	0	1155	1	1894	1	2633	0	3372	0	4111	1
417	1	1156	1	1895	0	2634	0	3373	0	4112	0
418	1	1157	1	1896	0	2635	0	3374	1	4113	1
419	1	1158	1	1897	1	2636	0	3375	0	4114	1
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421	0	1160	0	1899	0	2638	1	3377	1	4116	1
422	0	1161	0	1900	0	2639	1	3378	0	4117	0
423	0	1162	0	1901	1	2640	0	3379	0	4118	0
424	0	1163	0	1902	1	2641	0	3380	1	4119	0
425	0	1164	0	1903	1	2642	0	3381	1	4120	0
426	0	1165	1	1904	1	2643	1	3382	1	4121	0
427	1	1166	1	1905	0	2644	0	3383	0	4122	0
428	0	1167	0	1906	0	2645	0	3384	0	4123	1
429	1	1168	1	1907	0	2646	0	3385	0	4124	0
430	1	1169	0	1908	1	2647	1	3386	0	4125	0
431	1	1170	0	1909	1	2648	0	3387	0	4126	1
432	1	1171	1	1910	1	2649	0	3388	1	4127	0
433	1	1172	0	1911	0	2650	0	3389	0	4128	0
434	0	1173	0	1912	1	2651	1	3390	1	4129	0
435	1	1174	0	1913	1	2652	1	3391	0	4130	1
436	0	1175	1	1914	1	2653	0	3392	0	4131	1
437	0	1176	0	1915	1	2654	0	3393	1	4132	1
438	1	1177	0	1916	1	2655	1	3394	0	4133	1
439	1	1178	1	1917	0	2656	1	3395	0	4134	1
440	0	1179	0	1918	1	2657	1	3396	0	4135	0
441	0	1180	1	1919	0	2658	0	3397	1	4136	1
442	1	1181	0	1920	0	2659	1	3398	1	4137	0
443	1	1182	0	1921	1	2660	0	3399	1	4138	0
444	0	1183	0	1922	0	2661	1	3400	1	4139	1
445	1	1184	1	1923	0	2662	1	3401	0	4140	1
446	0	1185	1	1924	0	2663	1	3402	0	4141	1
447	0	1186	0	1925	0	2664	0	3403	0	4142	1
448	0	1187	1	1926	0	2665	1	3404	1	4143	0

449	0	1188	0	1927	0	2666	0	3405	1	4144	1
450	0	1189	1	1928	1	2667	0	3406	0	4145	0
451	0	1190	1	1929	0	2668	1	3407	0	4146	0
452	1	1191	1	1930	0	2669	1	3408	1	4147	1
453	0	1192	0	1931	1	2670	0	3409	1	4148	1
454	0	1193	0	1932	0	2671	0	3410	1	4149	1
455	0	1194	0	1933	1	2672	1	3411	0	4150	0
456	0	1195	0	1934	1	2673	1	3412	0	4151	0
457	0	1196	1	1935	1	2674	0	3413	1	4152	1
458	0	1197	1	1936	0	2675	1	3414	1	4153	1
459	0	1198	0	1937	1	2676	0	3415	0	4154	0
460	1	1199	0	1938	1	2677	1	3416	1	4155	0
461	0	1200	0	1939	0	2678	1	3417	1	4156	0
462	0	1201	0	1940	0	2679	1	3418	1	4157	1
463	0	1202	0	1941	1	2680	1	3419	1	4158	1
464	0	1203	0	1942	1	2681	1	3420	1	4159	0
465	0	1204	0	1943	0	2682	0	3421	0	4160	0
466	0	1205	0	1944	0	2683	0	3422	0	4161	0
467	0	1206	1	1945	1	2684	1	3423	1	4162	0
468	1	1207	0	1946	0	2685	0	3424	0	4163	1
469	0	1208	0	1947	0	2686	0	3425	1	4164	1
470	0	1209	1	1948	1	2687	1	3426	1	4165	0
471	0	1210	0	1949	1	2688	0	3427	1	4166	0
472	0	1211	0	1950	0	2689	1	3428	0	4167	0
473	0	1212	0	1951	1	2690	0	3429	0	4168	1
474	0	1213	0	1952	0	2691	1	3430	0	4169	1
475	0	1214	0	1953	0	2692	0	3431	1	4170	0
476	1	1215	0	1954	1	2693	1	3432	1	4171	0
477	0	1216	1	1955	1	2694	1	3433	0	4172	0
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479	0	1218	0	1957	1	2696	0	3435	1	4174	1
480	1	1219	1	1958	1	2697	1	3436	1	4175	0
481	0	1220	0	1959	0	2698	0	3437	0	4176	0
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483	0	1222	1	1961	0	2700	0	3439	1	4178	0
484	0	1223	0	1962	1	2701	0	3440	1	4179	0
485	1	1224	1	1963	1	2702	1	3441	0	4180	1
486	1	1225	0	1964	0	2703	1	3442	1	4181	1
487	0	1226	1	1965	1	2704	0	3443	1	4182	0
488	0	1227	1	1966	1	2705	0	3444	0	4183	1
489	0	1228	1	1967	0	2706	1	3445	0	4184	1
490	1	1229	1	1968	1	2707	0	3446	0	4185	0
491	0	1230	0	1969	1	2708	0	3447	1	4186	1
492	1	1231	1	1970	1	2709	1	3448	1	4187	1

493	0	1232	1	1971	1	2710	0	3449	0	4188	0
494	0	1233	1	1972	0	2711	1	3450	1	4189	0
495	1	1234	0	1973	1	2712	1	3451	0	4190	0
496	1	1235	1	1974	0	2713	1	3452	0	4191	0
497	1	1236	0	1975	0	2714	1	3453	1	4192	0
498	1	1237	0	1976	0	2715	1	3454	1	4193	1
499	0	1238	0	1977	1	2716	0	3455	0	4194	0
500	1	1239	0	1978	0	2717	1	3456	1	4195	0
501	1	1240	1	1979	0	2718	0	3457	0	4196	1
502	1	1241	1	1980	0	2719	1	3458	0	4197	0
503	1	1242	1	1981	1	2720	1	3459	1	4198	0
504	0	1243	1	1982	0	2721	1	3460	0	4199	0
505	0	1244	1	1983	0	2722	1	3461	1	4200	1
506	0	1245	1	1984	0	2723	1	3462	1	4201	0
507	0	1246	1	1985	0	2724	0	3463	1	4202	1
508	1	1247	1	1986	0	2725	0	3464	0	4203	0
509	1	1248	1	1987	0	2726	0	3465	1	4204	1
510	0	1249	1	1988	0	2727	1	3466	0	4205	1
511	1	1250	0	1989	0	2728	0	3467	1	4206	1
512	1	1251	1	1990	1	2729	1	3468	1	4207	1
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514	1	1253	0	1992	1	2731	0	3470	0	4209	0
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516	0	1255	0	1994	1	2733	0	3472	1	4211	1
517	1	1256	1	1995	1	2734	0	3473	0	4212	1
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520	0	1259	0	1998	1	2737	1	3476	1	4215	1
521	0	1260	0	1999	0	2738	0	3477	0	4216	0
522	0	1261	0	2000	1	2739	1	3478	1	4217	1
523	1	1262	1	2001	1	2740	0	3479	0	4218	1
524	1	1263	1	2002	1	2741	1	3480	1	4219	0
525	0	1264	0	2003	1	2742	1	3481	1	4220	1
526	1	1265	1	2004	0	2743	1	3482	1	4221	0
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531	0	1270	0	2009	0	2748	1	3487	0	4226	1
532	1	1271	1	2010	1	2749	1	3488	1	4227	0
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535	1	1274	1	2013	1	2752	1	3491	1	4230	1
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537	1	1276	0	2015	0	2754	0	3493	1	4232	0
538	1	1277	1	2016	0	2755	1	3494	0	4233	1
539	0	1278	1	2017	0	2756	1	3495	1	4234	0
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542	0	1281	1	2020	1	2759	0	3498	0	4237	1
543	0	1282	1	2021	0	2760	0	3499	1	4238	0
544	1	1283	0	2022	0	2761	0	3500	1	4239	0
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546	0	1285	0	2024	1	2763	0	3502	1	4241	0
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548	1	1287	1	2026	1	2765	0	3504	0	4243	0
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550	1	1289	0	2028	0	2767	0	3506	1	4245	1
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556	0	1295	0	2034	0	2773	1	3512	0	4251	1
557	1	1296	1	2035	1	2774	1	3513	1	4252	0
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561	0	1300	0	2039	1	2778	1	3517	1	4256	0
562	0	1301	1	2040	0	2779	1	3518	0	4257	1
563	0	1302	0	2041	1	2780	0	3519	0	4258	1
564	1	1303	1	2042	1	2781	1	3520	0	4259	0
565	0	1304	1	2043	1	2782	1	3521	0	4260	0
566	1	1305	0	2044	0	2783	1	3522	1	4261	0
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570	1	1309	1	2048	1	2787	0	3526	1	4265	1
571	1	1310	0	2049	0	2788	0	3527	1	4266	0
572	1	1311	0	2050	0	2789	0	3528	1	4267	1
573	1	1312	1	2051	1	2790	0	3529	0	4268	0
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580	0	1319	0	2058	0	2797	0	3536	0	4275	1

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583	0	1322	1	2061	0	2800	1	3539	1	4278	1
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622	0	1361	0	2100	0	2839	0	3578	0	4317	1
623	0	1362	0	2101	0	2840	1	3579	1	4318	1
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633	0	1372	0	2111	0	2850	1	3589	1	4328	0
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636	1	1375	0	2114	0	2853	1	3592	1	4331	0
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644	0	1383	1	2122	0	2861	1	3600	0	4339	1
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652	0	1391	1	2130	1	2869	0	3608	0	4347	1
653	1	1392	1	2131	0	2870	1	3609	1	4348	0
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655	1	1394	0	2133	1	2872	0	3611	1	4350	0
656	1	1395	1	2134	1	2873	0	3612	0	4351	0
657	1	1396	1	2135	0	2874	0	3613	1	4352	1
658	1	1397	0	2136	0	2875	1	3614	1	4353	0
659	0	1398	0	2137	0	2876	0	3615	1	4354	0
660	0	1399	0	2138	0	2877	1	3616	1	4355	0
661	1	1400	0	2139	0	2878	0	3617	1	4356	1
662	0	1401	1	2140	1	2879	0	3618	0	4357	1
663	1	1402	1	2141	0	2880	0	3619	0	4358	1
664	0	1403	1	2142	1	2881	0	3620	1	4359	1
665	0	1404	0	2143	0	2882	1	3621	0	4360	0
666	1	1405	1	2144	1	2883	1	3622	1	4361	1
667	0	1406	1	2145	1	2884	1	3623	0	4362	0
668	1	1407	0	2146	0	2885	1	3624	0	4363	1

669	0	1408	0	2147	0	2886	0	3625	1	4364	1
670	0	1409	0	2148	0	2887	1	3626	0	4365	1
671	0	1410	0	2149	1	2888	0	3627	1	4366	0
672	0	1411	1	2150	1	2889	0	3628	0	4367	1
673	1	1412	0	2151	1	2890	0	3629	0	4368	1
674	1	1413	0	2152	0	2891	1	3630	1	4369	1
675	1	1414	0	2153	1	2892	1	3631	0	4370	1
676	1	1415	0	2154	0	2893	1	3632	1	4371	0
677	0	1416	0	2155	1	2894	1	3633	1	4372	1
678	0	1417	1	2156	1	2895	1	3634	1	4373	1
679	0	1418	1	2157	0	2896	0	3635	0	4374	0
680	1	1419	0	2158	0	2897	0	3636	1	4375	0
681	0	1420	1	2159	0	2898	1	3637	1	4376	1
682	0	1421	0	2160	1	2899	0	3638	1	4377	1
683	0	1422	1	2161	0	2900	1	3639	0	4378	1
684	0	1423	1	2162	1	2901	1	3640	0	4379	1
685	1	1424	0	2163	0	2902	0	3641	0	4380	1
686	0	1425	0	2164	0	2903	1	3642	1	4381	0
687	0	1426	1	2165	0	2904	1	3643	1	4382	0
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690	0	1429	0	2168	0	2907	1	3646	1	4385	0
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709	1	1448	0	2187	0	2926	1	3665	0	4404	1
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712	0	1451	0	2190	0	2929	0	3668	1	4407	1

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715	0	1454	0	2193	1	2932	0	3671	1	4410	1
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719	0	1458	0	2197	1	2936	0	3675	1	4414	1
720	1	1459	1	2198	0	2937	0	3676	0	4415	1
721	1	1460	1	2199	1	2938	1	3677	0	4416	1
722	0	1461	0	2200	0	2939	1	3678	0	4417	1
723	1	1462	0	2201	0	2940	0	3679	1	4418	0
724	1	1463	1	2202	1	2941	0	3680	1	4419	1
725	0	1464	1	2203	1	2942	1	3681	0	4420	1
726	0	1465	0	2204	1	2943	1	3682	0	4421	1
727	1	1466	0	2205	0	2944	0	3683	1	4422	1
728	0	1467	0	2206	0	2945	0	3684	0	4423	1
729	0	1468	0	2207	1	2946	1	3685	1	4424	1
730	0	1469	0	2208	1	2947	1	3686	1	4425	1
731	1	1470	1	2209	1	2948	0	3687	1	4426	1
732	1	1471	1	2210	0	2949	0	3688	0	4427	0
733	0	1472	1	2211	1	2950	1	3689	1	4428	0
734	1	1473	0	2212	1	2951	0	3690	0	4429	1
735	1	1474	0	2213	1	2952	1	3691	0		
736	1	1475	1	2214	1	2953	0	3692	0		
737	0	1476	1	2215	0	2954	1	3693	0		
738	1	1477	1	2216	1	2955	1	3694	1		

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