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

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

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

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

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

$$\begin{aligned}
p_0(z)&=z^{17}+z^{15}+z^{14}+z^6+z^4+z^3+z^2+z+1,\\
p_1(z)&=z^{22}+z^{19}+z^{18}+z^{17}+z^{16}+z^8+z^5+z^4+z^3+z^2,\\
p_2(z)&=z^{24}+z^{16}+z^{14}+z^{12}+z^8+z^6+z^4,\\
p_3(z)&=z^{22}+z^{19}+z^{18}+z^{17}+z^{16}+z^8+z^5+z^4+z^3+z^2,\\
p_4(z)&=z^{20}+z^{17}+z^{15}+z^4+z^3+z^2+z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{17}+z^{16}+z^{15}+z^{14}+z^{12}+z^6+z^3+z^2+z,\\
p_1(z)&=z^{22}+z^{19}+z^{18}+z^{17}+z^{16}+z^8+z^5+z^4+z^3+z^2,\\
p_2(z)&=z^{24}+z^{16}+z^{14}+z^{12}+z^8+z^6+z^4,\\
p_3(z)&=z^{22}+z^{19}+z^{18}+z^{17}+z^{16}+z^8+z^5+z^4+z^3+z^2,\\
p_4(z)&=z^{20}+z^{17}+z^{16}+z^{15}+z^{12}+z^3+z^2+z+1.
\end{aligned}$$

2. Proof

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

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

By the basic properties of continued fractions, we have

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

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

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

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

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

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

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

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

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

for some positive integer d_n. Hence,

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

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

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

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

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

of the vector

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

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

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

Lemma 2.1. *We have*

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

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

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

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

Proof. We give the proof of the identity

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

the proofs of the others being similar.

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

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

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

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

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

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

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

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

$$\begin{aligned}
M^e[:14u] = {} & M^e[:7u] + x^u M^e[:6u] + x^{5u}M^e[:2u] + x^u M^e[:7u] + x^{2u}M^e[:6u] \\
& + x^{6u}M^e[:2u] + x^{2u}M^e[:7u] + x^{3u}M^e[:6u] + x^{7u}M^e[:2u] \\
& + x^{3u}M^e[:7u] + x^{4u}M^e[:6u] + x^{8u}M^e[:2u] + x^{4u}M^e[:7u] \\
& + x^{5u}M^e[:6u] + x^{9u}M^e[:2u] + x^{6u}M^e[:7u] + x^{7u}M^e[:6u] \\
& + x^{11u}M^e[:2u] + x^{8u}M^e[:6u] \\
& + (x^{7u} + x^{8u} + x^{9u} + x^{10u} + x^{11u} + x^{13u})R^e,
\end{aligned}$$

$$\begin{aligned}
W^e[:14u] &= W^e[:7u] + x^u W^e[:6u] + x^{5u} W^e[:2u] + x^u W^e[:7u] + x^{2u} W^e[:6u] \\
&\quad + x^{6u} W^e[:2u] + x^{2u} W^e[:7u] + x^{3u} W^e[:6u] + x^{7u} W^e[:2u] \\
&\quad + x^{3u} W^e[:7u] + x^{4u} W^e[:6u] + x^{8u} W^e[:2u] + x^{4u} W^e[:7u] \\
&\quad + x^{5u} W^e[:6u] + x^{9u} W^e[:2u] + x^{6u} W^e[:7u] + x^{7u} W^e[:6u] \\
&\quad + x^{11u} W^e[:2u] + x^{8u} W^e[:6u] \\
&\quad + (x^{7u} + x^{8u} + x^{9u} + x^{10u} + x^{11u} + x^{13u}) R^e.
\end{aligned}$$

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

$$\begin{aligned}
M^o[:14u] &= M^o[:7u] + x^u M^o[:6u] + x^{5u} M^o[:2u] + x^u M^o[:7u] + x^{2u} M^o[:6u] \\
&\quad + x^{6u} M^o[:2u] + x^{2u} M^o[:7u] + x^{3u} M^o[:6u] + x^{7u} M^o[:2u] \\
&\quad + x^{3u} M^o[:7u] + x^{4u} M^o[:6u] + x^{8u} M^o[:2u] + x^{4u} M^o[:7u] \\
&\quad + x^{5u} M^o[:6u] + x^{9u} M^o[:2u] + x^{6u} M^o[:7u] + x^{7u} M^o[:6u] \\
&\quad + x^{11u} M^o[:2u] + x^{8u} M^o[:6u] \\
&\quad + (x^{7u} + x^{8u} + x^{9u} + x^{10u} + x^{11u} + x^{13u}) R^o, \\
W^o[:14u] &= W^o[:7u] + x^u W^o[:6u] + x^{5u} W^o[:2u] + x^u W^o[:7u] + x^{2u} W^o[:6u] \\
&\quad + x^{6u} W^o[:2u] + x^{2u} W^o[:7u] + x^{3u} W^o[:6u] + x^{7u} W^o[:2u] \\
&\quad + x^{3u} W^o[:7u] + x^{4u} W^o[:6u] + x^{8u} W^o[:2u] + x^{4u} W^o[:7u] \\
&\quad + x^{5u} W^o[:6u] + x^{9u} W^o[:2u] + x^{6u} W^o[:7u] + x^{7u} W^o[:6u] \\
&\quad + x^{11u} W^o[:2u] + x^{8u} W^o[:6u] \\
&\quad + (x^{7u} + x^{8u} + x^{9u} + x^{10u} + x^{11u} + x^{13u}) R^o.
\end{aligned}$$

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 $u = 2^{2k}$,

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

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

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

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

which can be rewritten as

$$0 = T[[10w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.8}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2]\\ &\quad + T[[1001w]_2],\end{aligned} \tag{2.9}$$

$$\begin{aligned}0 &= T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2]\\ &\quad + T[[110w]_2] + T[[1010w]_2],\end{aligned} \tag{2.10}$$

$$0 = T[[w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[101w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[10w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.15}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[110w]_2]\\ &\quad + T[[1001w]_2],\end{aligned} \tag{2.16}$$

$$\begin{aligned}0 &= T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2]\\ &\quad + T[[110w]_2] + T[[1010w]_2],\end{aligned} \tag{2.17}$$

$$0 = T[[w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.19}$$

$$0 = T[[101w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4484 states; its transition function and output function can be found in the annex. Let $A(s,w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

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

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

$$0 = \tau(A(s,10)) + \tau(A(s,110)) + \tau(A(s,111)), \tag{2.21}$$

$$0 = \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1000)), \tag{2.22}$$

$$\begin{aligned}0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ &\quad + \tau(A(s,110)) + \tau(A(s,1001)),\end{aligned} \tag{2.23}$$

$$\begin{aligned}0 &= \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))\\ &\quad + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1010)),\end{aligned} \tag{2.24}$$

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

$$\begin{aligned} 0 &= \tau(A(s,1)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,110)) \\ &\quad + \tau(A(s,1100)), \end{aligned} \tag{2.26}$$

$$0 = \tau(A(s,101)) + \tau(A(s,1101)), \tag{2.27}$$

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

$$0 = \tau(A(s,10)) + \tau(A(s,110)) + \tau(A(s,111)), \tag{2.28}$$

$$0 = \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1000)), \tag{2.29}$$

$$\begin{aligned} 0 &= \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,110)) + \tau(A(s,1001)), \end{aligned} \tag{2.30}$$

$$\begin{aligned} 0 &= \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ &\quad + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1010)), \end{aligned} \tag{2.31}$$

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

$$\begin{aligned} 0 &= \tau(A(s,1)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,110)) \\ &\quad + \tau(A(s,1100)), \end{aligned} \tag{2.33}$$

$$0 = \tau(A(s,101)) + \tau(A(s,1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{38}), E_{38}) = (A(i,0^{22}), E_{22})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 19$, which turns out to be true. □

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

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

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

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

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

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

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

We give the proof of

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

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

$$W_{2k} M_{2k} = \big(W^e[:7v] + x^v W^e[:6v] + x^{5v} W^e[:2v] + x^{7u} R^e\big) \times \big(M^e[:7v]$$

$$+ x^v M^e[:6v] + x^{5v} M^e[:2v] + x^{7u} R^e\big); \tag{2.35}$$

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

$$W^e[:14v]M^e[:14v] + x^{2v}W^e[:12v]M^e[:12v] + x^{10v}W^e[:4v]M^e[:4v].$$

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

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

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

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

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

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

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

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

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

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

Define

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

where

$$\begin{aligned}
q_0(x) &= x^{24}+x^{23}+x^{22}+x^{21}+x^{20}+x^{18}+x^{10}+x^9+x^7,\\
q_1(x) &= x^{22}+x^{21}+x^{20}+x^{19}+x^{16}+x^8+x^7+x^6+x^5+x^2,\\
q_2(x) &= x^{20}+x^{18}+x^{16}+x^{12}+x^{10}+x^8+1,\\
q_3(x) &= x^{22}+x^{21}+x^{20}+x^{19}+x^{16}+x^8+x^7+x^6+x^5+x^2,
\end{aligned}$$

$$q_4(x) = x^{23} + x^{22} + x^{21} + x^{20} + x^9 + x^7 + x^4.$$

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

3. Annexe

All 16 polynomials are of the form

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

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

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

$$\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{122} + x^{120} + x^{110} + x^{100} + x^{96} + x^{94} + x^{92} + x^{88} \\
&\quad + x^{82} + x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70} + x^{68} + x^{62} + x^{60} + x^{58} \\
&\quad + x^{56} + x^{54} + x^{50} + x^{46} + x^{44} + x^{42} + x^{36} + x^{34} + x^{30} + x^{24}, \\
p_3(x) &= x^{130} + x^{128} + x^{124} + x^{120} + x^{118} + x^{116} + x^{114} + x^{108} + x^{106} + x^{104} \\
&\quad + x^{96} + x^{94} + x^{84} + x^{78} + x^{72} + x^{62} + x^{58} + x^{56} + x^{50} + x^{44} + x^{38} \\
&\quad + x^{36} + x^{32} + x^{24} + x^{22} + x^{20} + x^{18} + x^{16}, \\
p_6(x) &= x^{130} + x^{128} + x^{126} + x^{122} + x^{116} + x^{114} + x^{110} + x^{104} + x^{102} + x^{96} \\
&\quad + x^{94} + x^{90} + x^{82} + x^{70} + x^{68} + x^{64} + x^{60} + x^{58} + x^{54} + x^{52} + x^{46} \\
&\quad + x^{44} + x^{38} + x^{36} + x^{34} + x^{32} + x^{28} + x^{26} + x^{24} + x^{20} + x^{18} + x^{10} \\
&\quad + x^4 + 1, \\
p_9(x) &= x^{128} + x^{124} + x^{122} + x^{118} + x^{114} + x^{112} + x^{110} + x^{106} + x^{102} + x^{96} \\
&\quad + x^{94} + x^{92} + x^{84} + x^{80} + x^{72} + x^{70} + x^{68} + x^{62} + x^{58} + x^{54} + x^{52} \\
&\quad + x^{50} + x^{48} + x^{46} + x^{44} + x^{38} + x^{32} + x^{20} + x^{16} + x^{14} + x^{12} + x^{10} \\
&\quad + x^8 + x^4, \\
p_{12}(x) &= x^{128} + x^{112} + x^{104} + x^{88} + x^{72} + x^{56} + x^{40} + x^{24} + x^{16} + x^8 + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{123} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116} \\
&\quad + x^{113} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{104} + x^{103} + x^{101} \\
&\quad + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{90} + x^{88} + x^{87} + x^{82} + x^{80} + x^{79} \\
&\quad + x^{77} + x^{73} + x^{72} + x^{70} + x^{67} + x^{64} + x^{63} + x^{61} + x^{60} + x^{57} + x^{56} \\
&\quad + x^{54} + x^{47} + x^{45} + x^{43} + x^{42} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33},
\end{aligned}$$

$$\begin{aligned}
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{116} + x^{115} + x^{113} + x^{112} + x^{108} + x^{107} + x^{106}\\
&\quad + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{92} + x^{91} + x^{89} + x^{88} + x^{84} + x^{83}\\
&\quad + x^{82} + x^{78} + x^{77} + x^{75} + x^{74} + x^{66} + x^{65} + x^{64} + x^{60} + x^{59} + x^{57}\\
&\quad + x^{56} + x^{52} + x^{51} + x^{50} + x^{46} + x^{45} + x^{43} + x^{41} + x^{40} + x^{36} + x^{35}\\
&\quad + x^{33} + x^{32} + x^{28} + x^{27} + x^{26} + x^{22} + x^{21} + x^{19} + x^{18},\\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{106} + x^{104} + x^{103} + x^{102}\\
&\quad + x^{101} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{78} + x^{76}\\
&\quad + x^{75} + x^{74} + x^{73} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58}\\
&\quad + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{32}\\
&\quad + x^{31} + x^{30} + x^{22} + x^{20} + x^{19} + x^{18} + x^{17} + x^{13} + x^{12},\\
p_9(x) &= x^{118} + x^{117} + x^{115} + x^{113} + x^{112} + x^{110} + x^{109} + x^{107} + x^{106} + x^{100}\\
&\quad + x^{99} + x^{97} + x^{96} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{79}\\
&\quad + x^{77} + x^{75} + x^{74} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{66} + x^{56} + x^{55}\\
&\quad + x^{54} + x^{50} + x^{49} + x^{47} + x^{45} + x^{44} + x^{40} + x^{39} + x^{37} + x^{35} + x^{34}\\
&\quad + x^{30} + x^{29} + x^{28} + x^{18} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12} + x^{10} + x^{9}\\
&\quad + x^{7} + x^{6},\\
p_{12}(x) &= x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72}\\
&\quad + x^{69} + x^{68} + x^{56} + x^{53} + x^{52} + x^{40} + x^{37} + x^{36} + x^{24} + x^{21} + x^{20}\\
&\quad + x^{8} + x^{5} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{123} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116}\\
&\quad + x^{113} + x^{111} + x^{110} + x^{109} + x^{108} + x^{107} + x^{104} + x^{103} + x^{101}\\
&\quad + x^{98} + x^{97} + x^{94} + x^{93} + x^{92} + x^{90} + x^{88} + x^{87} + x^{82} + x^{80} + x^{79}\\
&\quad + x^{77} + x^{73} + x^{72} + x^{70} + x^{67} + x^{64} + x^{63} + x^{61} + x^{60} + x^{57} + x^{56}\\
&\quad + x^{54} + x^{47} + x^{45} + x^{43} + x^{42} + x^{37} + x^{36} + x^{35} + x^{34} + x^{33},\\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{116} + x^{115} + x^{113} + x^{112} + x^{108} + x^{107} + x^{106}\\
&\quad + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{92} + x^{91} + x^{89} + x^{88} + x^{84} + x^{83}\\
&\quad + x^{82} + x^{78} + x^{77} + x^{75} + x^{74} + x^{66} + x^{65} + x^{64} + x^{60} + x^{59} + x^{57}\\
&\quad + x^{56} + x^{52} + x^{51} + x^{50} + x^{46} + x^{45} + x^{43} + x^{41} + x^{40} + x^{36} + x^{35}\\
&\quad + x^{33} + x^{32} + x^{28} + x^{27} + x^{26} + x^{22} + x^{21} + x^{19} + x^{18},\\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{106} + x^{104} + x^{103} + x^{102}\\
&\quad + x^{101} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{78} + x^{76}\\
&\quad + x^{75} + x^{74} + x^{73} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58}\\
&\quad + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{32}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{31} + x^{30} + x^{22} + x^{20} + x^{19} + x^{18} + x^{17} + x^{13} + x^{12},\\
p_9(x) &= x^{118} + x^{117} + x^{115} + x^{113} + x^{112} + x^{110} + x^{109} + x^{107} + x^{106} + x^{100}\\
&+ x^{99} + x^{97} + x^{96} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{79}\\
&+ x^{77} + x^{75} + x^{74} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{66} + x^{56} + x^{55}\\
&+ x^{54} + x^{50} + x^{49} + x^{47} + x^{45} + x^{44} + x^{40} + x^{39} + x^{37} + x^{35} + x^{34}\\
&+ x^{30} + x^{29} + x^{28} + x^{18} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12} + x^{10} + x^{9}\\
&+ x^{7} + x^{6},\\
p_{12}(x) &= x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72}\\
&+ x^{69} + x^{68} + x^{56} + x^{53} + x^{52} + x^{40} + x^{37} + x^{36} + x^{24} + x^{21} + x^{20}\\
&+ x^{8} + x^{5} + x + 1,
\end{aligned}
$$

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

$$
\begin{aligned}
p_0(x) &= x^{120} + x^{118} + x^{114} + x^{112} + x^{110} + x^{106} + x^{104} + x^{100} + x^{98} + x^{94}\\
&+ x^{92} + x^{90} + x^{84} + x^{80} + x^{78} + x^{74} + x^{70} + x^{66} + x^{62} + x^{58} + x^{46}\\
&+ x^{44} + x^{42},\\
p_3(x) &= x^{108} + x^{104} + x^{102} + x^{98} + x^{96} + x^{84} + x^{82} + x^{80} + x^{72} + x^{68} + x^{66}\\
&+ x^{62} + x^{58} + x^{54} + x^{52} + x^{50} + x^{48} + x^{40} + x^{38} + x^{34} + x^{30} + x^{28}\\
&+ x^{24} + x^{22} + x^{18} + x^{16} + x^{14} + x^{12},\\
p_6(x) &= x^{108} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{86} + x^{82} + x^{78} + x^{74}\\
&+ x^{70} + x^{64} + x^{60} + x^{56} + x^{54} + x^{52} + x^{50} + x^{46} + x^{44} + x^{40} + x^{36}\\
&+ x^{10} + x^{8} + x^{6} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{104} + x^{100} + x^{96} + x^{84} + x^{82} + x^{80} + x^{74} + x^{66} + x^{64} + x^{60} + x^{58}\\
&+ x^{54} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42} + x^{40} + x^{38} + x^{34} + x^{30} + x^{28}\\
&+ x^{24} + x^{22} + x^{14} + x^{8} + x^{6} + x^{4},\\
p_{12}(x) &= x^{104} + x^{98} + x^{96} + x^{88} + x^{82} + x^{80} + x^{72} + x^{66} + x^{64} + x^{56} + x^{50}\\
&+ x^{48} + x^{40} + x^{34} + x^{32} + x^{24} + x^{18} + x^{16} + x^{8} + x^{2} + 1,
\end{aligned}
$$

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

$$
\begin{aligned}
p_0(x) &= x^{120} + x^{118} + x^{114} + x^{110} + x^{104} + x^{102} + x^{98} + x^{92} + x^{90} + x^{86}\\
&+ x^{80} + x^{72} + x^{64} + x^{60} + x^{58} + x^{56} + x^{50} + x^{46} + x^{42} + x^{40} + x^{38}\\
&+ x^{34} + x^{30} + x^{26} + x^{24},\\
p_3(x) &= x^{108} + x^{104} + x^{102} + x^{100} + x^{76} + x^{74} + x^{72} + x^{70} + x^{66} + x^{62} + x^{58}\\
&+ x^{54} + x^{52} + x^{50} + x^{48} + x^{44} + x^{42} + x^{38} + x^{34} + x^{30} + x^{26} + x^{22}\\
&+ x^{20} + x^{16},\\
p_6(x) &= x^{108} + x^{96} + x^{94} + x^{84} + x^{82} + x^{72} + x^{68} + x^{66} + x^{60} + x^{56} + x^{54}
\end{aligned}
$$

$$
\begin{aligned}
&+x^{52}+x^{50}+x^{46}+x^{42}+x^{40}+x^{34}+x^{30}+x^{28}+x^{22}+x^{18}+x^{16}\\
&+x^{14}+x^{12}+x^{6}+x^{4}+x^{2}+1,\\
p_9(x)=&\,x^{104}+x^{100}+x^{96}+x^{84}+x^{82}+x^{80}+x^{74}+x^{66}+x^{64}+x^{60}+x^{58}\\
&+x^{54}+x^{50}+x^{48}+x^{46}+x^{44}+x^{42}+x^{40}+x^{38}+x^{34}+x^{30}+x^{28}\\
&+x^{24}+x^{22}+x^{14}+x^{8}+x^{6}+x^{4},\\
p_{12}(x)=&\,x^{104}+x^{98}+x^{96}+x^{88}+x^{82}+x^{80}+x^{72}+x^{66}+x^{64}+x^{56}+x^{50}\\
&+x^{48}+x^{40}+x^{34}+x^{32}+x^{24}+x^{18}+x^{16}+x^{8}+x^{2}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)=&\,x^{129}+x^{127}+x^{124}+x^{123}+x^{121}+x^{117}+x^{115}+x^{114}+x^{111}+x^{110}\\
&+x^{109}+x^{108}+x^{107}+x^{106}+x^{103}+x^{101}+x^{100}+x^{98}+x^{97}+x^{96}\\
&+x^{93}+x^{91}+x^{90}+x^{89}+x^{88}+x^{81}+x^{80}+x^{79}+x^{77}+x^{72}+x^{70}\\
&+x^{69}+x^{68}+x^{67}+x^{66}+x^{65}+x^{63}+x^{62}+x^{60}+x^{57}+x^{56}+x^{55}\\
&+x^{52}+x^{51}+x^{47}+x^{46}+x^{45}+x^{42}+x^{41}+x^{37}+x^{36}+x^{35}+x^{33},\\
p_3(x)=&\,x^{122}+x^{121}+x^{120}+x^{116}+x^{115}+x^{113}+x^{112}+x^{108}+x^{107}+x^{106}\\
&+x^{102}+x^{101}+x^{99}+x^{97}+x^{96}+x^{92}+x^{91}+x^{89}+x^{88}+x^{84}+x^{83}\\
&+x^{82}+x^{78}+x^{77}+x^{75}+x^{74}+x^{66}+x^{65}+x^{64}+x^{60}+x^{59}+x^{57}\\
&+x^{56}+x^{52}+x^{51}+x^{50}+x^{46}+x^{45}+x^{43}+x^{41}+x^{40}+x^{36}+x^{35}\\
&+x^{33}+x^{32}+x^{28}+x^{27}+x^{26}+x^{22}+x^{21}+x^{19}+x^{18},\\
p_6(x)=&\,x^{120}+x^{118}+x^{117}+x^{116}+x^{115}+x^{114}+x^{106}+x^{104}+x^{103}+x^{102}\\
&+x^{101}+x^{97}+x^{96}+x^{92}+x^{90}+x^{89}+x^{88}+x^{87}+x^{86}+x^{78}+x^{76}\\
&+x^{75}+x^{74}+x^{73}+x^{69}+x^{68}+x^{64}+x^{62}+x^{61}+x^{60}+x^{59}+x^{58}\\
&+x^{50}+x^{48}+x^{47}+x^{46}+x^{45}+x^{41}+x^{40}+x^{36}+x^{34}+x^{33}+x^{32}\\
&+x^{31}+x^{30}+x^{22}+x^{20}+x^{19}+x^{18}+x^{17}+x^{13}+x^{12},\\
p_9(x)=&\,x^{118}+x^{117}+x^{115}+x^{113}+x^{112}+x^{110}+x^{109}+x^{107}+x^{106}+x^{100}\\
&+x^{99}+x^{97}+x^{96}+x^{90}+x^{89}+x^{87}+x^{86}+x^{84}+x^{83}+x^{81}+x^{79}\\
&+x^{77}+x^{75}+x^{74}+x^{72}+x^{71}+x^{70}+x^{68}+x^{67}+x^{66}+x^{56}+x^{55}\\
&+x^{54}+x^{50}+x^{49}+x^{47}+x^{45}+x^{44}+x^{40}+x^{39}+x^{37}+x^{35}+x^{34}\\
&+x^{30}+x^{29}+x^{28}+x^{18}+x^{17}+x^{16}+x^{14}+x^{13}+x^{12}+x^{10}+x^{9}\\
&+x^{7}+x^{6},\\
p_{12}(x)=&\,x^{116}+x^{113}+x^{112}+x^{104}+x^{101}+x^{100}+x^{88}+x^{85}+x^{84}+x^{72}\\
&+x^{69}+x^{68}+x^{56}+x^{53}+x^{52}+x^{40}+x^{37}+x^{36}+x^{24}+x^{21}+x^{20}\\
&+x^{8}+x^{5}+x+1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{124} + x^{123} + x^{121} + x^{117} + x^{115} + x^{114} + x^{111} + x^{110} \\
&\quad + x^{109} + x^{108} + x^{107} + x^{106} + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} \\
&\quad + x^{93} + x^{91} + x^{90} + x^{89} + x^{88} + x^{81} + x^{80} + x^{79} + x^{77} + x^{72} + x^{70} \\
&\quad + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{55} \\
&\quad + x^{52} + x^{51} + x^{47} + x^{46} + x^{45} + x^{42} + x^{41} + x^{37} + x^{36} + x^{35} + x^{33}, \\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{116} + x^{115} + x^{113} + x^{112} + x^{108} + x^{107} + x^{106} \\
&\quad + x^{102} + x^{101} + x^{99} + x^{97} + x^{96} + x^{92} + x^{91} + x^{89} + x^{88} + x^{84} + x^{83} \\
&\quad + x^{82} + x^{78} + x^{77} + x^{75} + x^{74} + x^{66} + x^{65} + x^{64} + x^{60} + x^{59} + x^{57} \\
&\quad + x^{56} + x^{52} + x^{51} + x^{50} + x^{46} + x^{45} + x^{43} + x^{41} + x^{40} + x^{36} + x^{35} \\
&\quad + x^{33} + x^{32} + x^{28} + x^{27} + x^{26} + x^{22} + x^{21} + x^{19} + x^{18}, \\
p_6(x) &= x^{120} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{106} + x^{104} + x^{103} + x^{102} \\
&\quad + x^{101} + x^{97} + x^{96} + x^{92} + x^{90} + x^{89} + x^{88} + x^{87} + x^{86} + x^{78} + x^{76} \\
&\quad + x^{75} + x^{74} + x^{73} + x^{69} + x^{68} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{58} \\
&\quad + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{40} + x^{36} + x^{34} + x^{33} + x^{32} \\
&\quad + x^{31} + x^{30} + x^{22} + x^{20} + x^{19} + x^{18} + x^{17} + x^{13} + x^{12}, \\
p_9(x) &= x^{118} + x^{117} + x^{115} + x^{113} + x^{112} + x^{110} + x^{109} + x^{107} + x^{106} + x^{100} \\
&\quad + x^{99} + x^{97} + x^{96} + x^{90} + x^{89} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{79} \\
&\quad + x^{77} + x^{75} + x^{74} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{66} + x^{56} + x^{55} \\
&\quad + x^{54} + x^{50} + x^{49} + x^{47} + x^{45} + x^{44} + x^{40} + x^{39} + x^{37} + x^{35} + x^{34} \\
&\quad + x^{30} + x^{29} + x^{28} + x^{18} + x^{17} + x^{16} + x^{14} + x^{13} + x^{12} + x^{10} + x^{9} \\
&\quad + x^{7} + x^{6}, \\
p_{12}(x) &= x^{116} + x^{113} + x^{112} + x^{104} + x^{101} + x^{100} + x^{88} + x^{85} + x^{84} + x^{72} \\
&\quad + x^{69} + x^{68} + x^{56} + x^{53} + x^{52} + x^{40} + x^{37} + x^{36} + x^{24} + x^{21} + x^{20} \\
&\quad + x^{8} + x^{5} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{132} + x^{126} + x^{124} + x^{120} + x^{118} + x^{114} + x^{110} + x^{100} \\
&\quad + x^{98} + x^{96} + x^{94} + x^{88} + x^{80} + x^{72} + x^{70} + x^{66} + x^{64} + x^{62} + x^{58} \\
&\quad + x^{56} + x^{52} + x^{44} + x^{42}, \\
p_3(x) &= x^{130} + x^{128} + x^{122} + x^{116} + x^{114} + x^{110} + x^{104} + x^{98} + x^{92} + x^{90} \\
&\quad + x^{88} + x^{82} + x^{74} + x^{72} + x^{66} + x^{64} + x^{58} + x^{56} + x^{54} + x^{52} + x^{44} \\
&\quad + x^{42} + x^{40} + x^{34} + x^{28} + x^{26} + x^{24} + x^{20} + x^{16} + x^{12}, \\
p_6(x) &= x^{130} + x^{128} + x^{126} + x^{124} + x^{118} + x^{114} + x^{112} + x^{106} + x^{104} + x^{102} \\
&\quad + x^{98} + x^{88} + x^{84} + x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70} + x^{68} + x^{66}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{62} + x^{58} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44} + x^{42} + x^{40} + x^{36} + x^{22}\\
&+ x^{16} + x^{12} + x^{10} + x^{8} + x^{4} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{122} + x^{118} + x^{114} + x^{112} + x^{110} + x^{106} + x^{102} + x^{96}\\
&+ x^{94} + x^{92} + x^{84} + x^{80} + x^{72} + x^{70} + x^{68} + x^{62} + x^{58} + x^{54} + x^{52}\\
&+ x^{50} + x^{48} + x^{46} + x^{44} + x^{38} + x^{32} + x^{20} + x^{16} + x^{14} + x^{12} + x^{10}\\
&+ x^{8} + x^{4},\\
p_{12}(x) &= x^{128} + x^{112} + x^{104} + x^{88} + x^{72} + x^{56} + x^{40} + x^{24} + x^{16} + x^{8} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{116} + x^{115} + x^{114} + x^{110}\\
&+ x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{96} + x^{87} + x^{83}\\
&+ x^{82} + x^{80} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65} + x^{62} + x^{59}\\
&+ x^{58} + x^{57} + x^{56} + x^{55} + x^{53} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43} + x^{42}\\
&+ x^{39} + x^{37} + x^{35} + x^{33} + x^{32} + x^{30} + x^{28} + x^{25} + x^{24},\\
p_3(x) &= x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{112} + x^{110} + x^{108} + x^{105}\\
&+ x^{103} + x^{101} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{90} + x^{88} + x^{84} + x^{83}\\
&+ x^{81} + x^{80} + x^{78} + x^{76} + x^{73} + x^{72} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62}\\
&+ x^{60} + x^{56} + x^{54} + x^{52} + x^{49} + x^{47} + x^{45} + x^{43} + x^{42} + x^{38} + x^{37}\\
&+ x^{35} + x^{34} + x^{32} + x^{28} + x^{27} + x^{25} + x^{24} + x^{22} + x^{20} + x^{17} + x^{16},\\
p_6(x) &= x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{115} + x^{113} + x^{106} + x^{105}\\
&+ x^{104} + x^{103} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{91} + x^{90} + x^{87}\\
&+ x^{81} + x^{80} + x^{78} + x^{77} + x^{75} + x^{73} + x^{70} + x^{69} + x^{67} + x^{64} + x^{63}\\
&+ x^{62} + x^{60} + x^{59} + x^{57} + x^{56} + x^{53} + x^{50} + x^{48} + x^{47} + x^{45} + x^{44}\\
&+ x^{42} + x^{40} + x^{39} + x^{35} + x^{34} + x^{33} + x^{31} + x^{29} + x^{24} + x^{22} + x^{19}\\
&+ x^{14} + x^{12} + x^{9} + x^{5} + x + 1,\\
p_9(x) &= x^{124} + x^{121} + x^{117} + x^{116} + x^{112} + x^{109} + x^{108} + x^{104} + x^{101} + x^{100}\\
&+ x^{96} + x^{93} + x^{92} + x^{88} + x^{85} + x^{84} + x^{80} + x^{77} + x^{76} + x^{72} + x^{69}\\
&+ x^{68} + x^{64} + x^{61} + x^{60} + x^{56} + x^{53} + x^{52} + x^{48} + x^{45} + x^{44} + x^{40}\\
&+ x^{37} + x^{36} + x^{32} + x^{29} + x^{28} + x^{24} + x^{21} + x^{20} + x^{16} + x^{13} + x^{9}\\
&+ x^{8},\\
p_{12}(x) &= x^{124} + x^{121} + x^{117} + x^{113} + x^{109} + x^{108} + x^{96} + x^{93} + x^{92} + x^{80}\\
&+ x^{77} + x^{76} + x^{64} + x^{61} + x^{60} + x^{48} + x^{45} + x^{44} + x^{32} + x^{29} + x^{28}\\
&+ x^{16} + x^{13} + x^{9} + x^{5} + x + 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{128} + x^{126} + x^{124} + x^{123} + x^{120} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&\quad + x^{108} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{96} + x^{94} + x^{93} \\
&\quad + x^{91} + x^{89} + x^{88} + x^{85} + x^{81} + x^{80} + x^{79} + x^{76} + x^{74} + x^{70} + x^{68} \\
&\quad + x^{66} + x^{64} + x^{59} + x^{57} + x^{53} + x^{51} + x^{47} + x^{46} + x^{41} + x^{37} + x^{35} \\
&\quad + x^{33}, \\
p_3(x) &= x^{114} + x^{113} + x^{110} + x^{109} + x^{107} + x^{105} + x^{104} + x^{103} + x^{101} + x^{98} \\
&\quad + x^{90} + x^{89} + x^{86} + x^{85} + x^{83} + x^{81} + x^{80} + x^{79} + x^{77} + x^{74} + x^{58} \\
&\quad + x^{57} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{45} + x^{42} + x^{34} + x^{33} \\
&\quad + x^{30} + x^{29} + x^{27} + x^{25} + x^{24} + x^{23} + x^{21} + x^{18}, \\
p_6(x) &= x^{116} + x^{114} + x^{102} + x^{100} + x^{96} + x^{88} + x^{86} + x^{74} + x^{72} + x^{68} + x^{60} \\
&\quad + x^{58} + x^{46} + x^{44} + x^{40} + x^{32} + x^{30} + x^{18} + x^{16} + x^{12}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{107} \\
&\quad + x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} + x^{91} + x^{89} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{75} + x^{73} + x^{69} \\
&\quad + x^{68} + x^{67} + x^{66} + x^{65} + x^{64} + x^{62} + x^{61} + x^{59} + x^{57} + x^{53} + x^{52} \\
&\quad + x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{43} + x^{41} + x^{37} + x^{36} + x^{35} \\
&\quad + x^{34} + x^{33} + x^{32} + x^{30} + x^{29} + x^{27} + x^{25} + x^{21} + x^{20} + x^{19} + x^{18} \\
&\quad + x^{17} + x^{16} + x^{14} + x^{13} + x^{11} + x^{9} + x^{6}, \\
p_{12}(x) &= x^{120} + x^{116} + x^{112} + x^{108} + x^{92} + x^{76} + x^{60} + x^{44} + x^{28} + x^{12} + x^{8} \\
&\quad + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{125} + x^{124} + x^{122} \\
&\quad + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112} + x^{108} + x^{105} + x^{102} \\
&\quad + x^{101} + x^{94} + x^{93} + x^{92} + x^{90} + x^{88} + x^{87} + x^{84} + x^{80} + x^{76} + x^{75} \\
&\quad + x^{72} + x^{70} + x^{69} + x^{67} + x^{66} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{53} \\
&\quad + x^{51} + x^{50} + x^{48} + x^{47} + x^{45} + x^{44} + x^{43} + x^{42} + x^{37} + x^{36} + x^{34} \\
&\quad + x^{33}, \\
p_3(x) &= x^{130} + x^{129} + x^{126} + x^{125} + x^{123} + x^{121} + x^{120} + x^{119} + x^{118} + x^{114} \\
&\quad + x^{111} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103} + x^{99} + x^{98} + x^{97} \\
&\quad + x^{96} + x^{95} + x^{94} + x^{90} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{77} \\
&\quad + x^{73} + x^{70} + x^{69} + x^{67} + x^{65} + x^{64} + x^{63} + x^{62} + x^{58} + x^{55} + x^{54} \\
&\quad + x^{52} + x^{50} + x^{49} + x^{48} + x^{47} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} \\
&\quad + x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18},
\end{aligned}$$

$$\begin{aligned}
p_6(x) &= x^{132} + x^{130} + x^{120} + x^{114} + x^{112} + x^{106} + x^{96} + x^{92} + x^{86} + x^{84} \\
&\quad + x^{78} + x^{68} + x^{64} + x^{58} + x^{56} + x^{50} + x^{40} + x^{36} + x^{30} + x^{28} + x^{22} \\
&\quad + x^{20} + x^{18} + x^{12}, \\
p_9(x) &= x^{134} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129} + x^{128} + x^{126} + x^{125} + x^{123} \\
&\quad + x^{122} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} + x^{113} + x^{111} + x^{109} \\
&\quad + x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{95} + x^{93} \\
&\quad + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} + x^{77} + x^{73} \\
&\quad + x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{66} + x^{65} + x^{63} + x^{61} + x^{57} + x^{56} \\
&\quad + x^{55} + x^{54} + x^{53} + x^{52} + x^{50} + x^{49} + x^{47} + x^{45} + x^{41} + x^{40} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{36} + x^{34} + x^{33} + x^{31} + x^{29} + x^{25} + x^{24} + x^{23} + x^{19} \\
&\quad + x^{16} + x^{15} + x^{14} + x^{11} + x^{10} + x^{9} + x^{6}, \\
p_{12}(x) &= x^{136} + x^{132} + x^{128} + x^{96} + x^{80} + x^{64} + x^{48} + x^{32} + x^{24} + x^{20} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{123} + x^{120} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105} \\
&\quad + x^{104} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{88} + x^{87} + x^{84} \\
&\quad + x^{78} + x^{76} + x^{75} + x^{73} + x^{72} + x^{71} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64} \\
&\quad + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{47} \\
&\quad + x^{45} + x^{42}, \\
p_3(x) &= x^{124} + x^{123} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{109} \\
&\quad + x^{108} + x^{107} + x^{106} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} \\
&\quad + x^{89} + x^{88} + x^{86} + x^{85} + x^{84} + x^{82} + x^{78} + x^{68} + x^{67} + x^{63} + x^{61} \\
&\quad + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{47} \\
&\quad + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{33} + x^{32} + x^{30} + x^{29} + x^{28} + x^{26} \\
&\quad + x^{22}, \\
p_6(x) &= x^{124} + x^{123} + x^{119} + x^{117} + x^{116} + x^{114} + x^{112} + x^{108} + x^{104} + x^{102} \\
&\quad + x^{101} + x^{100} + x^{98} + x^{95} + x^{93} + x^{91} + x^{86} + x^{84} + x^{77} + x^{74} + x^{73} \\
&\quad + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{63} + x^{61} + x^{60} + x^{58} + x^{53} \\
&\quad + x^{52} + x^{49} + x^{48} + x^{46} + x^{44} + x^{42} + x^{41} + x^{39} + x^{35} + x^{33} + x^{30} \\
&\quad + x^{29} + x^{28} + x^{25} + x^{18} + x^{14} + x^{8} + x^{5} + x + 1, \\
p_9(x) &= x^{124} + x^{121} + x^{117} + x^{116} + x^{112} + x^{109} + x^{108} + x^{104} + x^{101} + x^{100} \\
&\quad + x^{96} + x^{93} + x^{92} + x^{88} + x^{85} + x^{84} + x^{80} + x^{77} + x^{76} + x^{72} + x^{69} \\
&\quad + x^{68} + x^{64} + x^{61} + x^{60} + x^{56} + x^{53} + x^{52} + x^{48} + x^{45} + x^{44} + x^{40} \\
&\quad + x^{37} + x^{36} + x^{32} + x^{29} + x^{28} + x^{24} + x^{21} + x^{20} + x^{16} + x^{13} + x^{9} \\
&\quad + x^{8},
\end{aligned}$$

$$
\begin{aligned}
p_{12}(x) = {} & x^{124} + x^{121} + x^{117} + x^{113} + x^{109} + x^{108} + x^{96} + x^{93} + x^{92} + x^{80} \\
& + x^{77} + x^{76} + x^{64} + x^{61} + x^{60} + x^{48} + x^{45} + x^{44} + x^{32} + x^{29} + x^{28} \\
& + x^{16} + x^{13} + x^{9} + x^{5} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {} & x^{129} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{116} + x^{115} + x^{114} + x^{110} \\
& + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} + x^{101} + x^{99} + x^{96} + x^{87} + x^{83} \\
& + x^{82} + x^{80} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65} + x^{62} + x^{59} \\
& + x^{58} + x^{57} + x^{56} + x^{55} + x^{53} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43} + x^{42} \\
& + x^{39} + x^{37} + x^{35} + x^{33} + x^{32} + x^{30} + x^{28} + x^{25} + x^{24}, \\
p_3(x) = {} & x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{112} + x^{110} + x^{108} + x^{105} \\
& + x^{103} + x^{101} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{90} + x^{88} + x^{84} + x^{83} \\
& + x^{81} + x^{80} + x^{78} + x^{76} + x^{73} + x^{72} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} \\
& + x^{60} + x^{56} + x^{54} + x^{52} + x^{49} + x^{47} + x^{45} + x^{43} + x^{42} + x^{38} + x^{37} \\
& + x^{35} + x^{34} + x^{32} + x^{28} + x^{27} + x^{25} + x^{24} + x^{22} + x^{20} + x^{17} + x^{16}, \\
p_6(x) = {} & x^{124} + x^{123} + x^{120} + x^{119} + x^{118} + x^{116} + x^{115} + x^{113} + x^{106} + x^{105} \\
& + x^{104} + x^{103} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{91} + x^{90} + x^{87} \\
& + x^{81} + x^{80} + x^{78} + x^{77} + x^{75} + x^{73} + x^{70} + x^{69} + x^{67} + x^{64} + x^{63} \\
& + x^{62} + x^{60} + x^{59} + x^{57} + x^{56} + x^{53} + x^{50} + x^{48} + x^{47} + x^{45} + x^{44} \\
& + x^{42} + x^{40} + x^{39} + x^{35} + x^{34} + x^{33} + x^{31} + x^{29} + x^{24} + x^{22} + x^{19} \\
& + x^{14} + x^{12} + x^{9} + x^{5} + x + 1, \\
p_9(x) = {} & x^{124} + x^{121} + x^{117} + x^{116} + x^{112} + x^{109} + x^{108} + x^{104} + x^{101} + x^{100} \\
& + x^{96} + x^{93} + x^{92} + x^{88} + x^{85} + x^{84} + x^{80} + x^{77} + x^{76} + x^{72} + x^{69} \\
& + x^{68} + x^{64} + x^{61} + x^{60} + x^{56} + x^{53} + x^{52} + x^{48} + x^{45} + x^{44} + x^{40} \\
& + x^{37} + x^{36} + x^{32} + x^{29} + x^{28} + x^{24} + x^{21} + x^{20} + x^{16} + x^{13} + x^{9} \\
& + x^{8}, \\
p_{12}(x) = {} & x^{124} + x^{121} + x^{117} + x^{113} + x^{109} + x^{108} + x^{96} + x^{93} + x^{92} + x^{80} \\
& + x^{77} + x^{76} + x^{64} + x^{61} + x^{60} + x^{48} + x^{45} + x^{44} + x^{32} + x^{29} + x^{28} \\
& + x^{16} + x^{13} + x^{9} + x^{5} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {} & x^{138} + x^{136} + x^{135} + x^{134} + x^{132} + x^{129} + x^{128} + x^{125} + x^{124} + x^{122} \\
& + x^{119} + x^{118} + x^{117} + x^{115} + x^{114} + x^{112} + x^{108} + x^{105} + x^{102} \\
& + x^{101} + x^{94} + x^{93} + x^{92} + x^{90} + x^{88} + x^{87} + x^{84} + x^{80} + x^{76} + x^{75} \\
& + x^{72} + x^{70} + x^{69} + x^{67} + x^{66} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{53}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{51} + x^{50} + x^{48} + x^{47} + x^{45} + x^{44} + x^{43} + x^{42} + x^{37} + x^{36} + x^{34} \\
&+ x^{33}, \\
p_3(x) &= x^{130} + x^{129} + x^{126} + x^{125} + x^{123} + x^{121} + x^{120} + x^{119} + x^{118} + x^{114} \\
&+ x^{111} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103} + x^{99} + x^{98} + x^{97} \\
&+ x^{96} + x^{95} + x^{94} + x^{90} + x^{87} + x^{86} + x^{84} + x^{80} + x^{79} + x^{78} + x^{77} \\
&+ x^{73} + x^{70} + x^{69} + x^{67} + x^{65} + x^{64} + x^{63} + x^{62} + x^{58} + x^{55} + x^{54} \\
&+ x^{52} + x^{50} + x^{49} + x^{48} + x^{47} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} \\
&+ x^{34} + x^{31} + x^{30} + x^{28} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18}, \\
p_6(x) &= x^{132} + x^{130} + x^{120} + x^{114} + x^{112} + x^{106} + x^{96} + x^{92} + x^{86} + x^{84} \\
&+ x^{78} + x^{68} + x^{64} + x^{58} + x^{56} + x^{50} + x^{40} + x^{36} + x^{30} + x^{28} + x^{22} \\
&+ x^{20} + x^{18} + x^{12}, \\
p_9(x) &= x^{134} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129} + x^{128} + x^{126} + x^{125} + x^{123} \\
&+ x^{122} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} + x^{113} + x^{111} + x^{109} \\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{95} + x^{93} \\
&+ x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} + x^{77} + x^{73} \\
&+ x^{72} + x^{71} + x^{70} + x^{69} + x^{68} + x^{66} + x^{65} + x^{63} + x^{61} + x^{57} + x^{56} \\
&+ x^{55} + x^{54} + x^{53} + x^{52} + x^{50} + x^{49} + x^{47} + x^{45} + x^{41} + x^{40} + x^{39} \\
&+ x^{38} + x^{37} + x^{36} + x^{34} + x^{33} + x^{31} + x^{29} + x^{25} + x^{24} + x^{23} + x^{19} \\
&+ x^{16} + x^{15} + x^{14} + x^{11} + x^{10} + x^{9} + x^{6}, \\
p_{12}(x) &= x^{136} + x^{132} + x^{128} + x^{96} + x^{80} + x^{64} + x^{48} + x^{32} + x^{24} + x^{20} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{128} + x^{126} + x^{124} + x^{123} + x^{120} + x^{116} + x^{113} + x^{111} + x^{110} + x^{109} \\
&+ x^{108} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{96} + x^{94} + x^{93} \\
&+ x^{91} + x^{89} + x^{88} + x^{85} + x^{81} + x^{80} + x^{79} + x^{76} + x^{74} + x^{70} + x^{68} \\
&+ x^{66} + x^{64} + x^{59} + x^{57} + x^{53} + x^{51} + x^{47} + x^{46} + x^{41} + x^{37} + x^{35} \\
&+ x^{33}, \\
p_3(x) &= x^{114} + x^{113} + x^{110} + x^{109} + x^{107} + x^{105} + x^{104} + x^{103} + x^{101} + x^{98} \\
&+ x^{90} + x^{89} + x^{86} + x^{85} + x^{83} + x^{81} + x^{80} + x^{79} + x^{77} + x^{74} + x^{58} \\
&+ x^{57} + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{45} + x^{42} + x^{34} + x^{33} \\
&+ x^{30} + x^{29} + x^{27} + x^{25} + x^{24} + x^{23} + x^{21} + x^{18}, \\
p_6(x) &= x^{116} + x^{114} + x^{102} + x^{100} + x^{96} + x^{88} + x^{86} + x^{74} + x^{72} + x^{68} + x^{60} \\
&+ x^{58} + x^{46} + x^{44} + x^{40} + x^{32} + x^{30} + x^{18} + x^{16} + x^{12}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{107} \\
&+ x^{105} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} + x^{91} + x^{89}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{85} + x^{84} + x^{83} + x^{82} + x^{81} + x^{80} + x^{78} + x^{77} + x^{75} + x^{73} + x^{69}\\
&+ x^{68} + x^{67} + x^{66} + x^{65} + x^{64} + x^{62} + x^{61} + x^{59} + x^{57} + x^{53} + x^{52}\\
&+ x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{43} + x^{41} + x^{37} + x^{36} + x^{35}\\
&+ x^{34} + x^{33} + x^{32} + x^{30} + x^{29} + x^{27} + x^{25} + x^{21} + x^{20} + x^{19} + x^{18}\\
&+ x^{17} + x^{16} + x^{14} + x^{13} + x^{11} + x^{9} + x^{6},\\
p_{12}(x) = {}& x^{120} + x^{116} + x^{112} + x^{108} + x^{92} + x^{76} + x^{60} + x^{44} + x^{28} + x^{12} + x^{8}\\
&+ x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{129} + x^{127} + x^{125} + x^{123} + x^{120} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105}\\
&+ x^{104} + x^{102} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{94} + x^{88} + x^{87} + x^{84}\\
&+ x^{78} + x^{76} + x^{75} + x^{73} + x^{72} + x^{71} + x^{69} + x^{68} + x^{66} + x^{65} + x^{64}\\
&+ x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{47}\\
&+ x^{45} + x^{42},\\
p_3(x) = {}& x^{124} + x^{123} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{109}\\
&+ x^{108} + x^{107} + x^{106} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97}\\
&+ x^{89} + x^{88} + x^{86} + x^{85} + x^{84} + x^{82} + x^{78} + x^{68} + x^{67} + x^{63} + x^{61}\\
&+ x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{48} + x^{47}\\
&+ x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{33} + x^{32} + x^{30} + x^{29} + x^{28} + x^{26}\\
&+ x^{22},\\
p_6(x) = {}& x^{124} + x^{123} + x^{119} + x^{117} + x^{116} + x^{114} + x^{112} + x^{108} + x^{104} + x^{102}\\
&+ x^{101} + x^{100} + x^{98} + x^{95} + x^{93} + x^{91} + x^{86} + x^{84} + x^{77} + x^{74} + x^{73}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{63} + x^{61} + x^{60} + x^{58} + x^{53}\\
&+ x^{52} + x^{49} + x^{48} + x^{46} + x^{44} + x^{42} + x^{41} + x^{39} + x^{35} + x^{33} + x^{30}\\
&+ x^{29} + x^{28} + x^{25} + x^{18} + x^{14} + x^{8} + x^{5} + x + 1,\\
p_9(x) = {}& x^{124} + x^{121} + x^{117} + x^{116} + x^{112} + x^{109} + x^{108} + x^{104} + x^{101} + x^{100}\\
&+ x^{96} + x^{93} + x^{92} + x^{88} + x^{85} + x^{84} + x^{80} + x^{77} + x^{76} + x^{72} + x^{69}\\
&+ x^{68} + x^{64} + x^{61} + x^{60} + x^{56} + x^{53} + x^{52} + x^{48} + x^{45} + x^{44} + x^{40}\\
&+ x^{37} + x^{36} + x^{32} + x^{29} + x^{28} + x^{24} + x^{21} + x^{20} + x^{16} + x^{13} + x^{9}\\
&+ x^{8},\\
p_{12}(x) = {}& x^{124} + x^{121} + x^{117} + x^{113} + x^{109} + x^{108} + x^{96} + x^{93} + x^{92} + x^{80}\\
&+ x^{77} + x^{76} + x^{64} + x^{61} + x^{60} + x^{48} + x^{45} + x^{44} + x^{32} + x^{29} + x^{28}\\
&+ x^{16} + x^{13} + x^{9} + x^{5} + x + 1,
\end{aligned}
$$

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

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

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

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1122	[1542, 1744]	2244	[1704, 1435]	3366	[3896, 1969]
1	[3, 4]	1123	[1554, 661]	2245	[42, 791]	3367	[672, 3897]
2	[5, 6]	1124	[169, 1745]	2246	[3009, 1770]	3368	[3046, 1399]
3	[7, 8]	1125	[1746, 1413]	2247	[3010, 3011]	3369	[3898, 2902]
4	[9, 10]	1126	[1747, 1748]	2248	[3012, 2998]	3370	[2873, 3071]
5	[11, 12]	1127	[1749, 1750]	2249	[3013, 2911]	3371	[3899, 548]
6	[13, 14]	1128	[228, 1751]	2250	[798, 1577]	3372	[3900, 2948]
7	[15, 16]	1129	[670, 34]	2251	[3014, 1530]	3373	[1966, 1930]
8	[17, 18]	1130	[1618, 13]	2252	[3015, 1611]	3374	[3901, 1909]
9	[19, 20]	1131	[1752, 1753]	2253	[3016, 3017]	3375	[3203, 214]
10	[21, 22]	1132	[526, 45]	2254	[3018, 1457]	3376	[211, 496]
11	[23, 24]	1133	[1754, 1582]	2255	[3019, 2869]	3377	[3027, 718]
12	[25, 26]	1134	[1755, 1756]	2256	[2990, 3020]	3378	[780, 2991]
13	[27, 28]	1135	[1757, 1432]	2257	[3021, 1708]	3379	[207, 587]
14	[29, 30]	1136	[1758, 1759]	2258	[2865, 1710]	3380	[3902, 1448]
15	[31, 32]	1137	[1532, 1760]	2259	[3022, 1759]	3381	[3903, 3904]
16	[33, 34]	1138	[1761, 1489]	2260	[2933, 3023]	3382	[3905, 1888]
17	[35, 36]	1139	[1762, 728]	2261	[3024, 1595]	3383	[1883, 701]
18	[37, 38]	1140	[1763, 1654]	2262	[3025, 1587]	3384	[3906, 1441]
19	[39, 40]	1141	[672, 562]	2263	[3026, 1379]	3385	[1843, 3183]
20	[41, 42]	1142	[1764, 1765]	2264	[1748, 1612]	3386	[3257, 1794]
21	[43, 44]	1143	[1766, 1767]	2265	[3027, 165]	3387	[3907, 1450]
22	[45, 46]	1144	[761, 1406]	2266	[3028, 3029]	3388	[1800, 1618]
23	[47, 48]	1145	[1768, 1769]	2267	[1617, 638]	3389	[3107, 709]
24	[49, 50]	1146	[1756, 1770]	2268	[464, 160]	3390	[1655, 2951]
25	[51, 52]	1147	[193, 175]	2269	[3010, 1806]	3391	[3908, 3909]
26	[53, 54]	1148	[1756, 1771]	2270	[681, 3030]	3392	[3910, 2867]
27	[55, 56]	1149	[1772, 720]	2271	[1736, 1437]	3393	[2993, 3301]
28	[57, 58]	1150	[1773, 1774]	2272	[227, 1456]	3394	[3248, 1607]
29	[59, 60]	1151	[1708, 1775]	2273	[3031, 1655]	3395	[3911, 1778]
30	[61, 62]	1152	[1776, 1557]	2274	[1595, 2939]	3396	[1636, 1675]
31	[63, 64]	1153	[484, 1777]	2275	[738, 1380]	3397	[1655, 1694]
32	[65, 66]	1154	[1778, 1779]	2276	[3032, 3033]	3398	[159, 1940]
33	[67, 68]	1155	[48, 720]	2277	[3034, 2953]	3399	[3912, 1941]
34	[69, 70]	1156	[1780, 1635]	2278	[3035, 2925]	3400	[1973, 1966]
35	[71, 72]	1157	[705, 1499]	2279	[613, 3036]	3401	[45, 3913]
36	[73, 74]	1158	[1781, 470]	2280	[3037, 1812]	3402	[8, 593]
37	[75, 76]	1159	[1782, 8]	2281	[3038, 660]	3403	[2876, 1937]
38	[77, 78]	1160	[1783, 686]	2282	[1484, 3039]	3404	[3914, 1482]
39	[79, 80]	1161	[1784, 789]	2283	[1838, 728]	3405	[129, 1566]
40	[81, 82]	1162	[713, 1785]	2284	[665, 8]	3406	[3915, 3202]

41	[83, 84]	1163	[1493, 154]	2285	[1622, 2928]	3407	[3916, 1817]
42	[85, 86]	1164	[1786, 126]	2286	[3006, 1654]	3408	[1698, 190]
43	[87, 88]	1165	[693, 1589]	2287	[3040, 2986]	3409	[3917, 659]
44	[89, 90]	1166	[1787, 1392]	2288	[1533, 2963]	3410	[3918, 3212]
45	[91, 92]	1167	[1470, 498]	2289	[1408, 1814]	3411	[3919, 1448]
46	[93, 94]	1168	[1788, 190]	2290	[3041, 215]	3412	[3920, 1586]
47	[95, 96]	1169	[1789, 664]	2291	[2918, 1424]	3413	[2886, 3921]
48	[97, 98]	1170	[520, 1615]	2292	[1737, 1438]	3414	[3922, 1623]
49	[99, 100]	1171	[1775, 587]	2293	[3042, 678]	3415	[596, 624]
50	[101, 102]	1172	[1790, 46]	2294	[179, 1711]	3416	[3923, 1529]
51	[103, 104]	1173	[1791, 636]	2295	[3043, 670]	3417	[56, 1807]
52	[105, 106]	1174	[1792, 1793]	2296	[3044, 3045]	3418	[3906, 38]
53	[107, 79]	1175	[1562, 1794]	2297	[58, 169]	3419	[2888, 3924]
54	[108, 109]	1176	[1795, 749]	2298	[185, 1688]	3420	[3925, 3126]
55	[110, 111]	1177	[9, 1796]	2299	[1731, 1752]	3421	[1921, 2901]
56	[112, 113]	1178	[1797, 561]	2300	[468, 1904]	3422	[1748, 3340]
57	[114, 115]	1179	[521, 1798]	2301	[3046, 613]	3423	[1761, 3909]
58	[116, 117]	1180	[1799, 1632]	2302	[2988, 3047]	3424	[3926, 1948]
59	[118, 119]	1181	[622, 13]	2303	[2990, 173]	3425	[3927, 3177]
60	[120, 121]	1182	[1800, 622]	2304	[3048, 542]	3426	[3081, 548]
61	[122, 123]	1183	[237, 1801]	2305	[2917, 1988]	3427	[3928, 1638]
62	[109, 124]	1184	[1802, 691]	2306	[1809, 1678]	3428	[3260, 1759]
63	[125, 126]	1185	[1803, 600]	2307	[3049, 3050]	3429	[669, 239]
64	[127, 128]	1186	[1804, 1784]	2308	[500, 500]	3430	[1798, 3929]
65	[129, 130]	1187	[1713, 649]	2309	[3051, 3052]	3431	[3930, 2911]
66	[131, 132]	1188	[1805, 1806]	2310	[3053, 1877]	3432	[520, 3316]
67	[133, 134]	1189	[1807, 1535]	2311	[3054, 705]	3433	[3931, 766]
68	[135, 136]	1190	[476, 236]	2312	[3055, 1962]	3434	[1639, 3932]
69	[137, 138]	1191	[1808, 200]	2313	[3056, 2986]	3435	[3933, 129]
70	[139, 140]	1192	[706, 151]	2314	[3057, 557]	3436	[3013, 3934]
71	[141, 142]	1193	[541, 1809]	2315	[240, 1859]	3437	[1523, 1726]
72	[143, 144]	1194	[1697, 1810]	2316	[2978, 1642]	3438	[195, 1383]
73	[145, 146]	1195	[1811, 1812]	2317	[1954, 3058]	3439	[3935, 1779]
74	[147, 141]	1196	[139, 1813]	2318	[3059, 2925]	3440	[3087, 663]
75	[148, 149]	1197	[1408, 1457]	2319	[489, 583]	3441	[3936, 1403]
76	[150, 151]	1198	[1674, 1637]	2320	[3060, 46]	3442	[3937, 782]
77	[152, 153]	1199	[1456, 1814]	2321	[3061, 632]	3443	[3938, 139]
78	[154, 155]	1200	[1815, 552]	2322	[1585, 187]	3444	[227, 1408]
79	[156, 157]	1201	[1473, 135]	2323	[1959, 1672]	3445	[3939, 571]
80	[158, 159]	1202	[1816, 1817]	2324	[3047, 581]	3446	[3940, 632]
81	[160, 161]	1203	[12, 1818]	2325	[726, 530]	3447	[3941, 1933]
82	[162, 163]	1204	[1819, 566]	2326	[3062, 1644]	3448	[3942, 3045]
83	[164, 165]	1205	[1820, 1821]	2327	[1460, 776]	3449	[504, 1473]
84	[166, 167]	1206	[1822, 1823]	2328	[3063, 1427]	3450	[3943, 1987]

85	[168, 169]	1207	[1824, 1626]	2329	[3064, 153]	3451	[3944, 185]
86	[170, 171]	1208	[1825, 219]	2330	[1764, 1607]	3452	[1401, 1952]
87	[172, 173]	1209	[1826, 609]	2331	[1884, 172]	3453	[1649, 163]
88	[174, 175]	1210	[1508, 1801]	2332	[3065, 758]	3454	[627, 1781]
89	[176, 177]	1211	[1752, 1827]	2333	[1887, 3066]	3455	[3945, 3218]
90	[178, 179]	1212	[1828, 1829]	2334	[2951, 1778]	3456	[3161, 3932]
91	[180, 181]	1213	[549, 1830]	2335	[3067, 3068]	3457	[3946, 1748]
92	[155, 182]	1214	[1831, 1832]	2336	[1579, 3029]	3458	[1426, 1400]
93	[183, 58]	1215	[1833, 1756]	2337	[2953, 1478]	3459	[3947, 207]
94	[184, 185]	1216	[1834, 1829]	2338	[1729, 3047]	3460	[1851, 232]
95	[186, 187]	1217	[165, 129]	2339	[1930, 1496]	3461	[3918, 3163]
96	[188, 189]	1218	[167, 529]	2340	[3069, 3070]	3462	[3948, 688]
97	[190, 191]	1219	[1555, 619]	2341	[3071, 515]	3463	[3949, 1550]
98	[192, 193]	1220	[1835, 574]	2342	[1583, 3072]	3464	[1720, 140]
99	[194, 195]	1221	[1836, 1482]	2343	[3073, 670]	3465	[3950, 3170]
100	[196, 197]	1222	[1837, 732]	2344	[704, 525]	3466	[1744, 507]
101	[198, 199]	1223	[1838, 1517]	2345	[3074, 605]	3467	[3951, 2885]
102	[200, 201]	1224	[1839, 205]	2346	[483, 1575]	3468	[3952, 1539]
103	[202, 203]	1225	[695, 642]	2347	[581, 3006]	3469	[3953, 1829]
104	[204, 205]	1226	[1840, 682]	2348	[640, 1428]	3470	[1940, 1860]
105	[206, 207]	1227	[1841, 1842]	2349	[695, 1834]	3471	[3954, 1599]
106	[208, 209]	1228	[554, 1466]	2350	[3075, 3050]	3472	[1394, 1473]
107	[210, 211]	1229	[1843, 1553]	2351	[3076, 1928]	3473	[3955, 1479]
108	[212, 213]	1230	[1844, 1845]	2352	[541, 1677]	3474	[1572, 3956]
109	[214, 215]	1231	[1846, 776]	2353	[2951, 2933]	3475	[723, 3100]
110	[216, 217]	1232	[1847, 692]	2354	[3077, 1440]	3476	[1775, 1385]
111	[218, 219]	1233	[1848, 1849]	2355	[3078, 1416]	3477	[3957, 586]
112	[220, 221]	1234	[1850, 1851]	2356	[2962, 1534]	3478	[3958, 199]
113	[169, 222]	1235	[1506, 1713]	2357	[1840, 3030]	3479	[3058, 205]
114	[223, 224]	1236	[486, 1725]	2358	[3079, 492]	3480	[2964, 757]
115	[33, 225]	1237	[1852, 1853]	2359	[128, 640]	3481	[3959, 564]
116	[226, 227]	1238	[1511, 498]	2360	[3080, 1413]	3482	[715, 3091]
117	[228, 229]	1239	[1854, 1553]	2361	[3081, 519]	3483	[3960, 592]
118	[230, 231]	1240	[1855, 1856]	2362	[3082, 3047]	3484	[3961, 793]
119	[232, 233]	1241	[1857, 697]	2363	[3083, 1687]	3485	[2935, 1594]
120	[234, 182]	1242	[218, 1858]	2364	[1399, 614]	3486	[467, 1587]
121	[235, 236]	1243	[1859, 1860]	2365	[1656, 689]	3487	[3962, 3008]
122	[237, 238]	1244	[1675, 51]	2366	[3084, 1640]	3488	[3963, 1582]
123	[239, 240]	1245	[1861, 1862]	2367	[3085, 1561]	3489	[3964, 2968]
124	[213, 241]	1246	[1863, 212]	2368	[1686, 531]	3490	[1960, 180]
125	[242, 243]	1247	[1864, 1730]	2369	[623, 3086]	3491	[3965, 58]
126	[244, 245]	1248	[1865, 1866]	2370	[2929, 50]	3492	[3966, 50]
127	[246, 247]	1249	[1867, 1849]	2371	[3087, 3088]	3493	[3255, 616]
128	[248, 249]	1250	[1484, 1868]	2372	[3089, 1562]	3494	[3967, 1571]

129	[250, 251]	1251	[1869, 465]	2373	[2874, 694]	3495	[2959, 3968]
130	[252, 253]	1252	[1870, 170]	2374	[205, 728]	3496	[3969, 1950]
131	[254, 255]	1253	[1871, 1872]	2375	[1664, 185]	3497	[2860, 1563]
132	[256, 257]	1254	[1398, 613]	2376	[3090, 2845]	3498	[3970, 1586]
133	[258, 259]	1255	[768, 1873]	2377	[2989, 3091]	3499	[1763, 1594]
134	[260, 261]	1256	[1635, 1874]	2378	[3092, 1767]	3500	[3971, 48]
135	[262, 263]	1257	[1875, 1821]	2379	[2862, 52]	3501	[3094, 637]
136	[264, 265]	1258	[1876, 539]	2380	[3093, 1686]	3502	[3972, 1701]
137	[266, 267]	1259	[667, 1486]	2381	[3094, 1617]	3503	[3185, 3973]
138	[268, 269]	1260	[170, 1823]	2382	[3095, 2954]	3504	[1894, 3974]
139	[270, 271]	1261	[777, 1877]	2383	[240, 1940]	3505	[3191, 1436]
140	[272, 273]	1262	[1653, 1878]	2384	[3096, 147]	3506	[601, 1917]
141	[274, 275]	1263	[1879, 486]	2385	[590, 1822]	3507	[1876, 3190]
142	[276, 277]	1264	[1880, 489]	2386	[3097, 3003]	3508	[3975, 700]
143	[278, 279]	1265	[1881, 1882]	2387	[3098, 1672]	3509	[1864, 1609]
144	[280, 281]	1266	[1862, 1441]	2388	[719, 8]	3510	[3976, 195]
145	[282, 283]	1267	[1883, 1884]	2389	[1957, 739]	3511	[3977, 1764]
146	[284, 285]	1268	[563, 1885]	2390	[3099, 492]	3512	[3978, 571]
147	[286, 287]	1269	[1886, 1421]	2391	[3100, 786]	3513	[3312, 1913]
148	[288, 289]	1270	[1471, 1511]	2392	[3101, 1444]	3514	[3979, 1865]
149	[290, 291]	1271	[1887, 1888]	2393	[2984, 3095]	3515	[3129, 1457]
150	[292, 293]	1272	[1889, 1890]	2394	[3102, 1750]	3516	[3980, 3071]
151	[294, 295]	1273	[1891, 1892]	2395	[479, 1903]	3517	[3130, 3142]
152	[296, 297]	1274	[1893, 1894]	2396	[791, 645]	3518	[3981, 1644]
153	[298, 299]	1275	[1895, 1896]	2397	[1770, 3007]	3519	[3250, 42]
154	[300, 301]	1276	[709, 1751]	2398	[3103, 1842]	3520	[3952, 1620]
155	[302, 116]	1277	[1897, 1690]	2399	[3104, 1611]	3521	[3943, 2917]
156	[303, 304]	1278	[1516, 1569]	2400	[3006, 1594]	3522	[1455, 1809]
157	[305, 306]	1279	[1898, 1769]	2401	[582, 490]	3523	[3982, 1482]
158	[307, 308]	1280	[762, 59]	2402	[3105, 3106]	3524	[1563, 1568]
159	[309, 310]	1281	[1899, 528]	2403	[711, 1541]	3525	[3983, 1784]
160	[311, 312]	1282	[180, 652]	2404	[3107, 228]	3526	[142, 2880]
161	[313, 314]	1283	[1900, 1745]	2405	[3108, 486]	3527	[3984, 177]
162	[315, 316]	1284	[1901, 644]	2406	[1899, 536]	3528	[3985, 1513]
163	[317, 318]	1285	[1902, 1903]	2407	[3109, 1925]	3529	[1893, 1913]
164	[319, 250]	1286	[1721, 1513]	2408	[1716, 1629]	3530	[3986, 1827]
165	[320, 321]	1287	[1904, 1764]	2409	[3110, 3111]	3531	[3217, 3291]
166	[322, 323]	1288	[1905, 769]	2410	[3112, 1557]	3532	[3987, 1680]
167	[324, 325]	1289	[1906, 1624]	2411	[3113, 1641]	3533	[3988, 1945]
168	[326, 327]	1290	[1907, 1397]	2412	[1542, 1967]	3534	[3989, 204]
169	[328, 329]	1291	[1908, 1909]	2413	[3114, 1438]	3535	[3990, 607]
170	[330, 29]	1292	[739, 1910]	2414	[3115, 229]	3536	[788, 3991]
171	[331, 332]	1293	[638, 1686]	2415	[3105, 3116]	3537	[3992, 597]
172	[333, 334]	1294	[1807, 763]	2416	[3117, 2899]	3538	[3993, 3166]

173	[335, 336]	1295	[1911, 204]	2417	[234, 603]	3539	[3994, 2938]
174	[337, 338]	1296	[1503, 1912]	2418	[3118, 1945]	3540	[1836, 3995]
175	[339, 340]	1297	[1913, 1914]	2419	[3119, 617]	3541	[3996, 139]
176	[341, 342]	1298	[717, 165]	2420	[3120, 148]	3542	[631, 699]
177	[343, 344]	1299	[1915, 765]	2421	[3121, 204]	3543	[1455, 1677]
178	[345, 346]	1300	[796, 1772]	2422	[50, 147]	3544	[221, 3233]
179	[347, 348]	1301	[1916, 1770]	2423	[3122, 556]	3545	[1947, 1744]
180	[349, 350]	1302	[1461, 1426]	2424	[3123, 660]	3546	[1652, 2906]
181	[351, 352]	1303	[1917, 773]	2425	[174, 802]	3547	[3997, 3157]
182	[353, 354]	1304	[1450, 1785]	2426	[3124, 489]	3548	[3998, 1405]
183	[355, 328]	1305	[1918, 494]	2427	[1758, 1873]	3549	[3187, 1856]
184	[356, 357]	1306	[1919, 56]	2428	[3125, 3126]	3550	[1828, 643]
185	[358, 359]	1307	[1387, 1414]	2429	[3127, 539]	3551	[3999, 606]
186	[360, 337]	1308	[1920, 1921]	2430	[540, 1455]	3552	[50, 591]
187	[361, 339]	1309	[1922, 1840]	2431	[3128, 2938]	3553	[1914, 4000]
188	[362, 363]	1310	[1923, 474]	2432	[3129, 1814]	3554	[4001, 606]
189	[364, 365]	1311	[1924, 1925]	2433	[3130, 3131]	3555	[555, 674]
190	[366, 367]	1312	[575, 1623]	2434	[3132, 2869]	3556	[3324, 721]
191	[368, 369]	1313	[1834, 643]	2435	[3133, 1865]	3557	[4002, 713]
192	[370, 371]	1314	[1926, 1830]	2436	[1702, 1583]	3558	[3100, 729]
193	[372, 373]	1315	[1927, 1928]	2437	[1732, 1827]	3559	[4003, 1396]
194	[374, 375]	1316	[619, 1929]	2438	[2949, 1693]	3560	[137, 3211]
195	[376, 377]	1317	[1930, 1931]	2439	[647, 1743]	3561	[4004, 638]
196	[378, 379]	1318	[1493, 1515]	2440	[3134, 1619]	3562	[4005, 477]
197	[314, 380]	1319	[1932, 1933]	2441	[604, 1764]	3563	[4006, 1819]
198	[381, 382]	1320	[753, 1774]	2442	[1970, 3135]	3564	[4007, 775]
199	[383, 384]	1321	[1934, 1935]	2443	[3136, 1840]	3565	[241, 564]
200	[385, 386]	1322	[1770, 1936]	2444	[3137, 1890]	3566	[1913, 3974]
201	[387, 388]	1323	[1925, 1937]	2445	[176, 617]	3567	[4008, 719]
202	[389, 390]	1324	[1938, 472]	2446	[3138, 3052]	3568	[1772, 3324]
203	[391, 392]	1325	[1939, 148]	2447	[3067, 3033]	3569	[4009, 469]
204	[393, 394]	1326	[752, 1773]	2448	[678, 1461]	3570	[4010, 12]
205	[395, 396]	1327	[1940, 1941]	2449	[3139, 1553]	3571	[1620, 3194]
206	[397, 398]	1328	[1942, 1745]	2450	[587, 3062]	3572	[3121, 3058]
207	[399, 400]	1329	[1943, 226]	2451	[3140, 2861]	3573	[1453, 603]
208	[401, 402]	1330	[1944, 1945]	2452	[3141, 3142]	3574	[3269, 197]
209	[403, 404]	1331	[1438, 1946]	2453	[580, 3005]	3575	[3244, 1410]
210	[405, 406]	1332	[712, 1947]	2454	[1670, 1840]	3576	[4011, 766]
211	[407, 408]	1333	[1410, 1948]	2455	[3053, 1400]	3577	[4012, 2968]
212	[409, 410]	1334	[156, 1727]	2456	[1943, 478]	3578	[4013, 1641]
213	[411, 412]	1335	[1587, 1904]	2457	[572, 2840]	3579	[162, 549]
214	[413, 414]	1336	[1949, 1810]	2458	[1637, 2862]	3580	[4014, 14]
215	[4, 415]	1337	[1694, 1778]	2459	[3071, 694]	3581	[4015, 1551]
216	[416, 92]	1338	[1646, 1950]	2460	[3143, 2913]	3582	[4016, 3196]

217	[417, 418]	1339	[1951, 170]	2461	[177, 1493]	3583	[1718, 3283]
218	[419, 420]	1340	[610, 1952]	2462	[3144, 776]	3584	[4017, 3067]
219	[421, 422]	1341	[1953, 1890]	2463	[1918, 3145]	3585	[4018, 507]
220	[423, 424]	1342	[1954, 204]	2464	[3146, 3100]	3586	[4019, 1767]
221	[425, 426]	1343	[1955, 150]	2465	[1478, 1506]	3587	[4020, 1849]
222	[427, 428]	1344	[1680, 1956]	2466	[3147, 2986]	3588	[1837, 3262]
223	[429, 430]	1345	[1957, 1380]	2467	[1413, 1647]	3589	[1907, 3315]
224	[431, 432]	1346	[1566, 477]	2468	[753, 3016]	3590	[4021, 488]
225	[433, 434]	1347	[1958, 745]	2469	[1920, 1500]	3591	[4022, 661]
226	[435, 436]	1348	[1959, 1960]	2470	[226, 1705]	3592	[4023, 2953]
227	[437, 438]	1349	[1961, 1962]	2471	[2851, 1697]	3593	[1799, 625]
228	[439, 276]	1350	[56, 472]	2472	[2883, 162]	3594	[2931, 496]
229	[440, 441]	1351	[1847, 1462]	2473	[3148, 1707]	3595	[4024, 2889]
230	[442, 443]	1352	[1963, 1964]	2474	[1933, 53]	3596	[4025, 637]
231	[444, 445]	1353	[1965, 1966]	2475	[2861, 1387]	3597	[3143, 3892]
232	[446, 447]	1354	[1967, 507]	2476	[2862, 2914]	3598	[712, 1542]
233	[30, 448]	1355	[1968, 1969]	2477	[708, 228]	3599	[4026, 2899]
234	[449, 450]	1356	[1970, 1890]	2478	[3149, 1432]	3600	[3241, 3190]
235	[451, 452]	1357	[1971, 1972]	2479	[1378, 3150]	3601	[4027, 1793]
236	[453, 454]	1358	[1973, 1974]	2480	[757, 1810]	3602	[1986, 3039]
237	[455, 456]	1359	[772, 535]	2481	[2925, 482]	3603	[718, 690]
238	[457, 458]	1360	[154, 234]	2482	[3151, 649]	3604	[2979, 1494]
239	[459, 460]	1361	[1901, 149]	2483	[3152, 1555]	3605	[1966, 1495]
240	[461, 462]	1362	[1975, 697]	2484	[3153, 2845]	3606	[4028, 494]
241	[410, 463]	1363	[1715, 61]	2485	[3154, 3155]	3607	[4029, 1500]
242	[464, 465]	1364	[1976, 1708]	2486	[3156, 3157]	3608	[1505, 147]
243	[211, 466]	1365	[1977, 1978]	2487	[633, 3158]	3609	[4030, 43]
244	[467, 468]	1366	[1979, 1405]	2488	[702, 794]	3610	[3051, 4031]
245	[469, 470]	1367	[1980, 586]	2489	[3159, 1427]	3611	[4032, 154]
246	[471, 472]	1368	[1981, 1982]	2490	[1805, 3011]	3612	[1975, 3956]
247	[473, 474]	1369	[1914, 1983]	2491	[593, 1812]	3613	[4033, 1432]
248	[475, 476]	1370	[1984, 1933]	2492	[602, 2932]	3614	[3999, 2844]
249	[130, 477]	1371	[1985, 1986]	2493	[1660, 3160]	3615	[4034, 3052]
250	[478, 227]	1372	[1631, 1604]	2494	[3161, 1640]	3616	[4035, 563]
251	[479, 480]	1373	[1987, 1988]	2495	[3162, 3163]	3617	[2923, 2865]
252	[481, 482]	1374	[1989, 726]	2496	[1985, 1484]	3618	[4036, 1845]
253	[483, 36]	1375	[1990, 651]	2497	[3042, 1460]	3619	[2946, 206]
254	[484, 485]	1376	[703, 1544]	2498	[3164, 1410]	3620	[4037, 3071]
255	[486, 233]	1377	[1991, 1100]	2499	[1631, 201]	3621	[654, 1632]
256	[487, 488]	1378	[1992, 1993]	2500	[3165, 1385]	3622	[1981, 3160]
257	[489, 490]	1379	[1994, 1995]	2501	[493, 3145]	3623	[4038, 177]
258	[491, 492]	1380	[1996, 1997]	2502	[1643, 1477]	3624	[561, 3897]
259	[493, 494]	1381	[1274, 1998]	2503	[3025, 468]	3625	[4039, 10]
260	[495, 12]	1382	[1999, 262]	2504	[3166, 3106]	3626	[1544, 2896]

261	[496, 497]	1383	[2000, 2001]	2505	[497, 3167]	3627	[1974, 1930]
262	[498, 499]	1384	[2002, 2003]	2506	[3168, 175]	3628	[204, 1838]
263	[500, 501]	1385	[123, 2004]	2507	[3169, 3170]	3629	[2976, 1751]
264	[502, 503]	1386	[2005, 934]	2508	[529, 727]	3630	[3302, 478]
265	[504, 505]	1387	[2006, 2007]	2509	[1866, 1419]	3631	[4040, 150]
266	[506, 507]	1388	[2008, 1321]	2510	[3171, 205]	3632	[1894, 1914]
267	[508, 509]	1389	[2009, 2010]	2511	[1691, 1520]	3633	[2988, 580]
268	[510, 511]	1390	[2011, 2012]	2512	[3172, 1972]	3634	[1, 522]
269	[208, 512]	1391	[2013, 1362]	2513	[3173, 3163]	3635	[4041, 749]
270	[513, 514]	1392	[2014, 2015]	2514	[3174, 3106]	3636	[4042, 535]
271	[515, 516]	1393	[2016, 2017]	2515	[1459, 518]	3637	[4043, 1813]
272	[517, 518]	1394	[1041, 2018]	2516	[3175, 1403]	3638	[3321, 1653]
273	[519, 520]	1395	[2019, 2020]	2517	[1724, 1480]	3639	[1866, 1389]
274	[32, 521]	1396	[2021, 2022]	2518	[3176, 3177]	3640	[4044, 1424]
275	[522, 215]	1397	[2023, 2024]	2519	[605, 2844]	3641	[1442, 1985]
276	[523, 524]	1398	[2025, 2026]	2520	[1413, 1638]	3642	[4045, 1601]
277	[525, 526]	1399	[2027, 2028]	2521	[2957, 1664]	3643	[4046, 1948]
278	[527, 528]	1400	[2029, 2030]	2522	[3178, 192]	3644	[2956, 3298]
279	[529, 530]	1401	[2031, 2032]	2523	[1791, 3179]	3645	[4047, 717]
280	[531, 40]	1402	[2033, 69]	2524	[1529, 191]	3646	[3089, 3257]
281	[532, 533]	1403	[2030, 2034]	2525	[177, 618]	3647	[4048, 3083]
282	[534, 535]	1404	[2035, 2036]	2526	[3180, 2848]	3648	[1980, 4049]
283	[527, 536]	1405	[2037, 2038]	2527	[1960, 592]	3649	[1628, 1523]
284	[537, 476]	1406	[2039, 2040]	2528	[684, 2879]	3650	[4050, 1967]
285	[538, 539]	1407	[430, 2041]	2529	[3181, 1734]	3651	[3085, 3089]
286	[540, 541]	1408	[2042, 2043]	2530	[3182, 1874]	3652	[4043, 140]
287	[542, 543]	1409	[2044, 290]	2531	[1854, 3183]	3653	[4051, 195]
288	[544, 545]	1410	[2045, 122]	2532	[3184, 185]	3654	[3953, 643]
289	[214, 546]	1411	[1367, 2046]	2533	[3185, 1872]	3655	[4052, 178]
290	[547, 548]	1412	[259, 2047]	2534	[3186, 1680]	3656	[1399, 3036]
291	[549, 550]	1413	[2048, 2049]	2535	[3062, 1477]	3657	[4053, 3071]
292	[551, 552]	1414	[2050, 2051]	2536	[3187, 2871]	3658	[4054, 1892]
293	[553, 554]	1415	[2052, 2053]	2537	[1604, 1413]	3659	[4055, 3303]
294	[555, 556]	1416	[2054, 2055]	2538	[3188, 1884]	3660	[4056, 688]
295	[557, 558]	1417	[2056, 2057]	2539	[3189, 1702]	3661	[4057, 751]
296	[559, 40]	1418	[2058, 2059]	2540	[607, 3086]	3662	[4040, 706]
297	[560, 483]	1419	[1069, 2060]	2541	[538, 3190]	3663	[2940, 3320]
298	[561, 562]	1420	[2061, 2062]	2542	[638, 3083]	3664	[4058, 717]
299	[563, 564]	1421	[2063, 2064]	2543	[1916, 1771]	3665	[4059, 1576]
300	[158, 240]	1422	[456, 2065]	2544	[3191, 1874]	3666	[2965, 753]
301	[565, 566]	1423	[2066, 2067]	2545	[1487, 1817]	3667	[4060, 1550]
302	[567, 524]	1424	[2068, 2069]	2546	[1425, 3192]	3668	[4061, 1950]
303	[568, 569]	1425	[2070, 2071]	2547	[3032, 3068]	3669	[4062, 1708]
304	[505, 135]	1426	[2072, 300]	2548	[3193, 150]	3670	[4063, 10]

305	[570, 571]	1427	[2003, 2042]	2549	[1390, 1521]	3671	[650, 3267]
306	[572, 573]	1428	[2073, 2074]	2550	[185, 1565]	3672	[1949, 758]
307	[574, 575]	1429	[2075, 1017]	2551	[3058, 1838]	3673	[4064, 2925]
308	[576, 577]	1430	[2076, 2077]	2552	[1559, 3155]	3674	[3031, 629]
309	[578, 579]	1431	[2078, 2079]	2553	[2874, 515]	3675	[1443, 1986]
310	[580, 581]	1432	[2080, 2081]	2554	[1539, 3194]	3676	[1924, 2876]
311	[582, 583]	1433	[2082, 1222]	2555	[1811, 594]	3677	[4065, 1982]
312	[469, 584]	1434	[92, 2083]	2556	[1738, 1541]	3678	[615, 3256]
313	[585, 586]	1435	[2084, 1129]	2557	[3195, 3196]	3679	[3338, 1885]
314	[587, 588]	1436	[2062, 2085]	2558	[2996, 472]	3680	[4064, 481]
315	[589, 590]	1437	[2086, 2087]	2559	[762, 769]	3681	[4066, 1557]
316	[591, 141]	1438	[432, 2088]	2560	[3197, 3083]	3682	[163, 1830]
317	[592, 181]	1439	[2089, 2090]	2561	[3198, 3170]	3683	[3095, 208]
318	[593, 594]	1440	[2091, 2092]	2562	[3199, 134]	3684	[4067, 153]
319	[595, 479]	1441	[2093, 2094]	2563	[1464, 1467]	3685	[1657, 1777]
320	[596, 212]	1442	[2095, 2096]	2564	[223, 1736]	3686	[210, 2931]
321	[597, 157]	1443	[1320, 2097]	2565	[3200, 62]	3687	[557, 3192]
322	[598, 131]	1444	[66, 2098]	2566	[3201, 3202]	3688	[4068, 769]
323	[599, 600]	1445	[2099, 2091]	2567	[667, 795]	3689	[1820, 3240]
324	[601, 602]	1446	[2100, 2101]	2568	[673, 556]	3690	[3307, 2928]
325	[155, 603]	1447	[2102, 2103]	2569	[3203, 522]	3691	[4069, 775]
326	[468, 604]	1448	[2104, 2105]	2570	[3204, 782]	3692	[2850, 4070]
327	[605, 606]	1449	[2106, 2107]	2571	[1681, 3205]	3693	[4071, 3315]
328	[607, 608]	1450	[2108, 2016]	2572	[3206, 634]	3694	[3989, 3058]
329	[609, 521]	1451	[2109, 2110]	2573	[3207, 542]	3695	[3178, 187]
330	[610, 611]	1452	[2111, 2112]	2574	[2934, 2931]	3696	[4072, 586]
331	[612, 488]	1453	[2113, 1107]	2575	[3208, 3170]	3697	[1934, 4070]
332	[613, 614]	1454	[2114, 2115]	2576	[1621, 3209]	3698	[1529, 1590]
333	[615, 616]	1455	[2092, 2116]	2577	[3210, 1527]	3699	[3236, 2885]
334	[518, 57]	1456	[834, 2117]	2578	[799, 3211]	3700	[3109, 2876]
335	[617, 618]	1457	[438, 1359]	2579	[1947, 1967]	3701	[1387, 574]
336	[619, 620]	1458	[2118, 2067]	2580	[3162, 3212]	3702	[3912, 1860]
337	[621, 622]	1459	[2119, 2120]	2581	[1986, 1868]	3703	[3047, 3005]
338	[623, 608]	1460	[2121, 2072]	2582	[3213, 1856]	3704	[4073, 2861]
339	[624, 213]	1461	[2122, 2029]	2583	[1616, 637]	3705	[1728, 3340]
340	[625, 626]	1462	[955, 2123]	2584	[2924, 1946]	3706	[4074, 58]
341	[627, 469]	1463	[2124, 2125]	2585	[3152, 661]	3707	[3056, 3273]
342	[628, 629]	1464	[2126, 2127]	2586	[517, 634]	3708	[3974, 1983]
343	[595, 630]	1465	[874, 877]	2587	[737, 594]	3709	[128, 1427]
344	[42, 631]	1466	[2128, 2129]	2588	[3214, 695]	3710	[3962, 649]
345	[632, 633]	1467	[942, 2130]	2589	[3181, 3215]	3711	[1826, 32]
346	[634, 183]	1468	[2131, 962]	2590	[3216, 2908]	3712	[12, 1945]
347	[635, 636]	1469	[986, 2132]	2591	[3217, 765]	3713	[2916, 1987]
348	[637, 638]	1470	[265, 2131]	2592	[3218, 3033]	3714	[4075, 1607]

349	[473, 639]	1471	[263, 2133]	2593	[3219, 1917]	3715	[3903, 2942]
350	[640, 641]	1472	[876, 879]	2594	[3220, 2944]	3716	[694, 516]
351	[642, 643]	1473	[2134, 2135]	2595	[3221, 1967]	3717	[2954, 512]
352	[148, 644]	1474	[878, 2136]	2596	[3222, 511]	3718	[4076, 1903]
353	[630, 480]	1475	[2132, 2137]	2597	[1384, 3063]	3719	[3949, 4077]
354	[631, 645]	1476	[2135, 2138]	2598	[3223, 1601]	3720	[4078, 1969]
355	[31, 609]	1477	[1071, 2139]	2599	[3063, 640]	3721	[3188, 701]
356	[646, 647]	1478	[2140, 2141]	2600	[217, 1434]	3722	[2930, 567]
357	[648, 649]	1479	[2142, 2143]	2601	[3224, 618]	3723	[190, 1590]
358	[650, 651]	1480	[2144, 280]	2602	[578, 680]	3724	[3284, 3929]
359	[592, 652]	1481	[2145, 2146]	2603	[1388, 1406]	3725	[4079, 182]
360	[653, 623]	1482	[2147, 2148]	2604	[3093, 3083]	3726	[1380, 1910]
361	[654, 625]	1483	[2149, 2150]	2605	[3225, 1701]	3727	[4080, 1690]
362	[655, 656]	1484	[2096, 2151]	2606	[58, 1900]	3728	[4026, 1451]
363	[657, 658]	1485	[2152, 2153]	2607	[1909, 3226]	3729	[4081, 1669]
364	[497, 659]	1486	[1221, 307]	2608	[1789, 1494]	3730	[4082, 1438]
365	[660, 208]	1487	[2154, 2155]	2609	[632, 513]	3731	[3300, 1702]
366	[661, 619]	1488	[2156, 2157]	2610	[783, 232]	3732	[4083, 518]
367	[187, 193]	1489	[2158, 2159]	2611	[3227, 3111]	3733	[4084, 3042]
368	[662, 663]	1490	[2160, 1150]	2612	[1418, 3205]	3734	[661, 1491]
369	[664, 665]	1491	[1173, 2161]	2613	[3228, 1445]	3735	[4085, 557]
370	[666, 667]	1492	[2162, 2163]	2614	[1706, 3229]	3736	[4086, 1972]
371	[609, 668]	1493	[2059, 2164]	2615	[3230, 1669]	3737	[43, 1642]
372	[669, 158]	1494	[2165, 2166]	2616	[513, 3158]	3738	[4087, 3192]
373	[670, 225]	1495	[2167, 2168]	2617	[1974, 1495]	3739	[4088, 688]
374	[671, 672]	1496	[2169, 2170]	2618	[3231, 1767]	3740	[532, 4089]
375	[673, 674]	1497	[2171, 2086]	2619	[55, 2996]	3741	[4005, 1567]
376	[675, 676]	1498	[2172, 2173]	2620	[3232, 1571]	3742	[4090, 1769]
377	[501, 500]	1499	[2174, 93]	2621	[2991, 217]	3743	[3169, 3246]
378	[677, 678]	1500	[2175, 1024]	2622	[1626, 743]	3744	[4091, 138]
379	[679, 680]	1501	[2176, 2177]	2623	[2958, 3233]	3745	[3946, 1728]
380	[681, 682]	1502	[2178, 1056]	2624	[3120, 1901]	3746	[1589, 170]
381	[683, 684]	1503	[2179, 2180]	2625	[3234, 1928]	3747	[4092, 574]
382	[685, 686]	1504	[2181, 2182]	2626	[771, 1480]	3748	[2910, 3934]
383	[221, 687]	1505	[2183, 1193]	2627	[3235, 515]	3749	[4093, 3033]
384	[688, 689]	1506	[243, 2184]	2628	[3146, 724]	3750	[4094, 706]
385	[690, 130]	1507	[2185, 2186]	2629	[175, 1758]	3751	[4095, 572]
386	[691, 692]	1508	[2187, 2188]	2630	[1499, 45]	3752	[2838, 1400]
387	[693, 590]	1509	[2189, 2190]	2631	[1672, 592]	3753	[4096, 2892]
388	[694, 695]	1510	[2191, 2192]	2632	[3236, 756]	3754	[1670, 681]
389	[696, 697]	1511	[1059, 2193]	2633	[3172, 3237]	3755	[4097, 3157]
390	[698, 658]	1512	[2194, 2195]	2634	[1705, 1408]	3756	[3218, 3068]
391	[699, 700]	1513	[2196, 2158]	2635	[800, 3238]	3757	[198, 2884]
392	[701, 172]	1514	[2197, 2198]	2636	[3239, 786]	3758	[4098, 1530]

393	[702, 667]	1515	[344, 353]	2637	[1875, 3240]	3759	[1562, 3258]
394	[622, 703]	1516	[2199, 2200]	2638	[1630, 200]	3760	[4099, 1408]
395	[704, 705]	1517	[1025, 2201]	2639	[3241, 539]	3761	[4100, 3306]
396	[706, 707]	1518	[2202, 2203]	2640	[3242, 592]	3762	[4101, 546]
397	[708, 709]	1519	[2204, 2205]	2641	[230, 3243]	3763	[3896, 4102]
398	[710, 631]	1520	[2206, 2052]	2642	[1808, 1631]	3764	[4093, 3068]
399	[711, 712]	1521	[1043, 835]	2643	[523, 1739]	3765	[49, 1505]
400	[713, 714]	1522	[275, 2207]	2644	[3244, 1543]	3766	[1861, 37]
401	[715, 716]	1523	[2208, 2209]	2645	[3245, 1405]	3767	[4103, 1567]
402	[717, 718]	1524	[2210, 1154]	2646	[3198, 3246]	3768	[3909, 1685]
403	[664, 719]	1525	[2211, 2212]	2647	[3247, 557]	3769	[4036, 2902]
404	[720, 721]	1526	[2213, 2214]	2648	[604, 3248]	3770	[1932, 3304]
405	[722, 147]	1527	[2215, 2216]	2649	[3249, 2896]	3771	[3182, 1436]
406	[723, 724]	1528	[2217, 2218]	2650	[1495, 1931]	3772	[2847, 3924]
407	[725, 593]	1529	[2219, 2220]	2651	[1780, 1435]	3773	[1485, 795]
408	[726, 727]	1530	[2221, 2222]	2652	[3250, 710]	3774	[4104, 44]
409	[728, 612]	1531	[2223, 2224]	2653	[3251, 786]	3775	[4105, 1443]
410	[729, 730]	1532	[2225, 2226]	2654	[3219, 602]	3776	[1859, 1941]
411	[731, 732]	1533	[2227, 2228]	2655	[3252, 492]	3777	[3065, 1810]
412	[718, 129]	1534	[2229, 2230]	2656	[1597, 1602]	3778	[1968, 4102]
413	[733, 734]	1535	[2231, 2232]	2657	[3253, 3067]	3779	[3074, 2843]
414	[735, 736]	1536	[2233, 2234]	2658	[526, 3060]	3780	[4106, 745]
415	[8, 737]	1537	[2235, 1303]	2659	[3254, 1779]	3781	[220, 2958]
416	[738, 739]	1538	[2236, 956]	2660	[3255, 3256]	3782	[4107, 3111]
417	[740, 741]	1539	[2237, 2238]	2661	[3257, 3258]	3783	[1679, 742]
418	[742, 743]	1540	[1286, 2239]	2662	[57, 168]	3784	[3124, 582]
419	[744, 745]	1541	[2240, 2241]	2663	[3259, 192]	3785	[4108, 1537]
420	[746, 747]	1542	[1234, 2101]	2664	[2865, 179]	3786	[772, 143]
421	[748, 749]	1543	[2242, 972]	2665	[3260, 1873]	3787	[4109, 3005]
422	[579, 691]	1544	[1086, 2243]	2666	[3261, 2938]	3788	[4110, 573]
423	[750, 751]	1545	[2244, 2245]	2667	[3262, 1390]	3789	[3000, 3027]
424	[752, 753]	1546	[2246, 2247]	2668	[146, 1840]	3790	[1744, 2936]
425	[754, 755]	1547	[2248, 2249]	2669	[3263, 54]	3791	[4111, 548]
426	[199, 756]	1548	[869, 2250]	2670	[1556, 3264]	3792	[4112, 174]
427	[757, 758]	1549	[2251, 347]	2671	[3265, 1387]	3793	[731, 3262]
428	[759, 241]	1550	[2252, 1369]	2672	[3266, 2911]	3794	[3987, 733]
429	[760, 57]	1551	[2253, 1293]	2673	[1990, 3267]	3795	[4113, 1490]
430	[761, 762]	1552	[2254, 951]	2674	[3268, 1862]	3796	[3133, 1867]
431	[516, 642]	1553	[2255, 2256]	2675	[3269, 2883]	3797	[4114, 178]
432	[472, 763]	1554	[2257, 1080]	2676	[3270, 2852]	3798	[4115, 494]
433	[764, 765]	1555	[2258, 1082]	2677	[3271, 1819]	3799	[784, 3209]
434	[766, 767]	1556	[2259, 395]	2678	[35, 1575]	3800	[1773, 3016]
435	[175, 768]	1557	[944, 2260]	2679	[1774, 3017]	3801	[3304, 53]
436	[769, 770]	1558	[2261, 2262]	2680	[3272, 728]	3802	[4094, 150]

437	[771, 772]	1559	[2263, 2011]	2681	[2985, 3273]	3803	[4116, 562]
438	[618, 154]	1560	[1213, 1219]	2682	[3274, 2958]	3804	[3919, 3042]
439	[602, 773]	1561	[2264, 2265]	2683	[3275, 2944]	3805	[1531, 2886]
440	[774, 775]	1562	[2266, 2267]	2684	[127, 3063]	3806	[1574, 2871]
441	[776, 777]	1563	[2268, 998]	2685	[3276, 1962]	3807	[1576, 1982]
442	[778, 779]	1564	[2269, 2270]	2686	[184, 1564]	3808	[3958, 2884]
443	[780, 747]	1565	[2098, 2045]	2687	[1819, 1527]	3809	[3345, 1629]
444	[781, 782]	1566	[907, 2271]	2688	[1705, 1456]	3810	[4117, 3196]
445	[783, 486]	1567	[251, 2272]	2689	[3277, 1832]	3811	[1664, 1564]
446	[784, 785]	1568	[2273, 2274]	2690	[1575, 1660]	3812	[4118, 154]
447	[786, 787]	1569	[2275, 1258]	2691	[3278, 661]	3813	[4119, 719]
448	[788, 789]	1570	[2276, 2277]	2692	[1576, 3160]	3814	[4120, 1853]
449	[688, 790]	1571	[2278, 2279]	2693	[1804, 788]	3815	[4121, 175]
450	[710, 791]	1572	[2280, 337]	2694	[3279, 1444]	3816	[585, 4049]
451	[792, 793]	1573	[2281, 2277]	2695	[3280, 1640]	3817	[1778, 3023]
452	[794, 795]	1574	[2282, 2283]	2696	[1965, 1974]	3818	[4122, 1859]
453	[796, 48]	1575	[824, 2284]	2697	[581, 1593]	3819	[3210, 566]
454	[163, 550]	1576	[1003, 2285]	2698	[3281, 1494]	3820	[1549, 4077]
455	[797, 569]	1577	[2065, 2126]	2699	[2952, 1912]	3821	[3213, 2871]
456	[798, 554]	1578	[1090, 2286]	2700	[1884, 2990]	3822	[4023, 1709]
457	[799, 138]	1579	[2287, 2288]	2701	[1448, 1460]	3823	[4123, 1827]
458	[800, 801]	1580	[2289, 2264]	2702	[680, 1847]	3824	[4124, 1865]
459	[802, 768]	1581	[2290, 2291]	2703	[3282, 1962]	3825	[2941, 3904]
460	[786, 730]	1582	[2292, 1330]	2704	[3225, 3283]	3826	[506, 2936]
461	[803, 146]	1583	[2020, 2293]	2705	[3284, 1445]	3827	[662, 3088]
462	[515, 695]	1584	[1081, 2294]	2706	[1977, 2858]	3828	[4125, 1656]
463	[612, 804]	1585	[2295, 372]	2707	[3285, 1582]	3829	[3118, 1818]
464	[805, 806]	1586	[2296, 871]	2708	[3016, 3286]	3830	[3248, 1765]
465	[807, 808]	1587	[2297, 2298]	2709	[1703, 1584]	3831	[3115, 1751]
466	[809, 810]	1588	[2299, 2300]	2710	[183, 168]	3832	[187, 174]
467	[811, 812]	1589	[2301, 331]	2711	[3287, 1865]	3833	[4126, 1648]
468	[813, 814]	1590	[2218, 2302]	2712	[648, 3008]	3834	[4009, 1781]
469	[815, 816]	1591	[2220, 2303]	2713	[3288, 1494]	3835	[3249, 1699]
470	[817, 818]	1592	[2304, 286]	2714	[508, 203]	3836	[1784, 3991]
471	[819, 820]	1593	[1011, 1372]	2715	[1617, 3093]	3837	[4127, 745]
472	[821, 822]	1594	[2305, 2306]	2716	[3289, 1969]	3838	[4128, 3306]
473	[823, 824]	1595	[2307, 2308]	2717	[2864, 178]	3839	[570, 3332]
474	[825, 826]	1596	[2309, 1021]	2718	[3290, 2901]	3840	[4129, 1888]
475	[827, 828]	1597	[2310, 2311]	2719	[764, 3291]	3841	[4130, 1974]
476	[829, 830]	1598	[2312, 2313]	2720	[3292, 3106]	3842	[4131, 1690]
477	[831, 832]	1599	[2314, 2315]	2721	[3034, 1709]	3843	[3340, 1613]
478	[833, 834]	1600	[2316, 2317]	2722	[3293, 3157]	3844	[4132, 1537]
479	[835, 836]	1601	[2318, 2319]	2723	[145, 1670]	3845	[152, 3968]
480	[837, 838]	1602	[2239, 2320]	2724	[1781, 584]	3846	[4025, 1617]

481	[839, 840]	1603	[2321, 2322]	2725	[624, 759]	3847	[1492, 4133]
482	[841, 842]	1604	[2323, 2324]	2726	[3294, 3295]	3848	[4134, 618]
483	[843, 844]	1605	[2325, 2326]	2727	[685, 2948]	3849	[1869, 160]
484	[845, 411]	1606	[418, 2040]	2728	[690, 1566]	3850	[32, 668]
485	[846, 847]	1607	[2327, 2328]	2729	[1755, 1916]	3851	[4135, 1684]
486	[848, 849]	1608	[2329, 278]	2730	[537, 235]	3852	[1528, 190]
487	[396, 850]	1609	[2330, 2331]	2731	[3296, 1778]	3853	[1506, 648]
488	[851, 852]	1610	[2332, 2333]	2732	[3297, 1574]	3854	[1939, 1901]
489	[853, 854]	1611	[2334, 2335]	2733	[1683, 3298]	3855	[4001, 2844]
490	[855, 856]	1612	[2336, 2337]	2734	[3299, 2921]	3856	[3206, 518]
491	[857, 858]	1613	[2338, 2339]	2735	[503, 1467]	3857	[4136, 556]
492	[859, 860]	1614	[2340, 2341]	2736	[3300, 3301]	3858	[4105, 1985]
493	[861, 862]	1615	[2267, 2342]	2737	[241, 1885]	3859	[4137, 2988]
494	[434, 863]	1616	[2343, 2344]	2738	[3073, 33]	3860	[1561, 3257]
495	[864, 865]	1617	[2345, 2346]	2739	[3302, 226]	3861	[4085, 1425]
496	[443, 866]	1618	[2347, 2348]	2740	[14, 2896]	3862	[4138, 1619]
497	[867, 868]	1619	[806, 2349]	2741	[3303, 633]	3863	[4086, 3237]
498	[840, 869]	1620	[2350, 2134]	2742	[3301, 1703]	3864	[4071, 1397]
499	[293, 870]	1621	[2351, 309]	2743	[3304, 2908]	3865	[4139, 1576]
500	[871, 872]	1622	[2007, 2352]	2744	[3141, 3131]	3866	[666, 794]
501	[501, 501]	1623	[2110, 2353]	2745	[1606, 1765]	3867	[4140, 1745]
502	[873, 874]	1624	[2354, 1131]	2746	[2857, 1978]	3868	[1446, 2840]
503	[875, 876]	1625	[2355, 2088]	2747	[3274, 221]	3869	[4141, 3173]
504	[877, 878]	1626	[2356, 2357]	2748	[1687, 40]	3870	[4142, 3089]
505	[879, 880]	1627	[2358, 2359]	2749	[3305, 3295]	3871	[4143, 1617]
506	[386, 881]	1628	[2360, 2361]	2750	[1987, 3306]	3872	[1532, 3921]
507	[882, 883]	1629	[1128, 1287]	2751	[3307, 1623]	3873	[4144, 1430]
508	[884, 885]	1630	[2362, 2323]	2752	[3308, 131]	3874	[3983, 788]
509	[856, 886]	1631	[2363, 2048]	2753	[1433, 1651]	3875	[4145, 561]
510	[887, 888]	1632	[2364, 2365]	2754	[3309, 1419]	3876	[3014, 1946]
511	[852, 889]	1633	[2366, 2367]	2755	[3112, 3264]	3877	[4126, 1595]
512	[890, 891]	1634	[1115, 2368]	2756	[3270, 3226]	3878	[3926, 1411]
513	[892, 893]	1635	[2074, 2369]	2757	[2878, 1742]	3879	[4046, 1411]
514	[894, 895]	1636	[2370, 2371]	2758	[3310, 779]	3880	[1816, 1488]
515	[896, 897]	1637	[2372, 2373]	2759	[3098, 1960]	3881	[3974, 4000]
516	[898, 899]	1638	[2374, 2375]	2760	[3311, 645]	3882	[4146, 735]
517	[900, 355]	1639	[2376, 2377]	2761	[3312, 1894]	3883	[4147, 3173]
518	[901, 326]	1640	[2378, 25]	2762	[3313, 1696]	3884	[3138, 4031]
519	[273, 902]	1641	[2379, 2380]	2763	[2917, 3306]	3885	[39, 1463]
520	[903, 904]	1642	[2381, 2382]	2764	[3314, 38]	3886	[4002, 1450]
521	[64, 905]	1643	[245, 394]	2765	[1677, 1892]	3887	[3951, 756]
522	[906, 907]	1644	[2004, 2383]	2766	[3004, 3315]	3888	[4148, 253]
523	[908, 909]	1645	[2384, 73]	2767	[2972, 3070]	3889	[4149, 1365]
524	[910, 911]	1646	[2170, 2221]	2768	[2861, 1568]	3890	[4150, 3859]

525	[912, 91]	1647	[388, 2385]	2769	[1614, 3316]	3891	[436, 3526]
526	[913, 914]	1648	[2386, 2128]	2770	[3317, 2925]	3892	[1199, 4151]
527	[915, 315]	1649	[2387, 2388]	2771	[1, 214]	3893	[4152, 1239]
528	[916, 917]	1650	[2389, 318]	2772	[3318, 1430]	3894	[4153, 1202]
529	[323, 918]	1651	[2390, 2391]	2773	[2927, 783]	3895	[3674, 2607]
530	[919, 920]	1652	[2392, 2393]	2774	[3319, 2998]	3896	[4154, 4155]
531	[921, 250]	1653	[2394, 2395]	2775	[732, 1390]	3897	[3534, 4156]
532	[922, 923]	1654	[923, 2396]	2776	[645, 3320]	3898	[3553, 2542]
533	[924, 925]	1655	[1302, 2397]	2777	[3321, 2906]	3899	[4157, 903]
534	[926, 927]	1656	[2398, 264]	2778	[3322, 1859]	3900	[4158, 3630]
535	[928, 929]	1657	[2399, 2236]	2779	[3123, 3095]	3901	[4159, 3366]
536	[930, 931]	1658	[2400, 2401]	2780	[2996, 1807]	3902	[4160, 3711]
537	[932, 453]	1659	[2291, 2402]	2781	[3323, 3047]	3903	[4161, 4162]
538	[933, 934]	1660	[72, 919]	2782	[746, 2991]	3904	[3807, 4163]
539	[935, 936]	1661	[2403, 933]	2783	[48, 3324]	3905	[4164, 4165]
540	[937, 938]	1662	[2404, 277]	2784	[53, 1715]	3906	[3544, 2164]
541	[939, 940]	1663	[2405, 2406]	2785	[3325, 1379]	3907	[4166, 3772]
542	[941, 942]	1664	[2407, 2408]	2786	[3301, 1583]	3908	[4167, 4168]
543	[943, 944]	1665	[2409, 2410]	2787	[3186, 733]	3909	[404, 4169]
544	[945, 946]	1666	[2411, 2412]	2788	[3326, 3111]	3910	[4170, 2736]
545	[947, 948]	1667	[2413, 924]	2789	[1851, 486]	3911	[2773, 2380]
546	[949, 912]	1668	[2414, 2107]	2790	[3324, 2898]	3912	[1260, 1313]
547	[950, 951]	1669	[2207, 2415]	2791	[3327, 523]	3913	[3703, 4171]
548	[952, 953]	1670	[2416, 2417]	2792	[3328, 1889]	3914	[4172, 4173]
549	[954, 955]	1671	[2418, 2419]	2793	[1423, 2919]	3915	[4174, 1198]
550	[956, 957]	1672	[2420, 351]	2794	[3329, 1561]	3916	[4175, 2523]
551	[958, 959]	1673	[1039, 2022]	2795	[1678, 2845]	3917	[2012, 256]
552	[960, 961]	1674	[2421, 103]	2796	[3330, 45]	3918	[3843, 93]
553	[962, 963]	1675	[979, 2422]	2797	[3329, 3089]	3919	[4176, 2121]
554	[816, 964]	1676	[2423, 2424]	2798	[3331, 626]	3920	[4177, 3778]
555	[965, 966]	1677	[2115, 2425]	2799	[1395, 3332]	3921	[2367, 4178]
556	[967, 968]	1678	[2116, 1118]	2800	[3333, 726]	3922	[3438, 3850]
557	[969, 970]	1679	[2426, 2427]	2801	[1741, 3243]	3923	[4179, 368]
558	[971, 97]	1680	[2428, 851]	2802	[3078, 532]	3924	[4180, 3717]
559	[972, 973]	1681	[2429, 2430]	2803	[1900, 222]	3925	[4181, 4182]
560	[974, 975]	1682	[2431, 2093]	2804	[3334, 801]	3926	[1292, 2481]
561	[976, 977]	1683	[2432, 2433]	2805	[3335, 607]	3927	[4183, 3393]
562	[978, 979]	1684	[2434, 2282]	2806	[1742, 1507]	3928	[822, 1029]
563	[255, 980]	1685	[2435, 2436]	2807	[3336, 1972]	3929	[1163, 4184]
564	[412, 981]	1686	[1111, 2437]	2808	[3262, 131]	3930	[4185, 355]
565	[332, 982]	1687	[2438, 2245]	2809	[574, 1622]	3931	[4186, 3619]
566	[983, 984]	1688	[357, 2439]	2810	[3337, 2861]	3932	[4187, 4188]
567	[985, 986]	1689	[2440, 2309]	2811	[660, 2954]	3933	[3711, 414]
568	[987, 988]	1690	[2441, 2442]	2812	[3338, 564]	3934	[4189, 2467]

569	[989, 990]	1691	[2443, 2356]	2813	[3339, 779]	3935	[1232, 351]
570	[991, 992]	1692	[2444, 2445]	2814	[3340, 2859]	3936	[4190, 433]
571	[993, 994]	1693	[2446, 2447]	2815	[3341, 550]	3937	[4191, 24]
572	[995, 882]	1694	[1096, 2448]	2816	[635, 3179]	3938	[4192, 2608]
573	[996, 997]	1695	[2449, 1326]	2817	[3342, 1928]	3939	[4193, 2460]
574	[998, 999]	1696	[1146, 2450]	2818	[191, 3343]	3940	[4194, 1105]
575	[1000, 1001]	1697	[2053, 1000]	2819	[3344, 2988]	3941	[4195, 107]
576	[1002, 1003]	1698	[2451, 2452]	2820	[3154, 1560]	3942	[4196, 4197]
577	[1004, 1005]	1699	[2453, 2454]	2821	[206, 1775]	3943	[4198, 2835]
578	[1006, 1007]	1700	[2455, 2456]	2822	[3345, 62]	3944	[4199, 2587]
579	[1008, 1009]	1701	[2457, 1075]	2823	[3346, 237]	3945	[4200, 3765]
580	[1010, 1011]	1702	[2458, 2459]	2824	[3347, 656]	3946	[4201, 2336]
581	[329, 1012]	1703	[2460, 2461]	2825	[1825, 1858]	3947	[4202, 123]
582	[1013, 1014]	1704	[2462, 2463]	2826	[1660, 1982]	3948	[4203, 1202]
583	[1015, 1016]	1705	[2464, 2465]	2827	[2999, 1490]	3949	[4204, 4205]
584	[1017, 1018]	1706	[2466, 349]	2828	[3348, 2988]	3950	[4206, 2121]
585	[1019, 1020]	1707	[2467, 2468]	2829	[3349, 488]	3951	[3536, 921]
586	[1021, 1022]	1708	[2469, 2470]	2830	[579, 1847]	3952	[4207, 3736]
587	[398, 1023]	1709	[2471, 2472]	2831	[3024, 1648]	3953	[1192, 2166]
588	[1024, 1025]	1710	[2473, 2474]	2832	[178, 1710]	3954	[4208, 4209]
589	[1026, 1027]	1711	[2475, 2476]	2833	[637, 3093]	3955	[3429, 2369]
590	[1028, 1029]	1712	[2477, 116]	2834	[1867, 1866]	3956	[2034, 4210]
591	[1030, 1031]	1713	[2141, 243]	2835	[2969, 10]	3957	[4211, 320]
592	[1032, 1033]	1714	[2478, 2479]	2836	[1906, 1523]	3958	[4212, 3404]
593	[1034, 1035]	1715	[1001, 2480]	2837	[3350, 1793]	3959	[1206, 2535]
594	[18, 1036]	1716	[2481, 2300]	2838	[2164, 1078]	3960	[4213, 1136]
595	[1037, 837]	1717	[2424, 364]	2839	[3351, 461]	3961	[4214, 4215]
596	[1038, 1039]	1718	[2482, 399]	2840	[3352, 2524]	3962	[2554, 2472]
597	[1040, 1041]	1719	[2483, 2079]	2841	[2604, 3353]	3963	[4216, 2000]
598	[1042, 1043]	1720	[1316, 2453]	2842	[3354, 3355]	3964	[4217, 4218]
599	[1044, 1045]	1721	[2484, 2485]	2843	[2806, 2540]	3965	[4173, 2724]
600	[1046, 1047]	1722	[2486, 2487]	2844	[3356, 833]	3966	[4219, 1030]
601	[1048, 1049]	1723	[2488, 2122]	2845	[977, 3357]	3967	[4220, 3501]
602	[1050, 831]	1724	[2489, 2490]	2846	[3358, 2215]	3968	[2513, 4221]
603	[1051, 1052]	1725	[2491, 2492]	2847	[3359, 3360]	3969	[3881, 2087]
604	[1053, 1054]	1726	[2212, 2493]	2848	[3361, 995]	3970	[4222, 1271]
605	[1055, 16]	1727	[2494, 2495]	2849	[3362, 1118]	3971	[4223, 3360]
606	[1056, 1057]	1728	[2496, 2497]	2850	[3363, 1053]	3972	[4224, 4225]
607	[1058, 1059]	1729	[2498, 2499]	2851	[3364, 3365]	3973	[4226, 3746]
608	[1060, 1061]	1730	[1022, 2496]	2852	[3366, 3367]	3974	[2714, 4227]
609	[1062, 1063]	1731	[2500, 2501]	2853	[3368, 980]	3975	[1098, 1255]
610	[1064, 1065]	1732	[2319, 2113]	2854	[3369, 3370]	3976	[4228, 2291]
611	[1066, 1067]	1733	[2502, 2503]	2855	[3371, 978]	3977	[2597, 2327]
612	[1068, 1069]	1734	[2504, 2505]	2856	[1236, 331]	3978	[4229, 3847]

613	[1070, 1071]	1735	[2506, 2507]	2857	[3372, 417]	3979	[4230, 2675]
614	[1072, 1073]	1736	[78, 2508]	2858	[1354, 3373]	3980	[4231, 1993]
615	[1074, 821]	1737	[1065, 2509]	2859	[2525, 2197]	3981	[2369, 3594]
616	[1075, 1076]	1738	[2510, 2511]	2860	[3374, 2006]	3982	[4232, 244]
617	[1077, 1078]	1739	[2512, 2513]	2861	[3375, 3376]	3983	[4233, 4234]
618	[1079, 449]	1740	[2514, 2515]	2862	[2433, 3377]	3984	[4235, 2059]
619	[1080, 1081]	1741	[2516, 2517]	2863	[3378, 3379]	3985	[4236, 2699]
620	[1082, 1083]	1742	[2518, 2519]	2864	[3380, 3381]	3986	[1262, 1183]
621	[1084, 27]	1743	[1126, 2520]	2865	[2024, 2475]	3987	[4237, 1267]
622	[1085, 1086]	1744	[2241, 2400]	2866	[3382, 3383]	3988	[2769, 438]
623	[1087, 1088]	1745	[327, 2441]	2867	[883, 1085]	3989	[4238, 2556]
624	[1089, 1090]	1746	[2521, 2374]	2868	[3384, 3385]	3990	[4239, 3763]
625	[1091, 1068]	1747	[2522, 2523]	2869	[2064, 1994]	3991	[2717, 4240]
626	[1092, 409]	1748	[2524, 2525]	2870	[2492, 396]	3992	[4241, 305]
627	[1093, 1094]	1749	[2526, 2185]	2871	[2277, 2811]	3993	[4242, 3645]
628	[1095, 1096]	1750	[2527, 2528]	2872	[3386, 1223]	3994	[4243, 4244]
629	[1097, 1098]	1751	[2313, 2347]	2873	[3387, 3388]	3995	[1356, 3626]
630	[1099, 1100]	1752	[2083, 1334]	2874	[3389, 3390]	3996	[4245, 3694]
631	[1101, 1102]	1753	[2529, 939]	2875	[3391, 2531]	3997	[4246, 910]
632	[1103, 1104]	1754	[2530, 2531]	2876	[3392, 1051]	3998	[4247, 3704]
633	[1105, 890]	1755	[2532, 2533]	2877	[3393, 3394]	3999	[3740, 1034]
634	[1106, 1107]	1756	[2534, 2535]	2878	[3395, 3396]	4000	[2743, 4248]
635	[1108, 330]	1757	[2536, 272]	2879	[1031, 3397]	4001	[920, 1158]
636	[1109, 366]	1758	[312, 2122]	2880	[1276, 3398]	4002	[4249, 1239]
637	[1110, 1111]	1759	[1373, 2537]	2881	[3399, 2218]	4003	[4250, 4251]
638	[1112, 1113]	1760	[2538, 2330]	2882	[3400, 3401]	4004	[4252, 3397]
639	[1114, 1115]	1761	[2539, 2435]	2883	[3402, 317]	4005	[2365, 898]
640	[1116, 1117]	1762	[342, 1068]	2884	[3403, 2438]	4006	[4253, 983]
641	[1118, 1119]	1763	[2540, 339]	2885	[3404, 3405]	4007	[4254, 1010]
642	[897, 1120]	1764	[814, 2541]	2886	[3406, 81]	4008	[4255, 1120]
643	[1121, 1122]	1765	[2542, 2543]	2887	[3407, 3408]	4009	[4256, 817]
644	[1123, 1109]	1766	[2544, 2545]	2888	[3409, 96]	4010	[4257, 2205]
645	[86, 1124]	1767	[2139, 2546]	2889	[106, 3379]	4011	[4258, 1319]
646	[1125, 1126]	1768	[2547, 2381]	2890	[836, 1111]	4012	[4259, 3657]
647	[1127, 1128]	1769	[2548, 75]	2891	[3410, 3411]	4013	[4260, 4261]
648	[1129, 1130]	1770	[390, 2549]	2892	[3412, 3413]	4014	[1045, 2453]
649	[1131, 1132]	1771	[2533, 2550]	2893	[3414, 3415]	4015	[4262, 1370]
650	[1133, 1134]	1772	[886, 1249]	2894	[3416, 3352]	4016	[4263, 4264]
651	[1135, 947]	1773	[1155, 2551]	2895	[359, 1346]	4017	[4265, 3604]
652	[1136, 1137]	1774	[2552, 2553]	2896	[28, 3417]	4018	[1189, 280]
653	[1138, 1060]	1775	[2456, 2554]	2897	[3418, 3419]	4019	[4266, 4267]
654	[1139, 1092]	1776	[2555, 2556]	2898	[104, 2814]	4020	[4268, 850]
655	[1140, 1079]	1777	[2557, 2558]	2899	[3420, 3421]	4021	[321, 2009]
656	[1141, 1142]	1778	[849, 1136]	2900	[1284, 400]	4022	[4269, 1173]

657	[1143, 1144]	1779	[88, 2559]	2901	[2249, 71]	4023	[4270, 2146]
658	[1145, 1146]	1780	[2560, 2561]	2902	[3370, 3422]	4024	[4271, 2234]
659	[1147, 1148]	1781	[2562, 2563]	2903	[269, 866]	4025	[4272, 1191]
660	[1149, 403]	1782	[2564, 2540]	2904	[3423, 2545]	4026	[4273, 3400]
661	[1150, 1151]	1783	[2565, 1112]	2905	[3424, 2056]	4027	[4274, 943]
662	[1152, 1153]	1784	[2566, 2567]	2906	[3425, 2687]	4028	[4275, 2652]
663	[1154, 1155]	1785	[2568, 2504]	2907	[3426, 2181]	4029	[4276, 2176]
664	[1156, 1157]	1786	[2569, 1130]	2908	[2503, 2481]	4030	[4277, 2721]
665	[297, 1158]	1787	[2570, 2571]	2909	[3427, 3381]	4031	[4278, 2709]
666	[1159, 1160]	1788	[2572, 267]	2910	[3428, 3429]	4032	[2556, 76]
667	[1161, 1162]	1789	[2573, 2574]	2911	[2057, 3430]	4033	[4279, 2608]
668	[420, 1163]	1790	[1117, 1004]	2912	[3431, 1116]	4034	[4280, 2767]
669	[1164, 1165]	1791	[2575, 2576]	2913	[299, 2372]	4035	[2723, 2071]
670	[1166, 1167]	1792	[2577, 2578]	2914	[2422, 3432]	4036	[2708, 1054]
671	[1168, 1169]	1793	[2579, 2580]	2915	[3433, 3434]	4037	[4281, 896]
672	[1170, 1171]	1794	[2151, 2581]	2916	[3435, 3436]	4038	[4282, 2430]
673	[1172, 1173]	1795	[2582, 2583]	2917	[3437, 3438]	4039	[4283, 286]
674	[1174, 1175]	1796	[1272, 2584]	2918	[3439, 3440]	4040	[4284, 1229]
675	[1176, 1177]	1797	[2585, 2586]	2919	[3441, 2070]	4041	[4285, 3592]
676	[1178, 1179]	1798	[2270, 2587]	2920	[3442, 949]	4042	[4286, 2400]
677	[1180, 1181]	1799	[2588, 2589]	2921	[3443, 3444]	4043	[1250, 28]
678	[1182, 1183]	1800	[2590, 2521]	2922	[3445, 3446]	4044	[4287, 3517]
679	[1184, 1185]	1801	[2591, 2592]	2923	[3447, 2473]	4045	[4288, 3604]
680	[1186, 1187]	1802	[2593, 955]	2924	[1351, 1283]	4046	[257, 79]
681	[1188, 1189]	1803	[2594, 387]	2925	[3448, 3449]	4047	[4289, 3686]
682	[285, 1190]	1804	[2595, 1353]	2926	[3450, 1372]	4048	[100, 384]
683	[1191, 1192]	1805	[2596, 2597]	2927	[3451, 3452]	4049	[2546, 4290]
684	[1193, 1194]	1806	[2598, 2599]	2928	[2051, 3453]	4050	[2628, 2198]
685	[1195, 1191]	1807	[111, 2600]	2929	[3454, 20]	4051	[4291, 2000]
686	[1196, 1197]	1808	[2601, 2602]	2930	[3455, 3456]	4052	[4292, 347]
687	[1198, 1199]	1809	[2603, 2604]	2931	[984, 1294]	4053	[4293, 1209]
688	[1200, 1201]	1810	[2605, 2606]	2932	[3457, 2289]	4054	[2517, 1171]
689	[1202, 1203]	1811	[2607, 102]	2933	[2397, 3458]	4055	[4294, 2746]
690	[973, 1204]	1812	[830, 2076]	2934	[3459, 809]	4056	[4295, 1355]
691	[1205, 1206]	1813	[2608, 2609]	2935	[1158, 371]	4057	[1134, 1147]
692	[1187, 1161]	1814	[26, 2610]	2936	[2101, 3460]	4058	[4296, 1020]
693	[1207, 1208]	1815	[2611, 2612]	2937	[3461, 2711]	4059	[2228, 3603]
694	[1209, 1210]	1816	[2613, 2614]	2938	[3462, 383]	4060	[4297, 2473]
695	[253, 1211]	1817	[2615, 2616]	2939	[3463, 3464]	4061	[4188, 2509]
696	[1212, 372]	1818	[1342, 2617]	2940	[447, 1261]	4062	[4298, 4225]
697	[458, 1213]	1819	[2081, 2607]	2941	[3465, 1205]	4063	[4299, 100]
698	[1214, 1215]	1820	[2618, 2619]	2942	[3466, 345]	4064	[4300, 3555]
699	[279, 1216]	1821	[2620, 2621]	2943	[3467, 2591]	4065	[2298, 325]
700	[1217, 1218]	1822	[1208, 2622]	2944	[3444, 1196]	4066	[4301, 2642]

701	[1219, 335]	1823	[2326, 2623]	2945	[348, 2253]	4067	[4302, 2574]
702	[1220, 1221]	1824	[2624, 1283]	2946	[3468, 2456]	4068	[4303, 2541]
703	[1222, 1223]	1825	[2625, 2626]	2947	[3469, 2344]	4069	[4304, 2403]
704	[1224, 913]	1826	[2627, 2628]	2948	[1230, 3470]	4070	[4305, 4306]
705	[1225, 1226]	1827	[2507, 2629]	2949	[3471, 3472]	4071	[2069, 316]
706	[1227, 1228]	1828	[287, 1157]	2950	[3473, 3474]	4072	[4307, 3686]
707	[1229, 1230]	1829	[899, 2630]	2951	[3475, 3476]	4073	[4308, 3574]
708	[1231, 440]	1830	[2388, 2631]	2952	[3477, 2269]	4074	[2146, 3438]
709	[1137, 1192]	1831	[2632, 2633]	2953	[3478, 2142]	4075	[844, 1312]
710	[838, 1232]	1832	[2634, 2635]	2954	[3440, 3479]	4076	[4309, 1210]
711	[1233, 1234]	1833	[2636, 2637]	2955	[3480, 1001]	4077	[4310, 4311]
712	[1235, 1236]	1834	[1100, 17]	2956	[3481, 3482]	4078	[4312, 1296]
713	[1237, 1238]	1835	[2638, 1000]	2957	[3483, 358]	4079	[1183, 326]
714	[1239, 1240]	1836	[2639, 2140]	2958	[3484, 1121]	4080	[4313, 3463]
715	[1241, 1242]	1837	[2640, 2641]	2959	[3485, 3486]	4081	[4314, 2568]
716	[1243, 1244]	1838	[2642, 2643]	2960	[1993, 122]	4082	[2684, 1318]
717	[1245, 80]	1839	[2644, 1025]	2961	[3487, 3388]	4083	[4315, 114]
718	[1020, 252]	1840	[1375, 2325]	2962	[3488, 1101]	4084	[4316, 1182]
719	[1246, 1034]	1841	[2645, 2646]	2963	[3489, 3490]	4085	[4317, 971]
720	[1247, 1248]	1842	[2647, 2648]	2964	[3491, 2605]	4086	[4318, 4319]
721	[1249, 1250]	1843	[2649, 903]	2965	[3492, 3493]	4087	[1175, 412]
722	[1251, 1035]	1844	[2650, 2327]	2966	[3494, 3495]	4088	[4320, 3644]
723	[1252, 1253]	1845	[2234, 1297]	2967	[3496, 3497]	4089	[4215, 4321]
724	[1254, 1255]	1846	[2262, 1334]	2968	[3498, 2242]	4090	[4322, 4261]
725	[1157, 1256]	1847	[1185, 867]	2969	[3499, 1030]	4091	[4323, 2452]
726	[1257, 954]	1848	[2651, 1069]	2970	[3500, 3501]	4092	[4225, 1304]
727	[1258, 807]	1849	[2652, 2153]	2971	[2508, 113]	4093	[891, 74]
728	[394, 1259]	1850	[2653, 446]	2972	[3502, 3503]	4094	[4324, 3419]
729	[1253, 1260]	1851	[2654, 2491]	2973	[1998, 3504]	4095	[4325, 3822]
730	[1261, 1262]	1852	[2655, 2656]	2974	[3505, 1060]	4096	[4326, 4327]
731	[1263, 254]	1853	[2657, 2658]	2975	[3506, 3507]	4097	[4328, 2512]
732	[1264, 256]	1854	[2659, 2660]	2976	[1190, 1031]	4098	[1322, 2427]
733	[1265, 1266]	1855	[2661, 2662]	2977	[3508, 3509]	4099	[2032, 26]
734	[1267, 1268]	1856	[2663, 2664]	2978	[3432, 2448]	4100	[1344, 328]
735	[1269, 1270]	1857	[2665, 2564]	2979	[3510, 1246]	4101	[4329, 321]
736	[1271, 1272]	1858	[2666, 2667]	2980	[3511, 2538]	4102	[4330, 4331]
737	[16, 274]	1859	[119, 820]	2981	[3512, 3513]	4103	[2643, 3390]
738	[1273, 1274]	1860	[462, 2668]	2982	[3514, 1247]	4104	[4331, 3476]
739	[1275, 1276]	1861	[2669, 2670]	2983	[3515, 401]	4105	[4332, 4165]
740	[1277, 1278]	1862	[448, 302]	2984	[3516, 3517]	4106	[4333, 3736]
741	[1279, 1280]	1863	[2671, 1306]	2985	[3518, 3519]	4107	[4334, 4168]
742	[1281, 1282]	1864	[2672, 2673]	2986	[2402, 2826]	4108	[4335, 4336]
743	[1283, 1284]	1865	[2674, 2009]	2987	[3520, 2311]	4109	[862, 982]
744	[1285, 1286]	1866	[2675, 2676]	2988	[3521, 3522]	4110	[2256, 2784]

745	[1287, 1141]	1867	[2677, 2678]	2989	[3523, 848]	4111	[4337, 2660]
746	[1288, 1002]	1868	[2097, 2679]	2990	[2485, 3524]	4112	[4338, 3543]
747	[1289, 1004]	1869	[2680, 2681]	2991	[3525, 3526]	4113	[994, 1102]
748	[1290, 971]	1870	[2682, 2326]	2992	[2602, 271]	4114	[4339, 4205]
749	[1291, 1292]	1871	[2683, 2684]	2993	[3527, 2460]	4115	[4340, 3674]
750	[938, 1293]	1872	[2685, 2686]	2994	[3528, 3529]	4116	[2476, 2425]
751	[1294, 1043]	1873	[2687, 2688]	2995	[3530, 3531]	4117	[4341, 4251]
752	[1295, 1296]	1874	[2561, 2363]	2996	[3532, 1313]	4118	[2739, 302]
753	[1297, 1298]	1875	[2689, 2174]	2997	[3533, 3534]	4119	[4342, 17]
754	[1299, 1300]	1876	[2676, 2050]	2998	[3535, 3536]	4120	[4343, 313]
755	[1301, 1302]	1877	[1014, 2690]	2999	[2342, 1217]	4121	[3486, 808]
756	[959, 813]	1878	[2691, 2692]	3000	[3537, 320]	4122	[2619, 2283]
757	[1303, 1304]	1879	[2693, 30]	3001	[3538, 2568]	4123	[860, 2072]
758	[1305, 1062]	1880	[2694, 855]	3002	[3539, 3540]	4124	[4344, 862]
759	[1306, 1307]	1881	[2695, 2696]	3003	[3541, 3542]	4125	[4345, 2333]
760	[1308, 450]	1882	[1350, 2697]	3004	[968, 956]	4126	[4346, 3463]
761	[1309, 1310]	1883	[2698, 2699]	3005	[3522, 2305]	4127	[4347, 3434]
762	[1311, 1312]	1884	[2700, 2701]	3006	[982, 3543]	4128	[1119, 115]
763	[1313, 1055]	1885	[970, 2702]	3007	[2748, 3544]	4129	[4348, 2096]
764	[1314, 892]	1886	[2703, 2704]	3008	[2143, 3545]	4130	[4349, 3678]
765	[1315, 1316]	1887	[2705, 2706]	3009	[3546, 463]	4131	[4350, 3560]
766	[1317, 1318]	1888	[2707, 2708]	3010	[3547, 3475]	4132	[4351, 4352]
767	[1319, 1320]	1889	[2709, 2710]	3011	[3548, 1301]	4133	[22, 2258]
768	[338, 1181]	1890	[2711, 2219]	3012	[3549, 978]	4134	[4353, 300]
769	[1321, 1322]	1891	[406, 977]	3013	[3550, 114]	4135	[4354, 2371]
770	[1312, 1323]	1892	[350, 2712]	3014	[308, 2052]	4136	[4355, 3825]
771	[1324, 928]	1893	[2713, 2714]	3015	[3551, 1355]	4137	[4356, 2403]
772	[1325, 881]	1894	[2382, 2715]	3016	[3493, 3552]	4138	[4357, 373]
773	[1326, 1327]	1895	[2716, 2717]	3017	[1298, 3553]	4139	[3793, 3701]
774	[1328, 1329]	1896	[2391, 459]	3018	[2549, 2417]	4140	[1304, 3522]
775	[1330, 1331]	1897	[2718, 2719]	3019	[3554, 3555]	4141	[4358, 3704]
776	[1332, 1333]	1898	[2720, 2721]	3020	[2302, 3556]	4142	[4359, 4319]
777	[1334, 1335]	1899	[2722, 2723]	3021	[3557, 399]	4143	[4360, 1112]
778	[1336, 294]	1900	[2724, 2725]	3022	[2153, 1332]	4144	[4361, 817]
779	[1337, 1338]	1901	[2726, 427]	3023	[3476, 3558]	4145	[4362, 3534]
780	[1339, 1340]	1902	[2439, 897]	3024	[3559, 3560]	4146	[4363, 3880]
781	[1341, 1342]	1903	[2727, 2728]	3025	[3561, 2729]	4147	[4364, 2036]
782	[1343, 1344]	1904	[2729, 2542]	3026	[3562, 1209]	4148	[1735, 1752]
783	[1345, 1346]	1905	[2730, 120]	3027	[3563, 973]	4149	[3975, 3320]
784	[1347, 1348]	1906	[2731, 2210]	3028	[3564, 1188]	4150	[4365, 3897]
785	[1349, 1350]	1907	[2294, 2388]	3029	[3565, 3566]	4151	[1637, 51]
786	[363, 1351]	1908	[2732, 2733]	3030	[2043, 3403]	4152	[4366, 1486]
787	[1124, 413]	1909	[2734, 2735]	3031	[3567, 3378]	4153	[3314, 1441]
788	[1352, 935]	1910	[2736, 2737]	3032	[2487, 2284]	4154	[3018, 1814]

789	[1353, 1354]	1911	[2738, 2739]	3033	[2515, 3568]	4155	[3069, 2973]
790	[1355, 1356]	1912	[2740, 2741]	3034	[3569, 244]	4156	[3303, 513]
791	[84, 1217]	1913	[2742, 2743]	3035	[3570, 3385]	4157	[3966, 1505]
792	[1357, 1358]	1914	[2744, 2338]	3036	[3446, 3466]	4158	[3022, 1873]
793	[1359, 1360]	1915	[2745, 2746]	3037	[3571, 1193]	4159	[4145, 672]
794	[1361, 933]	1916	[2747, 2748]	3038	[3572, 3440]	4160	[3907, 713]
795	[1362, 1363]	1917	[2749, 2750]	3039	[2168, 2100]	4161	[4367, 1734]
796	[1364, 1365]	1918	[2751, 2675]	3040	[3573, 3574]	4162	[1871, 3973]
797	[1366, 1367]	1919	[2752, 2753]	3041	[1005, 252]	4163	[519, 1614]
798	[68, 873]	1920	[2754, 2755]	3042	[3575, 1332]	4164	[3891, 3913]
799	[1368, 368]	1921	[1323, 2756]	3043	[3576, 433]	4165	[188, 4133]
800	[1369, 1147]	1922	[2757, 2117]	3044	[3577, 2727]	4166	[3908, 1489]
801	[1370, 1371]	1923	[2758, 2759]	3045	[3578, 3579]	4167	[4368, 1913]
802	[1372, 1373]	1924	[2760, 2761]	3046	[3580, 1072]	4168	[1447, 3042]
803	[1374, 1375]	1925	[2762, 2763]	3047	[2311, 3571]	4169	[719, 725]
804	[1259, 1376]	1926	[940, 1187]	3048	[3581, 943]	4170	[4369, 1684]
805	[1377, 695]	1927	[2764, 2172]	3049	[3582, 3583]	4171	[1589, 1822]
806	[1378, 1379]	1928	[2765, 2766]	3050	[3584, 2334]	4172	[4370, 1522]
807	[1380, 1381]	1929	[2341, 270]	3051	[3585, 2167]	4173	[1863, 624]
808	[1382, 1383]	1930	[2767, 2768]	3052	[3586, 3386]	4174	[4371, 765]
809	[1384, 128]	1931	[2553, 2769]	3053	[76, 344]	4175	[1578, 3167]
810	[207, 1385]	1932	[2770, 2503]	3054	[3587, 3588]	4176	[4372, 1586]
811	[1386, 1387]	1933	[2771, 108]	3055	[3589, 3352]	4177	[4373, 557]
812	[1388, 762]	1934	[2772, 2773]	3056	[3590, 2273]	4178	[699, 3320]
813	[1389, 538]	1935	[2774, 2775]	3057	[3591, 3592]	4179	[3288, 664]
814	[1390, 132]	1936	[980, 2364]	3058	[3593, 3594]	4180	[4374, 2944]
815	[1391, 1392]	1937	[2761, 2776]	3059	[3595, 2056]	4181	[4375, 3052]
816	[1393, 1394]	1938	[2777, 2231]	3060	[2550, 3507]	4182	[2982, 1772]
817	[1395, 571]	1939	[2778, 2779]	3061	[3596, 3597]	4183	[4376, 1817]
818	[1396, 1397]	1940	[460, 2231]	3062	[400, 3598]	4184	[747, 576]
819	[1398, 1399]	1941	[2283, 2780]	3063	[3599, 2073]	4185	[3037, 594]
820	[777, 1400]	1942	[2274, 2499]	3064	[3600, 1246]	4186	[4377, 1728]
821	[1401, 611]	1943	[2781, 2782]	3065	[121, 2274]	4187	[4378, 1832]
822	[729, 787]	1944	[2303, 2041]	3066	[3601, 2379]	4188	[1774, 3286]
823	[1402, 1403]	1945	[24, 2783]	3067	[3602, 3603]	4189	[1720, 1813]
824	[679, 579]	1946	[2509, 2213]	3068	[3604, 3605]	4190	[3134, 161]
825	[1404, 1405]	1947	[1144, 2784]	3069	[3606, 1257]	4191	[3174, 3116]
826	[1406, 59]	1948	[2785, 2240]	3070	[3470, 1103]	4192	[4379, 632]
827	[1407, 1408]	1949	[2279, 2007]	3071	[3607, 898]	4193	[1926, 550]
828	[547, 519]	1950	[858, 2786]	3072	[3608, 969]	4194	[4084, 1448]
829	[1409, 755]	1951	[2787, 2049]	3073	[3609, 3610]	4195	[3992, 156]
830	[1410, 1411]	1952	[2788, 2789]	3074	[3611, 3612]	4196	[4380, 2998]
831	[625, 1412]	1953	[2790, 388]	3075	[3613, 2529]	4197	[3914, 3995]
832	[201, 1413]	1954	[2791, 2642]	3076	[3614, 1271]	4198	[4381, 684]

833	[1414, 575]	1955	[2792, 2793]	3077	[3615, 1015]	4199	[475, 235]
834	[742, 1415]	1956	[2794, 2795]	3078	[3616, 3617]	4200	[1458, 3095]
835	[1416, 533]	1957	[2796, 2797]	3079	[3618, 3619]	4201	[4382, 2953]
836	[481, 1417]	1958	[2798, 2799]	3080	[1278, 2710]	4202	[1502, 2843]
837	[1418, 656]	1959	[2800, 2801]	3081	[3620, 2340]	4203	[4383, 12]
838	[1419, 538]	1960	[2802, 2803]	3082	[3621, 329]	4204	[3341, 1830]
839	[1420, 1421]	1961	[2804, 996]	3083	[3397, 2124]	4205	[3028, 1580]
840	[1422, 798]	1962	[2805, 2806]	3084	[3622, 2714]	4206	[4140, 222]
841	[1423, 1424]	1963	[2807, 2794]	3085	[3623, 2816]	4207	[4384, 43]
842	[1425, 558]	1964	[2808, 2809]	3086	[2203, 3624]	4208	[4385, 2892]
843	[776, 1426]	1965	[2810, 2767]	3087	[3625, 118]	4209	[3325, 3150]
844	[1427, 1428]	1966	[2811, 2169]	3088	[3626, 3627]	4210	[751, 3167]
845	[1429, 1430]	1967	[2600, 927]	3089	[2617, 3628]	4211	[4079, 603]
846	[1431, 1432]	1968	[2812, 2552]	3090	[380, 249]	4212	[4386, 129]
847	[146, 681]	1969	[2813, 2650]	3091	[2795, 952]	4213	[2980, 1532]
848	[1433, 741]	1970	[2814, 2374]	3092	[3629, 3366]	4214	[4387, 1513]
849	[576, 1434]	1971	[2815, 2816]	3093	[3630, 921]	4215	[4055, 632]
850	[705, 526]	1972	[2817, 2818]	3094	[3631, 3630]	4216	[4366, 795]
851	[1435, 1436]	1973	[2819, 2820]	3095	[3632, 3633]	4217	[4388, 3163]
852	[1437, 1438]	1974	[1076, 2821]	3096	[3634, 274]	4218	[4137, 1729]
853	[1439, 1440]	1975	[2822, 15]	3097	[3635, 3356]	4219	[4056, 1656]
854	[37, 1441]	1976	[2823, 2638]	3098	[3636, 1032]	4220	[3292, 3116]
855	[1442, 1443]	1977	[2824, 2825]	3099	[3637, 1319]	4221	[1678, 2841]
856	[1444, 1445]	1978	[2826, 1149]	3100	[3638, 1261]	4222	[4389, 1889]
857	[1446, 573]	1979	[2827, 2828]	3101	[1215, 3639]	4223	[4390, 1709]
858	[1447, 1448]	1980	[2829, 2262]	3102	[3640, 3641]	4224	[1942, 222]
859	[1449, 1450]	1981	[1282, 1258]	3103	[3642, 1305]	4225	[3054, 525]
860	[1451, 1452]	1982	[2284, 2830]	3104	[3643, 3644]	4226	[4391, 2892]
861	[1453, 182]	1983	[334, 2661]	3105	[2679, 2099]	4227	[1494, 665]
862	[1454, 1455]	1984	[2831, 1991]	3106	[3645, 3646]	4228	[3993, 3105]
863	[1456, 1457]	1985	[2832, 2833]	3107	[3647, 3648]	4229	[4098, 1946]
864	[1458, 660]	1986	[2706, 2834]	3108	[3649, 2243]	4230	[3901, 3270]
865	[1459, 634]	1987	[281, 2724]	3109	[3650, 3651]	4231	[2915, 1620]
866	[1460, 1461]	1988	[2835, 1097]	3110	[3652, 2160]	4232	[559, 1463]
867	[691, 1462]	1989	[2836, 919]	3111	[3653, 3437]	4233	[4392, 645]
868	[531, 1463]	1990	[2837, 2603]	3112	[3654, 2739]	4234	[3940, 3303]
869	[1464, 1465]	1991	[1645, 35]	3113	[3655, 89]	4235	[3048, 2949]
870	[1466, 1464]	1992	[2838, 1877]	3114	[2782, 2221]	4236	[4065, 3160]
871	[1467, 1393]	1993	[2839, 239]	3115	[3656, 287]	4237	[4393, 563]
872	[498, 1468]	1994	[1514, 2840]	3116	[3657, 2458]	4238	[4394, 607]
873	[1469, 1470]	1995	[1892, 2841]	3117	[3658, 3659]	4239	[4395, 3166]
874	[136, 1471]	1996	[2842, 1526]	3118	[2818, 2465]	4240	[1544, 1699]
875	[1472, 1394]	1997	[2843, 2844]	3119	[3660, 1079]	4241	[4396, 572]
876	[1473, 1474]	1998	[1892, 2845]	3120	[3661, 1123]	4242	[4397, 3089]

877	[1470, 1475]	1999	[2846, 2]	3121	[3662, 395]	4243	[4398, 558]
878	[1471, 1470]	2000	[2847, 2848]	3122	[3663, 1080]	4244	[1984, 3304]
879	[1394, 505]	2001	[1574, 1856]	3123	[3664, 401]	4245	[1788, 1529]
880	[1474, 1476]	2002	[2849, 1427]	3124	[3665, 3666]	4246	[4399, 566]
881	[588, 1477]	2003	[2850, 1935]	3125	[3667, 3426]	4247	[3898, 1845]
882	[1478, 1479]	2004	[2843, 606]	3126	[2631, 3402]	4248	[1703, 3072]
883	[1480, 535]	2005	[2851, 757]	3127	[373, 3376]	4249	[4400, 1855]
884	[1481, 1482]	2006	[1454, 541]	3128	[3668, 3669]	4250	[4401, 1985]
885	[599, 1483]	2007	[1909, 2852]	3129	[1226, 285]	4251	[4053, 2874]
886	[1443, 1484]	2008	[2853, 1770]	3130	[3670, 3671]	4252	[4029, 1921]
887	[1485, 1486]	2009	[224, 1737]	3131	[2112, 2832]	4253	[4402, 1385]
888	[1487, 1488]	2010	[1862, 38]	3132	[3672, 841]	4254	[3151, 3008]
889	[1489, 1490]	2011	[1923, 639]	3133	[3673, 3674]	4255	[3271, 565]
890	[1448, 678]	2012	[1771, 1936]	3134	[2232, 338]	4256	[4403, 1396]
891	[1491, 620]	2013	[2854, 1537]	3135	[3669, 3675]	4257	[4114, 2865]
892	[1492, 189]	2014	[2855, 561]	3136	[3676, 2043]	4258	[4404, 753]
893	[617, 1493]	2015	[213, 563]	3137	[1083, 2324]	4259	[4087, 558]
894	[1494, 719]	2016	[1474, 136]	3138	[3677, 3678]	4260	[4130, 1966]
895	[1495, 1496]	2017	[1548, 553]	3139	[3679, 2340]	4261	[3259, 187]
896	[1497, 224]	2018	[1467, 1472]	3140	[3680, 3519]	4262	[4405, 1985]
897	[735, 1498]	2019	[2856, 1647]	3141	[3681, 1281]	4263	[4388, 3212]
898	[525, 1499]	2020	[2857, 2858]	3142	[3682, 3683]	4264	[4047, 3027]
899	[1500, 1501]	2021	[1612, 2859]	3143	[3684, 3685]	4265	[4406, 1966]
900	[653, 607]	2022	[165, 690]	3144	[3686, 2113]	4266	[4101, 215]
901	[1502, 605]	2023	[2860, 2861]	3145	[3687, 1243]	4267	[2977, 3066]
902	[518, 183]	2024	[1675, 2862]	3146	[3688, 3689]	4268	[2950, 479]
903	[1503, 1504]	2025	[2863, 1764]	3147	[3690, 2006]	4269	[4382, 1709]
904	[1505, 591]	2026	[2864, 2865]	3148	[3691, 3692]	4270	[4125, 688]
905	[126, 1506]	2027	[2866, 2867]	3149	[3693, 3694]	4271	[4407, 1913]
906	[647, 1507]	2028	[522, 546]	3150	[1061, 3565]	4272	[4394, 623]
907	[1508, 238]	2029	[794, 1486]	3151	[2756, 2142]	4273	[4408, 45]
908	[1509, 1510]	2030	[466, 751]	3152	[3695, 966]	4274	[4100, 1988]
909	[1469, 1511]	2031	[2868, 2869]	3153	[918, 2073]	4275	[4021, 804]
910	[1512, 1513]	2032	[1850, 783]	3154	[3696, 3697]	4276	[4409, 1479]
911	[1514, 573]	2033	[2870, 626]	3155	[925, 3698]	4277	[3971, 1772]
912	[1515, 155]	2034	[1855, 2871]	3156	[3699, 3456]	4278	[4410, 1832]
913	[1516, 167]	2035	[2872, 1813]	3157	[2412, 2147]	4279	[3988, 1818]
914	[205, 1517]	2036	[2873, 2874]	3158	[2293, 976]	4280	[3153, 2841]
915	[1518, 511]	2037	[2875, 195]	3159	[3700, 2712]	4281	[4372, 735]
916	[1519, 782]	2038	[2876, 2877]	3160	[3701, 2808]	4282	[194, 1382]
917	[1520, 742]	2039	[2878, 647]	3161	[3702, 2744]	4283	[2890, 2880]
918	[131, 1521]	2040	[2879, 2880]	3162	[3556, 3703]	4284	[4024, 1844]
919	[142, 1522]	2041	[1849, 1389]	3163	[3704, 3705]	4285	[3334, 3238]
920	[1523, 1524]	2042	[1427, 641]	3164	[3706, 3707]	4286	[1880, 582]

921	[150, 707]	2043	[2879, 1522]	3165	[3519, 2756]	4287	[3959, 1885]
922	[1525, 1526]	2044	[2881, 138]	3166	[3708, 3639]	4288	[1953, 3135]
923	[565, 1527]	2045	[1451, 2882]	3167	[810, 3709]	4289	[4411, 1909]
924	[1528, 1529]	2046	[1461, 777]	3168	[2574, 312]	4290	[1444, 3929]
925	[1438, 1530]	2047	[802, 1758]	3169	[3710, 3711]	4291	[4400, 1574]
926	[1531, 1532]	2048	[1822, 171]	3170	[3712, 2740]	4292	[4143, 637]
927	[487, 804]	2049	[1687, 1463]	3171	[3713, 3598]	4293	[4412, 1508]
928	[1533, 1534]	2050	[2883, 1649]	3172	[3714, 3715]	4294	[4413, 1933]
929	[472, 1535]	2051	[2884, 2885]	3173	[2157, 3716]	4295	[4389, 1970]
930	[1536, 1537]	2052	[1426, 1877]	3174	[3717, 1163]	4296	[3317, 481]
931	[747, 217]	2053	[2886, 1760]	3175	[3718, 3719]	4297	[4075, 1765]
932	[1538, 163]	2054	[2887, 1896]	3176	[3720, 3721]	4298	[4146, 1586]
933	[1539, 1540]	2055	[630, 1903]	3177	[2558, 431]	4299	[3127, 3190]
934	[1541, 1542]	2056	[2888, 2848]	3178	[3722, 15]	4300	[3328, 1970]
935	[1543, 1411]	2057	[2889, 1845]	3179	[2320, 3723]	4301	[3200, 1629]
936	[13, 1544]	2058	[2890, 1522]	3180	[3724, 1247]	4302	[4370, 2880]
937	[1545, 165]	2059	[196, 2883]	3181	[3725, 107]	4303	[3117, 1451]
938	[1546, 1520]	2060	[1435, 1874]	3182	[3726, 245]	4304	[4103, 477]
939	[1517, 612]	2061	[2891, 2892]	3183	[3727, 3708]	4305	[4414, 2968]
940	[59, 770]	2062	[2893, 1734]	3184	[3728, 2098]	4306	[680, 691]
941	[1547, 1510]	2063	[2894, 1514]	3185	[3729, 2464]	4307	[3922, 2928]
942	[1548, 798]	2064	[1809, 1892]	3186	[3730, 3731]	4308	[4415, 597]
943	[1549, 1550]	2065	[1577, 502]	3187	[336, 462]	4309	[733, 1956]
944	[1551, 801]	2066	[2895, 2896]	3188	[3732, 333]	4310	[4416, 1430]
945	[1552, 1553]	2067	[202, 509]	3189	[3733, 2020]	4311	[172, 3020]
946	[1554, 1555]	2068	[2897, 779]	3190	[2010, 2292]	4312	[3254, 3023]
947	[590, 170]	2069	[720, 2898]	3191	[2401, 2141]	4313	[2870, 1412]
948	[1517, 487]	2070	[1491, 1929]	3192	[3592, 3734]	4314	[3041, 546]
949	[1556, 1557]	2071	[665, 725]	3193	[3735, 294]	4315	[3043, 33]
950	[1558, 717]	2072	[1586, 1498]	3194	[3736, 3737]	4316	[4412, 237]
951	[1559, 1560]	2073	[737, 1812]	3195	[3738, 2023]	4317	[3923, 190]
952	[1561, 1562]	2074	[2899, 2882]	3196	[3739, 3740]	4318	[3928, 1647]
953	[1563, 1387]	2075	[2900, 2901]	3197	[20, 2438]	4319	[3148, 3229]
954	[1564, 1565]	2076	[496, 751]	3198	[3741, 1182]	4320	[4417, 2889]
955	[1566, 1567]	2077	[1844, 2902]	3199	[3742, 3743]	4321	[3060, 3913]
956	[1568, 574]	2078	[2903, 801]	3200	[1113, 398]	4322	[3137, 3135]
957	[1569, 529]	2079	[1592, 1505]	3201	[3744, 3745]	4323	[3090, 2841]
958	[1570, 1571]	2080	[2904, 1909]	3202	[3746, 85]	4324	[4010, 1944]
959	[1572, 697]	2081	[235, 1717]	3203	[3747, 3748]	4325	[4111, 519]
960	[1573, 1574]	2082	[2905, 2869]	3204	[3749, 865]	4326	[4398, 3192]
961	[1575, 1576]	2083	[739, 1381]	3205	[2495, 391]	4327	[4062, 206]
962	[505, 1474]	2084	[2906, 2907]	3206	[3750, 3429]	4328	[4123, 1753]
963	[1465, 1472]	2085	[168, 1900]	3207	[3751, 2578]	4329	[1416, 4089]
964	[553, 1577]	2086	[1833, 1916]	3208	[3752, 2103]	4330	[4418, 1403]

965	[1578, 659]	2087	[2908, 1715]	3209	[3753, 3754]	4331	[1590, 3343]
966	[1579, 1580]	2088	[642, 1829]	3210	[2123, 3571]	4332	[4390, 2953]
967	[1581, 1582]	2089	[2909, 1550]	3211	[3755, 1170]	4333	[2900, 1501]
968	[1583, 1584]	2090	[1747, 1728]	3212	[2828, 3632]	4334	[4113, 1685]
969	[633, 514]	2091	[1520, 1626]	3213	[2616, 310]	4335	[4110, 2840]
970	[147, 684]	2092	[54, 1716]	3214	[3415, 836]	4336	[3348, 1729]
971	[1585, 192]	2093	[2910, 2911]	3215	[3756, 3682]	4337	[1911, 3058]
972	[1586, 736]	2094	[725, 737]	3216	[3757, 2352]	4338	[3164, 1543]
973	[1587, 604]	2095	[186, 192]	3217	[3758, 3597]	4339	[4038, 617]
974	[1588, 207]	2096	[2912, 2913]	3218	[3759, 3701]	4340	[3981, 1477]
975	[589, 1589]	2097	[1933, 2908]	3219	[3760, 3457]	4341	[3969, 767]
976	[1590, 1591]	2098	[130, 1567]	3220	[3761, 457]	4342	[3268, 37]
977	[678, 776]	2099	[2908, 54]	3221	[2626, 882]	4343	[4419, 1769]
978	[1592, 50]	2100	[51, 2914]	3222	[3762, 3763]	4344	[4415, 156]
979	[548, 520]	2101	[1849, 1419]	3223	[3764, 3765]	4345	[4373, 1425]
980	[1593, 1594]	2102	[2915, 1539]	3224	[3766, 1335]	4346	[4420, 1720]
981	[732, 131]	2103	[1497, 1736]	3225	[3767, 2638]	4347	[4138, 161]
982	[1595, 1596]	2104	[2916, 2917]	3226	[2545, 3768]	4348	[3917, 3167]
983	[1597, 775]	2105	[197, 162]	3227	[3769, 3770]	4349	[3281, 664]
984	[1385, 588]	2106	[671, 561]	3228	[2348, 2408]	4350	[4076, 480]
985	[1598, 1599]	2107	[2918, 2919]	3229	[3394, 2742]	4351	[2872, 140]
986	[1465, 1393]	2108	[2920, 2921]	3230	[3771, 3772]	4352	[4073, 1563]
987	[1600, 1601]	2109	[2922, 1882]	3231	[3773, 2733]	4353	[4006, 565]
988	[774, 1602]	2110	[1732, 1753]	3232	[3774, 2663]	4354	[2895, 1699]
989	[1603, 1514]	2111	[2923, 178]	3233	[3775, 3776]	4355	[3228, 3929]
990	[1604, 1605]	2112	[2924, 1530]	3234	[3777, 3778]	4356	[3346, 1508]
991	[1606, 1607]	2113	[2925, 1417]	3235	[3779, 2271]	4357	[2899, 1452]
992	[1608, 1609]	2114	[2926, 174]	3236	[352, 1113]	4358	[4421, 1728]
993	[1610, 1611]	2115	[2927, 1851]	3237	[3780, 1317]	4359	[3902, 3042]
994	[1612, 1613]	2116	[1626, 1415]	3238	[3411, 2700]	4360	[3327, 567]
995	[1614, 1615]	2117	[575, 2928]	3239	[3781, 1216]	4361	[1902, 480]
996	[1616, 1617]	2118	[2929, 1505]	3240	[3782, 3783]	4362	[4379, 3303]
997	[1555, 1491]	2119	[2930, 523]	3241	[808, 998]	4363	[4417, 1844]
998	[1618, 703]	2120	[621, 1618]	3242	[3784, 3458]	4364	[4422, 753]
999	[160, 1619]	2121	[2839, 158]	3243	[3785, 3786]	4365	[4311, 2604]
1000	[1620, 1540]	2122	[2931, 466]	3244	[3787, 2785]	4366	[2623, 2676]
1001	[200, 1604]	2123	[1917, 2932]	3245	[3788, 3789]	4367	[4423, 1991]
1002	[1621, 785]	2124	[1921, 1501]	3246	[818, 3790]	4368	[4424, 2377]
1003	[769, 60]	2125	[1694, 2933]	3247	[3791, 2583]	4369	[4425, 103]
1004	[1622, 1623]	2126	[554, 502]	3248	[2357, 120]	4370	[1210, 2346]
1005	[1624, 1524]	2127	[502, 1464]	3249	[1063, 2491]	4371	[4426, 1105]
1006	[1625, 1626]	2128	[1475, 499]	3250	[3792, 3793]	4372	[4427, 2172]
1007	[657, 1627]	2129	[1468, 1548]	3251	[3794, 1124]	4373	[4428, 2419]
1008	[1628, 1624]	2130	[135, 1476]	3252	[3795, 3796]	4374	[4429, 3884]

1009	[61, 1629]	2131	[503, 1465]	3253	[3797, 2317]	4375	[4430, 2820]
1010	[1630, 1631]	2132	[1476, 1471]	3254	[929, 2803]	4376	[4431, 2336]
1011	[1450, 714]	2133	[499, 1548]	3255	[3798, 3799]	4377	[4432, 2614]
1012	[1632, 626]	2134	[1468, 1422]	3256	[2186, 3800]	4378	[4433, 4434]
1013	[1633, 1634]	2135	[1511, 1475]	3257	[3715, 3801]	4379	[4435, 892]
1014	[1635, 1436]	2136	[1475, 1468]	3258	[2265, 2021]	4380	[4436, 2586]
1015	[1636, 1637]	2137	[1393, 504]	3259	[3802, 2564]	4381	[2344, 276]
1016	[1605, 1638]	2138	[1422, 553]	3260	[1162, 2105]	4382	[4437, 2140]
1017	[1639, 1640]	2139	[668, 1444]	3261	[3803, 3804]	4383	[4438, 1342]
1018	[1641, 1642]	2140	[2934, 211]	3262	[3805, 2286]	4384	[4439, 2381]
1019	[1643, 1644]	2141	[1382, 1659]	3263	[3388, 972]	4385	[4440, 4441]
1020	[1645, 483]	2142	[1541, 1947]	3264	[3806, 3807]	4386	[2103, 907]
1021	[1646, 767]	2143	[199, 2885]	3265	[3808, 2050]	4387	[4442, 333]
1022	[1605, 1647]	2144	[1667, 532]	3266	[3809, 2120]	4388	[4248, 914]
1023	[709, 229]	2145	[2935, 1654]	3267	[3810, 3811]	4389	[4443, 2711]
1024	[1648, 1596]	2146	[560, 35]	3268	[3812, 77]	4390	[4444, 4173]
1025	[197, 1649]	2147	[1641, 44]	3269	[3813, 2387]	4391	[4445, 1370]
1026	[1650, 691]	2148	[1967, 2936]	3270	[3814, 875]	4392	[975, 4169]
1027	[740, 1651]	2149	[2937, 2938]	3271	[3815, 3816]	4393	[379, 970]
1028	[1652, 1653]	2150	[1569, 726]	3272	[2430, 2365]	4394	[4446, 888]
1029	[1593, 1654]	2151	[192, 174]	3273	[2335, 3817]	4395	[4447, 4218]
1030	[628, 1655]	2152	[1925, 2877]	3274	[3818, 3775]	4396	[4448, 996]
1031	[1656, 790]	2153	[1648, 2939]	3275	[3819, 3820]	4397	[4449, 3715]
1032	[1657, 485]	2154	[2940, 700]	3276	[3821, 3822]	4398	[2581, 1307]
1033	[535, 1658]	2155	[2941, 2942]	3277	[3823, 2494]	4399	[3413, 1011]
1034	[195, 1659]	2156	[2943, 2944]	3278	[3824, 3825]	4400	[4450, 2663]
1035	[212, 759]	2157	[1710, 2945]	3279	[2511, 2099]	4401	[4451, 3509]
1036	[36, 1660]	2158	[179, 2945]	3280	[3826, 3827]	4402	[3574, 1024]
1037	[1661, 1419]	2159	[591, 684]	3281	[3828, 3486]	4403	[4452, 2023]
1038	[1662, 638]	2160	[2946, 1708]	3282	[3829, 2322]	4404	[4453, 2552]
1039	[1663, 1664]	2161	[1709, 1478]	3283	[3768, 3830]	4405	[4454, 2706]
1040	[1665, 1666]	2162	[2947, 2948]	3284	[2622, 357]	4406	[4455, 2167]
1041	[1466, 503]	2163	[1803, 1483]	3285	[3831, 375]	4407	[4456, 2744]
1042	[1667, 1416]	2164	[2949, 543]	3286	[3832, 87]	4408	[1165, 3703]
1043	[588, 1644]	2165	[2950, 630]	3287	[3833, 2652]	4409	[2120, 1129]
1044	[1668, 1669]	2166	[629, 2951]	3288	[3834, 297]	4410	[4457, 305]
1045	[803, 1670]	2167	[2952, 1504]	3289	[3835, 3493]	4411	[4458, 4267]
1046	[1671, 749]	2168	[634, 57]	3290	[3836, 2554]	4412	[4459, 2591]
1047	[1672, 180]	2169	[2953, 126]	3291	[3837, 2790]	4413	[4460, 3415]
1048	[1673, 163]	2170	[2954, 209]	3292	[2339, 905]	4414	[4461, 3645]
1049	[1674, 1675]	2171	[2955, 2908]	3293	[3838, 3839]	4415	[4462, 4434]
1050	[1676, 545]	2172	[2956, 1684]	3294	[3840, 2111]	4416	[4463, 1094]
1051	[1632, 1412]	2173	[1944, 1818]	3295	[981, 65]	4417	[4464, 4336]
1052	[1677, 1678]	2174	[2957, 184]	3296	[812, 88]	4418	[4465, 3610]

1053	[1546, 1679]	2175	[2958, 687]	3297	[3841, 2445]	4419	[4466, 89]
1054	[193, 802]	2176	[2959, 153]	3298	[3842, 3843]	4420	[4467, 272]
1055	[1680, 734]	2177	[1479, 648]	3299	[3844, 3845]	4421	[4468, 2155]
1056	[1681, 656]	2178	[2960, 54]	3300	[3846, 3847]	4422	[4469, 4155]
1057	[54, 61]	2179	[2961, 1379]	3301	[2741, 3608]	4423	[3349, 804]
1058	[1682, 676]	2180	[2962, 2963]	3302	[3848, 437]	4424	[3140, 1563]
1059	[499, 1422]	2181	[2933, 1779]	3303	[3605, 894]	4425	[3935, 3023]
1060	[1683, 1684]	2182	[548, 1614]	3304	[3849, 3850]	4426	[2856, 1638]
1061	[1489, 1685]	2183	[2964, 1697]	3305	[3851, 3852]	4427	[4383, 1944]
1062	[1686, 1687]	2184	[465, 1619]	3306	[2410, 3853]	4428	[3061, 3303]
1063	[1564, 1688]	2185	[2965, 1773]	3307	[115, 108]	4429	[3986, 1753]
1064	[1689, 1690]	2186	[1798, 1445]	3308	[3854, 868]	4430	[2971, 1941]
1065	[1691, 1679]	2187	[2966, 1666]	3309	[1329, 1162]	4431	[1790, 3913]
1066	[1692, 1571]	2188	[1577, 1466]	3310	[3855, 2793]	4432	[4124, 1867]
1067	[1480, 143]	2189	[2967, 2968]	3311	[2759, 2159]	4433	[4128, 1988]
1068	[542, 1693]	2190	[2969, 1796]	3312	[3856, 3827]	4434	[1512, 1722]
1069	[629, 1694]	2191	[2970, 1574]	3313	[3857, 3858]	4435	[3984, 617]
1070	[1695, 1696]	2192	[1437, 2924]	3314	[2038, 449]	4436	[2903, 3238]
1071	[1697, 758]	2193	[1472, 504]	3315	[3859, 3860]	4437	[3976, 1382]
1072	[1698, 1529]	2194	[2971, 1860]	3316	[953, 3759]	4438	[4406, 1974]
1073	[14, 1699]	2195	[2972, 2973]	3317	[3861, 841]	4439	[3038, 3095]
1074	[1700, 1701]	2196	[2974, 511]	3318	[3862, 3863]	4440	[4116, 3897]
1075	[645, 700]	2197	[191, 1591]	3319	[3864, 1169]	4441	[3287, 1867]
1076	[1702, 1703]	2198	[618, 1515]	3320	[2159, 2527]	4442	[4018, 2936]
1077	[1704, 1635]	2199	[2975, 217]	3321	[3865, 2691]	4443	[4470, 701]
1078	[478, 1705]	2200	[698, 1627]	3322	[3588, 2662]	4444	[3207, 2949]
1079	[41, 710]	2201	[1543, 1948]	3323	[3866, 2725]	4445	[4061, 767]
1080	[1706, 1707]	2202	[2976, 229]	3324	[96, 3832]	4446	[3297, 1855]
1081	[1708, 207]	2203	[2977, 1888]	3325	[3867, 896]	4447	[4471, 701]
1082	[1709, 126]	2204	[2978, 44]	3326	[3868, 2435]	4448	[4022, 1555]
1083	[1710, 1711]	2205	[2979, 664]	3327	[3869, 2512]	4449	[3941, 3304]
1084	[1712, 57]	2206	[2980, 2886]	3328	[3870, 3804]	4450	[4052, 2865]
1085	[1479, 1713]	2207	[521, 1444]	3329	[3871, 2266]	4451	[1976, 206]
1086	[535, 144]	2208	[2981, 1634]	3330	[1348, 3716]	4452	[4472, 1675]
1087	[1714, 2]	2209	[1500, 2901]	3331	[3872, 2643]	4453	[4037, 2874]
1088	[1476, 1469]	2210	[2982, 48]	3332	[3873, 3602]	4454	[3979, 1867]
1089	[1715, 1716]	2211	[2983, 1424]	3333	[3874, 2285]	4455	[4083, 634]
1090	[217, 577]	2212	[2984, 660]	3334	[895, 810]	4456	[2987, 1729]
1091	[476, 1717]	2213	[1679, 1626]	3335	[3875, 2203]	4457	[4399, 1527]
1092	[1718, 1701]	2214	[1419, 1876]	3336	[3876, 2266]	4458	[4395, 3105]
1093	[1719, 1720]	2215	[2985, 2986]	3337	[3877, 2273]	4459	[4473, 3218]
1094	[1721, 1722]	2216	[516, 1834]	3338	[408, 2748]	4460	[4411, 3270]
1095	[1723, 678]	2217	[2987, 2988]	3339	[3878, 1229]	4461	[4365, 562]
1096	[1724, 772]	2218	[2989, 716]	3340	[2155, 105]	4462	[4474, 1551]

1097	[684, 142]	2219	[701, 2990]	3341	[1033, 1009]	4463	[3331, 1412]
1098	[232, 1725]	2220	[1865, 1849]	3342	[3879, 3880]	4464	[4475, 1702]
1099	[1624, 1726]	2221	[126, 1479]	3343	[3479, 3881]	4465	[3290, 1501]
1100	[597, 1727]	2222	[2991, 576]	3344	[3882, 1329]	4466	[4104, 1642]
1101	[1663, 184]	2223	[2992, 14]	3345	[384, 2470]	4467	[3899, 519]
1102	[1568, 1414]	2224	[2993, 1702]	3346	[3883, 3884]	4468	[3021, 206]
1103	[1728, 1612]	2225	[2994, 1964]	3347	[3885, 342]	4469	[1558, 3027]
1104	[1729, 580]	2226	[2884, 756]	3348	[3886, 1010]	4470	[4476, 2485]
1105	[1608, 1730]	2227	[2995, 1793]	3349	[414, 2678]	4471	[4477, 2195]
1106	[1731, 1732]	2228	[1919, 2996]	3350	[3887, 2446]	4472	[4478, 2433]
1107	[239, 159]	2229	[2997, 2998]	3351	[3888, 515]	4473	[4479, 2515]
1108	[1733, 1734]	2230	[167, 726]	3352	[3119, 177]	4474	[4480, 4327]
1109	[751, 659]	2231	[768, 1759]	3353	[1406, 769]	4475	[4481, 992]
1110	[1735, 1732]	2232	[2906, 1878]	3354	[3889, 2848]	4476	[3337, 1563]
1111	[1736, 1737]	2233	[2999, 1685]	3355	[3278, 1555]	4477	[3344, 1729]
1112	[1738, 712]	2234	[3000, 717]	3356	[1783, 2948]	4478	[4058, 3027]
1113	[567, 1739]	2235	[3001, 1450]	3357	[724, 729]	4479	[47, 1772]
1114	[1740, 1601]	2236	[166, 1569]	3358	[3890, 3196]	4480	[4482, 1675]
1115	[724, 786]	2237	[3002, 3003]	3359	[3891, 46]	4481	[4413, 3304]
1116	[1741, 231]	2238	[136, 1469]	3360	[2912, 3892]	4482	[4483, 3482]
1117	[143, 1658]	2239	[3004, 1397]	3361	[3893, 1669]	4483	[3980, 2874]
1118	[1716, 62]	2240	[3005, 3006]	3362	[646, 1742]		
1119	[1742, 1743]	2241	[1771, 3007]	3363	[3894, 1611]		
1120	[224, 1437]	2242	[1653, 2907]	3364	[3895, 3005]		
1121	[465, 161]	2243	[1713, 3008]	3365	[2893, 3215]		

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	748	1	1496	0	2244	1	2992	1	3740	1
1	0	749	1	1497	0	2245	0	2993	0	3741	1
2	0	750	1	1498	0	2246	1	2994	0	3742	0
3	0	751	1	1499	0	2247	1	2995	0	3743	0
4	0	752	1	1500	1	2248	1	2996	0	3744	0
5	0	753	0	1501	0	2249	1	2997	1	3745	0
6	0	754	0	1502	0	2250	0	2998	1	3746	0
7	0	755	0	1503	0	2251	1	2999	1	3747	1
8	0	756	1	1504	0	2252	1	3000	0	3748	0
9	0	757	0	1505	0	2253	0	3001	0	3749	0
10	1	758	1	1506	1	2254	0	3002	0	3750	1
11	0	759	1	1507	0	2255	0	3003	1	3751	1
12	1	760	1	1508	0	2256	0	3004	1	3752	0
13	0	761	1	1509	0	2257	0	3005	0	3753	0
14	1	762	0	1510	1	2258	0	3006	0	3754	1
15	0	763	1	1511	1	2259	1	3007	0	3755	1

16	1	764	1	1512	0	2260	0	3008	0	3756	1
17	0	765	1	1513	1	2261	1	3009	1	3757	1
18	0	766	0	1514	0	2262	0	3010	1	3758	0
19	0	767	0	1515	0	2263	1	3011	1	3759	1
20	0	768	0	1516	1	2264	0	3012	1	3760	0
21	1	769	0	1517	1	2265	0	3013	1	3761	1
22	1	770	1	1518	1	2266	1	3014	1	3762	0
23	0	771	0	1519	0	2267	1	3015	1	3763	0
24	1	772	1	1520	0	2268	0	3016	0	3764	0
25	1	773	1	1521	1	2269	1	3017	1	3765	1
26	1	774	0	1522	1	2270	0	3018	0	3766	1
27	0	775	0	1523	0	2271	1	3019	0	3767	0
28	1	776	1	1524	0	2272	0	3020	0	3768	0
29	1	777	0	1525	1	2273	1	3021	0	3769	0
30	1	778	1	1526	1	2274	0	3022	1	3770	0
31	0	779	1	1527	0	2275	0	3023	1	3771	0
32	0	780	1	1528	0	2276	1	3024	1	3772	0
33	1	781	1	1529	0	2277	0	3025	0	3773	0
34	0	782	1	1530	1	2278	1	3026	1	3774	1
35	0	783	1	1531	1	2279	1	3027	0	3775	1
36	1	784	0	1532	0	2280	1	3028	1	3776	0
37	0	785	1	1533	0	2281	0	3029	0	3777	0
38	1	786	1	1534	1	2282	1	3030	1	3778	1
39	0	787	1	1535	0	2283	1	3031	1	3779	1
40	1	788	1	1536	1	2284	1	3032	1	3780	1
41	0	789	0	1537	0	2285	0	3033	1	3781	1
42	0	790	1	1538	0	2286	0	3034	0	3782	0
43	1	791	0	1539	0	2287	0	3035	1	3783	1
44	1	792	0	1540	1	2288	0	3036	0	3784	1
45	1	793	1	1541	0	2289	1	3037	1	3785	0
46	0	794	1	1542	0	2290	1	3038	0	3786	1
47	0	795	0	1543	0	2291	1	3039	1	3787	0
48	1	796	1	1544	0	2292	0	3040	0	3788	0
49	1	797	1	1545	1	2293	0	3041	1	3789	0
50	1	798	0	1546	1	2294	1	3042	0	3790	1
51	1	799	1	1547	1	2295	0	3043	0	3791	1
52	0	800	1	1548	1	2296	1	3044	1	3792	1
53	1	801	1	1549	1	2297	1	3045	1	3793	0
54	0	802	0	1550	1	2298	0	3046	0	3794	0
55	0	803	0	1551	0	2299	1	3047	1	3795	0
56	1	804	0	1552	0	2300	0	3048	0	3796	1
57	1	805	0	1553	0	2301	0	3049	0	3797	1
58	1	806	0	1554	0	2302	0	3050	0	3798	0
59	1	807	0	1555	0	2303	0	3051	1	3799	0

60	0	808	1	1556	1	2304	0	3052	0	3800	1
61	1	809	0	1557	0	2305	0	3053	1	3801	1
62	0	810	0	1558	1	2306	0	3054	1	3802	1
63	0	811	1	1559	1	2307	0	3055	1	3803	0
64	1	812	0	1560	1	2308	1	3056	1	3804	0
65	0	813	0	1561	0	2309	1	3057	0	3805	1
66	1	814	0	1562	1	2310	1	3058	1	3806	1
67	1	815	1	1563	0	2311	1	3059	0	3807	0
68	0	816	1	1564	1	2312	1	3060	0	3808	0
69	0	817	1	1565	1	2313	1	3061	1	3809	0
70	0	818	0	1566	0	2314	0	3062	0	3810	0
71	0	819	1	1567	0	2315	0	3063	0	3811	1
72	1	820	0	1568	1	2316	0	3064	1	3812	0
73	1	821	0	1569	0	2317	0	3065	0	3813	0
74	1	822	0	1570	1	2318	0	3066	1	3814	1
75	0	823	1	1571	1	2319	0	3067	0	3815	1
76	1	824	0	1572	1	2320	0	3068	0	3816	1
77	1	825	0	1573	0	2321	1	3069	1	3817	1
78	1	826	1	1574	1	2322	0	3070	1	3818	0
79	0	827	1	1575	0	2323	1	3071	0	3819	0
80	1	828	1	1576	0	2324	1	3072	0	3820	1
81	1	829	1	1577	0	2325	1	3073	1	3821	0
82	1	830	1	1578	0	2326	0	3074	1	3822	1
83	0	831	1	1579	0	2327	0	3075	1	3823	1
84	0	832	0	1580	1	2328	0	3076	1	3824	1
85	0	833	0	1581	1	2329	1	3077	1	3825	1
86	1	834	0	1582	0	2330	0	3078	1	3826	0
87	1	835	0	1583	1	2331	1	3079	0	3827	0
88	0	836	1	1584	1	2332	0	3080	1	3828	1
89	1	837	1	1585	0	2333	1	3081	0	3829	0
90	1	838	1	1586	1	2334	0	3082	0	3830	1
91	1	839	1	1587	1	2335	0	3083	0	3831	0
92	1	840	0	1588	1	2336	0	3084	1	3832	0
93	0	841	0	1589	0	2337	0	3085	1	3833	0
94	0	842	0	1590	1	2338	1	3086	0	3834	0
95	0	843	1	1591	0	2339	0	3087	1	3835	1
96	1	844	1	1592	0	2340	1	3088	0	3836	0
97	1	845	1	1593	1	2341	0	3089	1	3837	0
98	1	846	0	1594	0	2342	1	3090	0	3838	0
99	1	847	0	1595	0	2343	1	3091	1	3839	0
100	1	848	1	1596	1	2344	0	3092	1	3840	1
101	1	849	1	1597	1	2345	1	3093	0	3841	1
102	1	850	1	1598	1	2346	1	3094	0	3842	0
103	1	851	1	1599	0	2347	1	3095	1	3843	1

104	0	852	1	1600	0	2348	0	3096	0	3844	0
105	0	853	0	1601	0	2349	1	3097	1	3845	1
106	0	854	0	1602	1	2350	1	3098	0	3846	1
107	1	855	0	1603	1	2351	1	3099	1	3847	0
108	0	856	1	1604	1	2352	1	3100	0	3848	0
109	0	857	1	1605	1	2353	0	3101	1	3849	1
110	0	858	1	1606	0	2354	1	3102	0	3850	0
111	1	859	1	1607	0	2355	1	3103	1	3851	0
112	1	860	1	1608	1	2356	1	3104	0	3852	0
113	1	861	0	1609	0	2357	1	3105	1	3853	1
114	1	862	0	1610	0	2358	0	3106	1	3854	1
115	1	863	0	1611	0	2359	1	3107	1	3855	0
116	1	864	1	1612	0	2360	1	3108	1	3856	1
117	1	865	1	1613	1	2361	0	3109	1	3857	0
118	1	866	0	1614	1	2362	0	3110	1	3858	1
119	0	867	0	1615	1	2363	0	3111	0	3859	1
120	0	868	1	1616	1	2364	0	3112	0	3860	0
121	0	869	1	1617	1	2365	1	3113	0	3861	0
122	1	870	1	1618	1	2366	1	3114	0	3862	0
123	0	871	1	1619	0	2367	1	3115	0	3863	0
124	0	872	0	1620	1	2368	1	3116	0	3864	0
125	0	873	0	1621	1	2369	0	3117	1	3865	0
126	1	874	0	1622	0	2370	1	3118	0	3866	1
127	1	875	0	1623	0	2371	1	3119	0	3867	1
128	1	876	0	1624	1	2372	1	3120	0	3868	1
129	0	877	0	1625	1	2373	1	3121	0	3869	0
130	1	878	1	1626	1	2374	0	3122	1	3870	1
131	1	879	1	1627	0	2375	1	3123	0	3871	0
132	0	880	1	1628	1	2376	0	3124	1	3872	0
133	1	881	1	1629	1	2377	1	3125	1	3873	1
134	1	882	0	1630	0	2378	1	3126	0	3874	1
135	0	883	0	1631	0	2379	0	3127	0	3875	0
136	0	884	0	1632	0	2380	0	3128	1	3876	1
137	0	885	0	1633	1	2381	0	3129	1	3877	0
138	0	886	0	1634	1	2382	1	3130	0	3878	1
139	0	887	0	1635	0	2383	0	3131	1	3879	0
140	0	888	1	1636	1	2384	0	3132	1	3880	0
141	0	889	1	1637	1	2385	1	3133	1	3881	0
142	0	890	1	1638	0	2386	1	3134	1	3882	1
143	1	891	0	1639	0	2387	0	3135	1	3883	1
144	1	892	0	1640	1	2388	0	3136	0	3884	0
145	1	893	1	1641	0	2389	1	3137	0	3885	0
146	0	894	1	1642	0	2390	1	3138	0	3886	0
147	1	895	1	1643	1	2391	0	3139	1	3887	1

148	0	896	0	1644	0	2392	1	3140	1	3888	0
149	1	897	0	1645	0	2393	1	3141	1	3889	0
150	1	898	0	1646	1	2394	0	3142	0	3890	1
151	0	899	1	1647	1	2395	0	3143	0	3891	0
152	1	900	0	1648	1	2396	0	3144	1	3892	0
153	1	901	0	1649	0	2397	0	3145	1	3893	1
154	1	902	0	1650	1	2398	1	3146	1	3894	1
155	1	903	0	1651	1	2399	0	3147	1	3895	1
156	0	904	0	1652	1	2400	0	3148	0	3896	0
157	0	905	1	1653	0	2401	1	3149	0	3897	1
158	1	906	1	1654	1	2402	1	3150	1	3898	1
159	1	907	0	1655	0	2403	0	3151	1	3899	0
160	1	908	0	1656	1	2404	1	3152	1	3900	1
161	1	909	0	1657	0	2405	1	3153	1	3901	0
162	1	910	0	1658	0	2406	0	3154	0	3902	1
163	0	911	0	1659	1	2407	1	3155	0	3903	0
164	0	912	0	1660	1	2408	0	3156	0	3904	0
165	1	913	1	1661	0	2409	1	3157	0	3905	0
166	0	914	0	1662	1	2410	0	3158	0	3906	0
167	1	915	1	1663	1	2411	0	3159	1	3907	1
168	0	916	0	1664	1	2412	0	3160	0	3908	1
169	1	917	0	1665	1	2413	0	3161	1	3909	0
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171	1	919	0	1667	0	2415	1	3163	1	3911	1
172	1	920	0	1668	0	2416	1	3164	1	3912	1
173	1	921	1	1669	1	2417	0	3165	1	3913	1
174	0	922	1	1670	1	2418	0	3166	0	3914	0
175	1	923	1	1671	0	2419	0	3167	0	3915	1
176	1	924	0	1672	0	2420	0	3168	0	3916	0
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178	1	926	1	1674	0	2422	1	3170	1	3918	1
179	1	927	0	1675	0	2423	1	3171	1	3919	0
180	1	928	0	1676	1	2424	0	3172	1	3920	1
181	0	929	0	1677	1	2425	0	3173	0	3921	1
182	1	930	1	1678	1	2426	1	3174	1	3922	0
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187	0	935	0	1683	1	2431	1	3179	0	3927	1
188	1	936	0	1684	1	2432	1	3180	1	3928	0
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190	1	938	1	1686	1	2434	1	3182	0	3930	1
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194	1	942	1	1690	1	2438	0	3186	1	3934	1
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205	0	953	0	1701	1	2449	1	3197	0	3945	1
206	0	954	1	1702	1	2450	1	3198	1	3946	0
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224	0	972	1	1720	1	2468	0	3216	1	3964	0
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227	0	975	1	1723	0	2471	1	3219	0	3967	0
228	1	976	1	1724	1	2472	0	3220	1	3968	0
229	0	977	1	1725	0	2473	0	3221	0	3969	0
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231	1	979	0	1727	1	2475	1	3223	0	3971	1
232	0	980	1	1728	1	2476	0	3224	1	3972	0
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234	0	982	0	1730	1	2478	0	3226	1	3974	0
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256	0	1004	0	1752	1	2500	1	3248	1	3996	1
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261	1	1009	1	1757	1	2505	0	3253	1	4001	0
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264	0	1012	0	1760	0	2508	0	3256	0	4004	0
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266	0	1014	0	1762	0	2510	1	3258	0	4006	0
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268	0	1016	1	1764	0	2512	1	3260	0	4008	1
269	0	1017	0	1765	1	2513	0	3261	0	4009	0
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271	0	1019	1	1767	0	2515	1	3263	1	4011	0
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273	1	1021	1	1769	0	2517	1	3265	0	4013	1
274	0	1022	1	1770	0	2518	0	3266	0	4014	0
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276	0	1024	1	1772	0	2520	0	3268	0	4016	0
277	0	1025	1	1773	1	2521	0	3269	0	4017	0
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284	0	1032	0	1780	0	2528	1	3276	0	4024	0
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286	1	1034	0	1782	1	2530	0	3278	1	4026	0
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289	0	1037	0	1785	1	2533	1	3281	1	4029	0
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291	1	1039	1	1787	0	2535	0	3283	0	4031	1
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334	0	1082	1	1830	0	2578	1	3326	1	4074	1
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343	0	1091	1	1839	0	2587	1	3335	0	4083	0
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356	0	1104	1	1852	0	2600	0	3348	0	4096	0
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372	1	1120	0	1868	0	2616	0	3364	1	4112	1
373	0	1121	0	1869	1	2617	1	3365	0	4113	0
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375	1	1123	0	1871	0	2619	0	3367	0	4115	0
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421	1	1169	1	1917	0	2665	0	3413	1	4161	0
422	1	1170	0	1918	1	2666	0	3414	0	4162	0
423	1	1171	1	1919	1	2667	1	3415	1	4163	1
424	1	1172	1	1920	1	2668	0	3416	0	4164	0
425	0	1173	0	1921	0	2669	1	3417	1	4165	1
426	0	1174	0	1922	1	2670	1	3418	0	4166	1
427	0	1175	1	1923	0	2671	0	3419	1	4167	1
428	1	1176	0	1924	0	2672	0	3420	0	4168	1
429	1	1177	0	1925	0	2673	1	3421	0	4169	0
430	1	1178	1	1926	1	2674	0	3422	0	4170	1
431	0	1179	1	1927	1	2675	0	3423	0	4171	0
432	0	1180	1	1928	1	2676	1	3424	1	4172	0
433	1	1181	0	1929	0	2677	1	3425	1	4173	0
434	0	1182	1	1930	0	2678	0	3426	0	4174	1
435	1	1183	1	1931	1	2679	1	3427	0	4175	0
436	0	1184	0	1932	0	2680	1	3428	0	4176	0
437	0	1185	1	1933	0	2681	0	3429	1	4177	1
438	0	1186	0	1934	0	2682	0	3430	0	4178	0
439	1	1187	1	1935	0	2683	0	3431	1	4179	0
440	0	1188	0	1936	1	2684	1	3432	0	4180	0
441	1	1189	1	1937	1	2685	0	3433	1	4181	0
442	1	1190	1	1938	0	2686	0	3434	0	4182	0
443	1	1191	1	1939	1	2687	0	3435	1	4183	1
444	1	1192	0	1940	1	2688	1	3436	1	4184	0
445	1	1193	1	1941	1	2689	1	3437	0	4185	1
446	0	1194	1	1942	0	2690	0	3438	0	4186	1
447	1	1195	0	1943	1	2691	1	3439	1	4187	0
448	1	1196	0	1944	0	2692	0	3440	1	4188	1
449	0	1197	1	1945	1	2693	0	3441	1	4189	1
450	1	1198	0	1946	0	2694	0	3442	1	4190	1
451	0	1199	0	1947	1	2695	0	3443	0	4191	1
452	1	1200	0	1948	1	2696	0	3444	0	4192	0
453	1	1201	0	1949	1	2697	1	3445	1	4193	1
454	0	1202	0	1950	1	2698	1	3446	0	4194	0
455	1	1203	1	1951	1	2699	1	3447	0	4195	0

456	0	1204	0	1952	1	2700	1	3448	0	4196	0
457	1	1205	0	1953	1	2701	1	3449	0	4197	0
458	1	1206	0	1954	0	2702	0	3450	0	4198	0
459	0	1207	0	1955	1	2703	0	3451	1	4199	1
460	1	1208	0	1956	0	2704	0	3452	0	4200	1
461	0	1209	1	1957	1	2705	1	3453	0	4201	0
462	0	1210	0	1958	0	2706	0	3454	1	4202	0
463	1	1211	1	1959	1	2707	0	3455	1	4203	0
464	0	1212	1	1960	1	2708	0	3456	1	4204	0
465	0	1213	1	1961	1	2709	0	3457	0	4205	1
466	0	1214	0	1962	0	2710	0	3458	1	4206	1
467	1	1215	1	1963	1	2711	0	3459	0	4207	0
468	0	1216	1	1964	1	2712	0	3460	0	4208	0
469	1	1217	1	1965	0	2713	0	3461	1	4209	1
470	1	1218	1	1966	0	2714	0	3462	0	4210	1
471	1	1219	0	1967	0	2715	1	3463	0	4211	1
472	0	1220	0	1968	1	2716	1	3464	1	4212	0
473	1	1221	1	1969	1	2717	1	3465	1	4213	0
474	0	1222	1	1970	1	2718	0	3466	1	4214	1
475	1	1223	1	1971	0	2719	1	3467	1	4215	1
476	1	1224	0	1972	0	2720	0	3468	0	4216	1
477	1	1225	1	1973	1	2721	0	3469	0	4217	0
478	0	1226	1	1974	1	2722	0	3470	1	4218	1
479	0	1227	0	1975	0	2723	1	3471	0	4219	0
480	1	1228	1	1976	1	2724	0	3472	1	4220	0
481	1	1229	1	1977	0	2725	1	3473	1	4221	1
482	0	1230	1	1978	1	2726	1	3474	1	4222	0
483	1	1231	0	1979	1	2727	0	3475	0	4223	1
484	1	1232	1	1980	0	2728	1	3476	1	4224	0
485	0	1233	0	1981	1	2729	0	3477	1	4225	1
486	1	1234	0	1982	1	2730	0	3478	0	4226	1
487	0	1235	1	1983	0	2731	0	3479	1	4227	1
488	1	1236	1	1984	1	2732	1	3480	0	4228	0
489	0	1237	0	1985	1	2733	1	3481	0	4229	0
490	0	1238	1	1986	0	2734	0	3482	0	4230	0
491	1	1239	0	1987	1	2735	0	3483	0	4231	1
492	1	1240	0	1988	1	2736	1	3484	1	4232	1
493	0	1241	0	1989	0	2737	0	3485	0	4233	1
494	0	1242	1	1990	1	2738	1	3486	1	4234	0
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496	1	1244	0	1992	0	2740	1	3488	1	4236	0
497	0	1245	1	1993	0	2741	0	3489	0	4237	0
498	0	1246	0	1994	0	2742	0	3490	1	4238	1
499	1	1247	0	1995	0	2743	1	3491	0	4239	1

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501	0	1249	1	1997	0	2745	0	3493	0	4241	0
502	0	1250	1	1998	0	2746	1	3494	0	4242	0
503	0	1251	1	1999	1	2747	0	3495	0	4243	0
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505	1	1253	0	2001	1	2749	0	3497	0	4245	1
506	0	1254	1	2002	0	2750	1	3498	0	4246	1
507	0	1255	0	2003	1	2751	1	3499	1	4247	1
508	0	1256	0	2004	0	2752	1	3500	1	4248	0
509	1	1257	1	2005	1	2753	1	3501	0	4249	0
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511	1	1259	0	2007	0	2755	0	3503	1	4251	0
512	1	1260	1	2008	0	2756	1	3504	1	4252	0
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514	1	1262	0	2010	1	2758	0	3506	1	4254	1
515	0	1263	0	2011	0	2759	0	3507	1	4255	1
516	0	1264	0	2012	1	2760	0	3508	0	4256	0
517	0	1265	0	2013	1	2761	1	3509	0	4257	1
518	0	1266	1	2014	0	2762	0	3510	0	4258	0
519	1	1267	1	2015	0	2763	0	3511	0	4259	1
520	0	1268	1	2016	1	2764	1	3512	0	4260	1
521	1	1269	0	2017	1	2765	1	3513	1	4261	1
522	1	1270	1	2018	1	2766	1	3514	0	4262	0
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525	0	1273	0	2021	0	2769	1	3517	0	4265	0
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529	0	1277	0	2025	1	2773	1	3521	0	4269	0
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531	1	1279	0	2027	0	2775	0	3523	1	4271	0
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533	0	1281	0	2029	1	2777	0	3525	1	4273	0
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535	0	1283	0	2031	0	2779	0	3527	0	4275	1
536	1	1284	1	2032	0	2780	0	3528	0	4276	0
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538	0	1286	1	2034	0	2782	0	3530	0	4278	1
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543	1	1291	1	2039	1	2787	1	3535	1	4283	1

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545	1	1293	1	2041	1	2789	0	3537	0	4285	1
546	1	1294	1	2042	1	2790	1	3538	0	4286	0
547	1	1295	1	2043	1	2791	0	3539	0	4287	0
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553	1	1301	0	2049	0	2797	0	3545	1	4293	0
554	1	1302	0	2050	0	2798	0	3546	1	4294	1
555	0	1303	0	2051	1	2799	1	3547	1	4295	0
556	1	1304	1	2052	1	2800	1	3548	1	4296	0
557	1	1305	1	2053	1	2801	0	3549	1	4297	1
558	0	1306	1	2054	0	2802	1	3550	1	4298	1
559	1	1307	0	2055	1	2803	0	3551	1	4299	0
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562	0	1310	0	2058	1	2806	0	3554	0	4302	0
563	1	1311	0	2059	1	2807	1	3555	0	4303	1
564	0	1312	1	2060	1	2808	1	3556	1	4304	0
565	1	1313	1	2061	1	2809	1	3557	0	4305	1
566	1	1314	1	2062	0	2810	0	3558	0	4306	0
567	1	1315	1	2063	0	2811	0	3559	1	4307	0
568	0	1316	1	2064	0	2812	1	3560	0	4308	1
569	1	1317	0	2065	0	2813	1	3561	0	4309	0
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572	1	1320	0	2068	0	2816	1	3564	1	4312	0
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585	1	1333	1	2081	0	2829	0	3577	1	4325	1
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593	0	1341	1	2089	0	2837	1	3585	1	4333	1
594	0	1342	0	2090	1	2838	0	3586	0	4334	0
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606	0	1354	0	2102	1	2850	1	3598	1	4346	0
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613	1	1361	1	2109	1	2857	1	3605	0	4353	0
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617	1	1365	0	2113	0	2861	1	3609	1	4357	0
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620	1	1368	1	2116	1	2864	1	3612	0	4360	0
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622	0	1370	1	2118	1	2866	0	3614	1	4362	0
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624	1	1372	0	2120	0	2868	0	3616	1	4364	1
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626	1	1374	0	2122	0	2870	1	3618	0	4366	1
627	1	1375	1	2123	0	2871	0	3619	0	4367	0
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634	1	1382	1	2130	0	2878	1	3626	0	4374	0
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638	1	1386	1	2134	0	2882	1	3630	0	4378	0
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674	0	1422	0	2170	1	2918	1	3666	0	4414	1
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678	1	1426	1	2174	0	2922	1	3670	0	4418	0
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683	1	1431	0	2179	0	2927	1	3675	0	4423	0
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685	0	1433	1	2181	0	2929	1	3677	0	4425	1
686	0	1434	1	2182	0	2930	1	3678	1	4426	1
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692	1	1440	0	2188	0	2936	1	3684	0	4432	1
693	0	1441	0	2189	0	2937	1	3685	0	4433	0
694	1	1442	0	2190	1	2938	0	3686	1	4434	0
695	1	1443	0	2191	1	2939	0	3687	1	4435	0
696	1	1444	1	2192	1	2940	1	3688	1	4436	0
697	1	1445	0	2193	0	2941	1	3689	0	4437	0
698	0	1446	1	2194	0	2942	1	3690	1	4438	0
699	0	1447	1	2195	0	2943	1	3691	0	4439	0
700	1	1448	1	2196	1	2944	0	3692	1	4440	0
701	0	1449	1	2197	0	2945	0	3693	0	4441	0
702	0	1450	1	2198	0	2946	0	3694	1	4442	1
703	1	1451	1	2199	1	2947	0	3695	1	4443	0
704	0	1452	0	2200	0	2948	1	3696	0	4444	1
705	1	1453	0	2201	0	2949	0	3697	0	4445	1
706	0	1454	0	2202	1	2950	1	3698	0	4446	1
707	1	1455	0	2203	0	2951	0	3699	0	4447	1
708	0	1456	0	2204	0	2952	1	3700	1	4448	0
709	0	1457	0	2205	0	2953	0	3701	0	4449	0
710	1	1458	1	2206	0	2954	1	3702	1	4450	0
711	0	1459	1	2207	1	2955	0	3703	1	4451	1
712	1	1460	0	2208	0	2956	0	3704	1	4452	0
713	0	1461	0	2209	1	2957	0	3705	1	4453	0
714	0	1462	0	2210	0	2958	1	3706	1	4454	0
715	0	1463	0	2211	1	2959	0	3707	1	4455	0
716	0	1464	1	2212	1	2960	0	3708	0	4456	0
717	1	1465	0	2213	1	2961	0	3709	1	4457	1
718	0	1466	1	2214	1	2962	1	3710	0	4458	1
719	0	1467	1	2215	0	2963	0	3711	1	4459	0

720	0	1468	0	2216	0	2964	0	3712	1	4460	1
721	1	1469	0	2217	0	2965	0	3713	1	4461	1
722	1	1470	0	2218	1	2966	0	3714	1	4462	1
723	0	1471	1	2219	0	2967	0	3715	0	4463	0
724	1	1472	0	2220	0	2968	0	3716	1	4464	1
725	1	1473	0	2221	1	2969	1	3717	1	4465	0
726	1	1474	1	2222	1	2970	1	3718	0	4466	1
727	1	1475	1	2223	1	2971	0	3719	0	4467	0
728	0	1476	1	2224	0	2972	0	3720	0	4468	0
729	0	1477	1	2225	0	2973	0	3721	0	4469	1
730	0	1478	0	2226	1	2974	1	3722	1	4470	0
731	0	1479	0	2227	0	2975	1	3723	1	4471	1
732	0	1480	0	2228	1	2976	1	3724	1	4472	0
733	0	1481	0	2229	1	2977	0	3725	1	4473	0
734	1	1482	0	2230	1	2978	0	3726	0	4474	1
735	0	1483	1	2231	0	2979	0	3727	1	4475	1
736	1	1484	1	2232	1	2980	0	3728	0	4476	0
737	1	1485	0	2233	1	2981	0	3729	1	4477	1
738	0	1486	1	2234	0	2982	0	3730	1	4478	0
739	1	1487	1	2235	0	2983	1	3731	1	4479	0
740	0	1488	1	2236	0	2984	1	3732	0	4480	1
741	0	1489	1	2237	0	2985	0	3733	0	4481	1
742	0	1490	0	2238	0	2986	1	3734	1	4482	1
743	0	1491	0	2239	1	2987	0	3735	0	4483	1
744	1	1492	0	2240	0	2988	0	3736	0		
745	0	1493	1	2241	1	2989	1	3737	1		
746	0	1494	1	2242	0	2990	0	3738	1		
747	0	1495	1	2243	1	2991	1	3739	1		

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