PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b)=(z^6+z^4+z^3+z^2,z)$

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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 $(a,b)=(z^6+z^4+z^3+z^2,z)$.

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* $(a,b)=(z^6+z^4+z^3+z^2,z)$, *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 $\mathrm{CF}(a,b)$,

$$\begin{aligned}
p_0(z)&=z^{17}+z^{14}+z^{13}+z^{12}+z^9+z^7+z^6+z+1,\\
p_1(z)&=z^{23}+z^{21}+z^{18}+z^{14}+z^{11}+z^{10}+z^9+z^8+z^5+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{16}+z^{14}+z^{10}+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{18}+z^{14}+z^{11}+z^{10}+z^9+z^8+z^5+z^2,\\
p_4(z)&=z^{22}+z^{20}+z^{17}+z^{13}+z^{12}+z^{10}+z^9+z^7+z^6+z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z)&=z^{20}+z^{17}+z^{14}+z^{13}+z^9+z^8+z^7+z^6+z^4+z,\\
p_1(z)&=z^{23}+z^{21}+z^{18}+z^{14}+z^{11}+z^{10}+z^9+z^8+z^5+z^2,\\
p_2(z)&=z^{24}+z^{22}+z^{16}+z^{14}+z^{10}+z^4,\\
p_3(z)&=z^{23}+z^{21}+z^{18}+z^{14}+z^{11}+z^{10}+z^9+z^8+z^5+z^2,\\
p_4(z)&=z^{22}+z^{17}+z^{13}+z^{10}+z^9+z^8+z^7+z^6+z^4+z+1.
\end{aligned}$$

2. Proof

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

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

By the basic properties of continued fractions, we have

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

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

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

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

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

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

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

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

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

for some positive integer d_n. Hence,

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

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

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

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

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

of the vector

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

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

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

Lemma 2.1. *We have*

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

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

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

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

Proof. We give the proof of the identity

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

the proofs of the others being similar.

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

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

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

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

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

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

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

Define

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

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

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

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

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

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

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

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

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

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

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

which can be rewritten as

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.8}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.9}$$

$$0 = T[[10w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.10}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1011w]_2], \tag{2.11}$$

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

$$0 = T[[1w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.15}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.16}$$

$$0 = T[[10w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.17}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1011w]_2], \tag{2.18}$$

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

$$0 = T[[1w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 4152 states; its transition function and output function can be found in the annex. Let $A(s,w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

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

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

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100))$$

$$+\tau(A(s,111)), \tag{2.21}$$

$$\begin{aligned}0 &= \tau(A(s,1))+\tau(A(s,10))+\tau(A(s,11))+\tau(A(s,100))\\ &\quad+\tau(A(s,101))+\tau(A(s,1000)),\end{aligned} \tag{2.22}$$

$$\begin{aligned}0 &= \tau(A(s,\epsilon))+\tau(A(s,10))+\tau(A(s,11))+\tau(A(s,100))\\ &\quad+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1001)),\end{aligned} \tag{2.23}$$

$$0 = \tau(A(s,10))+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1010)), \tag{2.24}$$

$$\begin{aligned}0 &= \tau(A(s,\epsilon))+\tau(A(s,1))+\tau(A(s,10))+\tau(A(s,100))\\ &\quad+\tau(A(s,110))+\tau(A(s,1011)),\end{aligned} \tag{2.25}$$

$$0 = \tau(A(s,\epsilon))+\tau(A(s,100))+\tau(A(s,101))+\tau(A(s,1100)), \tag{2.26}$$

$$0 = \tau(A(s,1))+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1101)), \tag{2.27}$$

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

$$\begin{aligned}0 &= \tau(A(s,\epsilon))+\tau(A(s,1))+\tau(A(s,10))+\tau(A(s,11))+\tau(A(s,100))\\ &\quad+\tau(A(s,111)),\end{aligned} \tag{2.28}$$

$$\begin{aligned}0 &= \tau(A(s,1))+\tau(A(s,10))+\tau(A(s,11))+\tau(A(s,100))\\ &\quad+\tau(A(s,101))+\tau(A(s,1000)),\end{aligned} \tag{2.29}$$

$$\begin{aligned}0 &= \tau(A(s,\epsilon))+\tau(A(s,10))+\tau(A(s,11))+\tau(A(s,100))\\ &\quad+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1001)),\end{aligned} \tag{2.30}$$

$$0 = \tau(A(s,10))+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1010)), \tag{2.31}$$

$$\begin{aligned}0 &= \tau(A(s,\epsilon))+\tau(A(s,1))+\tau(A(s,10))+\tau(A(s,100))\\ &\quad+\tau(A(s,110))+\tau(A(s,1011)),\end{aligned} \tag{2.32}$$

$$0 = \tau(A(s,\epsilon))+\tau(A(s,100))+\tau(A(s,101))+\tau(A(s,1100)), \tag{2.33}$$

$$0 = \tau(A(s,1))+\tau(A(s,101))+\tau(A(s,110))+\tau(A(s,1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{32}), E_{32}) = (A(i,0^{20}), E_{20})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 16$, 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 $u = 2^{2k-1}$,*

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

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

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

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

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

We give the proof of

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

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

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

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

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

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

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

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

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

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

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

$$\begin{aligned}
q_0(x) &= x^{24} + x^{23} + x^{18} + x^{17} + x^{15} + x^{12} + x^{11} + x^{10} + x^7,\\
q_1(x) &= x^{22} + x^{19} + x^{16} + x^{15} + x^{14} + x^{13} + x^{10} + x^6 + x^3 + x,\\
q_2(x) &= x^{20} + x^{14} + x^{10} + x^8 + x^2 + 1,\\
q_3(x) &= x^{22} + x^{19} + x^{16} + x^{15} + x^{14} + x^{13} + x^{10} + x^6 + x^3 + x,\\
q_4(x) &= x^{23} + x^{18} + x^{17} + x^{15} + x^{14} + x^{12} + x^{11} + x^7 + x^4 + x^2.
\end{aligned}$$

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

3. Annexe

All 16 polynomials are of the form

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

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

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

$$\begin{aligned}
p_0(x) = {}& x^{114} + x^{112} + x^{110} + x^{102} + x^{98} + x^{92} + x^{84} + x^{76} + x^{74} + x^{68} + x^{64}\\
&+ x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{50} + x^{44} + x^{42} + x^{34} + x^{32} + x^{24}\\
&+ x^{20} + x^{18} + x^{12},\\
p_3(x) = {}& x^{106} + x^{100} + x^{96} + x^{92} + x^{84} + x^{82} + x^{78} + x^{74} + x^{70} + x^{66} + x^{64}\\
&+ x^{58} + x^{52} + x^{50} + x^{46} + x^{42} + x^{40} + x^{38} + x^{34} + x^{32} + x^{30} + x^{24}\\
&+ x^{20} + x^{12} + x^{10} + x^8,\\
p_6(x) = {}& x^{106} + x^{102} + x^{98} + x^{96} + x^{86} + x^{82} + x^{80} + x^{74} + x^{72} + x^{70} + x^{66}\\
&+ x^{64} + x^{58} + x^{50} + x^{46} + x^{42} + x^{40} + x^{34} + x^{26} + x^{24} + x^{18} + x^{16}\\
&+ x^2 + 1,
\end{aligned}$$

$$
\begin{aligned}
p_9(x) &= x^{104} + x^{102} + x^{98} + x^{96} + x^{88} + x^{82} + x^{80} + x^{78} + x^{74} + x^{72} + x^{70} \\
&\quad + x^{68} + x^{66} + x^{64} + x^{60} + x^{56} + x^{54} + x^{52} + x^{44} + x^{42} + x^{40} + x^{38} \\
&\quad + x^{36} + x^{28} + x^{26} + x^{24} + x^{18} + x^{16} + x^{12} + x^{8} + x^{4} + x^{2}, \\
p_{12}(x) &= x^{104} + x^{102} + x^{100} + x^{96} + x^{88} + x^{86} + x^{84} + x^{80} + x^{40} + x^{38} + x^{36} \\
&\quad + x^{32} + x^{24} + x^{22} + x^{20} + x^{16} + x^{8} + x^{6} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{114} \\
&\quad + x^{112} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{104} + x^{103} + x^{102} \\
&\quad + x^{100} + x^{97} + x^{96} + x^{95} + x^{94} + x^{90} + x^{87} + x^{84} + x^{82} + x^{78} + x^{77} \\
&\quad + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{66} + x^{65} + x^{58} + x^{56} + x^{55} + x^{51} \\
&\quad + x^{50} + x^{49} + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{39} + x^{38} + x^{33} + x^{32} \\
&\quad + x^{27}, \\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{108} + x^{105} + x^{104} + x^{103} + x^{100} + x^{97} + x^{82} + x^{81} + x^{80} + x^{79} \\
&\quad + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{61} + x^{59} + x^{58} \\
&\quad + x^{56} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} \\
&\quad + x^{35} + x^{31} + x^{29} + x^{27} + x^{26} + x^{23} + x^{16} + x^{15} + x^{12} + x^{9}, \\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} \\
&\quad + x^{103} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{89} + x^{88} + x^{87} + x^{84} + x^{74} \\
&\quad + x^{73} + x^{71} + x^{67} + x^{66} + x^{64} + x^{58} + x^{57} + x^{56} + x^{54} + x^{48} + x^{47} \\
&\quad + x^{46} + x^{43} + x^{41} + x^{37} + x^{36} + x^{33} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} \\
&\quad + x^{24} + x^{22} + x^{21} + x^{19} + x^{16} + x^{14} + x^{13} + x^{12} + x^{9} + x^{8} + x^{6}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{105} + x^{103} + x^{102} \\
&\quad + x^{100} + x^{95} + x^{93} + x^{91} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{79} + x^{77} \\
&\quad + x^{76} + x^{75} + x^{72} + x^{70} + x^{68} + x^{67} + x^{65} + x^{60} + x^{59} + x^{58} + x^{57} \\
&\quad + x^{55} + x^{54} + x^{53} + x^{50} + x^{48} + x^{46} + x^{45} + x^{44} + x^{42} + x^{41} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{29} + x^{28} + x^{27} + x^{25} + x^{22} \\
&\quad + x^{21} + x^{17} + x^{16} + x^{14} + x^{9} + x^{7} + x^{6} + x^{3}, \\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107} + x^{106} + x^{104} + x^{96} + x^{95} \\
&\quad + x^{94} + x^{91} + x^{90} + x^{88} + x^{84} + x^{83} + x^{82} + x^{80} + x^{52} + x^{51} + x^{50} \\
&\quad + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{32} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} \\
&\quad + x^{16} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{124} + x^{122} + x^{121} + x^{118} + x^{117} + x^{116} + x^{114} \\
&\quad + x^{112} + x^{110} + x^{109} + x^{108} + x^{107} + x^{106} + x^{104} + x^{103} + x^{102} \\
&\quad + x^{100} + x^{97} + x^{96} + x^{95} + x^{94} + x^{90} + x^{87} + x^{84} + x^{82} + x^{78} + x^{77} \\
&\quad + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{66} + x^{65} + x^{58} + x^{56} + x^{55} + x^{51} \\
&\quad + x^{50} + x^{49} + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{39} + x^{38} + x^{33} + x^{32} \\
&\quad + x^{27}, \\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{108} + x^{105} + x^{104} + x^{103} + x^{100} + x^{97} + x^{82} + x^{81} + x^{80} + x^{79} \\
&\quad + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{61} + x^{59} + x^{58} \\
&\quad + x^{56} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} \\
&\quad + x^{35} + x^{31} + x^{29} + x^{27} + x^{26} + x^{23} + x^{16} + x^{15} + x^{12} + x^{9}, \\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} \\
&\quad + x^{103} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{89} + x^{88} + x^{87} + x^{84} + x^{74} \\
&\quad + x^{73} + x^{71} + x^{67} + x^{66} + x^{64} + x^{58} + x^{57} + x^{56} + x^{54} + x^{48} + x^{47} \\
&\quad + x^{46} + x^{43} + x^{41} + x^{37} + x^{36} + x^{33} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} \\
&\quad + x^{24} + x^{22} + x^{21} + x^{19} + x^{16} + x^{14} + x^{13} + x^{12} + x^{9} + x^{8} + x^{6}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{105} + x^{103} + x^{102} \\
&\quad + x^{100} + x^{95} + x^{93} + x^{91} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{79} + x^{77} \\
&\quad + x^{76} + x^{75} + x^{72} + x^{70} + x^{68} + x^{67} + x^{65} + x^{60} + x^{59} + x^{58} + x^{57} \\
&\quad + x^{55} + x^{54} + x^{53} + x^{50} + x^{48} + x^{46} + x^{45} + x^{44} + x^{42} + x^{41} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{29} + x^{28} + x^{27} + x^{25} + x^{22} \\
&\quad + x^{21} + x^{17} + x^{16} + x^{14} + x^{9} + x^{7} + x^{6} + x^{3}, \\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107} + x^{106} + x^{104} + x^{96} + x^{95} \\
&\quad + x^{94} + x^{91} + x^{90} + x^{88} + x^{84} + x^{83} + x^{82} + x^{80} + x^{52} + x^{51} + x^{50} \\
&\quad + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{32} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} \\
&\quad + x^{16} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{140} + x^{138} + x^{132} + x^{130} + x^{128} + x^{122} + x^{116} + x^{112} \\
&\quad + x^{110} + x^{106} + x^{104} + x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{82} + x^{72} + x^{66} \\
&\quad + x^{64} + x^{62} + x^{60} + x^{54} + x^{52} + x^{50} + x^{48} + x^{42}, \\
p_3(x) &= x^{132} + x^{130} + x^{128} + x^{126} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{102} \\
&\quad + x^{100} + x^{98} + x^{94} + x^{90} + x^{88} + x^{86} + x^{76} + x^{74} + x^{70} + x^{68} + x^{66} \\
&\quad + x^{64} + x^{62} + x^{58} + x^{56} + x^{54} + x^{52} + x^{46} + x^{42} + x^{32} + x^{28} + x^{26}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{22} + x^{20} + x^{16} + x^{14} + x^{8} + x^{6},\\
p_6(x) &= x^{132} + x^{130} + x^{118} + x^{116} + x^{112} + x^{110} + x^{104} + x^{102} + x^{98} + x^{92}\\
&+ x^{88} + x^{84} + x^{82} + x^{72} + x^{68} + x^{56} + x^{52} + x^{48} + x^{46} + x^{44} + x^{42}\\
&+ x^{36} + x^{32} + x^{30} + x^{28} + x^{26} + x^{22} + x^{20} + x^{16} + x^{12} + x^{10} + x^{6}\\
&+ x^{2} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{118} + x^{112} + x^{110} + x^{106} + x^{104} + x^{100} + x^{94} + x^{92}\\
&+ x^{88} + x^{80} + x^{78} + x^{76} + x^{72} + x^{68} + x^{66} + x^{60} + x^{56} + x^{44} + x^{42}\\
&+ x^{38} + x^{36} + x^{32} + x^{30} + x^{26} + x^{20} + x^{16} + x^{14} + x^{10} + x^{8} + x^{6} + x^{4}\\
&+ x^{2},\\
p_{12}(x) &= x^{128} + x^{120} + x^{104} + x^{80} + x^{64} + x^{56} + x^{40} + x^{32} + x^{24} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{140} + x^{138} + x^{136} + x^{130} + x^{128} + x^{126} + x^{122} + x^{120}\\
&+ x^{114} + x^{112} + x^{110} + x^{106} + x^{100} + x^{96} + x^{86} + x^{84} + x^{80} + x^{78}\\
&+ x^{76} + x^{74} + x^{70} + x^{66} + x^{62} + x^{54} + x^{50} + x^{44} + x^{40} + x^{38} + x^{36}\\
&+ x^{32} + x^{30} + x^{22} + x^{12},\\
p_3(x) &= x^{132} + x^{130} + x^{128} + x^{126} + x^{124} + x^{114} + x^{112} + x^{110} + x^{108} + x^{106}\\
&+ x^{102} + x^{100} + x^{98} + x^{96} + x^{92} + x^{90} + x^{84} + x^{82} + x^{78} + x^{74} + x^{60}\\
&+ x^{54} + x^{52} + x^{48} + x^{46} + x^{42} + x^{40} + x^{36} + x^{34} + x^{24} + x^{22} + x^{8},\\
p_6(x) &= x^{132} + x^{130} + x^{124} + x^{120} + x^{112} + x^{110} + x^{108} + x^{106} + x^{102} + x^{100}\\
&+ x^{98} + x^{94} + x^{88} + x^{86} + x^{78} + x^{72} + x^{70} + x^{68} + x^{66} + x^{64} + x^{62}\\
&+ x^{58} + x^{56} + x^{48} + x^{46} + x^{42} + x^{40} + x^{34} + x^{30} + x^{22} + x^{20} + x^{14}\\
&+ x^{10} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{124} + x^{118} + x^{112} + x^{110} + x^{106} + x^{104} + x^{100} + x^{94} + x^{92}\\
&+ x^{88} + x^{80} + x^{78} + x^{76} + x^{72} + x^{68} + x^{66} + x^{60} + x^{56} + x^{44} + x^{42}\\
&+ x^{38} + x^{36} + x^{32} + x^{30} + x^{26} + x^{20} + x^{16} + x^{14} + x^{10} + x^{8} + x^{6} + x^{4}\\
&+ x^{2},\\
p_{12}(x) &= x^{128} + x^{120} + x^{104} + x^{80} + x^{64} + x^{56} + x^{40} + x^{32} + x^{24} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{124} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{110}\\
&+ x^{107} + x^{106} + x^{104} + x^{103} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{87}\\
&+ x^{85} + x^{83} + x^{82} + x^{80} + x^{76} + x^{75} + x^{74} + x^{72} + x^{67} + x^{64} + x^{63}\\
&+ x^{60} + x^{59} + x^{54} + x^{52} + x^{50} + x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40}\\
&+ x^{37} + x^{35} + x^{29} + x^{26} + x^{25} + x^{24} + x^{22} + x^{20} + x^{18},
\end{aligned}
$$

$$\begin{aligned}
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{108} + x^{105} + x^{104} + x^{103} + x^{100} + x^{97} + x^{82} + x^{81} + x^{80} + x^{79} \\
&\quad + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{61} + x^{59} + x^{58} \\
&\quad + x^{56} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} \\
&\quad + x^{35} + x^{31} + x^{29} + x^{27} + x^{26} + x^{23} + x^{16} + x^{15} + x^{12} + x^{9}, \\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} \\
&\quad + x^{103} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{89} + x^{88} + x^{87} + x^{84} + x^{74} \\
&\quad + x^{73} + x^{71} + x^{67} + x^{66} + x^{64} + x^{58} + x^{57} + x^{56} + x^{54} + x^{48} + x^{47} \\
&\quad + x^{46} + x^{43} + x^{41} + x^{37} + x^{36} + x^{33} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} \\
&\quad + x^{24} + x^{22} + x^{21} + x^{19} + x^{16} + x^{14} + x^{13} + x^{12} + x^{9} + x^{8} + x^{6}, \\
p_9(x) &= x^{118} + x^{117} + x^{116} + x^{115} + x^{113} + x^{110} + x^{109} + x^{105} + x^{103} + x^{102} \\
&\quad + x^{100} + x^{95} + x^{93} + x^{91} + x^{90} + x^{88} + x^{84} + x^{82} + x^{80} + x^{79} + x^{77} \\
&\quad + x^{76} + x^{75} + x^{72} + x^{70} + x^{68} + x^{67} + x^{65} + x^{60} + x^{59} + x^{58} + x^{57} \\
&\quad + x^{55} + x^{54} + x^{53} + x^{50} + x^{48} + x^{46} + x^{45} + x^{44} + x^{42} + x^{41} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} + x^{30} + x^{29} + x^{28} + x^{27} + x^{25} + x^{22} \\
&\quad + x^{21} + x^{17} + x^{16} + x^{14} + x^{9} + x^{7} + x^{6} + x^{3}, \\
p_{12}(x) &= x^{116} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107} + x^{106} + x^{104} + x^{96} + x^{95} \\
&\quad + x^{94} + x^{91} + x^{90} + x^{88} + x^{84} + x^{83} + x^{82} + x^{80} + x^{52} + x^{51} + x^{50} \\
&\quad + x^{47} + x^{46} + x^{43} + x^{42} + x^{40} + x^{32} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} \\
&\quad + x^{16} + x^{15} + x^{14} + x^{11} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{125} + x^{124} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{110} \\
&\quad + x^{107} + x^{106} + x^{104} + x^{103} + x^{99} + x^{98} + x^{94} + x^{93} + x^{91} + x^{87} \\
&\quad + x^{85} + x^{83} + x^{82} + x^{80} + x^{76} + x^{75} + x^{74} + x^{72} + x^{67} + x^{64} + x^{63} \\
&\quad + x^{60} + x^{59} + x^{54} + x^{52} + x^{50} + x^{47} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} \\
&\quad + x^{37} + x^{35} + x^{29} + x^{26} + x^{25} + x^{24} + x^{22} + x^{20} + x^{18}, \\
p_3(x) &= x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{108} + x^{105} + x^{104} + x^{103} + x^{100} + x^{97} + x^{82} + x^{81} + x^{80} + x^{79} \\
&\quad + x^{77} + x^{76} + x^{75} + x^{74} + x^{73} + x^{72} + x^{68} + x^{66} + x^{61} + x^{59} + x^{58} \\
&\quad + x^{56} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} \\
&\quad + x^{35} + x^{31} + x^{29} + x^{27} + x^{26} + x^{23} + x^{16} + x^{15} + x^{12} + x^{9}, \\
p_6(x) &= x^{120} + x^{119} + x^{118} + x^{115} + x^{113} + x^{109} + x^{107} + x^{106} + x^{105} + x^{104} \\
&\quad + x^{103} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{89} + x^{88} + x^{87} + x^{84} + x^{74} \\
&\quad + x^{73} + x^{71} + x^{67} + x^{66} + x^{64} + x^{58} + x^{57} + x^{56} + x^{54} + x^{48} + x^{47}
\end{aligned}$$

$$
\begin{aligned}
&+x^{46}+x^{43}+x^{41}+x^{37}+x^{36}+x^{33}+x^{31}+x^{30}+x^{29}+x^{28}+x^{27}\\
&+x^{24}+x^{22}+x^{21}+x^{19}+x^{16}+x^{14}+x^{13}+x^{12}+x^{9}+x^{8}+x^{6},\\
p_9(x)&=x^{118}+x^{117}+x^{116}+x^{115}+x^{113}+x^{110}+x^{109}+x^{105}+x^{103}+x^{102}\\
&+x^{100}+x^{95}+x^{93}+x^{91}+x^{90}+x^{88}+x^{84}+x^{82}+x^{80}+x^{79}+x^{77}\\
&+x^{76}+x^{75}+x^{72}+x^{70}+x^{68}+x^{67}+x^{65}+x^{60}+x^{59}+x^{58}+x^{57}\\
&+x^{55}+x^{54}+x^{53}+x^{50}+x^{48}+x^{46}+x^{45}+x^{44}+x^{42}+x^{41}+x^{39}\\
&+x^{38}+x^{37}+x^{36}+x^{35}+x^{33}+x^{30}+x^{29}+x^{28}+x^{27}+x^{25}+x^{22}\\
&+x^{21}+x^{17}+x^{16}+x^{14}+x^{9}+x^{7}+x^{6}+x^{3},\\
p_{12}(x)&=x^{116}+x^{115}+x^{114}+x^{111}+x^{110}+x^{107}+x^{106}+x^{104}+x^{96}+x^{95}\\
&+x^{94}+x^{91}+x^{90}+x^{88}+x^{84}+x^{83}+x^{82}+x^{80}+x^{52}+x^{51}+x^{50}\\
&+x^{47}+x^{46}+x^{43}+x^{42}+x^{40}+x^{32}+x^{31}+x^{30}+x^{27}+x^{26}+x^{24}\\
&+x^{16}+x^{15}+x^{14}+x^{11}+x^{10}+x^{8}+x^{4}+x^{3}+x^{2}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)&=x^{114}+x^{112}+x^{110}+x^{108}+x^{106}+x^{104}+x^{92}+x^{90}+x^{88}+x^{86}\\
&+x^{84}+x^{80}+x^{78}+x^{74}+x^{72}+x^{70}+x^{64}+x^{56}+x^{54}+x^{50}+x^{46}\\
&+x^{40}+x^{36}+x^{34}+x^{32}+x^{28}+x^{24},\\
p_3(x)&=x^{106}+x^{98}+x^{94}+x^{92}+x^{90}+x^{88}+x^{86}+x^{76}+x^{70}+x^{64}+x^{62}\\
&+x^{60}+x^{58}+x^{54}+x^{48}+x^{40}+x^{38}+x^{36}+x^{26}+x^{22}+x^{18}+x^{16}\\
&+x^{8}+x^{6},\\
p_6(x)&=x^{106}+x^{102}+x^{100}+x^{96}+x^{92}+x^{90}+x^{82}+x^{78}+x^{66}+x^{54}+x^{46}\\
&+x^{44}+x^{36}+x^{28}+x^{24}+x^{22}+x^{18}+x^{16}+x^{12}+x^{8}+x^{6}+x^{4}+x^{2}\\
&+1,\\
p_9(x)&=x^{104}+x^{102}+x^{98}+x^{96}+x^{88}+x^{82}+x^{80}+x^{78}+x^{74}+x^{72}+x^{70}\\
&+x^{68}+x^{66}+x^{64}+x^{60}+x^{56}+x^{54}+x^{52}+x^{44}+x^{42}+x^{40}+x^{38}\\
&+x^{36}+x^{28}+x^{26}+x^{24}+x^{18}+x^{16}+x^{12}+x^{8}+x^{4}+x^{2},\\
p_{12}(x)&=x^{104}+x^{102}+x^{100}+x^{96}+x^{88}+x^{86}+x^{84}+x^{80}+x^{40}+x^{38}+x^{36}\\
&+x^{32}+x^{24}+x^{22}+x^{20}+x^{16}+x^{8}+x^{6}+x^{4}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)&=x^{129}+x^{127}+x^{126}+x^{125}+x^{120}+x^{115}+x^{114}+x^{111}+x^{109}+x^{104}\\
&+x^{101}+x^{98}+x^{95}+x^{94}+x^{92}+x^{91}+x^{90}+x^{87}+x^{86}+x^{81}+x^{76}\\
&+x^{75}+x^{69}+x^{67}+x^{66}+x^{65}+x^{60}+x^{59}+x^{58}+x^{57}+x^{56}+x^{53}\\
&+x^{49}+x^{46}+x^{45}+x^{44}+x^{42}+x^{39}+x^{37}+x^{31}+x^{25}+x^{20}+x^{18}\\
&+x^{17}+x^{16}+x^{15}+x^{12},
\end{aligned}
$$

$$\begin{aligned}
p_3(x) &= x^{124} + x^{122} + x^{120} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{111} \\
&\quad + x^{108} + x^{107} + x^{104} + x^{100} + x^{98} + x^{97} + x^{96} + x^{93} + x^{92} + x^{89} \\
&\quad + x^{87} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{78} + x^{68} + x^{67} + x^{66} + x^{64} \\
&\quad + x^{63} + x^{62} + x^{61} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{47} + x^{46} \\
&\quad + x^{43} + x^{42} + x^{41} + x^{40} + x^{33} + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} \\
&\quad + x^{18} + x^{17} + x^{16} + x^{13} + x^{12} + x^{11} + x^{8}, \\
p_6(x) &= x^{124} + x^{122} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110} + x^{109} + x^{107} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{100} + x^{99} + x^{98} + x^{90} + x^{88} + x^{86} + x^{84} \\
&\quad + x^{83} + x^{77} + x^{76} + x^{74} + x^{69} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} + x^{58} \\
&\quad + x^{56} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{46} + x^{41} + x^{40} + x^{37} + x^{35} \\
&\quad + x^{34} + x^{32} + x^{31} + x^{30} + x^{27} + x^{26} + x^{23} + x^{22} + x^{21} + x^{16} + x^{15} \\
&\quad + x^{10} + x^{9} + x^{8} + x^{7} + x^{3} + x^{2} + 1, \\
p_9(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107} \\
&\quad + x^{106} + x^{104} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{92} + x^{88} + x^{87} + x^{86} \\
&\quad + x^{84} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43} \\
&\quad + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} + x^{20} \\
&\quad + x^{19} + x^{18} + x^{15} + x^{14} + x^{12} + x^{8} + x^{7} + x^{6} + x^{4}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{100} + x^{99} + x^{98} + x^{96} \\
&\quad + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{83} + x^{82} + x^{80} + x^{60} + x^{59} + x^{58} \\
&\quad + x^{55} + x^{54} + x^{52} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} + x^{19} + x^{18} + x^{16} \\
&\quad + x^{12} + x^{11} + x^{10} + x^{7} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{139} + x^{138} + x^{136} + x^{132} + x^{129} + x^{126} + x^{125} + x^{120} \\
&\quad + x^{117} + x^{113} + x^{112} + x^{111} + x^{108} + x^{107} + x^{101} + x^{100} + x^{99} + x^{98} \\
&\quad + x^{97} + x^{90} + x^{88} + x^{85} + x^{84} + x^{83} + x^{78} + x^{75} + x^{74} + x^{69} + x^{68} \\
&\quad + x^{67} + x^{65} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55} + x^{54} + x^{52} + x^{51} \\
&\quad + x^{49} + x^{48} + x^{43} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} \\
&\quad + x^{30} + x^{27}, \\
p_3(x) &= x^{130} + x^{127} + x^{123} + x^{120} + x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{109} \\
&\quad + x^{105} + x^{104} + x^{102} + x^{97} + x^{90} + x^{87} + x^{83} + x^{80} + x^{79} + x^{76} + x^{74} \\
&\quad + x^{73} + x^{72} + x^{69} + x^{67} + x^{65} + x^{63} + x^{62} + x^{60} + x^{56} + x^{55} + x^{53} \\
&\quad + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{42} + x^{41} + x^{40} + x^{36} + x^{35} \\
&\quad + x^{33} + x^{29} + x^{28} + x^{23} + x^{22} + x^{21} + x^{16} + x^{14} + x^{9}, \\
p_6(x) &= x^{132} + x^{126} + x^{118} + x^{116} + x^{108} + x^{106} + x^{98} + x^{96} + x^{94} + x^{88}
\end{aligned}$$

$$
\begin{aligned}
&+x^{82}+x^{78}+x^{72}+x^{68}+x^{66}+x^{64}+x^{62}+x^{60}+x^{48}+x^{46}+x^{42}\\
&+x^{40}+x^{38}+x^{34}+x^{26}+x^{18}+x^{16}+x^{14}+x^{10}+x^{6},\\
p_9(x)&=x^{134}+x^{131}+x^{128}+x^{127}+x^{125}+x^{124}+x^{123}+x^{121}+x^{118}+x^{117}\\
&+x^{116}+x^{115}+x^{112}+x^{108}+x^{106}+x^{105}+x^{104}+x^{101}+x^{100}\\
&+x^{99}+x^{95}+x^{93}+x^{91}+x^{90}+x^{88}+x^{83}+x^{70}+x^{67}+x^{64}+x^{63}\\
&+x^{61}+x^{60}+x^{59}+x^{57}+x^{54}+x^{53}+x^{52}+x^{51}+x^{48}+x^{44}+x^{42}\\
&+x^{41}+x^{40}+x^{38}+x^{37}+x^{36}+x^{32}+x^{28}+x^{26}+x^{25}+x^{24}+x^{21}\\
&+x^{20}+x^{19}+x^{15}+x^{13}+x^{11}+x^{10}+x^{8}+x^{3},\\
p_{12}(x)&=x^{136}+x^{124}+x^{120}+x^{116}+x^{112}+x^{108}+x^{84}+x^{80}+x^{72}+x^{60}\\
&+x^{56}+x^{52}+x^{48}+x^{44}+x^{40}+x^{28}+x^{4}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)&=x^{122}+x^{119}+x^{118}+x^{116}+x^{114}+x^{113}+x^{111}+x^{110}+x^{108}+x^{103}\\
&+x^{102}+x^{101}+x^{99}+x^{91}+x^{87}+x^{84}+x^{81}+x^{75}+x^{73}+x^{72}+x^{71}\\
&+x^{67}+x^{66}+x^{65}+x^{64}+x^{62}+x^{60}+x^{58}+x^{57}+x^{55}+x^{54}+x^{51}\\
&+x^{50}+x^{49}+x^{48}+x^{47}+x^{44}+x^{42}+x^{39}+x^{37}+x^{34}+x^{32}+x^{31}\\
&+x^{28}+x^{27}+x^{24}+x^{22}+x^{21}+x^{20}+x^{18},\\
p_3(x)&=x^{114}+x^{111}+x^{110}+x^{104}+x^{102}+x^{97}+x^{74}+x^{71}+x^{70}+x^{64}+x^{62}\\
&+x^{58}+x^{57}+x^{55}+x^{54}+x^{48}+x^{46}+x^{41}+x^{34}+x^{31}+x^{30}+x^{26}\\
&+x^{24}+x^{23}+x^{17}+x^{16}+x^{14}+x^{9},\\
p_6(x)&=x^{116}+x^{112}+x^{110}+x^{106}+x^{104}+x^{102}+x^{100}+x^{96}+x^{92}+x^{88}\\
&+x^{86}+x^{84}+x^{70}+x^{68}+x^{64}+x^{54}+x^{44}+x^{40}+x^{38}+x^{34}+x^{30}\\
&+x^{28}+x^{26}+x^{24}+x^{18}+x^{16}+x^{10}+x^{6},\\
p_9(x)&=x^{118}+x^{115}+x^{114}+x^{112}+x^{109}+x^{106}+x^{104}+x^{102}+x^{98}+x^{96}\\
&+x^{93}+x^{90}+x^{88}+x^{83}+x^{54}+x^{51}+x^{50}+x^{48}+x^{45}+x^{42}+x^{40}\\
&+x^{38}+x^{34}+x^{32}+x^{29}+x^{26}+x^{24}+x^{22}+x^{18}+x^{16}+x^{13}+x^{10}\\
&+x^{8}+x^{3},\\
p_{12}(x)&=x^{120}+x^{116}+x^{96}+x^{88}+x^{84}+x^{80}+x^{56}+x^{52}+x^{32}+x^{16}+x^{8}\\
&+x^{4}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x)&=x^{129}+x^{127}+x^{120}+x^{119}+x^{118}+x^{117}+x^{116}+x^{112}+x^{110}+x^{107}\\
&+x^{106}+x^{105}+x^{103}+x^{101}+x^{100}+x^{99}+x^{97}+x^{95}+x^{94}+x^{92}\\
&+x^{89}+x^{83}+x^{82}+x^{80}+x^{79}+x^{78}+x^{74}+x^{72}+x^{70}+x^{69}+x^{67}\\
&+x^{66}+x^{64}+x^{62}+x^{60}+x^{58}+x^{56}+x^{53}+x^{52}+x^{47}+x^{39}+x^{38}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{36} + x^{35} + x^{33},\\
p_3(x) &= x^{124} + x^{122} + x^{119} + x^{118} + x^{117} + x^{115} + x^{111} + x^{109} + x^{108} + x^{102}\\
&+ x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{93} + x^{92} + x^{89} + x^{87} + x^{84} + x^{83}\\
&+ x^{82} + x^{81} + x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{69} + x^{68} + x^{66} + x^{64}\\
&+ x^{62} + x^{60} + x^{59} + x^{58} + x^{56} + x^{52} + x^{50} + x^{48} + x^{47} + x^{45} + x^{42}\\
&+ x^{41} + x^{40} + x^{39} + x^{38} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{26} + x^{25}\\
&+ x^{24} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{14} + x^{12},\\
p_6(x) &= x^{124} + x^{122} + x^{119} + x^{118} + x^{117} + x^{111} + x^{108} + x^{106} + x^{103} + x^{96}\\
&+ x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{82} + x^{79} + x^{78} + x^{77} + x^{73} + x^{71}\\
&+ x^{69} + x^{68} + x^{66} + x^{61} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{51}\\
&+ x^{50} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{35} + x^{34} + x^{33}\\
&+ x^{32} + x^{29} + x^{28} + x^{26} + x^{22} + x^{18} + x^{16} + x^{15} + x^{14} + x^{13} + x^{11}\\
&+ x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107}\\
&+ x^{106} + x^{104} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{92} + x^{88} + x^{87} + x^{86}\\
&+ x^{84} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43}\\
&+ x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} + x^{20}\\
&+ x^{19} + x^{18} + x^{15} + x^{14} + x^{12} + x^{8} + x^{7} + x^{6} + x^{4},\\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{100} + x^{99} + x^{98} + x^{96}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{83} + x^{82} + x^{80} + x^{60} + x^{59} + x^{58}\\
&+ x^{55} + x^{54} + x^{52} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} + x^{19} + x^{18} + x^{16}\\
&+ x^{12} + x^{11} + x^{10} + x^{7} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{120} + x^{115} + x^{114} + x^{111} + x^{109} + x^{104}\\
&+ x^{101} + x^{98} + x^{95} + x^{94} + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{81} + x^{76}\\
&+ x^{75} + x^{69} + x^{67} + x^{66} + x^{65} + x^{60} + x^{59} + x^{58} + x^{57} + x^{56} + x^{53}\\
&+ x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{37} + x^{31} + x^{25} + x^{20} + x^{18}\\
&+ x^{17} + x^{16} + x^{15} + x^{12},\\
p_3(x) &= x^{124} + x^{122} + x^{120} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{111}\\
&+ x^{108} + x^{107} + x^{104} + x^{100} + x^{98} + x^{97} + x^{96} + x^{93} + x^{92} + x^{89}\\
&+ x^{87} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{78} + x^{68} + x^{67} + x^{66} + x^{64}\\
&+ x^{63} + x^{62} + x^{61} + x^{57} + x^{56} + x^{53} + x^{52} + x^{51} + x^{50} + x^{47} + x^{46}\\
&+ x^{43} + x^{42} + x^{41} + x^{40} + x^{33} + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20}\\
&+ x^{18} + x^{17} + x^{16} + x^{13} + x^{12} + x^{11} + x^{8},
\end{aligned}
$$

$$\begin{aligned}
p_6(x) &= x^{124} + x^{122} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110} + x^{109} + x^{107} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{100} + x^{99} + x^{98} + x^{90} + x^{88} + x^{86} + x^{84} \\
&\quad + x^{83} + x^{77} + x^{76} + x^{74} + x^{69} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} + x^{58} \\
&\quad + x^{56} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} + x^{46} + x^{41} + x^{40} + x^{37} + x^{35} \\
&\quad + x^{34} + x^{32} + x^{31} + x^{30} + x^{27} + x^{26} + x^{23} + x^{22} + x^{21} + x^{16} + x^{15} \\
&\quad + x^{10} + x^{9} + x^{8} + x^{7} + x^{3} + x^{2} + 1, \\
p_9(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107} \\
&\quad + x^{106} + x^{104} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{92} + x^{88} + x^{87} + x^{86} \\
&\quad + x^{84} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43} \\
&\quad + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} + x^{20} \\
&\quad + x^{19} + x^{18} + x^{15} + x^{14} + x^{12} + x^{8} + x^{7} + x^{6} + x^{4}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{100} + x^{99} + x^{98} + x^{96} \\
&\quad + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{83} + x^{82} + x^{80} + x^{60} + x^{59} + x^{58} \\
&\quad + x^{55} + x^{54} + x^{52} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} + x^{19} + x^{18} + x^{16} \\
&\quad + x^{12} + x^{11} + x^{10} + x^{7} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{122} + x^{119} + x^{118} + x^{116} + x^{114} + x^{113} + x^{111} + x^{110} + x^{108} + x^{103} \\
&\quad + x^{102} + x^{101} + x^{99} + x^{91} + x^{87} + x^{84} + x^{81} + x^{75} + x^{73} + x^{72} + x^{71} \\
&\quad + x^{67} + x^{66} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{51} \\
&\quad + x^{50} + x^{49} + x^{48} + x^{47} + x^{44} + x^{42} + x^{39} + x^{37} + x^{34} + x^{32} + x^{31} \\
&\quad + x^{28} + x^{27} + x^{24} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_3(x) &= x^{114} + x^{111} + x^{110} + x^{104} + x^{102} + x^{97} + x^{74} + x^{71} + x^{70} + x^{64} + x^{62} \\
&\quad + x^{58} + x^{57} + x^{55} + x^{54} + x^{48} + x^{46} + x^{41} + x^{34} + x^{31} + x^{30} + x^{26} \\
&\quad + x^{24} + x^{23} + x^{17} + x^{16} + x^{14} + x^{9}, \\
p_6(x) &= x^{116} + x^{112} + x^{110} + x^{106} + x^{104} + x^{102} + x^{100} + x^{96} + x^{92} + x^{88} \\
&\quad + x^{86} + x^{84} + x^{70} + x^{68} + x^{64} + x^{54} + x^{44} + x^{40} + x^{38} + x^{34} + x^{30} \\
&\quad + x^{28} + x^{26} + x^{24} + x^{18} + x^{16} + x^{10} + x^{6}, \\
p_9(x) &= x^{118} + x^{115} + x^{114} + x^{112} + x^{109} + x^{106} + x^{104} + x^{102} + x^{98} + x^{96} \\
&\quad + x^{93} + x^{90} + x^{88} + x^{83} + x^{54} + x^{51} + x^{50} + x^{48} + x^{45} + x^{42} + x^{40} \\
&\quad + x^{38} + x^{34} + x^{32} + x^{29} + x^{26} + x^{24} + x^{22} + x^{18} + x^{16} + x^{13} + x^{10} \\
&\quad + x^{8} + x^{3}, \\
p_{12}(x) &= x^{120} + x^{116} + x^{96} + x^{88} + x^{84} + x^{80} + x^{56} + x^{52} + x^{32} + x^{16} + x^{8} \\
&\quad + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{139} + x^{138} + x^{136} + x^{132} + x^{129} + x^{126} + x^{125} + x^{120} \\
&\quad + x^{117} + x^{113} + x^{112} + x^{111} + x^{108} + x^{107} + x^{101} + x^{100} + x^{99} + x^{98} \\
&\quad + x^{97} + x^{90} + x^{88} + x^{85} + x^{84} + x^{83} + x^{78} + x^{75} + x^{74} + x^{69} + x^{68} \\
&\quad + x^{67} + x^{65} + x^{64} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55} + x^{54} + x^{52} + x^{51} \\
&\quad + x^{49} + x^{48} + x^{43} + x^{42} + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} \\
&\quad + x^{30} + x^{27}, \\
p_3(x) &= x^{130} + x^{127} + x^{123} + x^{120} + x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{109} \\
&\quad + x^{105} + x^{104} + x^{102} + x^{97} + x^{90} + x^{87} + x^{83} + x^{80} + x^{79} + x^{76} + x^{74} \\
&\quad + x^{73} + x^{72} + x^{69} + x^{67} + x^{65} + x^{63} + x^{62} + x^{60} + x^{56} + x^{55} + x^{53} \\
&\quad + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{42} + x^{41} + x^{40} + x^{36} + x^{35} \\
&\quad + x^{33} + x^{29} + x^{28} + x^{23} + x^{22} + x^{21} + x^{16} + x^{14} + x^{9}, \\
p_6(x) &= x^{132} + x^{126} + x^{118} + x^{116} + x^{108} + x^{106} + x^{98} + x^{96} + x^{94} + x^{88} \\
&\quad + x^{82} + x^{78} + x^{72} + x^{68} + x^{66} + x^{64} + x^{62} + x^{60} + x^{48} + x^{46} + x^{42} \\
&\quad + x^{40} + x^{38} + x^{34} + x^{26} + x^{18} + x^{16} + x^{14} + x^{10} + x^{6}, \\
p_9(x) &= x^{134} + x^{131} + x^{128} + x^{127} + x^{125} + x^{124} + x^{123} + x^{121} + x^{118} + x^{117} \\
&\quad + x^{116} + x^{115} + x^{112} + x^{108} + x^{106} + x^{105} + x^{104} + x^{101} + x^{100} \\
&\quad + x^{99} + x^{95} + x^{93} + x^{91} + x^{90} + x^{88} + x^{83} + x^{70} + x^{67} + x^{64} + x^{63} \\
&\quad + x^{61} + x^{60} + x^{59} + x^{57} + x^{54} + x^{53} + x^{52} + x^{51} + x^{48} + x^{44} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{32} + x^{28} + x^{26} + x^{25} + x^{24} + x^{21} \\
&\quad + x^{20} + x^{19} + x^{15} + x^{13} + x^{11} + x^{10} + x^{8} + x^{3}, \\
p_{12}(x) &= x^{136} + x^{124} + x^{120} + x^{116} + x^{112} + x^{108} + x^{84} + x^{80} + x^{72} + x^{60} \\
&\quad + x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{28} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{92} \\
&\quad + x^{89} + x^{83} + x^{82} + x^{80} + x^{79} + x^{78} + x^{74} + x^{72} + x^{70} + x^{69} + x^{67} \\
&\quad + x^{66} + x^{64} + x^{62} + x^{60} + x^{58} + x^{56} + x^{53} + x^{52} + x^{47} + x^{39} + x^{38} \\
&\quad + x^{36} + x^{35} + x^{33}, \\
p_3(x) &= x^{124} + x^{122} + x^{119} + x^{118} + x^{117} + x^{115} + x^{111} + x^{109} + x^{108} + x^{102} \\
&\quad + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{93} + x^{92} + x^{89} + x^{87} + x^{84} + x^{83} \\
&\quad + x^{82} + x^{81} + x^{80} + x^{76} + x^{74} + x^{73} + x^{72} + x^{69} + x^{68} + x^{66} + x^{64} \\
&\quad + x^{62} + x^{60} + x^{59} + x^{58} + x^{56} + x^{52} + x^{50} + x^{48} + x^{47} + x^{45} + x^{42} \\
&\quad + x^{41} + x^{40} + x^{39} + x^{38} + x^{36} + x^{34} + x^{31} + x^{30} + x^{29} + x^{26} + x^{25}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{24} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{14} + x^{12},\\
p_6(x) = {} & x^{124} + x^{122} + x^{119} + x^{118} + x^{117} + x^{111} + x^{108} + x^{106} + x^{103} + x^{96}\\
&+ x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{82} + x^{79} + x^{78} + x^{77} + x^{73} + x^{71}\\
&+ x^{69} + x^{68} + x^{66} + x^{61} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{51}\\
&+ x^{50} + x^{48} + x^{47} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{35} + x^{34} + x^{33}\\
&+ x^{32} + x^{29} + x^{28} + x^{26} + x^{22} + x^{18} + x^{16} + x^{15} + x^{14} + x^{13} + x^{11}\\
&+ x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) = {} & x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{115} + x^{114} + x^{111} + x^{110} + x^{107}\\
&+ x^{106} + x^{104} + x^{100} + x^{99} + x^{98} + x^{95} + x^{94} + x^{92} + x^{88} + x^{87} + x^{86}\\
&+ x^{84} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{43}\\
&+ x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27} + x^{26} + x^{24} + x^{20}\\
&+ x^{19} + x^{18} + x^{15} + x^{14} + x^{12} + x^{8} + x^{7} + x^{6} + x^{4},\\
p_{12}(x) = {} & x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{100} + x^{99} + x^{98} + x^{96}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{83} + x^{82} + x^{80} + x^{60} + x^{59} + x^{58}\\
&+ x^{55} + x^{54} + x^{52} + x^{36} + x^{35} + x^{34} + x^{32} + x^{20} + x^{19} + x^{18} + x^{16}\\
&+ x^{12} + x^{11} + x^{10} + x^{7} + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

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

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	1039	[172, 1471]	2078	[2838, 208]	3117	[3623, 2473]
1	[3, 4]	1040	[1673, 1674]	2079	[2839, 441]	3118	[3624, 3625]
2	[5, 6]	1041	[1675, 1613]	2080	[1661, 2840]	3119	[2427, 1131]
3	[7, 8]	1042	[1676, 1340]	2081	[1290, 2841]	3120	[3626, 2048]
4	[9, 10]	1043	[464, 155]	2082	[2842, 2833]	3121	[3627, 2485]
5	[11, 12]	1044	[1664, 1441]	2083	[442, 1846]	3122	[3628, 3629]
6	[13, 14]	1045	[164, 638]	2084	[2698, 1665]	3123	[1194, 2503]
7	[15, 16]	1046	[1341, 1465]	2085	[461, 1808]	3124	[3630, 3631]
8	[17, 18]	1047	[1677, 1678]	2086	[2843, 2844]	3125	[3632, 1183]
9	[19, 20]	1048	[1432, 1679]	2087	[2706, 2715]	3126	[2290, 2393]
10	[21, 22]	1049	[1680, 1681]	2088	[571, 2845]	3127	[3633, 2530]
11	[23, 24]	1050	[1499, 1682]	2089	[1350, 2846]	3128	[3634, 3635]
12	[18, 25]	1051	[1464, 1342]	2090	[2847, 2700]	3129	[922, 993]
13	[26, 27]	1052	[408, 1683]	2091	[2838, 125]	3130	[3636, 932]
14	[28, 29]	1053	[1684, 163]	2092	[1490, 1476]	3131	[3637, 1183]
15	[30, 31]	1054	[113, 1685]	2093	[2848, 2849]	3132	[3638, 3639]
16	[32, 33]	1055	[1686, 1687]	2094	[471, 1607]	3133	[3635, 238]
17	[34, 35]	1056	[1688, 405]	2095	[1601, 506]	3134	[3640, 3641]

18	[36, 37]	1057	[200, 1348]	2096	[1836, 507]	3135	[3642, 289]
19	[38, 14]	1058	[35, 1689]	2097	[2850, 2851]	3136	[3643, 3644]
20	[39, 40]	1059	[1690, 53]	2098	[2852, 1335]	3137	[3462, 1235]
21	[41, 42]	1060	[1691, 180]	2099	[1435, 1372]	3138	[230, 2073]
22	[43, 44]	1061	[1618, 1692]	2100	[603, 1728]	3139	[2453, 989]
23	[45, 46]	1062	[1302, 1437]	2101	[1610, 2853]	3140	[3645, 2041]
24	[47, 48]	1063	[1693, 1617]	2102	[706, 1796]	3141	[3646, 3200]
25	[35, 49]	1064	[1694, 1375]	2103	[1654, 1761]	3142	[3647, 3385]
26	[50, 51]	1065	[1695, 591]	2104	[516, 1678]	3143	[1991, 3351]
27	[52, 53]	1066	[1417, 1696]	2105	[2848, 1474]	3144	[3648, 213]
28	[54, 55]	1067	[1697, 1585]	2106	[1839, 129]	3145	[2676, 319]
29	[56, 57]	1068	[1698, 1361]	2107	[114, 1340]	3146	[344, 3649]
30	[58, 59]	1069	[50, 1699]	2108	[1448, 2854]	3147	[2426, 2072]
31	[60, 61]	1070	[1400, 181]	2109	[1672, 1391]	3148	[3596, 71]
32	[62, 63]	1071	[1700, 572]	2110	[1642, 1304]	3149	[3650, 3651]
33	[64, 65]	1072	[1701, 574]	2111	[2855, 2856]	3150	[3652, 2348]
34	[66, 67]	1073	[1702, 1703]	2112	[2857, 1522]	3151	[3653, 3304]
35	[68, 69]	1074	[144, 498]	2113	[2858, 2859]	3152	[842, 3654]
36	[70, 71]	1075	[1704, 1705]	2114	[1669, 2716]	3153	[1012, 3655]
37	[72, 73]	1076	[1706, 1707]	2115	[596, 1272]	3154	[3656, 877]
38	[74, 75]	1077	[1708, 1433]	2116	[2860, 2861]	3155	[3657, 243]
39	[76, 77]	1078	[1471, 1639]	2117	[1257, 605]	3156	[3658, 2029]
40	[78, 79]	1079	[1709, 1312]	2118	[462, 2862]	3157	[3659, 3660]
41	[80, 81]	1080	[1623, 1710]	2119	[1506, 433]	3158	[3661, 3662]
42	[82, 83]	1081	[1382, 1273]	2120	[1497, 1575]	3159	[3663, 1998]
43	[84, 85]	1082	[1580, 1274]	2121	[49, 2863]	3160	[2226, 2271]
44	[4, 86]	1083	[448, 1378]	2122	[509, 2864]	3161	[3664, 829]
45	[87, 88]	1084	[1711, 608]	2123	[1289, 1490]	3162	[3665, 64]
46	[89, 90]	1085	[1712, 1713]	2124	[2865, 2824]	3163	[3666, 3667]
47	[91, 92]	1086	[1714, 1427]	2125	[2866, 1733]	3164	[3668, 102]
48	[93, 94]	1087	[1715, 1586]	2126	[2867, 2868]	3165	[3669, 3366]
49	[67, 95]	1088	[1716, 1717]	2127	[1583, 408]	3166	[3154, 191]
50	[96, 97]	1089	[1668, 1718]	2128	[1715, 2869]	3167	[3670, 2722]
51	[98, 99]	1090	[1719, 1596]	2129	[2870, 1555]	3168	[1783, 2881]
52	[100, 101]	1091	[1277, 1276]	2130	[2871, 2872]	3169	[3671, 2767]
53	[102, 103]	1092	[1681, 1720]	2131	[455, 1750]	3170	[197, 1284]
54	[104, 105]	1093	[1721, 1722]	2132	[2873, 2874]	3171	[3672, 2986]
55	[106, 107]	1094	[476, 128]	2133	[2875, 1559]	3172	[173, 2741]
56	[108, 109]	1095	[31, 1723]	2134	[199, 1510]	3173	[1381, 1579]
57	[110, 111]	1096	[1724, 1725]	2135	[1458, 2842]	3174	[3100, 3673]
58	[112, 113]	1097	[1726, 603]	2136	[2786, 41]	3175	[1690, 1490]
59	[114, 115]	1098	[1254, 174]	2137	[2876, 1722]	3176	[3674, 3119]
60	[116, 117]	1099	[1727, 1728]	2138	[2877, 2878]	3177	[3675, 1596]
61	[118, 119]	1100	[1729, 1730]	2139	[1282, 2879]	3178	[3676, 3126]

62	[120, 121]	1101	[1731, 1675]	2140	[710, 2880]	3179	[173, 1639]
63	[122, 123]	1102	[1587, 1522]	2141	[495, 490]	3180	[2918, 1581]
64	[124, 125]	1103	[1317, 1732]	2142	[1255, 2881]	3181	[1431, 1828]
65	[126, 127]	1104	[1733, 11]	2143	[646, 1725]	3182	[2974, 1506]
66	[14, 128]	1105	[1427, 1734]	2144	[2882, 2883]	3183	[3677, 457]
67	[129, 130]	1106	[1735, 628]	2145	[506, 2732]	3184	[3678, 184]
68	[131, 132]	1107	[1736, 1551]	2146	[2884, 2885]	3185	[1680, 2727]
69	[133, 134]	1108	[1646, 1723]	2147	[1638, 669]	3186	[3679, 1776]
70	[135, 136]	1109	[1700, 641]	2148	[1263, 2886]	3187	[561, 1486]
71	[137, 138]	1110	[499, 1737]	2149	[403, 557]	3188	[1512, 2711]
72	[139, 140]	1111	[1738, 1552]	2150	[2753, 1549]	3189	[3680, 1801]
73	[141, 142]	1112	[1739, 1740]	2151	[670, 1672]	3190	[710, 3681]
74	[143, 144]	1113	[1741, 610]	2152	[2847, 405]	3191	[1519, 1819]
75	[145, 146]	1114	[1742, 1743]	2153	[1548, 661]	3192	[515, 1677]
76	[147, 148]	1115	[1744, 1369]	2154	[2855, 2887]	3193	[2725, 41]
77	[149, 150]	1116	[1348, 612]	2155	[2801, 1500]	3194	[7, 1733]
78	[151, 152]	1117	[1612, 1745]	2156	[1607, 1778]	3195	[3682, 483]
79	[153, 154]	1118	[442, 1746]	2157	[2888, 1622]	3196	[3015, 1412]
80	[155, 156]	1119	[1275, 563]	2158	[132, 2889]	3197	[1541, 2859]
81	[157, 158]	1120	[448, 1711]	2159	[2890, 1420]	3198	[3683, 3684]
82	[159, 160]	1121	[563, 681]	2160	[573, 1715]	3199	[1460, 655]
83	[161, 162]	1122	[1747, 1748]	2161	[2759, 1322]	3200	[531, 1743]
84	[163, 164]	1123	[1749, 1750]	2162	[2891, 2892]	3201	[1634, 3685]
85	[165, 166]	1124	[1751, 1636]	2163	[1794, 1789]	3202	[153, 1566]
86	[8, 167]	1125	[1752, 1643]	2164	[123, 1746]	3203	[1261, 665]
87	[168, 169]	1126	[1742, 532]	2165	[2893, 1616]	3204	[630, 681]
88	[170, 171]	1127	[564, 1594]	2166	[137, 130]	3205	[3686, 3687]
89	[172, 173]	1128	[1643, 1753]	2167	[2894, 1836]	3206	[3688, 194]
90	[44, 174]	1129	[1754, 1412]	2168	[2895, 2896]	3207	[3121, 3689]
91	[175, 176]	1130	[1755, 1650]	2169	[2897, 1674]	3208	[3690, 1844]
92	[177, 178]	1131	[550, 658]	2170	[1306, 1602]	3209	[184, 2954]
93	[179, 180]	1132	[1450, 1756]	2171	[1626, 2854]	3210	[2981, 1299]
94	[181, 127]	1133	[56, 673]	2172	[2898, 1486]	3211	[3683, 3109]
95	[128, 182]	1134	[1757, 1758]	2173	[2899, 2900]	3212	[3691, 3673]
96	[183, 184]	1135	[199, 1570]	2174	[201, 612]	3213	[1741, 1707]
97	[185, 186]	1136	[1759, 1333]	2175	[2901, 1274]	3214	[3692, 3693]
98	[187, 188]	1137	[1760, 47]	2176	[1775, 2]	3215	[3694, 2709]
99	[189, 190]	1138	[422, 1761]	2177	[2902, 2903]	3216	[3695, 1343]
100	[191, 192]	1139	[1762, 1763]	2178	[2842, 544]	3217	[2850, 1484]
101	[193, 194]	1140	[1764, 1680]	2179	[2904, 483]	3218	[449, 1705]
102	[195, 196]	1141	[1765, 622]	2180	[2763, 549]	3219	[2899, 3693]
103	[192, 197]	1142	[679, 1515]	2181	[1451, 1326]	3220	[1458, 543]
104	[198, 199]	1143	[1766, 690]	2182	[2905, 528]	3221	[3696, 3119]
105	[200, 201]	1144	[1767, 1298]	2183	[1813, 165]	3222	[3697, 3698]

106	[202, 203]	1145	[1588, 1523]	2184	[2906, 404]	3223	[1842, 1472]
107	[204, 123]	1146	[603, 1768]	2185	[2907, 2908]	3224	[1457, 3054]
108	[205, 206]	1147	[1769, 673]	2186	[2909, 2910]	3225	[1709, 3699]
109	[207, 178]	1148	[657, 55]	2187	[2799, 2886]	3226	[1322, 2845]
110	[124, 208]	1149	[1770, 1771]	2188	[208, 453]	3227	[1371, 1436]
111	[209, 210]	1150	[1772, 1651]	2189	[2911, 2912]	3228	[556, 701]
112	[211, 212]	1151	[1393, 635]	2190	[692, 569]	3229	[3700, 1636]
113	[213, 214]	1152	[1485, 562]	2191	[2913, 486]	3230	[502, 3673]
114	[215, 216]	1153	[14, 1773]	2192	[2914, 1757]	3231	[150, 685]
115	[217, 218]	1154	[1774, 414]	2193	[2915, 2916]	3232	[620, 3701]
116	[219, 220]	1155	[1775, 1776]	2194	[2917, 2740]	3233	[3702, 639]
117	[221, 222]	1156	[1777, 136]	2195	[441, 2906]	3234	[3682, 1414]
118	[223, 224]	1157	[472, 1778]	2196	[2918, 1274]	3235	[3703, 1282]
119	[225, 226]	1158	[1779, 1780]	2197	[1719, 1850]	3236	[3704, 2892]
120	[227, 228]	1159	[1584, 1683]	2198	[2812, 41]	3237	[3705, 1745]
121	[229, 230]	1160	[1781, 1782]	2199	[2705, 2919]	3238	[2938, 1582]
122	[231, 232]	1161	[483, 1415]	2200	[524, 708]	3239	[3706, 1282]
123	[233, 234]	1162	[145, 586]	2201	[2920, 1272]	3240	[2940, 2832]
124	[235, 236]	1163	[1783, 1256]	2202	[2921, 1655]	3241	[1489, 2814]
125	[237, 238]	1164	[1784, 53]	2203	[437, 598]	3242	[1661, 3046]
126	[239, 240]	1165	[1785, 1786]	2204	[2776, 2874]	3243	[1262, 1814]
127	[241, 242]	1166	[1787, 559]	2205	[1530, 2866]	3244	[3707, 42]
128	[243, 244]	1167	[1788, 1789]	2206	[118, 1737]	3245	[181, 3028]
129	[245, 246]	1168	[1694, 1426]	2207	[1733, 167]	3246	[3708, 1255]
130	[247, 248]	1169	[1790, 1791]	2208	[456, 2835]	3247	[511, 181]
131	[249, 250]	1170	[1792, 1793]	2209	[681, 1377]	3248	[3005, 3031]
132	[251, 252]	1171	[1528, 1393]	2210	[2922, 409]	3249	[1663, 1321]
133	[252, 253]	1172	[1794, 1795]	2211	[1281, 1546]	3250	[1573, 1806]
134	[254, 255]	1173	[193, 1614]	2212	[405, 2923]	3251	[1639, 2742]
135	[256, 257]	1174	[10, 1796]	2213	[1570, 1826]	3252	[1590, 1753]
136	[258, 259]	1175	[1797, 497]	2214	[1572, 2924]	3253	[3709, 1270]
137	[260, 261]	1176	[1452, 1782]	2215	[1641, 580]	3254	[3710, 551]
138	[262, 263]	1177	[1627, 1798]	2216	[566, 2861]	3255	[1525, 3099]
139	[264, 265]	1178	[1799, 1800]	2217	[2925, 1436]	3256	[1604, 3061]
140	[266, 267]	1179	[1765, 1801]	2218	[1749, 456]	3257	[3151, 2990]
141	[268, 269]	1180	[1625, 1802]	2219	[1356, 500]	3258	[462, 2979]
142	[270, 271]	1181	[576, 426]	2220	[2926, 1384]	3259	[1613, 194]
143	[272, 273]	1182	[1803, 1804]	2221	[1421, 2927]	3260	[3711, 591]
144	[274, 275]	1183	[1805, 1669]	2222	[2928, 1816]	3261	[13, 476]
145	[276, 277]	1184	[1806, 1807]	2223	[2929, 508]	3262	[3712, 3022]
146	[278, 279]	1185	[459, 166]	2224	[2930, 1325]	3263	[3713, 161]
147	[280, 281]	1186	[195, 1623]	2225	[1268, 425]	3264	[1389, 3036]
148	[282, 283]	1187	[474, 1808]	2226	[2896, 634]	3265	[3714, 3128]
149	[284, 285]	1188	[1809, 1351]	2227	[2931, 1577]	3266	[1671, 671]

150	[286, 287]	1189	[1314, 1437]	2228	[1821, 1820]	3267	[3715, 1768]
151	[288, 289]	1190	[1810, 1571]	2229	[2932, 2933]	3268	[3716, 1475]
152	[290, 291]	1191	[1811, 1812]	2230	[2934, 2935]	3269	[3679, 2]
153	[292, 293]	1192	[32, 1656]	2231	[2936, 2771]	3270	[1792, 1488]
154	[294, 295]	1193	[1813, 459]	2232	[1320, 2840]	3271	[125, 2822]
155	[296, 297]	1194	[665, 1814]	2233	[2937, 520]	3272	[3165, 2702]
156	[298, 299]	1195	[1815, 1816]	2234	[2938, 1565]	3273	[2785, 1776]
157	[300, 301]	1196	[1817, 1818]	2235	[570, 1322]	3274	[3717, 585]
158	[302, 303]	1197	[1819, 1626]	2236	[1585, 2869]	3275	[3718, 1406]
159	[304, 305]	1198	[1739, 1756]	2237	[2939, 674]	3276	[3719, 1563]
160	[306, 307]	1199	[1414, 484]	2238	[2940, 2941]	3277	[708, 1532]
161	[308, 309]	1200	[681, 448]	2239	[649, 2919]	3278	[3720, 1790]
162	[310, 311]	1201	[1377, 1711]	2240	[1276, 1276]	3279	[3721, 3722]
163	[312, 313]	1202	[1377, 1378]	2241	[2942, 1662]	3280	[2998, 1768]
164	[314, 315]	1203	[1820, 1821]	2242	[1702, 2793]	3281	[3723, 2752]
165	[316, 317]	1204	[1279, 1822]	2243	[677, 492]	3282	[3724, 692]
166	[318, 84]	1205	[1823, 1322]	2244	[2943, 2944]	3283	[3725, 1644]
167	[16, 319]	1206	[458, 1824]	2245	[2945, 1681]	3284	[3726, 1763]
168	[320, 321]	1207	[1825, 1588]	2246	[127, 2946]	3285	[1357, 501]
169	[322, 323]	1208	[1510, 1826]	2247	[2893, 133]	3286	[3727, 1599]
170	[324, 325]	1209	[1575, 1827]	2248	[2947, 1326]	3287	[3728, 1316]
171	[326, 327]	1210	[1294, 1828]	2249	[1764, 2945]	3288	[671, 2823]
172	[328, 329]	1211	[1382, 1580]	2250	[2700, 2923]	3289	[3708, 1783]
173	[330, 331]	1212	[1478, 1598]	2251	[2948, 2868]	3290	[1289, 53]
174	[332, 333]	1213	[161, 1722]	2252	[430, 522]	3291	[3729, 2836]
175	[334, 15]	1214	[1829, 1830]	2253	[2949, 1725]	3292	[3730, 461]
176	[335, 336]	1215	[1831, 126]	2254	[1606, 472]	3293	[1385, 1698]
177	[337, 338]	1216	[1832, 648]	2255	[2950, 1438]	3294	[192, 1283]
178	[339, 340]	1217	[569, 1833]	2256	[2951, 1475]	3295	[3731, 1481]
179	[341, 342]	1218	[573, 1585]	2257	[1285, 1262]	3296	[3732, 2981]
180	[343, 344]	1219	[516, 1834]	2258	[1616, 2952]	3297	[3733, 1267]
181	[345, 346]	1220	[1835, 653]	2259	[404, 153]	3298	[49, 3075]
182	[29, 347]	1221	[1669, 1836]	2260	[2953, 2954]	3299	[1288, 52]
183	[348, 349]	1222	[1404, 1837]	2261	[2955, 683]	3300	[2832, 2816]
184	[350, 351]	1223	[1838, 514]	2262	[2956, 2957]	3301	[2703, 1339]
185	[352, 353]	1224	[1839, 137]	2263	[2777, 2705]	3302	[1349, 2884]
186	[354, 355]	1225	[604, 1258]	2264	[2958, 698]	3303	[3734, 553]
187	[356, 233]	1226	[1450, 1740]	2265	[2959, 1721]	3304	[3095, 1271]
188	[357, 358]	1227	[1840, 1841]	2266	[2960, 2961]	3305	[3735, 3038]
189	[359, 360]	1228	[1475, 1373]	2267	[2732, 158]	3306	[1785, 2935]
190	[361, 362]	1229	[1305, 1685]	2268	[1623, 2962]	3307	[2839, 1329]
191	[363, 364]	1230	[1842, 555]	2269	[2963, 1814]	3308	[1833, 3736]
192	[365, 366]	1231	[1843, 1497]	2270	[131, 559]	3309	[1711, 1379]
193	[367, 368]	1232	[1467, 117]	2271	[425, 577]	3310	[656, 1283]

194	[369, 370]	1233	[1844, 1613]	2272	[634, 1394]	3311	[3737, 1356]
195	[371, 372]	1234	[1845, 1846]	2273	[2714, 2798]	3312	[2952, 3738]
196	[373, 374]	1235	[625, 1732]	2274	[452, 2861]	3313	[3057, 2798]
197	[375, 376]	1236	[457, 615]	2275	[2707, 1855]	3314	[1334, 632]
198	[377, 378]	1237	[1523, 1320]	2276	[1505, 1853]	3315	[209, 1290]
199	[379, 380]	1238	[1609, 1847]	2277	[1333, 1648]	3316	[3739, 659]
200	[381, 382]	1239	[1848, 1332]	2278	[2866, 8]	3317	[164, 1625]
201	[383, 384]	1240	[1849, 1364]	2279	[2964, 2965]	3318	[3740, 1481]
202	[385, 386]	1241	[155, 600]	2280	[2966, 2851]	3319	[2960, 1538]
203	[387, 388]	1242	[1595, 1850]	2281	[2967, 2968]	3320	[157, 2733]
204	[389, 390]	1243	[1579, 1580]	2282	[115, 564]	3321	[2941, 3094]
205	[391, 392]	1244	[1628, 1521]	2283	[2969, 1580]	3322	[2789, 1627]
206	[393, 394]	1245	[1851, 1852]	2284	[2970, 581]	3323	[3074, 709]
207	[395, 396]	1246	[1657, 1853]	2285	[2971, 2778]	3324	[1461, 145]
208	[397, 398]	1247	[1849, 1854]	2286	[2972, 1406]	3325	[3741, 1577]
209	[399, 400]	1248	[1855, 1405]	2287	[2973, 1327]	3326	[3025, 1297]
210	[401, 402]	1249	[1646, 592]	2288	[2974, 36]	3327	[3742, 1414]
211	[403, 404]	1250	[1446, 482]	2289	[1551, 48]	3328	[1490, 2991]
212	[405, 406]	1251	[584, 585]	2290	[1326, 1510]	3329	[3119, 1734]
213	[407, 408]	1252	[1453, 1856]	2291	[2975, 1849]	3330	[1336, 683]
214	[409, 410]	1253	[1857, 984]	2292	[2976, 2977]	3331	[3743, 1299]
215	[411, 412]	1254	[1858, 1859]	2293	[2978, 2806]	3332	[1546, 2879]
216	[413, 414]	1255	[1860, 1861]	2294	[1808, 2979]	3333	[2906, 557]
217	[415, 416]	1256	[1862, 1863]	2295	[2705, 2980]	3334	[3069, 3040]
218	[417, 418]	1257	[1864, 964]	2296	[2809, 145]	3335	[174, 3744]
219	[419, 420]	1258	[1865, 1866]	2297	[2981, 1544]	3336	[3745, 1761]
220	[421, 422]	1259	[1867, 1868]	2298	[1615, 133]	3337	[699, 3027]
221	[423, 424]	1260	[1869, 1095]	2299	[1352, 2982]	3338	[3746, 1423]
222	[425, 426]	1261	[1870, 1197]	2300	[2983, 1723]	3339	[3021, 3747]
223	[427, 428]	1262	[228, 1871]	2301	[2984, 2985]	3340	[2729, 1677]
224	[429, 430]	1263	[1872, 1873]	2302	[1476, 2986]	3341	[2830, 3748]
225	[431, 432]	1264	[1874, 1875]	2303	[2987, 2988]	3342	[1814, 1386]
226	[36, 433]	1265	[1876, 1877]	2304	[2989, 150]	3343	[1788, 1795]
227	[434, 435]	1266	[1878, 990]	2305	[1459, 2990]	3344	[1311, 3699]
228	[54, 436]	1267	[1879, 753]	2306	[1283, 2805]	3345	[1282, 1547]
229	[437, 438]	1268	[1880, 1027]	2307	[2991, 2986]	3346	[3749, 662]
230	[439, 440]	1269	[1881, 923]	2308	[1292, 686]	3347	[3750, 2977]
231	[441, 403]	1270	[1882, 1883]	2309	[2701, 1495]	3348	[2895, 1528]
232	[204, 442]	1271	[1884, 1885]	2310	[428, 637]	3349	[3719, 2939]
233	[443, 444]	1272	[1060, 1886]	2311	[2992, 1776]	3350	[1359, 3751]
234	[445, 446]	1273	[1887, 1119]	2312	[2993, 1705]	3351	[2776, 508]
235	[447, 448]	1274	[1091, 1888]	2313	[1422, 1745]	3352	[3752, 1559]
236	[449, 450]	1275	[1889, 1890]	2314	[2994, 671]	3353	[1448, 3008]
237	[451, 452]	1276	[1891, 1892]	2315	[2995, 1497]	3354	[1343, 3753]

238	[453, 454]	1277	[1892, 1893]	2316	[1809, 2846]	3355	[2941, 2816]
239	[455, 456]	1278	[1894, 1004]	2317	[1338, 2704]	3356	[3735, 2747]
240	[457, 458]	1279	[1895, 1896]	2318	[1786, 1803]	3357	[3754, 2777]
241	[459, 460]	1280	[1897, 1898]	2319	[2996, 2997]	3358	[1736, 47]
242	[461, 462]	1281	[1899, 1900]	2320	[2998, 1728]	3359	[3729, 1807]
243	[463, 464]	1282	[1901, 1902]	2321	[1329, 2906]	3360	[134, 3114]
244	[465, 466]	1283	[1161, 1903]	2322	[177, 702]	3361	[2797, 445]
245	[467, 468]	1284	[366, 1904]	2323	[1550, 1654]	3362	[1653, 1472]
246	[469, 470]	1285	[1905, 1906]	2324	[596, 435]	3363	[3755, 1265]
247	[471, 472]	1286	[1907, 1908]	2325	[2999, 1849]	3364	[1677, 1834]
248	[473, 474]	1287	[1909, 1910]	2326	[2961, 113]	3365	[3756, 404]
249	[475, 476]	1288	[1911, 1912]	2327	[2710, 1513]	3366	[1714, 3119]
250	[477, 478]	1289	[1913, 1914]	2328	[3000, 2766]	3367	[3079, 610]
251	[41, 479]	1290	[1033, 1915]	2329	[3001, 441]	3368	[2744, 1495]
252	[480, 146]	1291	[1916, 1917]	2330	[167, 2770]	3369	[3692, 2900]
253	[481, 482]	1292	[1918, 1891]	2331	[521, 1310]	3370	[1571, 417]
254	[483, 484]	1293	[1919, 21]	2332	[3002, 3003]	3371	[2911, 3064]
255	[485, 486]	1294	[1920, 1921]	2333	[2953, 3004]	3372	[674, 1358]
256	[487, 488]	1295	[1180, 1922]	2334	[3005, 2826]	3373	[44, 2830]
257	[489, 490]	1296	[1923, 1924]	2335	[1852, 1766]	3374	[3002, 1502]
258	[491, 492]	1297	[1925, 1081]	2336	[3006, 36]	3375	[559, 2889]
259	[493, 494]	1298	[1926, 1927]	2337	[1718, 1836]	3376	[2987, 1456]
260	[495, 496]	1299	[1928, 1929]	2338	[3007, 2723]	3377	[3056, 1530]
261	[497, 498]	1300	[1930, 1931]	2339	[1421, 2818]	3378	[133, 2952]
262	[499, 119]	1301	[1932, 1933]	2340	[1626, 3008]	3379	[132, 560]
263	[500, 501]	1302	[1934, 934]	2341	[1324, 469]	3380	[2936, 2928]
264	[502, 503]	1303	[1935, 1936]	2342	[1851, 1621]	3381	[3009, 3736]
265	[504, 505]	1304	[1031, 1916]	2343	[1660, 3009]	3382	[1750, 1376]
266	[506, 157]	1305	[1937, 1938]	2344	[2922, 1358]	3383	[2795, 647]
267	[507, 508]	1306	[1939, 1940]	2345	[1823, 571]	3384	[3757, 3758]
268	[509, 510]	1307	[1941, 848]	2346	[611, 684]	3385	[3116, 2883]
269	[511, 126]	1308	[1942, 247]	2347	[2727, 3010]	3386	[473, 461]
270	[512, 513]	1309	[1943, 722]	2348	[2730, 2965]	3387	[2829, 655]
271	[514, 461]	1310	[1944, 1945]	2349	[1379, 2736]	3388	[3087, 3158]
272	[515, 516]	1311	[1946, 270]	2350	[3011, 1520]	3389	[2943, 3084]
273	[517, 518]	1312	[1947, 1948]	2351	[3012, 1657]	3390	[1434, 685]
274	[519, 520]	1313	[1949, 1950]	2352	[210, 1291]	3391	[672, 2709]
275	[521, 522]	1314	[1951, 1228]	2353	[2765, 2965]	3392	[629, 563]
276	[523, 524]	1315	[1952, 1953]	2354	[3013, 1748]	3393	[2993, 450]
277	[525, 526]	1316	[1954, 1955]	2355	[3014, 2953]	3394	[3759, 1574]
278	[527, 10]	1317	[257, 1956]	2356	[1696, 2927]	3395	[3760, 1758]
279	[528, 458]	1318	[1110, 1957]	2357	[1274, 1296]	3396	[3746, 1745]
280	[529, 530]	1319	[1958, 1959]	2358	[1379, 1278]	3397	[3023, 1698]
281	[531, 532]	1320	[1960, 1248]	2359	[1581, 1597]	3398	[3761, 3744]

282	[533, 534]	1321	[1961, 1962]	2360	[1624, 2880]	3399	[3762, 1538]
283	[535, 536]	1322	[1963, 1011]	2361	[3015, 674]	3400	[2945, 2727]
284	[537, 538]	1323	[1014, 907]	2362	[3016, 3017]	3401	[3763, 1638]
285	[539, 540]	1324	[1964, 1965]	2363	[1574, 1807]	3402	[3764, 43]
286	[541, 542]	1325	[999, 1966]	2364	[1654, 696]	3403	[2823, 1592]
287	[543, 544]	1326	[1967, 1968]	2365	[662, 1403]	3404	[2971, 1804]
288	[545, 485]	1327	[1969, 1970]	2366	[1304, 1290]	3405	[3765, 1448]
289	[546, 547]	1328	[1971, 1972]	2367	[3018, 1549]	3406	[546, 584]
290	[548, 549]	1329	[1973, 1974]	2368	[2754, 1812]	3407	[1782, 1454]
291	[550, 464]	1330	[1975, 1944]	2369	[1271, 435]	3408	[3752, 34]
292	[551, 57]	1331	[1976, 1977]	2370	[3019, 566]	3409	[3766, 1415]
293	[552, 553]	1332	[1978, 1979]	2371	[1, 645]	3410	[3163, 2783]
294	[51, 554]	1333	[1980, 1981]	2372	[2905, 457]	3411	[507, 2874]
295	[555, 556]	1334	[1982, 1186]	2373	[2931, 3020]	3412	[3767, 2878]
296	[129, 138]	1335	[1983, 1984]	2374	[416, 1662]	3413	[3053, 1458]
297	[557, 153]	1336	[1985, 1986]	2375	[3021, 3022]	3414	[151, 2806]
298	[404, 558]	1337	[79, 1987]	2376	[3023, 1360]	3415	[3768, 503]
299	[559, 560]	1338	[1988, 1989]	2377	[2713, 500]	3416	[1831, 181]
300	[561, 562]	1339	[1990, 1991]	2378	[1805, 1718]	3417	[2934, 1786]
301	[563, 538]	1340	[1992, 1993]	2379	[3024, 563]	3418	[3769, 1746]
302	[564, 565]	1341	[1994, 1995]	2380	[633, 566]	3419	[3770, 3771]
303	[566, 567]	1342	[884, 1996]	2381	[1412, 1358]	3420	[1731, 1844]
304	[568, 569]	1343	[1006, 1997]	2382	[3025, 412]	3421	[2939, 1412]
305	[570, 571]	1344	[1998, 1999]	2383	[1367, 3026]	3422	[189, 575]
306	[572, 573]	1345	[2000, 2001]	2384	[618, 3027]	3423	[501, 1696]
307	[574, 575]	1346	[2002, 1241]	2385	[3028, 3029]	3424	[1717, 3036]
308	[576, 577]	1347	[2003, 2004]	2386	[152, 2893]	3425	[3772, 3033]
309	[453, 578]	1348	[2005, 2006]	2387	[1308, 137]	3426	[3123, 1621]
310	[579, 580]	1349	[1986, 2007]	2388	[1738, 468]	3427	[2712, 2945]
311	[581, 582]	1350	[2008, 2009]	2389	[2756, 606]	3428	[3755, 669]
312	[583, 584]	1351	[2010, 1034]	2390	[3030, 572]	3429	[3773, 510]
313	[547, 585]	1352	[2011, 294]	2391	[684, 3031]	3430	[53, 2991]
314	[480, 586]	1353	[2012, 2013]	2392	[3032, 3033]	3431	[548, 2756]
315	[51, 587]	1354	[2014, 2015]	2393	[3034, 1575]	3432	[2963, 678]
316	[431, 588]	1355	[1866, 2016]	2394	[3035, 3036]	3433	[3712, 3747]
317	[589, 590]	1356	[2017, 2018]	2395	[3037, 3038]	3434	[3774, 1743]
318	[591, 165]	1357	[2019, 2020]	2396	[1848, 2817]	3435	[3775, 3776]
319	[31, 592]	1358	[2021, 2013]	2397	[1658, 654]	3436	[3024, 630]
320	[593, 594]	1359	[1192, 2022]	2398	[485, 1798]	3437	[1576, 3020]
321	[595, 596]	1360	[2023, 2024]	2399	[549, 2757]	3438	[3759, 1806]
322	[597, 598]	1361	[2025, 100]	2400	[3039, 1798]	3439	[3777, 1627]
323	[599, 600]	1362	[2026, 1862]	2401	[423, 3040]	3440	[3778, 582]
324	[601, 473]	1363	[2027, 2028]	2402	[2901, 1581]	3441	[2877, 148]
325	[602, 603]	1364	[2029, 2030]	2403	[1417, 1421]	3442	[3778, 1652]

326	[604, 605]	1365	[2031, 2032]	2404	[1814, 679]	3443	[3779, 2988]
327	[549, 606]	1366	[2033, 2034]	2405	[116, 1468]	3444	[1735, 445]
328	[607, 608]	1367	[2035, 1967]	2406	[1554, 189]	3445	[3780, 509]
329	[609, 610]	1368	[2036, 2037]	2407	[2854, 3041]	3446	[3781, 1653]
330	[611, 542]	1369	[2038, 2039]	2408	[2741, 1640]	3447	[649, 2980]
331	[612, 613]	1370	[2040, 2041]	2409	[1799, 1763]	3448	[2830, 3744]
332	[171, 614]	1371	[2042, 2043]	2410	[1810, 1370]	3449	[3782, 46]
333	[528, 615]	1372	[1174, 2044]	2411	[3042, 2771]	3450	[3073, 3783]
334	[616, 617]	1373	[2045, 2046]	2412	[3043, 1807]	3451	[2902, 1481]
335	[618, 619]	1374	[2047, 2048]	2413	[3044, 3045]	3452	[196, 2962]
336	[620, 621]	1375	[2049, 2050]	2414	[1320, 3046]	3453	[3784, 3094]
337	[622, 623]	1376	[2051, 2052]	2415	[3047, 1357]	3454	[3785, 2977]
338	[624, 625]	1377	[1201, 1083]	2416	[504, 1492]	3455	[3745, 696]
339	[626, 627]	1378	[1203, 2053]	2417	[542, 2826]	3456	[1781, 1453]
340	[628, 446]	1379	[2054, 1889]	2418	[586, 2810]	3457	[3786, 2988]
341	[629, 630]	1380	[2055, 2056]	2419	[1760, 1551]	3458	[3787, 659]
342	[631, 632]	1381	[728, 1887]	2420	[1406, 617]	3459	[2794, 1800]
343	[633, 452]	1382	[2057, 2058]	2421	[1712, 3048]	3460	[1480, 1852]
344	[634, 635]	1383	[2059, 2060]	2422	[3049, 1790]	3461	[2865, 1630]
345	[636, 196]	1384	[1052, 2061]	2423	[3008, 3050]	3462	[1260, 457]
346	[637, 638]	1385	[2062, 2025]	2424	[417, 2924]	3463	[2867, 188]
347	[55, 639]	1386	[1871, 2063]	2425	[682, 1337]	3464	[3788, 3748]
348	[640, 641]	1387	[2064, 2065]	2426	[2717, 630]	3465	[3789, 1254]
349	[642, 643]	1388	[2066, 1989]	2427	[542, 3031]	3466	[3790, 1574]
350	[644, 510]	1389	[394, 2067]	2428	[3051, 8]	3467	[3791, 409]
351	[645, 44]	1390	[2068, 1166]	2429	[3052, 141]	3468	[3792, 1500]
352	[646, 647]	1391	[792, 2069]	2430	[123, 1846]	3469	[3049, 1609]
353	[39, 513]	1392	[2070, 2071]	2431	[2854, 3050]	3470	[615, 1824]
354	[648, 649]	1393	[873, 2072]	2432	[1498, 1827]	3471	[1631, 2872]
355	[599, 156]	1394	[2073, 2074]	2433	[416, 1670]	3472	[3678, 2953]
356	[650, 162]	1395	[2075, 2057]	2434	[2994, 1672]	3473	[3793, 3075]
357	[10, 651]	1396	[2076, 1902]	2435	[3053, 3054]	3474	[3794, 2782]
358	[167, 12]	1397	[2077, 2078]	2436	[1473, 2849]	3475	[2716, 2776]
359	[652, 432]	1398	[2079, 2080]	2437	[602, 2998]	3476	[2935, 2971]
360	[653, 654]	1399	[2081, 2082]	2438	[2890, 1343]	3477	[3795, 1536]
361	[591, 459]	1400	[370, 2083]	2439	[1358, 410]	3478	[3796, 1451]
362	[655, 656]	1401	[2084, 2085]	2440	[2888, 140]	3479	[630, 538]
363	[657, 436]	1402	[2086, 1235]	2441	[184, 3004]	3480	[3797, 1626]
364	[55, 420]	1403	[2087, 2088]	2442	[3055, 1333]	3481	[2697, 1852]
365	[463, 658]	1404	[2089, 2090]	2443	[3056, 2870]	3482	[3798, 141]
366	[659, 660]	1405	[2091, 2092]	2444	[2822, 578]	3483	[3798, 1634]
367	[626, 661]	1406	[2093, 2094]	2445	[3057, 670]	3484	[3799, 1850]
368	[662, 663]	1407	[2095, 2096]	2446	[1588, 1319]	3485	[2956, 2968]
369	[122, 442]	1408	[2097, 2098]	2447	[1437, 526]	3486	[3800, 1327]

370	[428, 164]	1409	[2099, 2100]	2448	[1673, 3058]	3487	[3162, 32]
371	[664, 665]	1410	[2101, 2102]	2449	[1444, 1424]	3488	[1472, 556]
372	[666, 667]	1411	[2034, 1097]	2450	[2762, 1692]	3489	[2813, 3146]
373	[668, 669]	1412	[1931, 2103]	2451	[3059, 1352]	3490	[3768, 3673]
374	[670, 671]	1413	[273, 2104]	2452	[1647, 1689]	3491	[3801, 2982]
375	[672, 553]	1414	[2105, 2106]	2453	[119, 3060]	3492	[3802, 3803]
376	[551, 673]	1415	[2107, 2108]	2454	[187, 2868]	3493	[3130, 1314]
377	[674, 409]	1416	[1039, 2109]	2455	[702, 675]	3494	[3804, 532]
378	[178, 675]	1417	[2110, 2111]	2456	[1487, 1793]	3495	[3775, 534]
379	[676, 677]	1418	[338, 1913]	2457	[3061, 536]	3496	[2896, 1393]
380	[678, 679]	1419	[2112, 2113]	2458	[2782, 1268]	3497	[3805, 1382]
381	[680, 681]	1420	[1184, 2114]	2459	[1409, 2755]	3498	[1362, 1783]
382	[682, 683]	1421	[1249, 2115]	2460	[1655, 33]	3499	[524, 1531]
383	[541, 684]	1422	[2116, 2117]	2461	[698, 1407]	3500	[3806, 1789]
384	[685, 686]	1423	[987, 2118]	2462	[1287, 1544]	3501	[2871, 1632]
385	[687, 48]	1424	[2043, 2119]	2463	[3062, 56]	3502	[680, 538]
386	[688, 672]	1425	[981, 1879]	2464	[1649, 1588]	3503	[3807, 1482]
387	[597, 438]	1426	[2120, 2121]	2465	[3063, 3064]	3504	[3786, 1456]
388	[689, 690]	1427	[2122, 2123]	2466	[1806, 2836]	3505	[1833, 3153]
389	[691, 692]	1428	[2124, 2125]	2467	[1681, 3010]	3506	[465, 470]
390	[693, 694]	1429	[2126, 2127]	2468	[1481, 2908]	3507	[3808, 1698]
391	[695, 696]	1430	[2128, 2129]	2469	[3065, 678]	3508	[3770, 3160]
392	[697, 698]	1431	[2130, 2131]	2470	[3066, 1609]	3509	[3805, 1579]
393	[699, 619]	1432	[2132, 2133]	2471	[572, 1697]	3510	[3809, 551]
394	[700, 701]	1433	[2134, 2135]	2472	[178, 1418]	3511	[3810, 3687]
395	[427, 163]	1434	[2136, 1919]	2473	[3067, 1480]	3512	[3811, 2796]
396	[207, 702]	1435	[2137, 2138]	2474	[684, 2826]	3513	[1602, 157]
397	[415, 703]	1436	[2139, 2140]	2475	[3068, 1454]	3514	[3808, 1360]
398	[704, 705]	1437	[2141, 2142]	2476	[3069, 424]	3515	[3812, 3122]
399	[527, 706]	1438	[748, 66]	2477	[1801, 523]	3516	[3813, 703]
400	[707, 708]	1439	[2143, 2144]	2478	[3059, 694]	3517	[3065, 1814]
401	[165, 460]	1440	[2145, 2146]	2479	[3070, 1377]	3518	[3110, 3119]
402	[709, 710]	1441	[2147, 2110]	2480	[580, 1304]	3519	[3814, 1537]
403	[711, 292]	1442	[2148, 2149]	2481	[1268, 576]	3520	[1815, 3074]
404	[712, 713]	1443	[2150, 2151]	2482	[3071, 2832]	3521	[3811, 478]
405	[714, 715]	1444	[1003, 2152]	2483	[536, 2787]	3522	[3815, 3102]
406	[61, 716]	1445	[2153, 2154]	2484	[708, 2828]	3523	[147, 2878]
407	[717, 718]	1446	[2155, 2156]	2485	[3063, 2912]	3524	[3816, 2939]
408	[719, 720]	1447	[2157, 2158]	2486	[523, 707]	3525	[3817, 1322]
409	[721, 722]	1448	[2159, 2160]	2487	[2724, 51]	3526	[3818, 581]
410	[723, 724]	1449	[2161, 2162]	2488	[2788, 1758]	3527	[3764, 645]
411	[725, 726]	1450	[2163, 2164]	2489	[3072, 1414]	3528	[3819, 1260]
412	[727, 728]	1451	[2165, 2166]	2490	[3073, 2985]	3529	[3820, 1599]
413	[729, 730]	1452	[2167, 2168]	2491	[1443, 641]	3530	[2857, 1588]

414	[731, 732]	1453	[2169, 262]	2492	[1675, 193]	3531	[2780, 3017]
415	[733, 734]	1454	[2170, 2171]	2493	[1660, 1833]	3532	[3716, 170]
416	[735, 736]	1455	[2172, 342]	2494	[3074, 1321]	3533	[1790, 1847]
417	[737, 738]	1456	[2173, 2174]	2495	[2969, 1273]	3534	[3821, 662]
418	[739, 740]	1457	[2175, 2176]	2496	[1637, 3026]	3535	[1717, 488]
419	[741, 742]	1458	[2177, 2178]	2497	[2915, 2791]	3536	[3822, 1405]
420	[743, 744]	1459	[2179, 1160]	2498	[1689, 3075]	3537	[1508, 2739]
421	[745, 746]	1460	[2180, 2181]	2499	[3076, 1687]	3538	[3731, 2903]
422	[747, 748]	1461	[2182, 278]	2500	[3077, 589]	3539	[2726, 1289]
423	[749, 750]	1462	[2183, 2184]	2501	[2758, 1537]	3540	[2992, 2]
424	[751, 752]	1463	[2185, 925]	2502	[1777, 2699]	3541	[631, 1335]
425	[753, 754]	1464	[2186, 2187]	2503	[1352, 2802]	3542	[533, 3776]
426	[755, 756]	1465	[2188, 308]	2504	[3078, 1658]	3543	[1303, 1489]
427	[757, 758]	1466	[2189, 2190]	2505	[3079, 1707]	3544	[2949, 647]
428	[759, 760]	1467	[2191, 2192]	2506	[3080, 1430]	3545	[1695, 1813]
429	[761, 762]	1468	[2193, 2194]	2507	[1744, 1496]	3546	[3823, 1757]
430	[763, 764]	1469	[2195, 2183]	2508	[3054, 543]	3547	[1429, 414]
431	[765, 766]	1470	[2196, 2197]	2509	[3081, 1372]	3548	[3676, 3824]
432	[767, 768]	1471	[2198, 2199]	2510	[2807, 1822]	3549	[2811, 1666]
433	[769, 770]	1472	[2131, 2200]	2511	[2990, 655]	3550	[1853, 2884]
434	[771, 232]	1473	[2201, 2202]	2512	[3082, 2946]	3551	[3825, 2855]
435	[772, 773]	1474	[2203, 2204]	2513	[3083, 3084]	3552	[1396, 1316]
436	[774, 775]	1475	[2205, 2206]	2514	[3085, 3086]	3553	[3085, 1558]
437	[776, 777]	1476	[828, 755]	2515	[3087, 3088]	3554	[1420, 3753]
438	[778, 779]	1477	[2207, 2208]	2516	[412, 1395]	3555	[2921, 32]
439	[780, 781]	1478	[382, 2209]	2517	[3089, 2864]	3556	[475, 14]
440	[782, 783]	1479	[2210, 2211]	2518	[408, 3090]	3557	[3757, 1818]
441	[784, 712]	1480	[1153, 2212]	2519	[410, 3091]	3558	[3147, 608]
442	[785, 786]	1481	[2213, 2214]	2520	[1556, 500]	3559	[3071, 2941]
443	[787, 788]	1482	[2215, 2216]	2521	[642, 1398]	3560	[3826, 184]
444	[789, 790]	1483	[2217, 2218]	2522	[3092, 1481]	3561	[3827, 596]
445	[791, 792]	1484	[898, 2219]	2523	[1607, 1617]	3562	[3828, 474]
446	[793, 794]	1485	[2220, 1858]	2524	[1747, 3093]	3563	[2790, 2916]
447	[795, 796]	1486	[2221, 2222]	2525	[2832, 3094]	3564	[1469, 1445]
448	[797, 798]	1487	[2223, 2224]	2526	[3008, 3041]	3565	[1772, 581]
449	[799, 800]	1488	[2225, 2226]	2527	[704, 1667]	3566	[198, 1326]
450	[801, 802]	1489	[2227, 2228]	2528	[2875, 34]	3567	[3150, 3099]
451	[803, 804]	1490	[2218, 2207]	2529	[1389, 488]	3568	[1529, 2870]
452	[805, 806]	1491	[2229, 2230]	2530	[1470, 173]	3569	[410, 3751]
453	[281, 807]	1492	[2231, 2232]	2531	[146, 620]	3570	[3115, 1816]
454	[806, 719]	1493	[2233, 2211]	2532	[2920, 435]	3571	[2834, 557]
455	[808, 809]	1494	[2234, 2235]	2533	[3095, 596]	3572	[3829, 2944]
456	[810, 811]	1495	[2236, 2237]	2534	[3096, 3097]	3573	[3830, 1778]
457	[812, 813]	1496	[2096, 266]	2535	[2810, 621]	3574	[3831, 3832]

458	[814, 815]	1497	[2238, 2239]	2536	[2806, 2893]	3575	[3833, 1628]
459	[816, 817]	1498	[832, 2240]	2537	[170, 1373]	3576	[3067, 1851]
460	[818, 819]	1499	[2241, 2242]	2538	[3098, 3099]	3577	[3137, 1472]
461	[351, 820]	1500	[2243, 944]	2539	[1816, 1321]	3578	[3834, 2768]
462	[821, 822]	1501	[2244, 2124]	2540	[3100, 503]	3579	[141, 3685]
463	[823, 824]	1502	[2245, 2246]	2541	[1557, 3086]	3580	[3835, 1656]
464	[825, 826]	1503	[353, 2247]	2542	[150, 1292]	3581	[3836, 408]
465	[827, 828]	1504	[2248, 2249]	2543	[3028, 2946]	3582	[3826, 2953]
466	[829, 830]	1505	[2247, 2250]	2544	[3101, 1333]	3583	[3837, 188]
467	[831, 832]	1506	[2251, 2252]	2545	[3102, 2856]	3584	[2772, 3048]
468	[833, 834]	1507	[2253, 2254]	2546	[2882, 3103]	3585	[3043, 2836]
469	[835, 836]	1508	[2255, 2157]	2547	[476, 1773]	3586	[1545, 3099]
470	[837, 838]	1509	[2256, 2257]	2548	[3104, 1546]	3587	[3838, 33]
471	[839, 840]	1510	[2166, 2258]	2549	[3105, 181]	3588	[3839, 1627]
472	[841, 842]	1511	[2259, 2260]	2550	[1408, 1659]	3589	[2738, 1509]
473	[843, 821]	1512	[2261, 1210]	2551	[3102, 2887]	3590	[3723, 2933]
474	[844, 845]	1513	[2262, 2263]	2552	[3106, 632]	3591	[3680, 622]
475	[846, 847]	1514	[2264, 889]	2553	[3107, 1366]	3592	[134, 3738]
476	[848, 849]	1515	[715, 1990]	2554	[2843, 2997]	3593	[2837, 3038]
477	[850, 851]	1516	[2265, 2266]	2555	[1665, 1442]	3594	[3042, 2928]
478	[852, 853]	1517	[2267, 350]	2556	[1561, 2699]	3595	[2917, 2774]
479	[854, 251]	1518	[989, 2268]	2557	[3108, 3109]	3596	[1262, 678]
480	[855, 856]	1519	[2269, 2270]	2558	[3110, 1427]	3597	[3840, 566]
481	[857, 378]	1520	[2271, 2272]	2559	[615, 1562]	3598	[2947, 199]
482	[858, 859]	1521	[2273, 2274]	2560	[3111, 1477]	3599	[3841, 2811]
483	[860, 861]	1522	[2275, 1960]	2561	[3112, 1505]	3600	[3842, 526]
484	[862, 863]	1523	[2276, 2277]	2562	[3113, 582]	3601	[3142, 3843]
485	[864, 865]	1524	[2206, 2278]	2563	[2952, 3114]	3602	[3690, 1675]
486	[866, 867]	1525	[2279, 2280]	2564	[3115, 3074]	3603	[1704, 450]
487	[868, 869]	1526	[2281, 2282]	2565	[3116, 3103]	3604	[539, 1366]
488	[870, 871]	1527	[2283, 1126]	2566	[3018, 1409]	3605	[3125, 3824]
489	[872, 873]	1528	[2284, 2285]	2567	[3117, 416]	3606	[3844, 1837]
490	[874, 875]	1529	[2286, 2287]	2568	[579, 1642]	3607	[3072, 483]
491	[876, 877]	1530	[2288, 17]	2569	[2975, 1363]	3608	[3845, 491]
492	[878, 879]	1531	[1108, 2289]	2570	[1455, 2988]	3609	[2996, 2844]
493	[822, 254]	1532	[317, 2290]	2571	[1843, 3034]	3610	[525, 1438]
494	[244, 880]	1533	[2291, 1246]	2572	[3118, 1611]	3611	[2978, 152]
495	[881, 882]	1534	[2292, 969]	2573	[3119, 1428]	3612	[182, 3152]
496	[883, 884]	1535	[2293, 2294]	2574	[120, 206]	3613	[3846, 428]
497	[885, 296]	1536	[2016, 2295]	2575	[1347, 201]	3614	[3847, 2844]
498	[886, 887]	1537	[2296, 2297]	2576	[1852, 689]	3615	[3108, 3684]
499	[888, 742]	1538	[2298, 2299]	2577	[3120, 1677]	3616	[3066, 1790]
500	[889, 890]	1539	[2300, 2287]	2578	[3121, 3122]	3617	[3848, 42]
501	[891, 892]	1540	[2301, 2302]	2579	[3123, 1852]	3618	[38, 476]

502	[893, 889]	1541	[2303, 2304]	2580	[3000, 2811]	3619	[3145, 569]
503	[894, 895]	1542	[2305, 2306]	2581	[586, 620]	3620	[3849, 1446]
504	[896, 772]	1543	[2307, 2308]	2582	[3124, 1828]	3621	[3750, 3045]
505	[897, 898]	1544	[1908, 876]	2583	[3125, 3126]	3622	[3850, 3061]
506	[899, 900]	1545	[2309, 737]	2584	[607, 1379]	3623	[3851, 684]
507	[71, 901]	1546	[1927, 812]	2585	[3107, 540]	3624	[3852, 1346]
508	[902, 258]	1547	[2187, 2310]	2586	[3127, 1646]	3625	[2721, 3853]
509	[903, 904]	1548	[2311, 2312]	2587	[1773, 182]	3626	[3854, 163]
510	[905, 906]	1549	[2313, 401]	2588	[1345, 3128]	3627	[3076, 1301]
511	[907, 908]	1550	[2314, 2315]	2589	[3129, 2802]	3628	[1528, 634]
512	[909, 910]	1551	[2316, 818]	2590	[3118, 2853]	3629	[2991, 1477]
513	[911, 912]	1552	[2317, 2318]	2591	[3130, 1302]	3630	[3081, 1436]
514	[386, 913]	1553	[2319, 2320]	2592	[3131, 668]	3631	[3014, 184]
515	[914, 915]	1554	[2321, 2322]	2593	[144, 1413]	3632	[3855, 2885]
516	[916, 917]	1555	[2323, 2324]	2594	[3132, 136]	3633	[3856, 146]
517	[918, 919]	1556	[2325, 2326]	2595	[3013, 3093]	3634	[3096, 3157]
518	[920, 868]	1557	[2327, 2328]	2596	[3052, 1634]	3635	[127, 3029]
519	[921, 922]	1558	[2329, 2330]	2597	[3133, 567]	3636	[3857, 1553]
520	[923, 924]	1559	[2052, 2331]	2598	[3134, 2711]	3637	[3858, 1806]
521	[925, 926]	1560	[2332, 2333]	2599	[1316, 528]	3638	[3089, 510]
522	[63, 927]	1561	[2334, 1111]	2600	[3135, 3128]	3639	[3141, 2752]
523	[928, 929]	1562	[2119, 2335]	2601	[3136, 3088]	3640	[1774, 1430]
524	[930, 931]	1563	[2336, 2337]	2602	[3034, 1498]	3641	[2966, 1484]
525	[932, 933]	1564	[2338, 316]	2603	[3137, 555]	3642	[3859, 1416]
526	[934, 935]	1565	[1169, 2339]	2604	[2989, 1434]	3643	[1762, 1800]
527	[936, 937]	1566	[993, 2340]	2605	[168, 1605]	3644	[3841, 2766]
528	[938, 939]	1567	[2341, 2342]	2606	[1726, 2998]	3645	[1689, 2863]
529	[940, 379]	1568	[2083, 2343]	2607	[2948, 188]	3646	[1365, 540]
530	[941, 942]	1569	[2344, 2345]	2608	[119, 2768]	3647	[2748, 3687]
531	[943, 825]	1570	[378, 782]	2609	[1555, 1733]	3648	[3671, 520]
532	[944, 945]	1571	[2346, 2347]	2610	[2743, 1273]	3649	[452, 567]
533	[946, 947]	1572	[2348, 2349]	2611	[3080, 414]	3650	[3703, 1546]
534	[948, 949]	1573	[2350, 2351]	2612	[2970, 1651]	3651	[1354, 2761]
535	[950, 951]	1574	[2352, 1092]	2613	[2822, 454]	3652	[3860, 1295]
536	[952, 796]	1575	[2353, 795]	2614	[3047, 500]	3653	[3861, 56]
537	[738, 953]	1576	[2354, 2355]	2615	[3138, 1753]	3654	[1672, 2823]
538	[954, 955]	1577	[2356, 761]	2616	[1359, 3091]	3655	[1647, 49]
539	[956, 957]	1578	[2357, 1200]	2617	[644, 2864]	3656	[3862, 481]
540	[958, 959]	1579	[2240, 2358]	2618	[3139, 3029]	3657	[3161, 465]
541	[960, 961]	1580	[2349, 2359]	2619	[201, 1478]	3658	[3863, 1614]
542	[962, 963]	1581	[2358, 727]	2620	[3140, 1670]	3659	[2951, 170]
543	[964, 965]	1582	[1917, 2360]	2621	[3141, 2933]	3660	[2990, 191]
544	[966, 967]	1583	[2361, 2362]	2622	[1491, 505]	3661	[3737, 2713]
545	[968, 969]	1584	[2363, 2021]	2623	[183, 2953]	3662	[1624, 3681]

546	[970, 971]	1585	[1018, 2364]	2624	[3142, 3143]	3663	[3032, 1540]
547	[972, 973]	1586	[2365, 2366]	2625	[658, 155]	3664	[3674, 1427]
548	[974, 975]	1587	[2367, 1958]	2626	[3144, 2731]	3665	[3105, 126]
549	[976, 977]	1588	[2368, 2369]	2627	[2967, 2957]	3666	[3864, 3060]
550	[978, 979]	1589	[2370, 2371]	2628	[2935, 1803]	3667	[2891, 3865]
551	[980, 981]	1590	[222, 1127]	2629	[3006, 1506]	3668	[2926, 2734]
552	[982, 983]	1591	[2372, 239]	2630	[1538, 1305]	3669	[3792, 1682]
553	[984, 985]	1592	[402, 2139]	2631	[1305, 2917]	3670	[3866, 3867]
554	[986, 987]	1593	[2373, 1201]	2632	[1666, 705]	3671	[3868, 763]
555	[988, 989]	1594	[218, 2374]	2633	[3145, 1660]	3672	[1157, 1027]
556	[990, 991]	1595	[2375, 2376]	2634	[1489, 3146]	3673	[3869, 3448]
557	[992, 993]	1596	[1875, 2377]	2635	[159, 1819]	3674	[3870, 2124]
558	[994, 995]	1597	[2359, 2055]	2636	[2903, 1482]	3675	[3871, 3872]
559	[996, 997]	1598	[2006, 810]	2637	[1327, 1758]	3676	[3873, 3874]
560	[998, 999]	1599	[2378, 1901]	2638	[2737, 1856]	3677	[2533, 815]
561	[1000, 1001]	1600	[2149, 296]	2639	[3147, 1379]	3678	[3875, 3461]
562	[1002, 1003]	1601	[2379, 300]	2640	[3148, 2716]	3679	[3876, 278]
563	[1004, 797]	1602	[2380, 302]	2641	[2897, 3058]	3680	[3877, 3588]
564	[1005, 953]	1603	[2381, 1981]	2642	[1701, 189]	3681	[3506, 3475]
565	[963, 1006]	1604	[2382, 2383]	2643	[3149, 1553]	3682	[3878, 3879]
566	[895, 1007]	1605	[2384, 2385]	2644	[1757, 1328]	3683	[3880, 932]
567	[1008, 1009]	1606	[2386, 2387]	2645	[3150, 1526]	3684	[73, 3881]
568	[1010, 24]	1607	[2388, 2389]	2646	[3151, 1460]	3685	[2416, 823]
569	[1011, 1012]	1608	[2390, 265]	2647	[493, 3152]	3686	[3882, 3406]
570	[1013, 1014]	1609	[2391, 847]	2648	[694, 2982]	3687	[3883, 3228]
571	[1015, 1016]	1610	[2392, 2189]	2649	[1273, 1581]	3688	[2395, 2545]
572	[1017, 1018]	1611	[2393, 1208]	2650	[1609, 1791]	3689	[3370, 2423]
573	[1019, 1020]	1612	[2394, 2395]	2651	[3009, 3153]	3690	[3884, 367]
574	[1021, 1022]	1613	[2396, 2397]	2652	[3154, 655]	3691	[3885, 2019]
575	[1023, 1024]	1614	[1189, 377]	2653	[2820, 667]	3692	[3886, 1908]
576	[1025, 1026]	1615	[289, 2398]	2654	[1401, 425]	3693	[1883, 3887]
577	[1027, 1028]	1616	[291, 2399]	2655	[1835, 1658]	3694	[3888, 369]
578	[398, 1029]	1617	[2387, 2165]	2656	[2961, 1305]	3695	[3889, 3890]
579	[1030, 1031]	1618	[2400, 2275]	2657	[1584, 3090]	3696	[3891, 3512]
580	[1032, 1033]	1619	[2401, 962]	2658	[2903, 2908]	3697	[3892, 2148]
581	[1034, 1035]	1620	[2402, 2280]	2659	[3155, 14]	3698	[3893, 3645]
582	[1036, 1037]	1621	[957, 2403]	2660	[687, 594]	3699	[3400, 3894]
583	[1038, 1039]	1622	[1049, 2352]	2661	[3156, 3157]	3700	[3895, 1016]
584	[1040, 1041]	1623	[2074, 1246]	2662	[210, 2841]	3701	[1045, 1897]
585	[1042, 1043]	1624	[376, 1133]	2663	[3070, 448]	3702	[3896, 224]
586	[1044, 1045]	1625	[313, 994]	2664	[422, 696]	3703	[3897, 1995]
587	[1046, 1047]	1626	[2270, 2404]	2665	[3136, 3158]	3704	[3898, 3899]
588	[1048, 1049]	1627	[2405, 2406]	2666	[665, 678]	3705	[3900, 1073]
589	[1050, 212]	1628	[2407, 2408]	2667	[3120, 516]	3706	[3901, 3371]

590	[1051, 1052]	1629	[2409, 2410]	2668	[3159, 3160]	3707	[3341, 331]
591	[1053, 318]	1630	[2411, 1983]	2669	[2804, 491]	3708	[3902, 3903]
592	[59, 1054]	1631	[2412, 2413]	2670	[1620, 1370]	3709	[3904, 3564]
593	[1055, 1056]	1632	[1238, 2414]	2671	[1853, 439]	3710	[3905, 3906]
594	[1057, 1058]	1633	[2415, 2416]	2672	[3161, 469]	3711	[3907, 3443]
595	[1059, 1060]	1634	[2417, 1197]	2673	[2870, 2866]	3712	[3908, 2045]
596	[1061, 1062]	1635	[315, 2418]	2674	[1844, 193]	3713	[3909, 310]
597	[1063, 1064]	1636	[2419, 2420]	2675	[593, 48]	3714	[3910, 3911]
598	[1065, 1053]	1637	[2421, 2422]	2676	[3162, 1655]	3715	[3912, 1250]
599	[824, 1066]	1638	[2423, 2424]	2677	[3163, 1771]	3716	[3913, 2045]
600	[1067, 1068]	1639	[2425, 2426]	2678	[2884, 440]	3717	[3914, 325]
601	[1069, 1070]	1640	[331, 2427]	2679	[514, 474]	3718	[3915, 2095]
602	[1071, 1072]	1641	[2428, 2429]	2680	[2784, 1382]	3719	[3916, 3254]
603	[1073, 1074]	1642	[927, 2430]	2681	[3164, 2851]	3720	[3917, 3384]
604	[1075, 1076]	1643	[2431, 2432]	2682	[1684, 428]	3721	[3918, 3919]
605	[1077, 1078]	1644	[2133, 2433]	2683	[2827, 2711]	3722	[949, 2213]
606	[1079, 1080]	1645	[2434, 2435]	2684	[512, 40]	3723	[3920, 300]
607	[1081, 1082]	1646	[2436, 2437]	2685	[1816, 709]	3724	[3921, 1011]
608	[1083, 1084]	1647	[2438, 2439]	2686	[3165, 1495]	3725	[3894, 2285]
609	[1085, 1086]	1648	[2440, 2441]	2687	[3164, 1484]	3726	[3922, 2425]
610	[1087, 839]	1649	[2442, 2276]	2688	[1463, 2767]	3727	[3923, 2632]
611	[1088, 1089]	1650	[2443, 2128]	2689	[1737, 3060]	3728	[3924, 812]
612	[1090, 1091]	1651	[2050, 2444]	2690	[557, 558]	3729	[2121, 2006]
613	[1092, 1093]	1652	[2445, 373]	2691	[1419, 1343]	3730	[3925, 995]
614	[973, 1094]	1653	[2446, 2447]	2692	[569, 3009]	3731	[3926, 3408]
615	[1095, 814]	1654	[2448, 2449]	2693	[1501, 3003]	3732	[3927, 3399]
616	[1096, 1097]	1655	[2450, 2451]	2694	[1634, 142]	3733	[3928, 2084]
617	[77, 1098]	1656	[2410, 2452]	2695	[202, 176]	3734	[3929, 2478]
618	[1099, 1100]	1657	[263, 2453]	2696	[555, 700]	3735	[3930, 216]
619	[1101, 1102]	1658	[2454, 2455]	2697	[2190, 99]	3736	[340, 3931]
620	[1103, 1104]	1659	[2456, 2457]	2698	[3166, 3167]	3737	[3932, 3607]
621	[1104, 1105]	1660	[2458, 2459]	2699	[1863, 1206]	3738	[246, 3933]
622	[1106, 930]	1661	[2460, 2461]	2700	[2242, 3168]	3739	[3934, 1168]
623	[1107, 1108]	1662	[734, 2462]	2701	[3169, 2438]	3740	[3935, 3936]
624	[1109, 1110]	1663	[2463, 376]	2702	[3170, 324]	3741	[3937, 239]
625	[1111, 1112]	1664	[2464, 2465]	2703	[3171, 870]	3742	[3938, 3413]
626	[1113, 1114]	1665	[2466, 2326]	2704	[2531, 3172]	3743	[1996, 2483]
627	[1115, 1116]	1666	[766, 1923]	2705	[1114, 3173]	3744	[991, 3939]
628	[1117, 1118]	1667	[2467, 2468]	2706	[3174, 349]	3745	[3940, 934]
629	[1119, 301]	1668	[2469, 2470]	2707	[3175, 2091]	3746	[3941, 3942]
630	[1120, 1121]	1669	[2471, 2472]	2708	[3176, 2572]	3747	[3579, 3943]
631	[1122, 1123]	1670	[2473, 2474]	2709	[2078, 2481]	3748	[86, 357]
632	[924, 1124]	1671	[2278, 792]	2710	[3177, 285]	3749	[3944, 3945]
633	[1125, 1008]	1672	[1123, 2070]	2711	[3178, 3179]	3750	[3946, 2004]

634	[1126, 1082]	1673	[2475, 2463]	2712	[3180, 3181]	3751	[764, 3947]
635	[1127, 1128]	1674	[2476, 2307]	2713	[3182, 891]	3752	[3948, 2438]
636	[1129, 1130]	1675	[2477, 2478]	2714	[3183, 3184]	3753	[3388, 855]
637	[1131, 1132]	1676	[2479, 2373]	2715	[3185, 1909]	3754	[3949, 3950]
638	[1133, 1134]	1677	[311, 2480]	2716	[2127, 2343]	3755	[3232, 1926]
639	[105, 1135]	1678	[915, 1032]	2717	[2228, 1202]	3756	[2192, 1134]
640	[1136, 917]	1679	[2481, 2188]	2718	[2678, 951]	3757	[3951, 3952]
641	[1137, 1138]	1680	[2482, 2483]	2719	[3186, 3187]	3758	[3953, 941]
642	[1139, 1140]	1681	[1977, 726]	2720	[2465, 1145]	3759	[3954, 3324]
643	[1141, 1142]	1682	[859, 2484]	2721	[3188, 2670]	3760	[3955, 1023]
644	[1143, 1144]	1683	[2485, 2486]	2722	[3189, 3190]	3761	[1981, 103]
645	[1145, 1146]	1684	[2487, 314]	2723	[3191, 2417]	3762	[3956, 3469]
646	[1147, 1148]	1685	[212, 2259]	2724	[3192, 1046]	3763	[3957, 3874]
647	[1149, 1143]	1686	[2488, 2489]	2725	[3193, 854]	3764	[3958, 3397]
648	[1150, 1151]	1687	[2490, 1181]	2726	[3194, 2218]	3765	[3243, 1861]
649	[1152, 1120]	1688	[2491, 2492]	2727	[3181, 2075]	3766	[3959, 1072]
650	[336, 1151]	1689	[2455, 2493]	2728	[3195, 1903]	3767	[3960, 236]
651	[20, 1153]	1690	[2494, 828]	2729	[3196, 3197]	3768	[3961, 3962]
652	[1154, 1155]	1691	[2495, 2496]	2730	[3198, 1937]	3769	[1950, 1959]
653	[1156, 1157]	1692	[2497, 2498]	2731	[853, 3199]	3770	[3963, 3890]
654	[1158, 1159]	1693	[2413, 244]	2732	[3200, 954]	3771	[790, 3595]
655	[1160, 1161]	1694	[2499, 915]	2733	[2214, 2501]	3772	[3964, 3925]
656	[1162, 1163]	1695	[2500, 316]	2734	[3201, 3202]	3773	[2302, 2467]
657	[1164, 1165]	1696	[2020, 723]	2735	[3203, 2665]	3774	[3965, 2345]
658	[1166, 298]	1697	[2480, 2365]	2736	[2072, 3204]	3775	[3966, 310]
659	[1167, 241]	1698	[2501, 2276]	2737	[3205, 247]	3776	[2654, 3967]
660	[1168, 1169]	1699	[2502, 2503]	2738	[3206, 3207]	3777	[3968, 2571]
661	[1170, 1171]	1700	[2504, 1019]	2739	[3208, 2673]	3778	[267, 1936]
662	[1172, 1173]	1701	[1124, 1023]	2740	[2587, 3209]	3779	[3969, 3970]
663	[1064, 1174]	1702	[2505, 2506]	2741	[2197, 2357]	3780	[3971, 2561]
664	[1175, 269]	1703	[2507, 2508]	2742	[81, 3210]	3781	[3972, 3631]
665	[1176, 1177]	1704	[2509, 2429]	2743	[1890, 2209]	3782	[3973, 1224]
666	[1178, 1057]	1705	[2330, 231]	2744	[3211, 68]	3783	[3974, 3975]
667	[1179, 1180]	1706	[2510, 2159]	2745	[3212, 1110]	3784	[3976, 287]
668	[1181, 1182]	1707	[2306, 2511]	2746	[3213, 1005]	3785	[3977, 3978]
669	[1183, 1184]	1708	[2512, 2371]	2747	[3214, 2602]	3786	[3979, 2227]
670	[362, 1185]	1709	[2513, 2514]	2748	[3215, 711]	3787	[3980, 3492]
671	[1186, 1187]	1710	[2515, 1878]	2749	[2690, 2243]	3788	[2299, 2207]
672	[1188, 1189]	1711	[2516, 1894]	2750	[3216, 3207]	3789	[716, 332]
673	[1190, 948]	1712	[2517, 1943]	2751	[3217, 3218]	3790	[3981, 3982]
674	[1191, 1192]	1713	[2518, 2519]	2752	[3219, 3220]	3791	[3983, 723]
675	[1193, 1194]	1714	[2520, 2521]	2753	[3221, 3222]	3792	[3984, 3985]
676	[1195, 1196]	1715	[2022, 16]	2754	[3223, 3224]	3793	[836, 69]
677	[967, 365]	1716	[2522, 870]	2755	[3225, 3226]	3794	[3986, 3872]

678	[1197, 1198]	1717	[1948, 2267]	2756	[3227, 1103]	3795	[3987, 3474]
679	[1199, 1199]	1718	[1094, 2523]	2757	[975, 2650]	3796	[3988, 3989]
680	[1200, 1201]	1719	[2524, 1880]	2758	[3228, 966]	3797	[1999, 2608]
681	[1202, 1203]	1720	[2483, 2525]	2759	[3229, 919]	3798	[3990, 270]
682	[1204, 1205]	1721	[2526, 2527]	2760	[3230, 2051]	3799	[3991, 2084]
683	[1206, 1207]	1722	[2528, 2529]	2761	[3231, 3232]	3800	[3992, 3644]
684	[1208, 1209]	1723	[2530, 2531]	2762	[3233, 3234]	3801	[3441, 713]
685	[1210, 1211]	1724	[2532, 2533]	2763	[3235, 3236]	3802	[3993, 2515]
686	[1212, 1213]	1725	[2534, 2535]	2764	[3237, 1031]	3803	[1171, 3976]
687	[1214, 318]	1726	[2536, 2537]	2765	[3238, 3239]	3804	[3994, 1166]
688	[1215, 1216]	1727	[2538, 1962]	2766	[3240, 3241]	3805	[955, 2349]
689	[99, 1217]	1728	[2106, 2539]	2767	[1028, 3242]	3806	[3995, 3996]
690	[1218, 1219]	1729	[2540, 2541]	2768	[107, 3243]	3807	[3411, 900]
691	[1220, 1221]	1730	[2542, 2543]	2769	[3244, 841]	3808	[3997, 3625]
692	[220, 1222]	1731	[2544, 2538]	2770	[368, 3245]	3809	[3998, 110]
693	[1223, 1224]	1732	[2094, 2494]	2771	[3246, 3247]	3810	[3999, 1010]
694	[1225, 1226]	1733	[1997, 2545]	2772	[3248, 1225]	3811	[4000, 1042]
695	[1227, 1228]	1734	[2546, 2547]	2773	[1146, 380]	3812	[4001, 4002]
696	[746, 1229]	1735	[2548, 1881]	2774	[214, 2518]	3813	[4003, 4004]
697	[1230, 1231]	1736	[2549, 93]	2775	[3249, 988]	3814	[3629, 2178]
698	[1232, 1233]	1737	[2550, 2551]	2776	[2472, 1067]	3815	[4005, 4006]
699	[1234, 1051]	1738	[2552, 2553]	2777	[3250, 3251]	3816	[4007, 1191]
700	[1235, 1236]	1739	[2554, 332]	2778	[2272, 3252]	3817	[4008, 2601]
701	[1237, 1238]	1740	[750, 2555]	2779	[3253, 3254]	3818	[4009, 4010]
702	[1239, 1240]	1741	[2556, 2270]	2780	[3255, 3256]	3819	[4011, 938]
703	[1241, 739]	1742	[2557, 2558]	2781	[3257, 3258]	3820	[2535, 2613]
704	[1242, 1243]	1743	[2559, 1934]	2782	[2310, 3259]	3821	[4012, 2087]
705	[1144, 268]	1744	[2560, 2561]	2783	[3260, 3261]	3822	[4013, 338]
706	[1244, 1245]	1745	[1068, 958]	2784	[796, 738]	3823	[4014, 1971]
707	[1246, 1247]	1746	[1062, 2446]	2785	[3262, 1044]	3824	[1972, 4015]
708	[1248, 1249]	1747	[2562, 367]	2786	[3263, 82]	3825	[4016, 3344]
709	[22, 1250]	1748	[2555, 2563]	2787	[2424, 3264]	3826	[4017, 2144]
710	[1251, 1252]	1749	[2564, 2565]	2788	[3265, 2322]	3827	[4018, 772]
711	[1253, 552]	1750	[906, 992]	2789	[3266, 866]	3828	[2287, 293]
712	[645, 1254]	1751	[2566, 2458]	2790	[3267, 886]	3829	[4019, 4020]
713	[1255, 1256]	1752	[2567, 2133]	2791	[3268, 1951]	3830	[4021, 2593]
714	[1257, 1258]	1753	[2568, 2147]	2792	[3269, 952]	3831	[4022, 4023]
715	[659, 1259]	1754	[2569, 2021]	2793	[3270, 3271]	3832	[3496, 805]
716	[1260, 528]	1755	[2570, 2571]	2794	[3272, 3273]	3833	[4024, 2273]
717	[1261, 1262]	1756	[2572, 2573]	2795	[3274, 3275]	3834	[2621, 2365]
718	[1263, 1264]	1757	[2574, 361]	2796	[3276, 3277]	3835	[4025, 1944]
719	[668, 1265]	1758	[2575, 2576]	2797	[3278, 3279]	3836	[4026, 2485]
720	[1266, 555]	1759	[2577, 2578]	2798	[2486, 3280]	3837	[4027, 3457]
721	[1267, 1268]	1760	[2579, 2580]	2799	[3281, 110]	3838	[4028, 762]

722	[445, 1269]	1761	[2304, 2581]	2800	[3282, 2189]	3839	[4029, 4030]
723	[45, 1270]	1762	[2582, 329]	2801	[3283, 3284]	3840	[4031, 3352]
724	[1271, 1272]	1763	[2583, 2542]	2802	[2642, 3285]	3841	[4032, 4033]
725	[1273, 1274]	1764	[2584, 2585]	2803	[3286, 714]	3842	[3454, 1132]
726	[1275, 630]	1765	[2586, 1107]	2804	[3287, 878]	3843	[834, 735]
727	[1276, 1277]	1766	[2212, 2587]	2805	[1956, 3288]	3844	[4034, 396]
728	[1278, 1275]	1767	[2383, 2516]	2806	[3289, 3290]	3845	[4035, 2541]
729	[1279, 1280]	1768	[1072, 306]	2807	[3291, 1239]	3846	[4036, 1131]
730	[1281, 1282]	1769	[2588, 2183]	2808	[2164, 1968]	3847	[4037, 4038]
731	[1283, 1284]	1770	[2589, 2590]	2809	[3292, 3293]	3848	[2498, 2199]
732	[1285, 665]	1771	[2591, 888]	2810	[856, 3294]	3849	[4039, 858]
733	[1286, 1287]	1772	[2592, 2445]	2811	[3295, 2467]	3850	[4040, 4041]
734	[1288, 1289]	1773	[75, 2593]	2812	[3296, 3297]	3851	[4042, 3313]
735	[1290, 1291]	1774	[2594, 2470]	2813	[2496, 725]	3852	[4043, 3487]
736	[1292, 1293]	1775	[2595, 2596]	2814	[1035, 916]	3853	[4044, 2356]
737	[1294, 1295]	1776	[1142, 337]	2815	[3298, 1919]	3854	[4045, 2123]
738	[1296, 1297]	1777	[2597, 2598]	2816	[3299, 3300]	3855	[2320, 902]
739	[536, 1298]	1778	[2406, 2599]	2817	[3301, 1947]	3856	[2125, 1103]
740	[1287, 1299]	1779	[2600, 2601]	2818	[892, 3302]	3857	[4046, 1867]
741	[1300, 1301]	1780	[2602, 2431]	2819	[3303, 3304]	3858	[4047, 2635]
742	[1302, 525]	1781	[2603, 2604]	2820	[3305, 3306]	3859	[4048, 2206]
743	[179, 1303]	1782	[2605, 2606]	2821	[3307, 3308]	3860	[4049, 988]
744	[1304, 210]	1783	[2607, 2608]	2822	[3187, 3309]	3861	[4050, 1873]
745	[112, 1305]	1784	[2609, 836]	2823	[1185, 3310]	3862	[4051, 4052]
746	[1306, 506]	1785	[2610, 2611]	2824	[3311, 3312]	3863	[3942, 18]
747	[1307, 169]	1786	[2612, 2613]	2825	[2246, 1993]	3864	[3996, 1020]
748	[1308, 129]	1787	[2614, 998]	2826	[3313, 2023]	3865	[2263, 3923]
749	[1309, 1310]	1788	[2615, 2388]	2827	[3314, 1918]	3866	[2932, 2752]
750	[1311, 1312]	1789	[783, 2616]	2828	[931, 3315]	3867	[1832, 2777]
751	[1313, 1314]	1790	[2617, 75]	2829	[3316, 365]	3868	[3007, 1537]
752	[1315, 1316]	1791	[265, 2471]	2830	[85, 3317]	3869	[2984, 3783]
753	[1317, 1318]	1792	[2618, 2273]	2831	[3318, 3319]	3870	[4053, 2866]
754	[1319, 1320]	1793	[1135, 2619]	2832	[2662, 1212]	3871	[3847, 2997]
755	[1321, 710]	1794	[2620, 2621]	2833	[3320, 3321]	3872	[1633, 141]
756	[1322, 1323]	1795	[887, 731]	2834	[3322, 994]	3873	[4054, 621]
757	[1324, 465]	1796	[2622, 2609]	2835	[2565, 3323]	3874	[4055, 511]
758	[1325, 1326]	1797	[2623, 2624]	2836	[3324, 2617]	3875	[3728, 1260]
759	[688, 552]	1798	[969, 2625]	2837	[3325, 2373]	3876	[4056, 2997]
760	[1327, 1328]	1799	[2626, 2197]	2838	[3326, 281]	3877	[4057, 1655]
761	[1329, 403]	1800	[2627, 2628]	2839	[3327, 1010]	3878	[2894, 2716]
762	[1330, 430]	1801	[2629, 2630]	2840	[234, 3328]	3879	[3850, 535]
763	[1331, 1332]	1802	[933, 2631]	2841	[754, 3329]	3880	[3727, 1521]
764	[1333, 590]	1803	[788, 2054]	2842	[3330, 1925]	3881	[1808, 2862]
765	[1334, 1335]	1804	[2632, 2466]	2843	[3331, 359]	3882	[2745, 617]

766	[1336, 1337]	1805	[2633, 2127]	2844	[3332, 1002]	3883	[3156, 3097]
767	[1338, 1339]	1806	[323, 2634]	2845	[2601, 3333]	3884	[4058, 662]
768	[1340, 564]	1807	[2635, 2636]	2846	[3334, 3335]	3885	[419, 639]
769	[1341, 1342]	1808	[293, 2637]	2847	[1987, 2254]	3886	[4059, 2863]
770	[1343, 1344]	1809	[2638, 1137]	2848	[3336, 312]	3887	[115, 1593]
771	[1345, 1346]	1810	[2639, 2348]	2849	[3337, 2081]	3888	[1829, 2910]
772	[1347, 1348]	1811	[2640, 1882]	2850	[3338, 1912]	3889	[4060, 2906]
773	[1349, 439]	1812	[2641, 2642]	2851	[358, 2682]	3890	[666, 2821]
774	[1350, 1351]	1813	[1922, 1056]	2852	[3339, 3340]	3891	[4061, 473]
775	[693, 1352]	1814	[1906, 2064]	2853	[3271, 3341]	3892	[3135, 1346]
776	[1353, 522]	1815	[2643, 1245]	2854	[1861, 3342]	3893	[1370, 1572]
777	[1354, 1355]	1816	[1148, 2644]	2855	[3343, 1025]	3894	[2810, 3701]
778	[1313, 1302]	1817	[2645, 2170]	2856	[3344, 3345]	3895	[3749, 1402]
779	[1356, 1357]	1818	[2646, 2647]	2857	[3346, 2024]	3896	[4062, 2910]
780	[574, 190]	1819	[2547, 2648]	2858	[3347, 3348]	3897	[4063, 523]
781	[1358, 1359]	1820	[807, 2649]	2859	[3349, 3350]	3898	[3810, 1841]
782	[409, 1359]	1821	[1821, 1821]	2860	[3351, 398]	3899	[1817, 3758]
783	[1360, 1361]	1822	[2650, 2651]	2861	[3352, 2363]	3900	[3773, 2864]
784	[1362, 1255]	1823	[2652, 2653]	2862	[845, 3353]	3901	[1754, 674]
785	[652, 588]	1824	[813, 2654]	2863	[2439, 3354]	3902	[4064, 1634]
786	[1363, 1364]	1825	[2655, 2656]	2864	[2037, 3355]	3903	[4065, 3143]
787	[1365, 1366]	1826	[1968, 2657]	2865	[3356, 3357]	3904	[3829, 3084]
788	[1367, 530]	1827	[869, 2658]	2866	[3358, 23]	3905	[1784, 1490]
789	[1368, 1369]	1828	[2339, 2659]	2867	[3359, 785]	3906	[3754, 648]
790	[1370, 417]	1829	[2660, 363]	2868	[3345, 3360]	3907	[4066, 1402]
791	[1371, 1372]	1830	[2661, 2662]	2869	[226, 2134]	3908	[3707, 479]
792	[1373, 614]	1831	[2599, 2320]	2870	[3361, 3362]	3909	[4067, 581]
793	[1374, 1375]	1832	[2663, 1152]	2871	[3363, 2550]	3910	[695, 1761]
794	[456, 1376]	1833	[1222, 2664]	2872	[838, 801]	3911	[1645, 31]
795	[538, 1377]	1834	[2665, 2666]	2873	[277, 298]	3912	[2719, 2878]
796	[1378, 1379]	1835	[2667, 2668]	2874	[781, 3364]	3913	[4068, 481]
797	[1380, 1381]	1836	[2669, 902]	2875	[3365, 3366]	3914	[1840, 3687]
798	[1381, 1382]	1837	[2670, 2671]	2876	[2146, 3251]	3915	[3148, 1836]
799	[1383, 1384]	1838	[2672, 844]	2877	[3367, 3368]	3916	[4069, 31]
800	[1385, 1360]	1839	[2673, 2674]	2878	[3369, 3370]	3917	[4070, 2893]
801	[1386, 1387]	1840	[2675, 2676]	2879	[3371, 3372]	3918	[2779, 1687]
802	[1315, 1260]	1841	[2677, 2678]	2880	[1250, 3373]	3919	[2858, 1542]
803	[1388, 1389]	1842	[2679, 1173]	2881	[3374, 3375]	3920	[4071, 562]
804	[1390, 550]	1843	[2680, 2681]	2882	[3376, 2530]	3921	[3055, 589]
805	[1391, 1392]	1844	[2682, 369]	2883	[3377, 2559]	3922	[2764, 1705]
806	[1393, 1394]	1845	[2683, 2277]	2884	[2250, 3378]	3923	[439, 2885]
807	[1297, 1395]	1846	[232, 211]	2885	[2007, 3379]	3924	[3821, 1402]
808	[1396, 1260]	1847	[2684, 2685]	2886	[3380, 3381]	3925	[3839, 485]
809	[1397, 1398]	1848	[2686, 2687]	2887	[2590, 3382]	3926	[4072, 2758]

810	[1399, 42]	1849	[2688, 780]	2888	[3383, 3384]	3927	[4073, 684]
811	[1400, 126]	1850	[2044, 223]	2889	[3385, 3386]	3928	[3828, 461]
812	[1267, 1401]	1851	[1957, 2689]	2890	[3387, 3388]	3929	[1686, 1301]
813	[1402, 1403]	1852	[2032, 2690]	2891	[3389, 2622]	3930	[4074, 3026]
814	[1404, 1405]	1853	[2691, 2692]	2892	[3390, 903]	3931	[126, 3028]
815	[1406, 1407]	1854	[2693, 2694]	2893	[2001, 3391]	3932	[4075, 1271]
816	[1408, 444]	1855	[2695, 1193]	2894	[1024, 2252]	3933	[113, 2917]
817	[1409, 1410]	1856	[2604, 2696]	2895	[3392, 3393]	3934	[1608, 1790]
818	[1411, 1317]	1857	[2697, 1621]	2896	[3394, 2073]	3935	[3813, 416]
819	[1412, 409]	1858	[2698, 1441]	2897	[3395, 1954]	3936	[1390, 463]
820	[497, 1413]	1859	[656, 197]	2898	[3396, 3397]	3937	[4056, 2844]
821	[1414, 1415]	1860	[135, 2699]	2899	[3398, 3399]	3938	[4076, 44]
822	[547, 1416]	1861	[2700, 406]	2900	[2418, 3400]	3939	[571, 1323]
823	[1357, 1417]	1862	[1779, 518]	2901	[3204, 1243]	3940	[4077, 3084]
824	[702, 1418]	1863	[1698, 1466]	2902	[3401, 3402]	3941	[2825, 3031]
825	[1419, 1420]	1864	[2701, 2702]	2903	[3403, 3404]	3942	[3726, 1800]
826	[501, 1421]	1865	[2703, 2704]	2904	[3405, 2107]	3943	[182, 494]
827	[1422, 1423]	1866	[648, 2705]	2905	[3275, 814]	3944	[3696, 1427]
828	[1424, 1425]	1867	[2706, 1440]	2906	[3406, 3407]	3945	[3802, 3722]
829	[1374, 1426]	1868	[196, 1710]	2907	[2543, 302]	3946	[4078, 1337]
830	[1427, 1428]	1869	[2707, 1404]	2908	[3408, 1963]	3947	[1621, 1766]
831	[1429, 1430]	1870	[2708, 1739]	2909	[3409, 1160]	3948	[3791, 1358]
832	[1431, 1295]	1871	[552, 2709]	2910	[3410, 3411]	3949	[411, 1297]
833	[1432, 1433]	1872	[2710, 2711]	2911	[3412, 3413]	3950	[1494, 2702]
834	[1434, 1292]	1873	[2712, 1680]	2912	[3414, 2033]	3951	[3767, 148]
835	[1435, 1436]	1874	[1514, 2713]	2913	[3415, 840]	3952	[2995, 3034]
836	[1437, 1438]	1875	[638, 1802]	2914	[3416, 3417]	3953	[3816, 1563]
837	[1439, 1440]	1876	[2714, 670]	2915	[3418, 3419]	3954	[4079, 644]
838	[1441, 1442]	1877	[1590, 1644]	2916	[3420, 3421]	3955	[4080, 1540]
839	[1443, 572]	1878	[163, 637]	2917	[3422, 3423]	3956	[3756, 557]
840	[1444, 1445]	1879	[1522, 1319]	2918	[3173, 1923]	3957	[3818, 1651]
841	[489, 496]	1880	[9, 706]	2919	[2527, 3424]	3958	[2728, 709]
842	[1446, 1447]	1881	[1439, 2715]	2920	[3425, 390]	3959	[3691, 503]
843	[583, 547]	1882	[1676, 115]	2921	[3426, 3427]	3960	[4081, 3020]
844	[160, 1448]	1883	[2716, 507]	2922	[392, 2115]	3961	[2913, 1798]
845	[469, 466]	1884	[205, 121]	2923	[2254, 978]	3962	[3710, 56]
846	[1449, 1450]	1885	[429, 521]	2924	[2347, 2391]	3963	[3852, 3128]
847	[1451, 199]	1886	[53, 1476]	2925	[3428, 2153]	3964	[3702, 420]
848	[1452, 1453]	1887	[1277, 1277]	2926	[3429, 260]	3965	[2937, 2767]
849	[1453, 1454]	1888	[538, 448]	2927	[1022, 3430]	3966	[4082, 3701]
850	[1455, 1456]	1889	[1297, 1380]	2928	[3431, 1961]	3967	[535, 1767]
851	[1457, 1458]	1890	[1578, 1382]	2929	[977, 826]	3968	[4083, 586]
852	[1459, 1460]	1891	[1278, 2717]	2930	[3432, 379]	3969	[1493, 1366]
853	[558, 154]	1892	[1274, 1597]	2931	[3433, 345]	3970	[413, 1430]

854	[1461, 480]	1893	[2717, 563]	2932	[3434, 1940]	3971	[3740, 2903]
855	[655, 192]	1894	[412, 1380]	2933	[3435, 2049]	3972	[3051, 1733]
856	[1445, 1462]	1895	[2718, 669]	2934	[3436, 3437]	3973	[3686, 1841]
857	[1463, 520]	1896	[2719, 148]	2935	[3438, 2632]	3974	[3711, 1813]
858	[1464, 1465]	1897	[1441, 2720]	2936	[3439, 3275]	3975	[2771, 3074]
859	[1360, 1466]	1898	[638, 1635]	2937	[3440, 3441]	3976	[174, 3748]
860	[1467, 1468]	1899	[664, 1262]	2938	[3442, 3443]	3977	[3106, 1335]
861	[1469, 1424]	1900	[2721, 2722]	2939	[3444, 721]	3978	[609, 1707]
862	[1470, 1471]	1901	[1536, 2723]	2940	[3445, 3446]	3979	[1483, 2851]
863	[1472, 700]	1902	[1718, 2716]	2941	[355, 3447]	3980	[4084, 456]
864	[1473, 1474]	1903	[1782, 1856]	2942	[3448, 2347]	3981	[2831, 2941]
865	[1475, 171]	1904	[658, 599]	2943	[3449, 1107]	3982	[3733, 2782]
866	[149, 1434]	1905	[2724, 1699]	2944	[3450, 3403]	3983	[595, 1271]
867	[671, 1391]	1906	[43, 1254]	2945	[3451, 2308]	3984	[3848, 479]
868	[1476, 1477]	1907	[2725, 1399]	2946	[346, 3452]	3985	[3037, 2747]
869	[1478, 613]	1908	[2726, 52]	2947	[3333, 2156]	3986	[3677, 528]
870	[1479, 1480]	1909	[556, 1518]	2948	[3453, 3454]	3987	[4085, 41]
871	[1481, 1482]	1910	[2727, 1720]	2949	[3455, 3456]	3988	[568, 1660]
872	[1483, 1484]	1911	[2728, 1321]	2950	[3457, 315]	3989	[3706, 1546]
873	[1485, 1486]	1912	[2729, 516]	2951	[3458, 3459]	3990	[4086, 514]
874	[1487, 1488]	1913	[623, 524]	2952	[3391, 375]	3991	[2769, 1789]
875	[180, 1489]	1914	[625, 1318]	2953	[2474, 3460]	3992	[4087, 35]
876	[1399, 479]	1915	[707, 1531]	2954	[3461, 3462]	3993	[2909, 1830]
877	[52, 1490]	1916	[709, 1624]	2955	[3463, 2691]	3994	[2803, 1682]
878	[1491, 1492]	1917	[1665, 2720]	2956	[3464, 3191]	3995	[3820, 1521]
879	[1316, 457]	1918	[2730, 2731]	2957	[2581, 3231]	3996	[3134, 1513]
880	[464, 599]	1919	[2732, 2733]	2958	[3465, 77]	3997	[4060, 403]
881	[1493, 540]	1920	[1383, 2734]	2959	[3466, 947]	3998	[4088, 209]
882	[1494, 1495]	1921	[2735, 1677]	2960	[3467, 213]	3999	[4089, 484]
883	[1368, 1496]	1922	[1801, 623]	2961	[3285, 3422]	4000	[2976, 3045]
884	[1497, 1498]	1923	[2736, 2717]	2962	[1130, 2381]	4001	[2819, 2910]
885	[1499, 1500]	1924	[1579, 1273]	2963	[2489, 1199]	4002	[3670, 3853]
886	[1501, 1502]	1925	[608, 2736]	2964	[3468, 3469]	4003	[4085, 1399]
887	[677, 1503]	1926	[1593, 565]	2965	[3470, 1071]	4004	[3781, 1266]
888	[622, 523]	1927	[581, 1652]	2966	[3471, 3472]	4005	[3720, 1609]
889	[1504, 1404]	1928	[1479, 1851]	2967	[3473, 3474]	4006	[3831, 3698]
890	[698, 617]	1929	[1721, 162]	2968	[3475, 3476]	4007	[4090, 32]
891	[1505, 1349]	1930	[2737, 1454]	2969	[301, 1091]	4008	[4091, 2906]
892	[1506, 37]	1931	[1504, 1855]	2970	[3477, 3478]	4009	[3019, 452]
893	[1507, 592]	1932	[2738, 2739]	2971	[3437, 3479]	4010	[1591, 511]
894	[1508, 1509]	1933	[1685, 2740]	2972	[3480, 910]	4011	[3078, 653]
895	[1510, 1511]	1934	[1530, 1555]	2973	[3481, 2575]	4012	[3817, 571]
896	[1512, 1513]	1935	[1516, 703]	2974	[3482, 72]	4013	[1300, 1687]
897	[1514, 1356]	1936	[2741, 2742]	2975	[3483, 2693]	4014	[4092, 1401]

898	[1386, 1515]	1937	[676, 491]	2976	[3484, 382]	4015	[1303, 2813]
899	[1516, 416]	1938	[1616, 134]	2977	[3485, 2145]	4016	[3104, 1282]
900	[1498, 1517]	1939	[2743, 1580]	2978	[3486, 3487]	4017	[4093, 1615]
901	[678, 1386]	1940	[2744, 2702]	2979	[2046, 3488]	4018	[4094, 1349]
902	[128, 493]	1941	[2745, 1407]	2980	[1151, 1015]	4019	[3068, 1856]
903	[700, 1518]	1942	[1838, 473]	2981	[388, 3489]	4020	[2973, 1757]
904	[685, 1293]	1943	[2746, 2747]	2982	[1224, 2679]	4021	[3779, 1456]
905	[1519, 160]	1944	[1314, 525]	2983	[3490, 2492]	4022	[1539, 3033]
906	[1520, 1521]	1945	[692, 1660]	2984	[3491, 3492]	4023	[3016, 2781]
907	[1522, 1523]	1946	[2748, 1841]	2985	[3493, 1975]	4024	[3840, 452]
908	[1373, 1524]	1947	[1602, 2732]	2986	[3317, 3332]	4025	[4080, 3033]
909	[1525, 1526]	1948	[1766, 2749]	2987	[3494, 2496]	4026	[1533, 523]
910	[1527, 1528]	1949	[2750, 1446]	2988	[3495, 3496]	4027	[2718, 1265]
911	[1529, 1530]	1950	[2751, 2752]	2989	[3497, 1210]	4028	[3714, 1346]
912	[1531, 1532]	1951	[601, 514]	2990	[3498, 1162]	4029	[1603, 1305]
913	[436, 420]	1952	[2753, 1409]	2991	[1914, 3499]	4030	[1527, 2896]
914	[1533, 623]	1953	[1266, 1472]	2992	[3500, 3293]	4031	[3858, 1574]
915	[1534, 1535]	1954	[2754, 45]	2993	[3501, 399]	4032	[537, 681]
916	[1536, 1537]	1955	[47, 594]	2994	[2685, 1118]	4033	[1706, 610]
917	[1538, 113]	1956	[1699, 554]	2995	[3502, 2353]	4034	[4062, 1830]
918	[1539, 1540]	1957	[641, 573]	2996	[3503, 3504]	4035	[640, 572]
919	[1541, 1542]	1958	[1642, 209]	2997	[2102, 3505]	4036	[2708, 1450]
920	[125, 453]	1959	[1549, 2755]	2998	[2117, 3506]	4037	[3814, 2723]
921	[1543, 1544]	1960	[1812, 46]	2999	[3507, 3508]	4038	[3785, 3045]
922	[1545, 1526]	1961	[1819, 1448]	3000	[3509, 1242]	4039	[2800, 1360]
923	[1546, 1547]	1962	[2756, 2757]	3001	[3510, 711]	4040	[447, 1377]
924	[679, 1387]	1963	[2758, 2723]	3002	[3511, 3512]	4041	[2852, 632]
925	[1548, 627]	1964	[2759, 571]	3003	[3513, 80]	4042	[4067, 1651]
926	[1549, 1410]	1965	[2760, 2761]	3004	[2144, 2298]	4043	[4095, 57]
927	[191, 656]	1966	[430, 1310]	3005	[2204, 218]	4044	[3001, 1329]
928	[1550, 422]	1967	[407, 1584]	3006	[3514, 3515]	4045	[1797, 144]
929	[1551, 594]	1968	[1697, 1715]	3007	[1933, 3320]	4046	[4096, 196]
930	[580, 209]	1969	[2762, 1619]	3008	[307, 1218]	4047	[3092, 2903]
931	[628, 1269]	1970	[1688, 2700]	3009	[319, 2460]	4048	[4077, 2944]
932	[467, 1552]	1971	[1691, 1303]	3010	[1910, 996]	4049	[3705, 1423]
933	[1553, 1259]	1972	[1401, 576]	3011	[3516, 2224]	4050	[4097, 1853]
934	[1554, 574]	1973	[2763, 2756]	3012	[3517, 3518]	4051	[4064, 141]
935	[1555, 8]	1974	[1480, 1621]	3013	[3519, 2538]	4052	[1729, 186]
936	[1556, 1357]	1975	[1751, 692]	3014	[3520, 3521]	4053	[4098, 1997]
937	[1557, 1558]	1976	[2764, 450]	3015	[3522, 720]	4054	[2523, 279]
938	[1559, 35]	1977	[2765, 2731]	3016	[3523, 89]	4055	[4099, 4100]
939	[653, 1560]	1978	[1708, 1679]	3017	[3524, 2236]	4056	[4101, 1021]
940	[1561, 136]	1979	[2766, 1666]	3018	[3525, 3225]	4057	[4102, 3357]
941	[458, 1562]	1980	[519, 2767]	3019	[3526, 3527]	4058	[4103, 1064]

942	[1563, 674]	1981	[1737, 2768]	3020	[1898, 3528]	4059	[101, 2439]
943	[1564, 1565]	1982	[2769, 1795]	3021	[3529, 3459]	4060	[4104, 811]
944	[558, 1566]	1983	[11, 2770]	3022	[1159, 3470]	4061	[4105, 3460]
945	[1567, 665]	1984	[2771, 1816]	3023	[3530, 3531]	4062	[4106, 4107]
946	[1568, 440]	1985	[2772, 1713]	3024	[1243, 954]	4063	[4108, 374]
947	[1569, 463]	1986	[1787, 132]	3025	[1084, 2075]	4064	[4109, 2514]
948	[1326, 1570]	1987	[152, 1615]	3026	[3202, 1942]	4065	[4110, 4111]
949	[1571, 1572]	1988	[2773, 2774]	3027	[3532, 2536]	4066	[4112, 777]
950	[1573, 1574]	1989	[2775, 1266]	3028	[908, 1237]	4067	[4113, 1036]
951	[1575, 1517]	1990	[1836, 2776]	3029	[2069, 3533]	4068	[4114, 2157]
952	[1576, 1577]	1991	[2777, 649]	3030	[3534, 2480]	4069	[4115, 3622]
953	[1578, 1579]	1992	[451, 566]	3031	[1089, 3535]	4070	[4116, 997]
954	[1380, 1578]	1993	[1803, 2778]	3032	[3536, 2323]	4071	[4117, 4]
955	[1580, 1581]	1994	[2779, 1301]	3033	[3537, 2407]	4072	[4118, 3191]
956	[1564, 1582]	1995	[2780, 2781]	3034	[3538, 869]	4073	[4119, 4120]
957	[1583, 1584]	1996	[1685, 2774]	3035	[2194, 2239]	4074	[4121, 3989]
958	[1585, 1586]	1997	[2782, 1401]	3036	[3539, 2122]	4075	[4122, 2230]
959	[1587, 1588]	1998	[1755, 1535]	3037	[3540, 3541]	4076	[271, 2164]
960	[1589, 1590]	1999	[1636, 569]	3038	[3542, 3543]	4077	[4123, 928]
961	[1591, 1400]	2000	[434, 1272]	3039	[3544, 2387]	4078	[4124, 3518]
962	[1391, 1592]	2001	[1253, 672]	3040	[3545, 2195]	4079	[4125, 2037]
963	[1593, 1594]	2002	[1770, 2783]	3041	[297, 3201]	4080	[4126, 3358]
964	[1595, 1596]	2003	[2784, 1579]	3042	[3546, 1148]	4081	[4127, 4100]
965	[1597, 1297]	2004	[2785, 2]	3043	[3335, 384]	4082	[2252, 1045]
966	[612, 1598]	2005	[2786, 1399]	3044	[3547, 1090]	4083	[2539, 977]
967	[1520, 1599]	2006	[1767, 2787]	3045	[3548, 3549]	4084	[4128, 2015]
968	[1600, 658]	2007	[1773, 493]	3046	[2277, 3550]	4085	[4129, 4130]
969	[1601, 1602]	2008	[2788, 1328]	3047	[3551, 2110]	4086	[4131, 351]
970	[1603, 113]	2009	[2789, 485]	3048	[2694, 3170]	4087	[2666, 1157]
971	[1604, 535]	2010	[2790, 2791]	3049	[3552, 3553]	4088	[3323, 401]
972	[1307, 1605]	2011	[2792, 2793]	3050	[2160, 3554]	4089	[4132, 2537]
973	[1606, 1607]	2012	[2794, 1763]	3051	[3555, 2364]	4090	[4133, 2410]
974	[1608, 1609]	2013	[1363, 1854]	3052	[3556, 3557]	4091	[4134, 992]
975	[1610, 1611]	2014	[2795, 1725]	3053	[3558, 3330]	4092	[248, 1025]
976	[1612, 1423]	2015	[477, 2796]	3054	[3559, 3320]	4093	[4135, 252]
977	[1613, 1614]	2016	[689, 2749]	3055	[3560, 2440]	4094	[3372, 780]
978	[1615, 1616]	2017	[2797, 628]	3056	[3561, 2323]	4095	[4136, 2152]
979	[472, 1617]	2018	[2798, 1672]	3057	[3562, 1186]	4096	[4137, 2515]
980	[1618, 1619]	2019	[1811, 45]	3058	[3563, 2526]	4097	[2184, 2028]
981	[624, 1317]	2020	[1855, 1837]	3059	[2129, 3564]	4098	[3825, 3102]
982	[175, 203]	2021	[1559, 1647]	3060	[742, 276]	4099	[3730, 474]
983	[1330, 521]	2022	[1812, 1270]	3061	[3565, 1926]	4100	[2735, 516]
984	[1620, 1571]	2023	[1651, 582]	3062	[3566, 1190]	4101	[3113, 1652]
985	[1621, 689]	2024	[2798, 671]	3063	[3567, 2107]	4102	[4138, 1268]

986	[139, 1622]	2025	[2799, 1264]	3064	[3568, 3569]	4103	[4139, 10]
987	[491, 1503]	2026	[2800, 1698]	3065	[3254, 2063]	4104	[3862, 1446]
988	[636, 1623]	2027	[2801, 1682]	3066	[3570, 2684]	4105	[1449, 1739]
989	[1321, 1624]	2028	[694, 2802]	3067	[3571, 2032]	4106	[616, 1407]
990	[1424, 1462]	2029	[517, 1780]	3068	[3572, 2674]	4107	[3718, 698]
991	[637, 1625]	2030	[1420, 1344]	3069	[3573, 3574]	4108	[3815, 2855]
992	[160, 1626]	2031	[2803, 1500]	3070	[2056, 2516]	4109	[4140, 1555]
993	[1553, 660]	2032	[2804, 677]	3071	[3575, 3576]	4110	[3083, 2944]
994	[584, 1416]	2033	[197, 2805]	3072	[3577, 862]	4111	[1397, 643]
995	[1627, 486]	2034	[2806, 1615]	3073	[3578, 1867]	4112	[4141, 1441]
996	[1628, 1599]	2035	[2807, 1280]	3074	[3456, 1251]	4113	[3117, 703]
997	[1325, 199]	2036	[2808, 2740]	3075	[95, 3579]	4114	[4142, 132]
998	[1629, 1630]	2037	[2809, 480]	3076	[3580, 1191]	4115	[4143, 464]
999	[500, 1417]	2038	[146, 2810]	3077	[3581, 1051]	4116	[3149, 659]
1000	[1631, 1632]	2039	[2811, 704]	3078	[3582, 2332]	4117	[2925, 1372]
1001	[1633, 1634]	2040	[2812, 1399]	3079	[3583, 305]	4118	[3851, 542]
1002	[1625, 1635]	2041	[2813, 2814]	3080	[3584, 2669]	4119	[3790, 1806]
1003	[691, 1636]	2042	[2815, 2816]	3081	[3585, 3586]	4120	[3796, 1325]
1004	[1395, 1381]	2043	[1331, 2817]	3082	[2028, 2200]	4121	[3837, 2868]
1005	[1637, 530]	2044	[1696, 2818]	3083	[3587, 3588]	4122	[4144, 1304]
1006	[1638, 1265]	2045	[2792, 1703]	3084	[3589, 3298]	4123	[3760, 1328]
1007	[1639, 1640]	2046	[481, 1447]	3085	[3590, 743]	4124	[3132, 2699]
1008	[1641, 1642]	2047	[2819, 1830]	3086	[3591, 3592]	4125	[4145, 2941]
1009	[1643, 1644]	2048	[2820, 2821]	3087	[3593, 1971]	4126	[3039, 486]
1010	[1645, 1646]	2049	[208, 2822]	3088	[3594, 2221]	4127	[3806, 1795]
1011	[34, 1647]	2050	[2823, 1392]	3089	[3595, 3241]	4128	[4070, 1615]
1012	[589, 1648]	2051	[1629, 2824]	3090	[718, 3596]	4129	[4073, 542]
1013	[1649, 1522]	2052	[641, 1697]	3091	[722, 2225]	4130	[3012, 1505]
1014	[1534, 1650]	2053	[1378, 608]	3092	[3597, 2215]	4131	[143, 497]
1015	[1651, 1652]	2054	[1395, 1578]	3093	[3533, 5]	4132	[1724, 647]
1016	[1653, 555]	2055	[2736, 1275]	3094	[3576, 1244]	4133	[4146, 1647]
1017	[421, 1654]	2056	[1597, 412]	3095	[3598, 3599]	4134	[3739, 1553]
1018	[1655, 1656]	2057	[608, 1278]	3096	[3600, 3601]	4135	[3849, 481]
1019	[1657, 1349]	2058	[1296, 412]	3097	[3602, 2491]	4136	[3772, 1540]
1020	[1658, 1560]	2059	[2825, 2826]	3098	[3603, 3604]	4137	[3846, 163]
1021	[443, 1659]	2060	[2827, 1513]	3099	[3605, 2245]	4138	[879, 3610]
1022	[1402, 663]	2061	[1531, 2828]	3100	[3606, 3607]	4139	[4147, 2622]
1023	[1411, 625]	2062	[2829, 191]	3101	[3608, 1100]	4140	[4148, 2114]
1024	[1636, 1660]	2063	[436, 639]	3102	[3609, 3610]	4141	[4149, 4023]
1025	[1445, 1425]	2064	[1699, 587]	3103	[3611, 3612]	4142	[4150, 3385]
1026	[474, 462]	2065	[1254, 2830]	3104	[3613, 2187]	4143	[819, 275]
1027	[1523, 1661]	2066	[2831, 2832]	3105	[3386, 241]	4144	[935, 2100]
1028	[706, 651]	2067	[543, 2833]	3106	[3614, 3184]	4145	[4151, 3299]
1029	[703, 1662]	2068	[2834, 404]	3107	[3615, 3616]	4146	[1945, 2455]

1030	[1663, 709]	2069	[8, 11]	3108	[3617, 1950]	4147	[4053, 1555]
1031	[1664, 1665]	2070	[1319, 1661]	3109	[2657, 1087]	4148	[2999, 1363]
1032	[623, 707]	2071	[1750, 2835]	3110	[3618, 2546]	4149	[3700, 692]
1033	[171, 1524]	2072	[1820, 1820]	3111	[2331, 2085]	4150	[4086, 473]
1034	[1570, 1511]	2073	[1572, 418]	3112	[3619, 2691]	4151	[4145, 2832]
1035	[1666, 1667]	2074	[1574, 2836]	3113	[2385, 344]		
1036	[1668, 1669]	2075	[1581, 1296]	3114	[253, 2038]		
1037	[703, 1670]	2076	[1759, 589]	3115	[3620, 22]		
1038	[1671, 1672]	2077	[2837, 2747]	3116	[3621, 3622]		

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	693	0	1386	1	2079	1	2772	0	3465	0
1	0	694	1	1387	1	2080	1	2773	1	3466	1
2	1	695	1	1388	1	2081	1	2774	0	3467	0
3	0	696	1	1389	1	2082	0	2775	0	3468	1
4	0	697	1	1390	0	2083	1	2776	0	3469	1
5	1	698	1	1391	0	2084	1	2777	1	3470	0
6	1	699	0	1392	1	2085	1	2778	1	3471	1
7	0	700	1	1393	0	2086	0	2779	1	3472	0
8	0	701	0	1394	0	2087	1	2780	1	3473	1
9	0	702	1	1395	0	2088	1	2781	1	3474	1
10	0	703	0	1396	1	2089	1	2782	1	3475	1
11	1	704	1	1397	0	2090	0	2783	1	3476	0
12	0	705	0	1398	1	2091	0	2784	1	3477	1
13	1	706	1	1399	1	2092	0	2785	0	3478	1
14	0	707	1	1400	1	2093	0	2786	0	3479	1
15	0	708	0	1401	1	2094	1	2787	1	3480	1
16	0	709	0	1402	0	2095	0	2788	1	3481	0
17	0	710	1	1403	1	2096	0	2789	0	3482	0
18	0	711	0	1404	1	2097	1	2790	0	3483	0
19	0	712	1	1405	0	2098	1	2791	0	3484	0
20	0	713	0	1406	0	2099	1	2792	0	3485	0
21	0	714	0	1407	0	2100	1	2793	0	3486	1
22	0	715	0	1408	1	2101	0	2794	1	3487	0
23	1	716	0	1409	1	2102	1	2795	1	3488	1
24	1	717	0	1410	0	2103	1	2796	1	3489	1
25	1	718	1	1411	1	2104	1	2797	1	3490	1
26	1	719	1	1412	1	2105	0	2798	1	3491	1
27	1	720	0	1413	1	2106	1	2799	0	3492	0
28	0	721	0	1414	0	2107	1	2800	0	3493	0
29	1	722	0	1415	1	2108	0	2801	1	3494	0
30	0	723	1	1416	1	2109	0	2802	0	3495	0
31	0	724	1	1417	1	2110	1	2803	0	3496	0

32	0	725	1	1418	0	2111	0	2804	0	3497	0
33	1	726	1	1419	1	2112	1	2805	1	3498	0
34	0	727	0	1420	1	2113	1	2806	1	3499	0
35	1	728	0	1421	1	2114	0	2807	0	3500	1
36	0	729	1	1422	0	2115	0	2808	0	3501	0
37	0	730	1	1423	1	2116	0	2809	1	3502	0
38	0	731	1	1424	0	2117	0	2810	1	3503	1
39	0	732	0	1425	0	2118	0	2811	0	3504	0
40	0	733	0	1426	1	2119	1	2812	1	3505	1
41	0	734	1	1427	1	2120	1	2813	1	3506	0
42	1	735	1	1428	1	2121	0	2814	0	3507	1
43	0	736	0	1429	0	2122	1	2815	0	3508	1
44	0	737	1	1430	0	2123	0	2816	1	3509	0
45	1	738	1	1431	0	2124	1	2817	0	3510	0
46	1	739	1	1432	0	2125	0	2818	1	3511	1
47	1	740	0	1433	1	2126	0	2819	1	3512	0
48	1	741	0	1434	0	2127	1	2820	1	3513	0
49	0	742	0	1435	1	2128	0	2821	1	3514	1
50	1	743	1	1436	1	2129	1	2822	1	3515	1
51	0	744	0	1437	1	2130	0	2823	1	3516	1
52	1	745	0	1438	0	2131	1	2824	1	3517	1
53	1	746	1	1439	0	2132	0	2825	1	3518	0
54	0	747	0	1440	1	2133	1	2826	0	3519	1
55	0	748	0	1441	0	2134	1	2827	0	3520	1
56	1	749	0	1442	1	2135	1	2828	1	3521	0
57	1	750	0	1443	1	2136	0	2829	0	3522	1
58	0	751	1	1444	1	2137	1	2830	0	3523	0
59	1	752	1	1445	1	2138	1	2831	1	3524	0
60	0	753	0	1446	1	2139	1	2832	0	3525	0
61	1	754	1	1447	1	2140	1	2833	1	3526	1
62	0	755	1	1448	0	2141	1	2834	0	3527	1
63	0	756	0	1449	1	2142	0	2835	1	3528	0
64	1	757	1	1450	1	2143	0	2836	0	3529	1
65	1	758	1	1451	0	2144	0	2837	0	3530	1
66	0	759	1	1452	1	2145	1	2838	0	3531	1
67	0	760	1	1453	0	2146	1	2839	1	3532	0
68	1	761	1	1454	1	2147	0	2840	0	3533	0
69	0	762	0	1455	1	2148	1	2841	1	3534	0
70	0	763	0	1456	1	2149	0	2842	0	3535	0
71	1	764	1	1457	1	2150	1	2843	0	3536	0
72	0	765	0	1458	1	2151	0	2844	0	3537	0
73	1	766	0	1459	0	2152	0	2845	1	3538	0
74	0	767	1	1460	1	2153	1	2846	1	3539	0
75	1	768	1	1461	0	2154	0	2847	0	3540	1

76	0	769	1	1462	1	2155	1	2848	0	3541	0
77	1	770	0	1463	0	2156	1	2849	0	3542	1
78	0	771	0	1464	0	2157	1	2850	1	3543	1
79	0	772	1	1465	0	2158	0	2851	0	3544	0
80	0	773	0	1466	1	2159	0	2852	1	3545	0
81	1	774	1	1467	1	2160	1	2853	1	3546	0
82	1	775	0	1468	1	2161	1	2854	1	3547	0
83	1	776	1	1469	0	2162	0	2855	0	3548	1
84	0	777	1	1470	0	2163	1	2856	0	3549	0
85	0	778	1	1471	1	2164	0	2857	1	3550	1
86	0	779	1	1472	1	2165	0	2858	1	3551	0
87	1	780	0	1473	1	2166	1	2859	1	3552	1
88	1	781	1	1474	1	2167	1	2860	0	3553	0
89	1	782	0	1475	0	2168	1	2861	0	3554	1
90	0	783	1	1476	0	2169	0	2862	1	3555	1
91	1	784	0	1477	1	2170	1	2863	1	3556	1
92	0	785	1	1478	1	2171	1	2864	1	3557	1
93	1	786	1	1479	1	2172	1	2865	1	3558	0
94	0	787	0	1480	0	2173	1	2866	0	3559	0
95	0	788	0	1481	0	2174	1	2867	0	3560	0
96	1	789	0	1482	1	2175	1	2868	1	3561	0
97	0	790	1	1483	0	2176	1	2869	0	3562	0
98	0	791	0	1484	1	2177	1	2870	1	3563	0
99	1	792	0	1485	0	2178	0	2871	0	3564	0
100	1	793	1	1486	1	2179	0	2872	0	3565	0
101	0	794	1	1487	1	2180	1	2873	0	3566	0
102	1	795	1	1488	0	2181	0	2874	1	3567	0
103	0	796	1	1489	0	2182	0	2875	1	3568	1
104	0	797	1	1490	0	2183	1	2876	1	3569	1
105	0	798	0	1491	1	2184	1	2877	1	3570	0
106	0	799	1	1492	1	2185	0	2878	0	3571	0
107	1	800	0	1493	1	2186	0	2879	1	3572	1
108	1	801	1	1494	1	2187	0	2880	1	3573	1
109	1	802	1	1495	1	2188	0	2881	1	3574	1
110	1	803	1	1496	0	2189	1	2882	0	3575	0
111	1	804	0	1497	1	2190	0	2883	0	3576	0
112	0	805	0	1498	0	2191	1	2884	1	3577	0
113	0	806	0	1499	0	2192	1	2885	1	3578	0
114	1	807	1	1500	0	2193	1	2886	1	3579	1
115	0	808	1	1501	0	2194	1	2887	1	3580	0
116	0	809	0	1502	1	2195	0	2888	1	3581	0
117	0	810	1	1503	0	2196	0	2889	1	3582	0
118	1	811	1	1504	1	2197	0	2890	0	3583	1
119	0	812	0	1505	0	2198	1	2891	0	3584	0

120	0	813	0	1506	1	2199	1	2892	0	3585	1
121	1	814	1	1507	0	2200	0	2893	0	3586	0
122	0	815	0	1508	0	2201	1	2894	1	3587	1
123	0	816	1	1509	1	2202	1	2895	1	3588	1
124	1	817	1	1510	1	2203	1	2896	0	3589	1
125	1	818	1	1511	1	2204	0	2897	0	3590	0
126	1	819	1	1512	0	2205	0	2898	1	3591	1
127	1	820	0	1513	0	2206	1	2899	1	3592	1
128	0	821	0	1514	0	2207	1	2900	0	3593	0
129	0	822	0	1515	0	2208	1	2901	1	3594	0
130	1	823	0	1516	1	2209	0	2902	1	3595	1
131	1	824	1	1517	0	2210	1	2903	1	3596	0
132	0	825	1	1518	1	2211	1	2904	0	3597	0
133	0	826	0	1519	0	2212	0	2905	0	3598	1
134	1	827	0	1520	0	2213	0	2906	1	3599	1
135	0	828	0	1521	1	2214	0	2907	0	3600	1
136	1	829	1	1522	0	2215	1	2908	0	3601	0
137	1	830	1	1523	0	2216	1	2909	0	3602	0
138	0	831	0	1524	1	2217	0	2910	1	3603	1
139	0	832	0	1525	1	2218	0	2911	1	3604	0
140	1	833	0	1526	1	2219	1	2912	0	3605	0
141	1	834	0	1527	0	2220	0	2913	1	3606	1
142	1	835	1	1528	1	2221	1	2914	1	3607	0
143	0	836	1	1529	1	2222	0	2915	1	3608	1
144	1	837	0	1530	0	2223	1	2916	1	3609	1
145	1	838	0	1531	1	2224	0	2917	1	3610	0
146	1	839	1	1532	0	2225	0	2918	0	3611	1
147	0	840	1	1533	0	2226	0	2919	1	3612	1
148	1	841	0	1534	0	2227	0	2920	1	3613	0
149	1	842	1	1535	1	2228	0	2921	1	3614	1
150	1	843	0	1536	1	2229	1	2922	1	3615	1
151	0	844	0	1537	1	2230	0	2923	0	3616	0
152	0	845	1	1538	1	2231	1	2924	0	3617	1
153	0	846	1	1539	1	2232	0	2925	0	3618	0
154	0	847	0	1540	1	2233	1	2926	0	3619	0
155	0	848	1	1541	0	2234	1	2927	0	3620	0
156	1	849	0	1542	0	2235	0	2928	0	3621	1
157	1	850	1	1543	1	2236	1	2929	1	3622	1
158	1	851	1	1544	0	2237	0	2930	0	3623	0
159	1	852	0	1545	0	2238	1	2931	0	3624	1
160	0	853	1	1546	0	2239	0	2932	1	3625	0
161	1	854	0	1547	0	2240	0	2933	0	3626	1
162	0	855	0	1548	1	2241	0	2934	0	3627	0
163	0	856	1	1549	0	2242	1	2935	0	3628	1

164	0	857	0	1550	1	2243	0	2936	1	3629	1
165	0	858	0	1551	0	2244	0	2937	1	3630	1
166	0	859	1	1552	1	2245	1	2938	1	3631	1
167	0	860	1	1553	1	2246	1	2939	0	3632	0
168	1	861	0	1554	1	2247	0	2940	1	3633	0
169	0	862	0	1555	1	2248	1	2941	1	3634	1
170	1	863	1	1556	1	2249	1	2942	0	3635	1
171	1	864	1	1557	1	2250	1	2943	0	3636	0
172	1	865	0	1558	0	2251	1	2944	0	3637	0
173	0	866	1	1559	1	2252	0	2945	1	3638	1
174	1	867	1	1560	1	2253	0	2946	1	3639	0
175	1	868	0	1561	0	2254	0	2947	1	3640	1
176	1	869	1	1562	1	2255	0	2948	1	3641	1
177	0	870	1	1563	1	2256	1	2949	0	3642	0
178	0	871	0	1564	0	2257	0	2950	0	3643	1
179	1	872	0	1565	0	2258	1	2951	1	3644	1
180	0	873	0	1566	1	2259	1	2952	0	3645	1
181	0	874	1	1567	1	2260	1	2953	1	3646	0
182	1	875	0	1568	1	2261	0	2954	1	3647	0
183	1	876	1	1569	1	2262	0	2955	0	3648	0
184	0	877	1	1570	0	2263	1	2956	0	3649	0
185	0	878	1	1571	0	2264	0	2957	0	3650	1
186	0	879	1	1572	0	2265	1	2958	0	3651	1
187	0	880	1	1573	1	2266	0	2959	1	3652	0
188	0	881	1	1574	0	2267	0	2960	0	3653	1
189	1	882	1	1575	1	2268	0	2961	0	3654	0
190	0	883	0	1576	1	2269	0	2962	1	3655	0
191	1	884	1	1577	0	2270	1	2963	0	3656	1
192	0	885	0	1578	1	2271	0	2964	1	3657	0
193	0	886	0	1579	0	2272	1	2965	0	3658	0
194	0	887	0	1580	0	2273	1	2966	1	3659	1
195	1	888	0	1581	0	2274	0	2967	1	3660	0
196	1	889	1	1582	1	2275	0	2968	1	3661	1
197	0	890	1	1583	1	2276	0	2969	0	3662	0
198	0	891	0	1584	0	2277	1	2970	1	3663	0
199	1	892	1	1585	1	2278	0	2971	1	3664	0
200	0	893	0	1586	1	2279	1	2972	1	3665	0
201	1	894	0	1587	0	2280	1	2973	0	3666	1
202	0	895	1	1588	1	2281	1	2974	0	3667	0
203	0	896	0	1589	1	2282	0	2975	0	3668	0
204	1	897	0	1590	0	2283	0	2976	0	3669	1
205	1	898	1	1591	0	2284	1	2977	0	3670	1
206	0	899	1	1592	0	2285	1	2978	1	3671	0
207	1	900	0	1593	0	2286	1	2979	0	3672	0

208	0	901	1	1594	1	2287	0	2980	0	3673	1
209	1	902	0	1595	1	2288	0	2981	1	3674	0
210	0	903	1	1596	1	2289	0	2982	1	3675	1
211	0	904	1	1597	0	2290	0	2983	1	3676	1
212	0	905	0	1598	0	2291	0	2984	1	3677	1
213	0	906	0	1599	0	2292	0	2985	0	3678	0
214	0	907	0	1600	0	2293	1	2986	0	3679	0
215	1	908	0	1601	0	2294	1	2987	0	3680	1
216	1	909	1	1602	0	2295	1	2988	0	3681	0
217	0	910	0	1603	1	2296	1	2989	0	3682	1
218	1	911	1	1604	0	2297	1	2990	0	3683	0
219	0	912	1	1605	1	2298	1	2991	1	3684	1
220	0	913	1	1606	0	2299	0	2992	1	3685	0
221	0	914	0	1607	1	2300	1	2993	0	3686	0
222	0	915	0	1608	0	2301	1	2994	1	3687	0
223	1	916	1	1609	1	2302	0	2995	0	3688	1
224	1	917	1	1610	0	2303	0	2996	1	3689	0
225	0	918	1	1611	0	2304	0	2997	1	3690	0
226	0	919	0	1612	1	2305	0	2998	0	3691	0
227	0	920	1	1613	1	2306	1	2999	1	3692	0
228	0	921	1	1614	1	2307	1	3000	0	3693	1
229	1	922	0	1615	1	2308	0	3001	0	3694	0
230	0	923	0	1616	1	2309	0	3002	1	3695	1
231	0	924	0	1617	0	2310	1	3003	0	3696	1
232	1	925	1	1618	0	2311	1	3004	0	3697	0
233	0	926	0	1619	0	2312	0	3005	0	3698	1
234	0	927	1	1620	1	2313	0	3006	1	3699	1
235	1	928	1	1621	1	2314	1	3007	0	3700	1
236	1	929	0	1622	0	2315	0	3008	0	3701	0
237	1	930	0	1623	0	2316	0	3009	0	3702	1
238	0	931	1	1624	0	2317	1	3010	0	3703	1
239	1	932	0	1625	0	2318	1	3011	1	3704	1
240	0	933	1	1626	1	2319	1	3012	1	3705	0
241	1	934	1	1627	0	2320	0	3013	1	3706	0
242	1	935	1	1628	1	2321	1	3014	1	3707	0
243	0	936	1	1629	0	2322	0	3015	1	3708	1
244	0	937	1	1630	0	2323	1	3016	0	3709	1
245	0	938	1	1631	1	2324	0	3017	0	3710	1
246	1	939	1	1632	1	2325	1	3018	0	3711	1
247	1	940	0	1633	0	2326	0	3019	1	3712	0
248	0	941	1	1634	0	2327	1	3020	1	3713	0
249	1	942	1	1635	0	2328	0	3021	1	3714	1
250	1	943	0	1636	1	2329	0	3022	0	3715	0
251	0	944	1	1637	1	2330	0	3023	1	3716	0

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261	0	954	1	1647	0	2340	1	3033	0	3726	0
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266	1	959	0	1652	0	2345	1	3038	1	3731	0
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268	1	961	0	1654	1	2347	0	3040	0	3733	0
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271	1	964	1	1657	1	2350	1	3043	1	3736	1
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273	1	966	0	1659	1	2352	0	3045	1	3738	1
274	1	967	0	1660	1	2353	1	3046	1	3739	0
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282	1	975	0	1668	1	2361	1	3054	0	3747	1
283	1	976	1	1669	0	2362	0	3055	0	3748	0
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285	0	978	1	1671	0	2364	1	3057	0	3750	1
286	1	979	0	1672	0	2365	1	3058	0	3751	1
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313	0	1006	0	1699	1	2392	0	3085	0	3778	1
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321	0	1014	0	1707	1	2400	0	3093	0	3786	0
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323	1	1016	1	1709	1	2402	1	3095	1	3788	0
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343	0	1036	1	1729	1	2422	1	3115	0	3808	1
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354	0	1047	0	1740	0	2433	1	3126	0	3819	0
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356	0	1049	0	1742	1	2435	0	3128	1	3821	0
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365	0	1058	1	1751	0	2444	1	3137	0	3830	1
366	0	1059	0	1752	0	2445	0	3138	0	3831	1
367	0	1060	0	1753	0	2446	1	3139	0	3832	0
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370	1	1063	0	1756	1	2449	1	3142	0	3835	0
371	1	1064	0	1757	0	2450	1	3143	1	3836	0
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373	1	1066	1	1759	1	2452	0	3145	0	3838	1
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390	0	1083	1	1776	0	2469	1	3162	0	3855	0
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409	0	1102	0	1795	0	2488	1	3181	0	3874	1
410	1	1103	0	1796	1	2489	0	3182	0	3875	0
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415	0	1108	1	1801	1	2494	0	3187	1	3880	0
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417	1	1110	0	1803	0	2496	1	3189	1	3882	0
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479	0	1172	1	1865	0	2558	0	3251	1	3944	1
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508	0	1201	0	1894	0	2587	1	3280	0	3973	0
509	1	1202	0	1895	1	2588	0	3281	0	3974	1
510	0	1203	1	1896	0	2589	0	3282	0	3975	1
511	0	1204	1	1897	0	2590	1	3283	1	3976	1
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513	1	1206	1	1899	1	2592	0	3285	0	3978	1
514	1	1207	1	1900	0	2593	1	3286	0	3979	0
515	0	1208	1	1901	1	2594	1	3287	0	3980	1

516	1	1209	1	1902	1	2595	1	3288	1	3981	1
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520	0	1213	1	1906	0	2599	1	3292	1	3985	1
521	1	1214	0	1907	0	2600	0	3293	0	3986	1
522	0	1215	1	1908	0	2601	1	3294	0	3987	1
523	1	1216	0	1909	0	2602	0	3295	0	3988	1
524	0	1217	0	1910	0	2603	0	3296	1	3989	0
525	0	1218	1	1911	1	2604	0	3297	0	3990	0
526	1	1219	1	1912	1	2605	1	3298	0	3991	0
527	1	1220	1	1913	0	2606	1	3299	1	3992	1
528	1	1221	0	1914	1	2607	1	3300	0	3993	0
529	0	1222	1	1915	1	2608	0	3301	0	3994	0
530	1	1223	0	1916	0	2609	1	3302	0	3995	1
531	0	1224	1	1917	1	2610	1	3303	1	3996	1
532	1	1225	1	1918	0	2611	0	3304	1	3997	1
533	1	1226	1	1919	0	2612	1	3305	1	3998	0
534	0	1227	1	1920	1	2613	1	3306	1	3999	1
535	1	1228	0	1921	0	2614	0	3307	1	4000	0
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537	1	1230	1	1923	1	2616	0	3309	0	4002	1
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691	1	1384	1	2077	0	2770	1	3463	0		

692	0	1385	0	2078	0	2771	1	3464	0		

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