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

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

## 1. INTRODUCTION

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

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

as the limit of the finite continued fractions

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

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

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

admits a continued fraction expansion of form (1.1).

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

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

that we shall denote

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

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

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

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

$$\begin{aligned}
p_0(z) &= z^{21}+z^{20}+z^{19}+z^{16}+z^{15}+z^{14}+z^{12}+z^{10}+z^9+z^8+z^3+z^2+z+1 \\
&,\\
p_1(z) &= z^{25}+z^{22}+z^{21}+z^{19}+z^{18}+z^{14}+z^{12}+z^{11}+z^{10}+z^9+z^6+z^5+z^3 \\
&\quad + z,\\
p_2(z) &= z^{28}+z^{24}+z^{22}+z^{18}+z^{12}+z^{10}+z^4+z^2,\\
p_3(z) &= z^{25}+z^{22}+z^{21}+z^{19}+z^{18}+z^{14}+z^{12}+z^{11}+z^{10}+z^9+z^6+z^5+z^3 \\
&\quad + z,\\
p_4(z) &= z^{22}+z^{21}+z^{20}+z^{19}+z^{18}+z^{16}+z^{15}+z^{14}+z^{12}+z^9+z^8+z^3+z,
\end{aligned}$$

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

$$\begin{aligned}
p_0(z) &= z^{21}+z^{20}+z^{19}+z^{15}+z^{14}+z^{10}+z^9+z^8+z^3+z^2+z,\\
p_1(z) &= z^{25}+z^{22}+z^{21}+z^{19}+z^{18}+z^{14}+z^{12}+z^{11}+z^{10}+z^9+z^6+z^5+z^3 \\
&\quad + z,\\
p_2(z) &= z^{28}+z^{24}+z^{22}+z^{18}+z^{12}+z^{10}+z^4+z^2,\\
p_3(z) &= z^{25}+z^{22}+z^{21}+z^{19}+z^{18}+z^{14}+z^{12}+z^{11}+z^{10}+z^9+z^6+z^5+z^3 \\
&\quad + z,\\
p_4(z) &= z^{22}+z^{21}+z^{20}+z^{19}+z^{18}+z^{15}+z^{14}+z^9+z^8+z^3+z+1.
\end{aligned}$$

## 2. Proof

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

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

By the basic properties of continued fractions, we have

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

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

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

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

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

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

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

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

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

for some positive integer $d_n$. Hence,

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

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

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

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

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

of the vector

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

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

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

**Lemma 2.1.** *We have*

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

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

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

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

*Proof.* We give the proof of the identity

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

the proofs of the others being similar.

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

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

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

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

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

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

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

Define

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

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

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

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

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

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

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

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

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

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

which can be rewritten as

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.7}$$

$$\begin{aligned}0 &= T[[w]_2] + T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] \\ &\quad + T[[1000w]_2],\end{aligned} \tag{2.8}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1001w]_2], \tag{2.9}$$

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

$$0 = T[[1w]_2] + T[[11w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[w]_2] + T[[100w]_2] + T[[110w]_2] + T[[111w]_2], \tag{2.14}$$

$$\begin{aligned} 0 = {} & T[[w]_2] + T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[110w]_2] \\ & + T[[1000w]_2], \end{aligned} \tag{2.15}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[100w]_2] + T[[101w]_2] + T[[1001w]_2], \tag{2.16}$$

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

$$0 = T[[1w]_2] + T[[11w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[1100w]_2], \tag{2.19}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates $T$ from its minimal polynomial and its first terms. This automaton has 3458 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 $\tau$ 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

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 111)), \tag{2.21}$$

$$\begin{aligned} 0 = {} & \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 100)) + \tau(A(s, 101)) \\ & + \tau(A(s, 110)) + \tau(A(s, 1000)), \end{aligned} \tag{2.22}$$

$$\begin{aligned} 0 = {} & \tau(A(s, 1)) + \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 101)) \\ & + \tau(A(s, 1001)), \end{aligned} \tag{2.23}$$

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

$$0 = \tau(A(s, 1)) + \tau(A(s, 11)) + \tau(A(s, 1011)), \tag{2.25}$$

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 10)) + \tau(A(s, 100)) + \tau(A(s, 1100)), \tag{2.26}$$

$$0 = \tau(A(s, 1)) + \tau(A(s, 11)) + \tau(A(s, 101)) + \tau(A(s, 1101)), \tag{2.27}$$

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

$$0 = \tau(A(s, \epsilon)) + \tau(A(s, 100)) + \tau(A(s, 110)) + \tau(A(s, 111)), \tag{2.28}$$

$$\begin{aligned} 0 = {} & \tau(A(s, \epsilon)) + \tau(A(s, 1)) + \tau(A(s, 100)) + \tau(A(s, 101)) \\ & + \tau(A(s, 110)) + \tau(A(s, 1000)), \end{aligned} \tag{2.29}$$

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

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

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

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

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

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

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

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

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

We give the proof of

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

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

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

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

$$W^e[:14v] M^e[:14v] + x^{2v} W^e[:12v] M^e[:12v] + x^{6v} W^e[:8v] M^e[:8v].$$

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

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

$$b_n := M^e[n\cdot v : (n+1)\cdot v]/X^n,$$
$$c := R^e.$$

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

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

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

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

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

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

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

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

Define

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

where

$$\begin{aligned}
q_0(x) &= x^{28}+x^{27}+x^{26}+x^{25}+x^{20}+x^{19}+x^{18}+x^{16}+x^{14}+x^{13}+x^{12}+x^9\\
&\quad +x^8+x^7,\\
q_1(x) &= x^{27}+x^{25}+x^{23}+x^{22}+x^{19}+x^{18}+x^{17}+x^{16}+x^{14}+x^{10}+x^9+x^7\\
&\quad +x^6+x^3,\\
q_2(x) &= x^{26}+x^{24}+x^{18}+x^{16}+x^{10}+x^6+x^4+1,\\
q_3(x) &= x^{27}+x^{25}+x^{23}+x^{22}+x^{19}+x^{18}+x^{17}+x^{16}+x^{14}+x^{10}+x^9+x^7\\
&\quad +x^6+x^3,\\
q_4(x) &= x^{27}+x^{25}+x^{20}+x^{19}+x^{16}+x^{14}+x^{13}+x^{12}+x^{10}+x^9+x^8+x^7\\
&\quad +x^6.
\end{aligned}$$

The polynomial $Q(x,y)$ is the candidate for the minimal polynomial of $f(x)$ found by Padé-Hermite approximation. To prove that it is indeed the minimal polynomial of $f(x)$, we only need to prove that it is an irreducible factor of $P(x,y)$ of multiplicity $m$ and $R(x,y):=P(x,y)/Q(x,y)^m$ is not an annihilating polynomial of $f(x)$. We verify the first point directly. For the second point, we find that when we truncate

$f(x)$ to order 216, and substitute it for $y$ in $R(z,y)$, we get a series with valuation smaller than 216, which proves that $R(z,y)$ is not an annihilating polynomial of $f(x)$. Finally, $z^{12}Q(1/z,y)$ is the minimal polynomial of $\mathrm{CF}(a,b) = f(1/z)$. $\square$

## 3. Annexe

All 16 polynomials are of the form

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

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{140} + x^{134} + x^{130} + x^{126} + x^{124} + x^{116} + x^{114} + x^{112} \\
&\quad + x^{110} + x^{106} + x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{86} + x^{80} + x^{76} \\
&\quad + x^{74} + x^{68} + x^{64} + x^{62} + x^{54} + x^{48} + x^{40} + x^{38} + x^{36}, \\
p_3(x) &= x^{140} + x^{136} + x^{130} + x^{122} + x^{120} + x^{118} + x^{106} + x^{102} + x^{96} + x^{94} \\
&\quad + x^{92} + x^{72} + x^{62} + x^{58} + x^{48} + x^{38} + x^{36} + x^{34} + x^{26} + x^{24} + x^{22} \\
&\quad + x^{20}, \\
p_6(x) &= x^{138} + x^{136} + x^{132} + x^{130} + x^{126} + x^{122} + x^{120} + x^{118} + x^{114} + x^{112} \\
&\quad + x^{106} + x^{92} + x^{90} + x^{86} + x^{80} + x^{74} + x^{72} + x^{70} + x^{68} + x^{66} + x^{64} \\
&\quad + x^{62} + x^{60} + x^{58} + x^{54} + x^{52} + x^{50} + x^{46} + x^{44} + x^{40} + x^{38} + x^{34} \\
&\quad + x^{32} + x^{28} + x^{26} + x^{24} + x^{22} + x^{18} + x^{16} + x^{14} + x^{10} + x^{8} + x^{4} + 1, \\
p_9(x) &= x^{142} + x^{136} + x^{130} + x^{128} + x^{126} + x^{122} + x^{120} + x^{116} + x^{112} + x^{108} \\
&\quad + x^{106} + x^{102} + x^{100} + x^{98} + x^{88} + x^{84} + x^{82} + x^{70} + x^{66} + x^{64} + x^{62} \\
&\quad + x^{60} + x^{56} + x^{54} + x^{52} + x^{48} + x^{42} + x^{40} + x^{38} + x^{36} + x^{28} + x^{24} \\
&\quad + x^{22} + x^{20} + x^{14} + x^{12} + x^{10} + x^{6}, \\
p_{12}(x) &= x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{128} + x^{110} + x^{108} + x^{104} + x^{102} \\
&\quad + x^{100} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{76} + x^{72} \\
&\quad + x^{70} + x^{68} + x^{64} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} + x^{32} + x^{14} + x^{12} \\
&\quad + x^{8} + x^{6} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{146} + x^{145} + x^{142} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} \\
&\quad + x^{132} + x^{131} + x^{129} + x^{128} + x^{125} + x^{124} + x^{123} + x^{122} + x^{121} \\
&\quad + x^{120} + x^{119} + x^{117} + x^{111} + x^{108} + x^{107} + x^{106} + x^{104} + x^{101} \\
&\quad + x^{100} + x^{96} + x^{91} + x^{88} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{74} + x^{72} \\
&\quad + x^{66} + x^{65} + x^{64} + x^{63} + x^{62} + x^{55} + x^{54} + x^{53} + x^{52} + x^{50} + x^{48} \\
&\quad + x^{47} + x^{46} + x^{44} + x^{42} + x^{41} + x^{40} + x^{39}, \\
p_3(x) &= x^{145} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{127} + x^{125} + x^{124} + x^{122}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{120} + x^{118} + x^{116} + x^{114} + x^{113} + x^{112} + x^{108} + x^{107} + x^{105} \\
&+ x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93} + x^{92} \\
&+ x^{91} + x^{89} + x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{76} + x^{75} + x^{73} + x^{71} \\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55} \\
&+ x^{53} + x^{52} + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{38} + x^{35} + x^{34} \\
&+ x^{33} + x^{32} + x^{28} + x^{27}, \\
p_6(x) = {}& x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} \\
&+ x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} + x^{109} + x^{108} + x^{106} \\
&+ x^{103} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{89} + x^{87} + x^{83} + x^{81} + x^{80} \\
&+ x^{70} + x^{68} + x^{67} + x^{66} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} \\
&+ x^{49} + x^{47} + x^{46} + x^{44} + x^{42} + x^{41} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} \\
&+ x^{27} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18}, \\
p_9(x) = {}& x^{143} + x^{141} + x^{140} + x^{138} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{125} \\
&+ x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114} + x^{111} + x^{110} \\
&+ x^{108} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} \\
&+ x^{91} + x^{88} + x^{87} + x^{85} + x^{82} + x^{81} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} \\
&+ x^{67} + x^{63} + x^{60} + x^{59} + x^{51} + x^{48} + x^{44} + x^{43} + x^{37} + x^{35} + x^{34} \\
&+ x^{33} + x^{32} + x^{31} + x^{17} + x^{14} + x^{10} + x^{9}, \\
p_{12}(x) = {}& x^{142} + x^{139} + x^{137} + x^{136} + x^{130} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} \\
&+ x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
&+ x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{106} + x^{103} + x^{102} + x^{101} \\
&+ x^{100} + x^{99} + x^{97} + x^{96} + x^{94} + x^{91} + x^{89} + x^{88} + x^{82} + x^{79} + x^{77} \\
&+ x^{76} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{46} + x^{43} \\
&+ x^{41} + x^{40} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{24} \\
&+ x^{23} + x^{22} + x^{21} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} \\
&+ x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{147} + x^{146} + x^{145} + x^{142} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} \\
&+ x^{132} + x^{131} + x^{129} + x^{128} + x^{125} + x^{124} + x^{123} + x^{122} + x^{121} \\
&+ x^{120} + x^{119} + x^{117} + x^{111} + x^{108} + x^{107} + x^{106} + x^{104} + x^{101} \\
&+ x^{100} + x^{96} + x^{91} + x^{88} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{74} + x^{72} \\
&+ x^{66} + x^{65} + x^{64} + x^{63} + x^{62} + x^{55} + x^{54} + x^{53} + x^{52} + x^{50} + x^{48} \\
&+ x^{47} + x^{46} + x^{44} + x^{42} + x^{41} + x^{40} + x^{39}, \\
p_3(x) = {}& x^{145} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{127} + x^{125} + x^{124} + x^{122}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{120} + x^{118} + x^{116} + x^{114} + x^{113} + x^{112} + x^{108} + x^{107} + x^{105}\\
&+ x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93} + x^{92}\\
&+ x^{91} + x^{89} + x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{76} + x^{75} + x^{73} + x^{71}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55}\\
&+ x^{53} + x^{52} + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{38} + x^{35} + x^{34}\\
&+ x^{33} + x^{32} + x^{28} + x^{27},\\
p_6(x) &= x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128}\\
&+ x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} + x^{109} + x^{108} + x^{106}\\
&+ x^{103} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{89} + x^{87} + x^{83} + x^{81} + x^{80}\\
&+ x^{70} + x^{68} + x^{67} + x^{66} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50}\\
&+ x^{49} + x^{47} + x^{46} + x^{44} + x^{42} + x^{41} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29}\\
&+ x^{27} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18},\\
p_9(x) &= x^{143} + x^{141} + x^{140} + x^{138} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{125}\\
&+ x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114} + x^{111} + x^{110}\\
&+ x^{108} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97}\\
&+ x^{91} + x^{88} + x^{87} + x^{85} + x^{82} + x^{81} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68}\\
&+ x^{67} + x^{63} + x^{60} + x^{59} + x^{51} + x^{48} + x^{44} + x^{43} + x^{37} + x^{35} + x^{34}\\
&+ x^{33} + x^{32} + x^{31} + x^{17} + x^{14} + x^{10} + x^{9},\\
p_{12}(x) &= x^{142} + x^{139} + x^{137} + x^{136} + x^{130} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123}\\
&+ x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114}\\
&+ x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{106} + x^{103} + x^{102} + x^{101}\\
&+ x^{100} + x^{99} + x^{97} + x^{96} + x^{94} + x^{91} + x^{89} + x^{88} + x^{82} + x^{79} + x^{77}\\
&+ x^{76} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{46} + x^{43}\\
&+ x^{41} + x^{40} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{24}\\
&+ x^{23} + x^{22} + x^{21} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12}\\
&+ x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{150} + x^{134} + x^{128} + x^{124} + x^{122} + x^{120} + x^{118} + x^{114} + x^{106} + x^{102}\\
&+ x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{88} + x^{84} + x^{80} + x^{78} + x^{74} + x^{68}\\
&+ x^{66} + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{50} + x^{48} + x^{42},\\
p_3(x) &= x^{144} + x^{142} + x^{140} + x^{126} + x^{124} + x^{116} + x^{100} + x^{98} + x^{94} + x^{92}\\
&+ x^{88} + x^{80} + x^{78} + x^{74} + x^{70} + x^{58} + x^{56} + x^{54} + x^{52} + x^{48} + x^{46}\\
&+ x^{36} + x^{32} + x^{28} + x^{22} + x^{18},\\
p_6(x) &= x^{144} + x^{140} + x^{138} + x^{136} + x^{134} + x^{130} + x^{126} + x^{118} + x^{110} + x^{106}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{86} + x^{76} + x^{72} + x^{70} + x^{68} + x^{66}\\
&+ x^{62} + x^{60} + x^{56} + x^{54} + x^{52} + x^{50} + x^{44} + x^{38} + x^{30} + x^{26} + x^{24}\\
&+ x^{20} + x^{18} + x^{16} + x^{10} + x^{8} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{142} + x^{138} + x^{134} + x^{132} + x^{130} + x^{126} + x^{116} + x^{110} + x^{108} + x^{106}\\
&+ x^{104} + x^{98} + x^{96} + x^{90} + x^{80} + x^{76} + x^{72} + x^{70} + x^{68} + x^{60} + x^{58}\\
&+ x^{52} + x^{50} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22}\\
&+ x^{20} + x^{18} + x^{12} + x^{10} + x^{8} + x^{6},\\
p_{12}(x) &= x^{142} + x^{140} + x^{138} + x^{136} + x^{134} + x^{132} + x^{130} + x^{128} + x^{126} + x^{124}\\
&+ x^{122} + x^{120} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{88}\\
&+ x^{86} + x^{84} + x^{82} + x^{80} + x^{70} + x^{68} + x^{66} + x^{64} + x^{46} + x^{44} + x^{42}\\
&+ x^{40} + x^{38} + x^{36} + x^{34} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} + x^{6} + x^{4} + x^{2}\\
&+ 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{150} + x^{146} + x^{144} + x^{142} + x^{138} + x^{132} + x^{130} + x^{124} + x^{120} + x^{118}\\
&+ x^{110} + x^{106} + x^{104} + x^{100} + x^{98} + x^{96} + x^{90} + x^{84} + x^{80} + x^{74}\\
&+ x^{68} + x^{58} + x^{56} + x^{50} + x^{46} + x^{44} + x^{36},\\
p_3(x) &= x^{144} + x^{142} + x^{138} + x^{136} + x^{134} + x^{132} + x^{128} + x^{126} + x^{124} + x^{122}\\
&+ x^{110} + x^{108} + x^{104} + x^{96} + x^{92} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78}\\
&+ x^{76} + x^{72} + x^{66} + x^{62} + x^{60} + x^{54} + x^{52} + x^{46} + x^{44} + x^{38} + x^{34}\\
&+ x^{26} + x^{20},\\
p_6(x) &= x^{144} + x^{138} + x^{136} + x^{134} + x^{130} + x^{128} + x^{126} + x^{122} + x^{114} + x^{112}\\
&+ x^{110} + x^{100} + x^{96} + x^{92} + x^{86} + x^{80} + x^{78} + x^{76} + x^{72} + x^{70} + x^{66}\\
&+ x^{64} + x^{62} + x^{60} + x^{58} + x^{50} + x^{48} + x^{46} + x^{44} + x^{36} + x^{34} + x^{32}\\
&+ x^{26} + x^{22} + x^{18} + x^{14} + x^{12} + x^{10} + x^{8} + x^{4} + x^{2} + 1,\\
p_9(x) &= x^{142} + x^{138} + x^{134} + x^{132} + x^{130} + x^{126} + x^{116} + x^{110} + x^{108} + x^{106}\\
&+ x^{104} + x^{98} + x^{96} + x^{90} + x^{80} + x^{76} + x^{72} + x^{70} + x^{68} + x^{60} + x^{58}\\
&+ x^{52} + x^{50} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22}\\
&+ x^{20} + x^{18} + x^{12} + x^{10} + x^{8} + x^{6},\\
p_{12}(x) &= x^{142} + x^{140} + x^{138} + x^{136} + x^{134} + x^{132} + x^{130} + x^{128} + x^{126} + x^{124}\\
&+ x^{122} + x^{120} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{90} + x^{88}\\
&+ x^{86} + x^{84} + x^{82} + x^{80} + x^{70} + x^{68} + x^{66} + x^{64} + x^{46} + x^{44} + x^{42}\\
&+ x^{40} + x^{38} + x^{36} + x^{34} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} + x^{6} + x^{4} + x^{2}\\
&+ 1,
\end{aligned}
$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{144} + x^{143} + x^{141} + x^{139} + x^{138} + x^{136} + x^{133} + x^{131} + x^{128} \\
& + x^{127} + x^{126} + x^{124} + x^{120} + x^{117} + x^{114} + x^{113} + x^{110} + x^{108} \\
& + x^{107} + x^{106} + x^{105} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{92} + x^{91} \\
& + x^{89} + x^{88} + x^{87} + x^{84} + x^{82} + x^{81} + x^{79} + x^{77} + x^{74} + x^{72} + x^{71} \\
& + x^{70} + x^{69} + x^{65} + x^{64} + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{51} + x^{50} \\
& + x^{49} + x^{48} + x^{46} + x^{45} + x^{42} + x^{41} + x^{40} + x^{39}, \\
p_3(x) = {} & x^{145} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{127} + x^{125} + x^{124} + x^{122} \\
& + x^{120} + x^{118} + x^{116} + x^{114} + x^{113} + x^{112} + x^{108} + x^{107} + x^{105} \\
& + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{97} + x^{95} + x^{94} + x^{93} + x^{92} \\
& + x^{91} + x^{89} + x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{76} + x^{75} + x^{73} + x^{71} \\
& + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{55} \\
& + x^{53} + x^{52} + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{38} + x^{35} + x^{34} \\
& + x^{33} + x^{32} + x^{28} + x^{27}, \\
p_6(x) = {} & x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{135} + x^{131} + x^{129} + x^{128} \\
& + x^{120} + x^{118} + x^{117} + x^{116} + x^{112} + x^{110} + x^{109} + x^{108} + x^{106} \\
& + x^{103} + x^{101} + x^{98} + x^{97} + x^{96} + x^{92} + x^{89} + x^{87} + x^{83} + x^{81} + x^{80} \\
& + x^{70} + x^{68} + x^{67} + x^{66} + x^{58} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{50} \\
& + x^{49} + x^{47} + x^{46} + x^{44} + x^{42} + x^{41} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} \\
& + x^{27} + x^{23} + x^{22} + x^{21} + x^{19} + x^{18}, \\
p_9(x) = {} & x^{143} + x^{141} + x^{140} + x^{138} + x^{136} + x^{134} + x^{133} + x^{132} + x^{128} + x^{125} \\
& + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{114} + x^{111} + x^{110} \\
& + x^{108} + x^{107} + x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} \\
& + x^{91} + x^{88} + x^{87} + x^{85} + x^{82} + x^{81} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} \\
& + x^{67} + x^{63} + x^{60} + x^{59} + x^{51} + x^{48} + x^{44} + x^{43} + x^{37} + x^{35} + x^{34} \\
& + x^{33} + x^{32} + x^{31} + x^{17} + x^{14} + x^{10} + x^{9}, \\
p_{12}(x) = {} & x^{142} + x^{139} + x^{137} + x^{136} + x^{130} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} \\
& + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115} + x^{114} \\
& + x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{106} + x^{103} + x^{102} + x^{101} \\
& + x^{100} + x^{99} + x^{97} + x^{96} + x^{94} + x^{91} + x^{89} + x^{88} + x^{82} + x^{79} + x^{77} \\
& + x^{76} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{65} + x^{64} + x^{46} + x^{43} \\
& + x^{41} + x^{40} + x^{34} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{24} \\
& + x^{23} + x^{22} + x^{21} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} \\
& + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{147}+x^{144}+x^{143}+x^{141}+x^{139}+x^{138}+x^{136}+x^{133}+x^{131}+x^{128}\\
&+x^{127}+x^{126}+x^{124}+x^{120}+x^{117}+x^{114}+x^{113}+x^{110}+x^{108}\\
&+x^{107}+x^{106}+x^{105}+x^{102}+x^{99}+x^{98}+x^{95}+x^{94}+x^{92}+x^{91}\\
&+x^{89}+x^{88}+x^{87}+x^{84}+x^{82}+x^{81}+x^{79}+x^{77}+x^{74}+x^{72}+x^{71}\\
&+x^{70}+x^{69}+x^{65}+x^{64}+x^{63}+x^{62}+x^{60}+x^{57}+x^{56}+x^{51}+x^{50}\\
&+x^{49}+x^{48}+x^{46}+x^{45}+x^{42}+x^{41}+x^{40}+x^{39},\\
p_3(x) = {} & x^{145}+x^{143}+x^{142}+x^{141}+x^{140}+x^{139}+x^{127}+x^{125}+x^{124}+x^{122}\\
&+x^{120}+x^{118}+x^{116}+x^{114}+x^{113}+x^{112}+x^{108}+x^{107}+x^{105}\\
&+x^{103}+x^{102}+x^{101}+x^{100}+x^{99}+x^{97}+x^{95}+x^{94}+x^{93}+x^{92}\\
&+x^{91}+x^{89}+x^{86}+x^{83}+x^{82}+x^{81}+x^{80}+x^{76}+x^{75}+x^{73}+x^{71}\\
&+x^{70}+x^{69}+x^{68}+x^{67}+x^{65}+x^{63}+x^{62}+x^{61}+x^{60}+x^{59}+x^{55}\\
&+x^{53}+x^{52}+x^{50}+x^{48}+x^{47}+x^{46}+x^{45}+x^{41}+x^{38}+x^{35}+x^{34}\\
&+x^{33}+x^{32}+x^{28}+x^{27},\\
p_6(x) = {} & x^{144}+x^{141}+x^{140}+x^{139}+x^{138}+x^{137}+x^{135}+x^{131}+x^{129}+x^{128}\\
&+x^{120}+x^{118}+x^{117}+x^{116}+x^{112}+x^{110}+x^{109}+x^{108}+x^{106}\\
&+x^{103}+x^{101}+x^{98}+x^{97}+x^{96}+x^{92}+x^{89}+x^{87}+x^{83}+x^{81}+x^{80}\\
&+x^{70}+x^{68}+x^{67}+x^{66}+x^{58}+x^{55}+x^{54}+x^{53}+x^{52}+x^{51}+x^{50}\\
&+x^{49}+x^{47}+x^{46}+x^{44}+x^{42}+x^{41}+x^{37}+x^{36}+x^{35}+x^{33}+x^{29}\\
&+x^{27}+x^{23}+x^{22}+x^{21}+x^{19}+x^{18},\\
p_9(x) = {} & x^{143}+x^{141}+x^{140}+x^{138}+x^{136}+x^{134}+x^{133}+x^{132}+x^{128}+x^{125}\\
&+x^{124}+x^{122}+x^{121}+x^{120}+x^{119}+x^{117}+x^{114}+x^{111}+x^{110}\\
&+x^{108}+x^{107}+x^{106}+x^{105}+x^{103}+x^{101}+x^{100}+x^{99}+x^{98}+x^{97}\\
&+x^{91}+x^{88}+x^{87}+x^{85}+x^{82}+x^{81}+x^{73}+x^{71}+x^{70}+x^{69}+x^{68}\\
&+x^{67}+x^{63}+x^{60}+x^{59}+x^{51}+x^{48}+x^{44}+x^{43}+x^{37}+x^{35}+x^{34}\\
&+x^{33}+x^{32}+x^{31}+x^{17}+x^{14}+x^{10}+x^{9},\\
p_{12}(x) = {} & x^{142}+x^{139}+x^{137}+x^{136}+x^{130}+x^{127}+x^{126}+x^{125}+x^{124}+x^{123}\\
&+x^{122}+x^{121}+x^{120}+x^{119}+x^{118}+x^{117}+x^{116}+x^{115}+x^{114}\\
&+x^{113}+x^{112}+x^{111}+x^{109}+x^{108}+x^{106}+x^{103}+x^{102}+x^{101}\\
&+x^{100}+x^{99}+x^{97}+x^{96}+x^{94}+x^{91}+x^{89}+x^{88}+x^{82}+x^{79}+x^{77}\\
&+x^{76}+x^{74}+x^{71}+x^{70}+x^{69}+x^{68}+x^{67}+x^{65}+x^{64}+x^{46}+x^{43}\\
&+x^{41}+x^{40}+x^{34}+x^{31}+x^{30}+x^{29}+x^{28}+x^{27}+x^{26}+x^{25}+x^{24}\\
&+x^{23}+x^{22}+x^{21}+x^{20}+x^{19}+x^{18}+x^{17}+x^{16}+x^{15}+x^{13}+x^{12}\\
&+x^{10}+x^{7}+x^{6}+x^{5}+x^{4}+x^{3}+x+1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{140} + x^{136} + x^{134} + x^{126} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} \\
&\quad + x^{104} + x^{102} + x^{98} + x^{94} + x^{90} + x^{86} + x^{82} + x^{72} + x^{70} + x^{68} + x^{64} \\
&\quad + x^{60} + x^{58} + x^{54} + x^{50} + x^{48} + x^{46} + x^{44} + x^{42}, \\
p_3(x) &= x^{138} + x^{136} + x^{134} + x^{132} + x^{130} + x^{126} + x^{116} + x^{102} + x^{100} + x^{98} \\
&\quad + x^{94} + x^{90} + x^{84} + x^{80} + x^{72} + x^{70} + x^{68} + x^{66} + x^{60} + x^{58} + x^{54} \\
&\quad + x^{52} + x^{48} + x^{46} + x^{42} + x^{40} + x^{36} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18}, \\
p_6(x) &= x^{140} + x^{138} + x^{134} + x^{132} + x^{130} + x^{122} + x^{120} + x^{118} + x^{116} + x^{112} \\
&\quad + x^{110} + x^{106} + x^{94} + x^{88} + x^{80} + x^{78} + x^{76} + x^{72} + x^{70} + x^{66} + x^{64} \\
&\quad + x^{60} + x^{58} + x^{50} + x^{44} + x^{40} + x^{38} + x^{28} + x^{26} + x^{24} + x^{20} + x^{18} \\
&\quad + x^{14} + x^{12} + x^{10} + x^{8} + x^{4} + 1, \\
p_9(x) &= x^{142} + x^{136} + x^{130} + x^{128} + x^{126} + x^{122} + x^{120} + x^{116} + x^{112} + x^{108} \\
&\quad + x^{106} + x^{102} + x^{100} + x^{98} + x^{88} + x^{84} + x^{82} + x^{70} + x^{66} + x^{64} + x^{62} \\
&\quad + x^{60} + x^{56} + x^{54} + x^{52} + x^{48} + x^{42} + x^{40} + x^{38} + x^{36} + x^{28} + x^{24} \\
&\quad + x^{22} + x^{20} + x^{14} + x^{12} + x^{10} + x^{6}, \\
p_{12}(x) &= x^{142} + x^{140} + x^{136} + x^{134} + x^{132} + x^{128} + x^{110} + x^{108} + x^{104} + x^{102} \\
&\quad + x^{100} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{76} + x^{72} \\
&\quad + x^{70} + x^{68} + x^{64} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} + x^{32} + x^{14} + x^{12} \\
&\quad + x^{8} + x^{6} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{146} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{132} + x^{127} + x^{125} \\
&\quad + x^{124} + x^{123} + x^{117} + x^{116} + x^{115} + x^{113} + x^{112} + x^{107} + x^{105} \\
&\quad + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{84} \\
&\quad + x^{83} + x^{79} + x^{77} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{58} + x^{57} \\
&\quad + x^{56} + x^{54} + x^{53} + x^{47} + x^{44} + x^{42} + x^{40} + x^{38} + x^{37} + x^{36}, \\
p_3(x) &= x^{146} + x^{145} + x^{144} + x^{142} + x^{136} + x^{134} + x^{133} + x^{129} + x^{128} + x^{123} \\
&\quad + x^{117} + x^{113} + x^{112} + x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{101} \\
&\quad + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81} \\
&\quad + x^{80} + x^{79} + x^{76} + x^{74} + x^{71} + x^{69} + x^{67} + x^{66} + x^{65} + x^{63} + x^{62} \\
&\quad + x^{60} + x^{59} + x^{51} + x^{50} + x^{46} + x^{45} + x^{44} + x^{42} + x^{41} + x^{40} + x^{39} \\
&\quad + x^{38} + x^{37} + x^{35} + x^{34} + x^{29} + x^{26} + x^{25} + x^{24}, \\
p_6(x) &= x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{134} \\
&\quad + x^{133} + x^{132} + x^{128} + x^{127} + x^{125} + x^{124} + x^{122} + x^{118} + x^{117} \\
&\quad + x^{116} + x^{115} + x^{113} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{101} + x^{98} + x^{97} + x^{95} + x^{94} + x^{93} + x^{92} + x^{87} + x^{86} + x^{84} + x^{83}\\
&+ x^{82} + x^{81} + x^{79} + x^{78} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69}\\
&+ x^{68} + x^{66} + x^{64} + x^{60} + x^{59} + x^{55} + x^{54} + x^{53} + x^{49} + x^{48} + x^{43}\\
&+ x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{32} + x^{31} + x^{24} + x^{21} + x^{20} + x^{19}\\
&+ x^{18} + x^{16} + x^{15} + x^{14} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,\\
p_9(x) = {}& x^{146} + x^{143} + x^{141} + x^{140} + x^{134} + x^{131} + x^{129} + x^{128} + x^{118} + x^{115}\\
&+ x^{114} + x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{98} + x^{95} + x^{93} + x^{92}\\
&+ x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{50} + x^{47} + x^{45}\\
&+ x^{44} + x^{38} + x^{35} + x^{33} + x^{32} + x^{22} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15}\\
&+ x^{13} + x^{12},\\
p_{12}(x) = {}& x^{146} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{137} + x^{136} + x^{134} + x^{131}\\
&+ x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122}\\
&+ x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{106} + x^{103} + x^{102} + x^{101}\\
&+ x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}\\
&+ x^{88} + x^{86} + x^{83} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67}\\
&+ x^{65} + x^{64} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38}\\
&+ x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25}\\
&+ x^{24} + x^{23} + x^{21} + x^{20} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {}& x^{156} + x^{153} + x^{152} + x^{151} + x^{149} + x^{146} + x^{145} + x^{144} + x^{142} + x^{138}\\
&+ x^{137} + x^{136} + x^{134} + x^{131} + x^{128} + x^{126} + x^{123} + x^{122} + x^{121}\\
&+ x^{119} + x^{117} + x^{115} + x^{110} + x^{109} + x^{108} + x^{107} + x^{104} + x^{103}\\
&+ x^{102} + x^{101} + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{87} + x^{85} + x^{82}\\
&+ x^{78} + x^{77} + x^{74} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} + x^{62} + x^{60} + x^{57}\\
&+ x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{44} + x^{43} + x^{42} + x^{41} + x^{39},\\
p_3(x) = {}& x^{149} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{137} + x^{134} + x^{132} + x^{130}\\
&+ x^{128} + x^{125} + x^{124} + x^{123} + x^{121} + x^{118} + x^{117} + x^{116} + x^{114}\\
&+ x^{111} + x^{110} + x^{109} + x^{107} + x^{104} + x^{103} + x^{102} + x^{100} + x^{97} + x^{96}\\
&+ x^{95} + x^{90} + x^{89} + x^{87} + x^{85} + x^{84} + x^{83} + x^{82} + x^{79} + x^{78} + x^{77}\\
&+ x^{75} + x^{72} + x^{71} + x^{70} + x^{68} + x^{65} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57}\\
&+ x^{56} + x^{54} + x^{53} + x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{43} + x^{42} + x^{41}\\
&+ x^{39} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27},\\
p_6(x) = {}& x^{150} + x^{142} + x^{140} + x^{138} + x^{136} + x^{134} + x^{128} + x^{126} + x^{124} + x^{118}\\
&+ x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{100} + x^{98} + x^{90} + x^{84} + x^{82}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{78} + x^{72} + x^{70} + x^{68} + x^{66} + x^{64} + x^{54} + x^{52} + x^{50} + x^{46} + x^{44} \\
&+ x^{42} + x^{38} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{18}, \\
p_9(x) &= x^{151} + x^{146} + x^{145} + x^{144} + x^{143} + x^{142} + x^{141} + x^{137} + x^{135} + x^{134} \\
&+ x^{133} + x^{130} + x^{126} + x^{124} + x^{118} + x^{117} + x^{113} + x^{112} + x^{111} \\
&+ x^{109} + x^{108} + x^{105} + x^{103} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} \\
&+ x^{89} + x^{86} + x^{85} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{73} + x^{55} + x^{50} \\
&+ x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{39} + x^{38} + x^{37} + x^{34} + x^{30} \\
&+ x^{28} + x^{22} + x^{21} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9}, \\
p_{12}(x) &= x^{152} + x^{144} + x^{136} + x^{128} + x^{120} + x^{116} + x^{112} + x^{100} + x^{72} + x^{68} \\
&+ x^{64} + x^{56} + x^{48} + x^{40} + x^{32} + x^{24} + x^{20} + x^{16} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{150} + x^{149} + x^{148} + x^{144} + x^{143} + x^{140} + x^{138} + x^{135} + x^{132} + x^{123} \\
&+ x^{122} + x^{120} + x^{116} + x^{114} + x^{112} + x^{111} + x^{108} + x^{107} + x^{106} \\
&+ x^{105} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{95} + x^{94} + x^{93} + x^{92} \\
&+ x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83} + x^{80} + x^{78} + x^{75} + x^{74} + x^{73} \\
&+ x^{71} + x^{66} + x^{65} + x^{64} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57} + x^{56} + x^{51} \\
&+ x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} + x^{41} + x^{39}, \\
p_3(x) &= x^{149} + x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{132} + x^{131} + x^{128} \\
&+ x^{127} + x^{124} + x^{123} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{110} \\
&+ x^{109} + x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{94} + x^{93} + x^{91} \\
&+ x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{78} + x^{77} + x^{75} + x^{72} + x^{71} + x^{70} \\
&+ x^{69} + x^{68} + x^{62} + x^{59} + x^{45} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{30} \\
&+ x^{27}, \\
p_6(x) &= x^{150} + x^{140} + x^{136} + x^{134} + x^{132} + x^{128} + x^{126} + x^{124} + x^{112} + x^{110} \\
&+ x^{106} + x^{100} + x^{96} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} + x^{80} + x^{76} \\
&+ x^{74} + x^{68} + x^{66} + x^{64} + x^{56} + x^{54} + x^{50} + x^{48} + x^{42} + x^{34} + x^{30} \\
&+ x^{24} + x^{18}, \\
p_9(x) &= x^{151} + x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{136} + x^{135} \\
&+ x^{134} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} \\
&+ x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116} \\
&+ x^{115} + x^{111} + x^{108} + x^{105} + x^{103} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} \\
&+ x^{91} + x^{90} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{79} + x^{76} + x^{73} + x^{55} \\
&+ x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} \\
&+ x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{15} + x^{12} + x^{9},\\
p_{12}(x) &= x^{152} + x^{140} + x^{136} + x^{132} + x^{124} + x^{116} + x^{112} + x^{104} + x^{96} + x^{92}\\
&\quad + x^{84} + x^{64} + x^{56} + x^{44} + x^{40} + x^{36} + x^{28} + x^{20} + x^{16} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{145} + x^{143} + x^{142} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{131}\\
&\quad + x^{129} + x^{127} + x^{126} + x^{118} + x^{115} + x^{110} + x^{108} + x^{107} + x^{106}\\
&\quad + x^{104} + x^{101} + x^{100} + x^{97} + x^{95} + x^{92} + x^{87} + x^{85} + x^{82} + x^{81} + x^{80}\\
&\quad + x^{76} + x^{75} + x^{72} + x^{70} + x^{64} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{57}\\
&\quad + x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43} + x^{42},\\
p_3(x) &= x^{146} + x^{145} + x^{141} + x^{138} + x^{137} + x^{134} + x^{133} + x^{129} + x^{128} + x^{126}\\
&\quad + x^{124} + x^{122} + x^{117} + x^{113} + x^{111} + x^{110} + x^{109} + x^{102} + x^{98} + x^{97}\\
&\quad + x^{96} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{82} + x^{80} + x^{79} + x^{77} + x^{75}\\
&\quad + x^{74} + x^{73} + x^{71} + x^{70} + x^{67} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57}\\
&\quad + x^{56} + x^{54} + x^{52} + x^{45} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{34} + x^{33}\\
&\quad + x^{28} + x^{27} + x^{26},\\
p_6(x) &= x^{146} + x^{145} + x^{139} + x^{138} + x^{137} + x^{136} + x^{128} + x^{127} + x^{126} + x^{125}\\
&\quad + x^{124} + x^{123} + x^{121} + x^{119} + x^{117} + x^{116} + x^{115} + x^{113} + x^{112}\\
&\quad + x^{110} + x^{109} + x^{107} + x^{106} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{98}\\
&\quad + x^{97} + x^{92} + x^{91} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{70} + x^{68}\\
&\quad + x^{65} + x^{62} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{47}\\
&\quad + x^{46} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} + x^{34} + x^{33} + x^{30}\\
&\quad + x^{28} + x^{25} + x^{23} + x^{20} + x^{19} + x^{18} + x^{17} + x^{14} + x^{13} + x^{12} + x^{10}\\
&\quad + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,\\
p_9(x) &= x^{146} + x^{143} + x^{141} + x^{140} + x^{134} + x^{131} + x^{129} + x^{128} + x^{118} + x^{115}\\
&\quad + x^{114} + x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{98} + x^{95} + x^{93} + x^{92}\\
&\quad + x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{50} + x^{47} + x^{45}\\
&\quad + x^{44} + x^{38} + x^{35} + x^{33} + x^{32} + x^{22} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15}\\
&\quad + x^{13} + x^{12},\\
p_{12}(x) &= x^{146} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{137} + x^{136} + x^{134} + x^{131}\\
&\quad + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122}\\
&\quad + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{106} + x^{103} + x^{102} + x^{101}\\
&\quad + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}\\
&\quad + x^{88} + x^{86} + x^{83} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67}\\
&\quad + x^{65} + x^{64} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38}
\end{aligned}
$$

$$+ x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25} + x^{24} + x^{23} + x^{21} + x^{20} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,$$

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

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

$$\begin{aligned}
p_0(x) &= x^{147} + x^{146} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{132} + x^{127} + x^{125}\\
&\quad + x^{124} + x^{123} + x^{117} + x^{116} + x^{115} + x^{113} + x^{112} + x^{107} + x^{105}\\
&\quad + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{91} + x^{88} + x^{84}\\
&\quad + x^{83} + x^{79} + x^{77} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{58} + x^{57}\\
&\quad + x^{56} + x^{54} + x^{53} + x^{47} + x^{44} + x^{42} + x^{40} + x^{38} + x^{37} + x^{36},\\
p_3(x) &= x^{146} + x^{145} + x^{144} + x^{142} + x^{136} + x^{134} + x^{133} + x^{129} + x^{128} + x^{123}\\
&\quad + x^{117} + x^{113} + x^{112} + x^{111} + x^{110} + x^{108} + x^{107} + x^{105} + x^{101}\\
&\quad + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{85} + x^{84} + x^{83} + x^{82} + x^{81}\\
&\quad + x^{80} + x^{79} + x^{76} + x^{74} + x^{71} + x^{69} + x^{67} + x^{66} + x^{65} + x^{63} + x^{62}\\
&\quad + x^{60} + x^{59} + x^{51} + x^{50} + x^{46} + x^{45} + x^{44} + x^{42} + x^{41} + x^{40} + x^{39}\\
&\quad + x^{38} + x^{37} + x^{35} + x^{34} + x^{29} + x^{26} + x^{25} + x^{24},\\
p_6(x) &= x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{134}\\
&\quad + x^{133} + x^{132} + x^{128} + x^{127} + x^{125} + x^{124} + x^{122} + x^{118} + x^{117}\\
&\quad + x^{116} + x^{115} + x^{113} + x^{110} + x^{108} + x^{106} + x^{105} + x^{104} + x^{103}\\
&\quad + x^{101} + x^{98} + x^{97} + x^{95} + x^{94} + x^{93} + x^{92} + x^{87} + x^{86} + x^{84} + x^{83}\\
&\quad + x^{82} + x^{81} + x^{79} + x^{78} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69}\\
&\quad + x^{68} + x^{66} + x^{64} + x^{60} + x^{59} + x^{55} + x^{54} + x^{53} + x^{49} + x^{48} + x^{43}\\
&\quad + x^{40} + x^{39} + x^{37} + x^{36} + x^{33} + x^{32} + x^{31} + x^{24} + x^{21} + x^{20} + x^{19}\\
&\quad + x^{18} + x^{16} + x^{15} + x^{14} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,\\
p_9(x) &= x^{146} + x^{143} + x^{141} + x^{140} + x^{134} + x^{131} + x^{129} + x^{128} + x^{118} + x^{115}\\
&\quad + x^{114} + x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{98} + x^{95} + x^{93} + x^{92}\\
&\quad + x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{50} + x^{47} + x^{45}\\
&\quad + x^{44} + x^{38} + x^{35} + x^{33} + x^{32} + x^{22} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15}\\
&\quad + x^{13} + x^{12},\\
p_{12}(x) &= x^{146} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{137} + x^{136} + x^{134} + x^{131}\\
&\quad + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122}\\
&\quad + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{106} + x^{103} + x^{102} + x^{101}\\
&\quad + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}\\
&\quad + x^{88} + x^{86} + x^{83} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67}\\
&\quad + x^{65} + x^{64} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38}\\
&\quad + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25}
\end{aligned}$$

$$+ x^{24} + x^{23} + x^{21} + x^{20} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{150} + x^{149} + x^{148} + x^{144} + x^{143} + x^{140} + x^{138} + x^{135} + x^{132} + x^{123} \\
& + x^{122} + x^{120} + x^{116} + x^{114} + x^{112} + x^{111} + x^{108} + x^{107} + x^{106} \\
& + x^{105} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{95} + x^{94} + x^{93} + x^{92} \\
& + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83} + x^{80} + x^{78} + x^{75} + x^{74} + x^{73} \\
& + x^{71} + x^{66} + x^{65} + x^{64} + x^{63} + x^{61} + x^{59} + x^{58} + x^{57} + x^{56} + x^{51} \\
& + x^{50} + x^{48} + x^{47} + x^{46} + x^{45} + x^{42} + x^{41} + x^{39}, \\
p_3(x) = {} & x^{149} + x^{144} + x^{143} + x^{142} + x^{140} + x^{136} + x^{135} + x^{132} + x^{131} + x^{128} \\
& + x^{127} + x^{124} + x^{123} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{110} \\
& + x^{109} + x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{94} + x^{93} + x^{91} \\
& + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{78} + x^{77} + x^{75} + x^{72} + x^{71} + x^{70} \\
& + x^{69} + x^{68} + x^{62} + x^{59} + x^{45} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{30} \\
& + x^{27}, \\
p_6(x) = {} & x^{150} + x^{140} + x^{136} + x^{134} + x^{132} + x^{128} + x^{126} + x^{124} + x^{112} + x^{110} \\
& + x^{106} + x^{100} + x^{96} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} + x^{80} + x^{76} \\
& + x^{74} + x^{68} + x^{66} + x^{64} + x^{56} + x^{54} + x^{50} + x^{48} + x^{42} + x^{34} + x^{30} \\
& + x^{24} + x^{18}, \\
p_9(x) = {} & x^{151} + x^{146} + x^{145} + x^{144} + x^{142} + x^{141} + x^{139} + x^{138} + x^{136} + x^{135} \\
& + x^{134} + x^{133} + x^{132} + x^{131} + x^{130} + x^{129} + x^{128} + x^{127} + x^{126} \\
& + x^{125} + x^{124} + x^{123} + x^{122} + x^{121} + x^{120} + x^{118} + x^{117} + x^{116} \\
& + x^{115} + x^{111} + x^{108} + x^{105} + x^{103} + x^{98} + x^{97} + x^{96} + x^{94} + x^{93} \\
& + x^{91} + x^{90} + x^{88} + x^{86} + x^{85} + x^{84} + x^{83} + x^{79} + x^{76} + x^{73} + x^{55} \\
& + x^{50} + x^{49} + x^{48} + x^{46} + x^{45} + x^{43} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} \\
& + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} \\
& + x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{15} + x^{12} + x^{9}, \\
p_{12}(x) = {} & x^{152} + x^{140} + x^{136} + x^{132} + x^{124} + x^{116} + x^{112} + x^{104} + x^{96} + x^{92} \\
& + x^{84} + x^{64} + x^{56} + x^{44} + x^{40} + x^{36} + x^{28} + x^{20} + x^{16} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) = {} & x^{156} + x^{153} + x^{152} + x^{151} + x^{149} + x^{146} + x^{145} + x^{144} + x^{142} + x^{138} \\
& + x^{137} + x^{136} + x^{134} + x^{131} + x^{128} + x^{126} + x^{123} + x^{122} + x^{121} \\
& + x^{119} + x^{117} + x^{115} + x^{110} + x^{109} + x^{108} + x^{107} + x^{104} + x^{103} \\
& + x^{102} + x^{101} + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{87} + x^{85} + x^{82}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{78} + x^{77} + x^{74} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} + x^{62} + x^{60} + x^{57} \\
&+ x^{53} + x^{52} + x^{51} + x^{49} + x^{48} + x^{44} + x^{43} + x^{42} + x^{41} + x^{39}, \\
p_3(x) &= x^{149} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{137} + x^{134} + x^{132} + x^{130} \\
&+ x^{128} + x^{125} + x^{124} + x^{123} + x^{121} + x^{118} + x^{117} + x^{116} + x^{114} \\
&+ x^{111} + x^{110} + x^{109} + x^{107} + x^{104} + x^{103} + x^{102} + x^{100} + x^{97} + x^{96} \\
&+ x^{95} + x^{90} + x^{89} + x^{87} + x^{85} + x^{84} + x^{83} + x^{82} + x^{79} + x^{78} + x^{77} \\
&+ x^{75} + x^{72} + x^{71} + x^{70} + x^{68} + x^{65} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57} \\
&+ x^{56} + x^{54} + x^{53} + x^{51} + x^{50} + x^{49} + x^{48} + x^{46} + x^{43} + x^{42} + x^{41} \\
&+ x^{39} + x^{37} + x^{36} + x^{35} + x^{34} + x^{31} + x^{30} + x^{27}, \\
p_6(x) &= x^{150} + x^{142} + x^{140} + x^{138} + x^{136} + x^{134} + x^{128} + x^{126} + x^{124} + x^{118} \\
&+ x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{100} + x^{98} + x^{90} + x^{84} + x^{82} \\
&+ x^{78} + x^{72} + x^{70} + x^{68} + x^{66} + x^{64} + x^{54} + x^{52} + x^{50} + x^{46} + x^{44} \\
&+ x^{42} + x^{38} + x^{32} + x^{30} + x^{28} + x^{26} + x^{24} + x^{22} + x^{18}, \\
p_9(x) &= x^{151} + x^{146} + x^{145} + x^{144} + x^{143} + x^{142} + x^{141} + x^{137} + x^{135} + x^{134} \\
&+ x^{133} + x^{130} + x^{126} + x^{124} + x^{118} + x^{117} + x^{113} + x^{112} + x^{111} \\
&+ x^{109} + x^{108} + x^{105} + x^{103} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} \\
&+ x^{89} + x^{86} + x^{85} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{73} + x^{55} + x^{50} \\
&+ x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{41} + x^{39} + x^{38} + x^{37} + x^{34} + x^{30} \\
&+ x^{28} + x^{22} + x^{21} + x^{17} + x^{16} + x^{15} + x^{13} + x^{12} + x^{9}, \\
p_{12}(x) &= x^{152} + x^{144} + x^{136} + x^{128} + x^{120} + x^{116} + x^{112} + x^{100} + x^{72} + x^{68} \\
&+ x^{64} + x^{56} + x^{48} + x^{40} + x^{32} + x^{24} + x^{20} + x^{16} + x^{8} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{145} + x^{143} + x^{142} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{131} \\
&+ x^{129} + x^{127} + x^{126} + x^{118} + x^{115} + x^{110} + x^{108} + x^{107} + x^{106} \\
&+ x^{104} + x^{101} + x^{100} + x^{97} + x^{95} + x^{92} + x^{87} + x^{85} + x^{82} + x^{81} + x^{80} \\
&+ x^{76} + x^{75} + x^{72} + x^{70} + x^{64} + x^{63} + x^{62} + x^{61} + x^{60} + x^{59} + x^{57} \\
&+ x^{54} + x^{53} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{44} + x^{43} + x^{42}, \\
p_3(x) &= x^{146} + x^{145} + x^{141} + x^{138} + x^{137} + x^{134} + x^{133} + x^{129} + x^{128} + x^{126} \\
&+ x^{124} + x^{122} + x^{117} + x^{113} + x^{111} + x^{110} + x^{109} + x^{102} + x^{98} + x^{97} \\
&+ x^{96} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} + x^{82} + x^{80} + x^{79} + x^{77} + x^{75} \\
&+ x^{74} + x^{73} + x^{71} + x^{70} + x^{67} + x^{63} + x^{61} + x^{60} + x^{59} + x^{58} + x^{57} \\
&+ x^{56} + x^{54} + x^{52} + x^{45} + x^{43} + x^{41} + x^{39} + x^{38} + x^{36} + x^{34} + x^{33} \\
&+ x^{28} + x^{27} + x^{26}, \\
p_6(x) &= x^{146} + x^{145} + x^{139} + x^{138} + x^{137} + x^{136} + x^{128} + x^{127} + x^{126} + x^{125}
\end{aligned}
$$

$$+ x^{124} + x^{123} + x^{121} + x^{119} + x^{117} + x^{116} + x^{115} + x^{113} + x^{112}$$
$$+ x^{110} + x^{109} + x^{107} + x^{106} + x^{103} + x^{102} + x^{101} + x^{100} + x^{99} + x^{98}$$
$$+ x^{97} + x^{92} + x^{91} + x^{88} + x^{84} + x^{83} + x^{82} + x^{81} + x^{79} + x^{70} + x^{68}$$
$$+ x^{65} + x^{62} + x^{60} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{47}$$
$$+ x^{46} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{39} + x^{38} + x^{34} + x^{33} + x^{30}$$
$$+ x^{28} + x^{25} + x^{23} + x^{20} + x^{19} + x^{18} + x^{17} + x^{14} + x^{13} + x^{12} + x^{10}$$
$$+ x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,$$
$$p_9(x) = x^{146} + x^{143} + x^{141} + x^{140} + x^{134} + x^{131} + x^{129} + x^{128} + x^{118} + x^{115}$$
$$+ x^{114} + x^{113} + x^{112} + x^{111} + x^{109} + x^{108} + x^{98} + x^{95} + x^{93} + x^{92}$$
$$+ x^{86} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{76} + x^{50} + x^{47} + x^{45}$$
$$+ x^{44} + x^{38} + x^{35} + x^{33} + x^{32} + x^{22} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15}$$
$$+ x^{13} + x^{12},$$
$$p_{12}(x) = x^{146} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{137} + x^{136} + x^{134} + x^{131}$$
$$+ x^{130} + x^{129} + x^{128} + x^{127} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122}$$
$$+ x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{106} + x^{103} + x^{102} + x^{101}$$
$$+ x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{93} + x^{92} + x^{91} + x^{89}$$
$$+ x^{88} + x^{86} + x^{83} + x^{81} + x^{80} + x^{74} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67}$$
$$+ x^{65} + x^{64} + x^{50} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38}$$
$$+ x^{35} + x^{34} + x^{33} + x^{32} + x^{31} + x^{30} + x^{29} + x^{28} + x^{27} + x^{26} + x^{25}$$
$$+ x^{24} + x^{23} + x^{21} + x^{20} + x^{10} + x^{7} + x^{6} + x^{5} + x^{4} + x^{3} + x + 1,$$

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

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

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

| $n$ | $\Lambda(n)$ | $n$ | $\Lambda(n)$ | $n$ | $\Lambda(n)$ | $n$ | $\Lambda(n)$ |
|---|---|---|---|---|---|---|---|
| 0 | [1, 2] | 865 | [1394, 685] | 1730 | [2372, 2373] | 2595 | [2959, 420] |
| 1 | [3, 4] | 866 | [1395, 1396] | 1731 | [1923, 2374] | 2596 | [2960, 2004] |
| 2 | [5, 6] | 867 | [1397, 1398] | 1732 | [2375, 2376] | 2597 | [69, 2228] |
| 3 | [7, 8] | 868 | [548, 652] | 1733 | [2377, 2027] | 2598 | [2961, 2962] |
| 4 | [9, 10] | 869 | [538, 1399] | 1734 | [2378, 2379] | 2599 | [2963, 85] |
| 5 | [11, 12] | 870 | [1400, 1341] | 1735 | [2380, 2381] | 2600 | [2964, 2965] |
| 6 | [13, 14] | 871 | [1401, 1402] | 1736 | [2382, 2383] | 2601 | [311, 2295] |
| 7 | [15, 16] | 872 | [1403, 1311] | 1737 | [2384, 2385] | 2602 | [2765, 2963] |
| 8 | [17, 18] | 873 | [1404, 1405] | 1738 | [2386, 983] | 2603 | [2966, 1869] |
| 9 | [19, 20] | 874 | [1406, 658] | 1739 | [2387, 2388] | 2604 | [2967, 1245] |
| 10 | [21, 22] | 875 | [1407, 1373] | 1740 | [2278, 1956] | 2605 | [2968, 2969] |
| 11 | [23, 24] | 876 | [578, 44] | 1741 | [1938, 1887] | 2606 | [2357, 2970] |
| 12 | [25, 26] | 877 | [1408, 495] | 1742 | [1861, 1912] | 2607 | [2971, 1100] |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13 | [27, 28] | 878 | [1409, 1410] | 1743 | [2389, 2147] | 2608 | [2390, 940] |
| 14 | [29, 30] | 879 | [471, 1317] | 1744 | [2019, 2390] | 2609 | [2972, 812] |
| 15 | [31, 32] | 880 | [1411, 663] | 1745 | [2391, 2392] | 2610 | [2973, 2974] |
| 16 | [33, 34] | 881 | [1412, 1413] | 1746 | [2393, 2394] | 2611 | [2975, 2976] |
| 17 | [35, 36] | 882 | [1414, 229] | 1747 | [2192, 2395] | 2612 | [2786, 288] |
| 18 | [37, 38] | 883 | [1415, 594] | 1748 | [2396, 2397] | 2613 | [2977, 1209] |
| 19 | [39, 40] | 884 | [740, 1416] | 1749 | [2398, 2399] | 2614 | [2978, 306] |
| 20 | [41, 42] | 885 | [234, 1417] | 1750 | [1767, 2400] | 2615 | [2979, 327] |
| 21 | [43, 44] | 886 | [37, 744] | 1751 | [2401, 1807] | 2616 | [2980, 2160] |
| 22 | [45, 46] | 887 | [1319, 203] | 1752 | [2402, 2403] | 2617 | [2981, 2412] |
| 23 | [47, 48] | 888 | [608, 129] | 1753 | [2404, 323] | 2618 | [2982, 2983] |
| 24 | [49, 50] | 889 | [1386, 1418] | 1754 | [2405, 2406] | 2619 | [2984, 2985] |
| 25 | [51, 52] | 890 | [1302, 1419] | 1755 | [2407, 342] | 2620 | [2986, 2987] |
| 26 | [53, 44] | 891 | [1420, 1421] | 1756 | [1833, 104] | 2621 | [2988, 1290] |
| 27 | [54, 55] | 892 | [48, 1422] | 1757 | [2408, 2409] | 2622 | [2989, 2990] |
| 28 | [56, 57] | 893 | [728, 1423] | 1758 | [2410, 1948] | 2623 | [2991, 314] |
| 29 | [58, 59] | 894 | [749, 8] | 1759 | [2411, 2412] | 2624 | [2832, 2992] |
| 30 | [60, 61] | 895 | [755, 1420] | 1760 | [2413, 1031] | 2625 | [2993, 2994] |
| 31 | [62, 63] | 896 | [1424, 720] | 1761 | [2414, 1846] | 2626 | [411, 2199] |
| 32 | [64, 65] | 897 | [1425, 619] | 1762 | [2415, 29] | 2627 | [2995, 2996] |
| 33 | [66, 67] | 898 | [193, 567] | 1763 | [2416, 2417] | 2628 | [928, 2997] |
| 34 | [68, 69] | 899 | [643, 1426] | 1764 | [2418, 805] | 2629 | [2998, 103] |
| 35 | [70, 17] | 900 | [1404, 1427] | 1765 | [2419, 27] | 2630 | [2999, 2924] |
| 36 | [71, 72] | 901 | [1428, 483] | 1766 | [2420, 2421] | 2631 | [3000, 345] |
| 37 | [73, 74] | 902 | [1337, 1429] | 1767 | [1578, 219] | 2632 | [3001, 2000] |
| 38 | [75, 76] | 903 | [1430, 746] | 1768 | [455, 2422] | 2633 | [3002, 2027] |
| 39 | [77, 78] | 904 | [625, 1431] | 1769 | [2423, 458] | 2634 | [1261, 3003] |
| 40 | [79, 80] | 905 | [1432, 553] | 1770 | [2424, 572] | 2635 | [3004, 4] |
| 41 | [81, 82] | 906 | [1433, 1420] | 1771 | [197, 697] | 2636 | [3005, 3006] |
| 42 | [83, 84] | 907 | [1434, 1347] | 1772 | [2425, 575] | 2637 | [2250, 2316] |
| 43 | [85, 86] | 908 | [1435, 1436] | 1773 | [1670, 1314] | 2638 | [2374, 3007] |
| 44 | [87, 88] | 909 | [1437, 677] | 1774 | [2426, 1470] | 2639 | [3008, 3009] |
| 45 | [89, 90] | 910 | [1438, 1439] | 1775 | [2427, 1352] | 2640 | [893, 2194] |
| 46 | [91, 92] | 911 | [483, 1440] | 1776 | [468, 2428] | 2641 | [3007, 956] |
| 47 | [93, 94] | 912 | [1441, 1442] | 1777 | [668, 2429] | 2642 | [2325, 2869] |
| 48 | [67, 95] | 913 | [1443, 528] | 1778 | [523, 1654] | 2643 | [3010, 1286] |
| 49 | [96, 97] | 914 | [1444, 1445] | 1779 | [50, 1731] | 2644 | [3011, 1127] |
| 50 | [98, 99] | 915 | [1446, 671] | 1780 | [661, 2430] | 2645 | [3012, 2320] |
| 51 | [100, 101] | 916 | [1447, 1448] | 1781 | [2431, 665] | 2646 | [3013, 2211] |
| 52 | [102, 103] | 917 | [599, 1353] | 1782 | [1671, 1315] | 2647 | [3014, 1212] |
| 53 | [104, 105] | 918 | [1449, 153] | 1783 | [1627, 1597] | 2648 | [3015, 1182] |
| 54 | [106, 107] | 919 | [674, 1450] | 1784 | [1395, 1501] | 2649 | [2035, 2045] |
| 55 | [108, 109] | 920 | [1451, 767] | 1785 | [2432, 544] | 2650 | [3016, 974] |
| 56 | [110, 111] | 921 | [1452, 533] | 1786 | [2433, 1456] | 2651 | [3017, 3018] |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 57 | [112, 113] | 922 | [562, 608] | 1787 | [545, 1457] | 2652 | [3019, 3020] |
| 58 | [114, 115] | 923 | [724, 199] | 1788 | [1426, 1700] | 2653 | [3021, 3022] |
| 59 | [116, 117] | 924 | [537, 1453] | 1789 | [198, 725] | 2654 | [3023, 1023] |
| 60 | [118, 119] | 925 | [151, 1310] | 1790 | [1463, 647] | 2655 | [3024, 3025] |
| 61 | [120, 121] | 926 | [673, 1454] | 1791 | [2434, 693] | 2656 | [3026, 3027] |
| 62 | [122, 123] | 927 | [1455, 543] | 1792 | [2435, 1445] | 2657 | [3028, 2874] |
| 63 | [124, 125] | 928 | [1312, 1456] | 1793 | [696, 2436] | 2658 | [3029, 2133] |
| 64 | [126, 127] | 929 | [543, 649] | 1794 | [2437, 1491] | 2659 | [3030, 2374] |
| 65 | [128, 129] | 930 | [546, 1457] | 1795 | [2438, 529] | 2660 | [3031, 781] |
| 66 | [130, 131] | 931 | [1458, 1459] | 1796 | [558, 133] | 2661 | [3032, 2402] |
| 67 | [132, 133] | 932 | [1460, 1461] | 1797 | [1349, 604] | 2662 | [3033, 3034] |
| 68 | [134, 135] | 933 | [1462, 650] | 1798 | [52, 1511] | 2663 | [3035, 1189] |
| 69 | [136, 38] | 934 | [1463, 649] | 1799 | [2439, 209] | 2664 | [3036, 3037] |
| 70 | [137, 138] | 935 | [548, 1464] | 1800 | [1472, 2440] | 2665 | [2296, 840] |
| 71 | [139, 140] | 936 | [714, 651] | 1801 | [2441, 2442] | 2666 | [3038, 847] |
| 72 | [141, 142] | 937 | [1465, 651] | 1802 | [494, 2443] | 2667 | [3039, 2142] |
| 73 | [143, 144] | 938 | [649, 713] | 1803 | [2444, 1743] | 2668 | [3040, 113] |
| 74 | [145, 146] | 939 | [650, 714] | 1804 | [580, 2445] | 2669 | [3041, 2389] |
| 75 | [147, 148] | 940 | [620, 1392] | 1805 | [2446, 2447] | 2670 | [320, 2941] |
| 76 | [149, 150] | 941 | [1466, 579] | 1806 | [1415, 1734] | 2671 | [3042, 2790] |
| 77 | [151, 152] | 942 | [1467, 1468] | 1807 | [2448, 2449] | 2672 | [3043, 3044] |
| 78 | [153, 154] | 943 | [1469, 1470] | 1808 | [2450, 1710] | 2673 | [3045, 3046] |
| 79 | [155, 156] | 944 | [1471, 565] | 1809 | [2451, 1725] | 2674 | [3047, 286] |
| 80 | [157, 158] | 945 | [1471, 715] | 1810 | [670, 1719] | 2675 | [3048, 3049] |
| 81 | [159, 160] | 946 | [10, 1326] | 1811 | [2452, 1585] | 2676 | [3050, 274] |
| 82 | [161, 125] | 947 | [1472, 1473] | 1812 | [2453, 2454] | 2677 | [1929, 3044] |
| 83 | [162, 163] | 948 | [474, 10] | 1813 | [1437, 701] | 2678 | [3051, 2362] |
| 84 | [164, 165] | 949 | [1474, 1396] | 1814 | [2455, 1405] | 2679 | [881, 2329] |
| 85 | [166, 167] | 950 | [153, 1406] | 1815 | [40, 609] | 2680 | [2056, 3052] |
| 86 | [168, 169] | 951 | [539, 606] | 1816 | [2456, 2457] | 2681 | [1792, 337] |
| 87 | [170, 171] | 952 | [1311, 548] | 1817 | [1660, 1426] | 2682 | [3053, 1202] |
| 88 | [172, 173] | 953 | [1475, 1434] | 1818 | [452, 1664] | 2683 | [2926, 2376] |
| 89 | [174, 175] | 954 | [186, 633] | 1819 | [2458, 1461] | 2684 | [3054, 3055] |
| 90 | [176, 177] | 955 | [1476, 572] | 1820 | [2459, 685] | 2685 | [3056, 2064] |
| 91 | [178, 179] | 956 | [1432, 1477] | 1821 | [2460, 186] | 2686 | [250, 1014] |
| 92 | [180, 181] | 957 | [1478, 131] | 1822 | [2461, 1446] | 2687 | [2335, 1005] |
| 93 | [182, 183] | 958 | [1479, 1474] | 1823 | [1424, 1487] | 2688 | [3057, 2230] |
| 94 | [184, 185] | 959 | [1480, 682] | 1824 | [2462, 722] | 2689 | [3058, 951] |
| 95 | [186, 187] | 960 | [1481, 1482] | 1825 | [1496, 628] | 2690 | [898, 3059] |
| 96 | [188, 152] | 961 | [589, 1376] | 1826 | [136, 744] | 2691 | [3060, 3061] |
| 97 | [189, 190] | 962 | [1483, 1484] | 1827 | [2463, 2464] | 2692 | [388, 1182] |
| 98 | [191, 192] | 963 | [764, 1485] | 1828 | [2465, 1676] | 2693 | [3062, 1224] |
| 99 | [193, 194] | 964 | [1486, 133] | 1829 | [1713, 1342] | 2694 | [3063, 891] |
| 100 | [195, 196] | 965 | [719, 1487] | 1830 | [2466, 589] | 2695 | [3064, 433] |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 101 | [178, 197] | 966 | [1488, 1318] | 1831 | [2467, 1635] | 2696 | [3065, 302] |
| 102 | [198, 199] | 967 | [1489, 654] | 1832 | [2468, 1521] | 2697 | [3066, 3067] |
| 103 | [200, 201] | 968 | [656, 1345] | 1833 | [1754, 560] | 2698 | [2274, 1266] |
| 104 | [202, 203] | 969 | [1490, 1491] | 1834 | [2469, 533] | 2699 | [367, 1140] |
| 105 | [204, 167] | 970 | [1492, 1493] | 1835 | [2470, 1586] | 2700 | [3068, 1899] |
| 106 | [205, 206] | 971 | [1494, 1487] | 1836 | [1662, 1527] | 2701 | [2022, 1229] |
| 107 | [207, 206] | 972 | [703, 628] | 1837 | [2471, 1459] | 2702 | [1066, 276] |
| 108 | [208, 209] | 973 | [681, 555] | 1838 | [2472, 1504] | 2703 | [3069, 3070] |
| 109 | [210, 211] | 974 | [1495, 1496] | 1839 | [478, 685] | 2704 | [3071, 1154] |
| 110 | [212, 213] | 975 | [541, 1490] | 1840 | [617, 589] | 2705 | [3072, 1262] |
| 111 | [214, 215] | 976 | [1497, 1498] | 1841 | [2473, 2474] | 2706 | [3073, 2091] |
| 112 | [216, 217] | 977 | [1499, 1500] | 1842 | [1510, 1677] | 2707 | [3074, 1150] |
| 113 | [218, 219] | 978 | [1501, 1502] | 1843 | [1582, 219] | 2708 | [2969, 3075] |
| 114 | [220, 221] | 979 | [1503, 1504] | 1844 | [2475, 1664] | 2709 | [3076, 2776] |
| 115 | [222, 223] | 980 | [521, 679] | 1845 | [2476, 1404] | 2710 | [3077, 3078] |
| 116 | [224, 225] | 981 | [1505, 749] | 1846 | [1526, 1518] | 2711 | [3079, 3080] |
| 117 | [226, 227] | 982 | [1506, 755] | 1847 | [533, 181] | 2712 | [3081, 2371] |
| 118 | [228, 229] | 983 | [1507, 552] | 1848 | [2427, 529] | 2713 | [3082, 3083] |
| 119 | [230, 231] | 984 | [1393, 530] | 1849 | [571, 2477] | 2714 | [872, 2055] |
| 120 | [232, 233] | 985 | [1508, 1509] | 1850 | [2441, 1328] | 2715 | [3084, 2126] |
| 121 | [234, 235] | 986 | [1510, 1454] | 1851 | [2478, 2479] | 2716 | [3085, 3086] |
| 122 | [236, 237] | 987 | [453, 1511] | 1852 | [557, 1522] | 2717 | [3087, 1124] |
| 123 | [238, 19] | 988 | [1512, 506] | 1853 | [2480, 536] | 2718 | [258, 3088] |
| 124 | [239, 240] | 989 | [1513, 729] | 1854 | [125, 148] | 2719 | [3089, 3090] |
| 125 | [241, 242] | 990 | [1514, 212] | 1855 | [2470, 1422] | 2720 | [3091, 2372] |
| 126 | [243, 244] | 991 | [1515, 1516] | 1856 | [2481, 1304] | 2721 | [3092, 442] |
| 127 | [245, 246] | 992 | [1517, 1518] | 1857 | [641, 766] | 2722 | [3093, 3094] |
| 128 | [247, 248] | 993 | [1519, 1520] | 1858 | [2482, 1419] | 2723 | [995, 972] |
| 129 | [249, 250] | 994 | [1495, 703] | 1859 | [1325, 568] | 2724 | [3095, 2034] |
| 130 | [251, 252] | 995 | [458, 681] | 1860 | [727, 534] | 2725 | [3096, 3097] |
| 131 | [253, 254] | 996 | [468, 485] | 1861 | [1616, 1380] | 2726 | [3098, 257] |
| 132 | [255, 256] | 997 | [1521, 1522] | 1862 | [1751, 1500] | 2727 | [3099, 3100] |
| 133 | [257, 258] | 998 | [1523, 1520] | 1863 | [2483, 2484] | 2728 | [3101, 3102] |
| 134 | [259, 260] | 999 | [135, 1388] | 1864 | [2485, 2486] | 2729 | [3103, 3104] |
| 135 | [261, 262] | 1000 | [1524, 1525] | 1865 | [2487, 531] | 2730 | [3105, 1092] |
| 136 | [263, 264] | 1001 | [179, 697] | 1866 | [2488, 1696] | 2731 | [1238, 1019] |
| 137 | [265, 266] | 1002 | [1526, 1527] | 1867 | [529, 1353] | 2732 | [3106, 112] |
| 138 | [267, 268] | 1003 | [1528, 677] | 1868 | [2472, 2489] | 2733 | [3107, 1934] |
| 139 | [269, 270] | 1004 | [1358, 1356] | 1869 | [2490, 1405] | 2734 | [3108, 865] |
| 140 | [271, 272] | 1005 | [629, 1529] | 1870 | [753, 484] | 2735 | [3109, 3110] |
| 141 | [273, 274] | 1006 | [1530, 1367] | 1871 | [2491, 1364] | 2736 | [3111, 3112] |
| 142 | [268, 275] | 1007 | [534, 1306] | 1872 | [1598, 720] | 2737 | [3113, 3114] |
| 143 | [276, 277] | 1008 | [574, 1531] | 1873 | [2492, 588] | 2738 | [3115, 3116] |
| 144 | [278, 279] | 1009 | [32, 1440] | 1874 | [1394, 479] | 2739 | [3117, 3118] |

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| 145 | [280, 281] | 1010 | [1532, 1533] | 1875 | [160, 476] | 2740 | [3119, 115] |
| 146 | [282, 283] | 1011 | [1534, 1479] | 1876 | [2493, 1650] | 2741 | [3120, 2069] |
| 147 | [284, 285] | 1012 | [1535, 186] | 1877 | [1378, 500] | 2742 | [3121, 3122] |
| 148 | [286, 287] | 1013 | [1536, 1537] | 1878 | [2494, 729] | 2743 | [2168, 2034] |
| 149 | [288, 289] | 1014 | [1538, 1539] | 1879 | [507, 1655] | 2744 | [902, 1890] |
| 150 | [290, 291] | 1015 | [1540, 756] | 1880 | [2495, 1348] | 2745 | [3123, 2314] |
| 151 | [292, 293] | 1016 | [1541, 1542] | 1881 | [1515, 2496] | 2746 | [3124, 3116] |
| 152 | [294, 295] | 1017 | [758, 1543] | 1882 | [166, 560] | 2747 | [1282, 3125] |
| 153 | [296, 297] | 1018 | [1544, 215] | 1883 | [213, 2437] | 2748 | [2307, 3126] |
| 154 | [298, 299] | 1019 | [1545, 1406] | 1884 | [2497, 2498] | 2749 | [2755, 2812] |
| 155 | [300, 301] | 1020 | [1546, 1547] | 1885 | [1388, 1388] | 2750 | [3088, 998] |
| 156 | [302, 303] | 1021 | [1311, 651] | 1886 | [491, 498] | 2751 | [3127, 2303] |
| 157 | [304, 305] | 1022 | [1548, 1549] | 1887 | [491, 493] | 2752 | [1089, 120] |
| 158 | [306, 307] | 1023 | [230, 1550] | 1888 | [2499, 2500] | 2753 | [3128, 1956] |
| 159 | [308, 309] | 1024 | [1551, 1552] | 1889 | [2501, 2428] | 2754 | [2671, 1439] |
| 160 | [310, 311] | 1025 | [1553, 612] | 1890 | [483, 473] | 2755 | [1298, 1564] |
| 161 | [312, 313] | 1026 | [1554, 481] | 1891 | [1297, 2430] | 2756 | [3129, 616] |
| 162 | [314, 315] | 1027 | [1555, 157] | 1892 | [2502, 152] | 2757 | [2643, 485] |
| 163 | [316, 317] | 1028 | [1483, 1404] | 1893 | [2503, 644] | 2758 | [3130, 1660] |
| 164 | [318, 319] | 1029 | [182, 164] | 1894 | [2504, 632] | 2759 | [3131, 1516] |
| 165 | [82, 320] | 1030 | [612, 1556] | 1895 | [1355, 1359] | 2760 | [2520, 539] |
| 166 | [321, 322] | 1031 | [1557, 1315] | 1896 | [765, 2505] | 2761 | [2675, 2639] |
| 167 | [323, 324] | 1032 | [755, 1558] | 1897 | [2506, 1436] | 2762 | [3132, 456] |
| 168 | [325, 326] | 1033 | [563, 482] | 1898 | [690, 1543] | 2763 | [510, 1485] |
| 169 | [327, 328] | 1034 | [172, 1559] | 1899 | [1411, 1595] | 2764 | [2539, 1434] |
| 170 | [329, 330] | 1035 | [1560, 1324] | 1900 | [2507, 2508] | 2765 | [1754, 167] |
| 171 | [4, 331] | 1036 | [1420, 209] | 1901 | [2509, 2510] | 2766 | [3133, 3134] |
| 172 | [332, 333] | 1037 | [1342, 179] | 1902 | [1387, 141] | 2767 | [2706, 3135] |
| 173 | [334, 335] | 1038 | [1379, 1561] | 1903 | [499, 36] | 2768 | [505, 3136] |
| 174 | [336, 337] | 1039 | [1562, 1395] | 1904 | [2511, 2512] | 2769 | [3137, 1490] |
| 175 | [338, 339] | 1040 | [161, 1563] | 1905 | [1570, 568] | 2770 | [3138, 1459] |
| 176 | [340, 341] | 1041 | [1444, 185] | 1906 | [1622, 1486] | 2771 | [3139, 1347] |
| 177 | [342, 343] | 1042 | [1425, 1564] | 1907 | [2513, 2514] | 2772 | [2433, 1313] |
| 178 | [309, 344] | 1043 | [152, 679] | 1908 | [2515, 2474] | 2773 | [1474, 1501] |
| 179 | [345, 346] | 1044 | [603, 1496] | 1909 | [2516, 40] | 2774 | [1484, 1427] |
| 180 | [347, 348] | 1045 | [1528, 701] | 1910 | [2475, 1525] | 2775 | [3140, 623] |
| 181 | [349, 350] | 1046 | [463, 1565] | 1911 | [2517, 1634] | 2776 | [708, 3141] |
| 182 | [351, 352] | 1047 | [157, 206] | 1912 | [534, 516] | 2777 | [1396, 1502] |
| 183 | [353, 354] | 1048 | [631, 1547] | 1913 | [2516, 525] | 2778 | [1631, 2548] |
| 184 | [355, 356] | 1049 | [1566, 1431] | 1914 | [134, 1388] | 2779 | [2678, 154] |
| 185 | [357, 358] | 1050 | [573, 129] | 1915 | [559, 167] | 2780 | [2546, 1645] |
| 186 | [359, 101] | 1051 | [1567, 718] | 1916 | [33, 528] | 2781 | [3130, 2645] |
| 187 | [360, 361] | 1052 | [1434, 1568] | 1917 | [131, 1595] | 2782 | [511, 3142] |
| 188 | [362, 363] | 1053 | [1569, 1531] | 1918 | [2518, 1700] | 2783 | [489, 139] |

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| 189 | [364, 365] | 1054 | [1570, 1326] | 1919 | [2471, 2519] | 2784 | [3143, 2489] |
| 190 | [366, 367] | 1055 | [1467, 1571] | 1920 | [551, 1556] | 2785 | [2676, 527] |
| 191 | [368, 369] | 1056 | [1572, 1573] | 1921 | [1611, 1334] | 2786 | [754, 1433] |
| 192 | [370, 371] | 1057 | [1574, 746] | 1922 | [2520, 1399] | 2787 | [1536, 2530] |
| 193 | [372, 373] | 1058 | [1575, 626] | 1923 | [673, 1677] | 2788 | [1756, 2600] |
| 194 | [374, 375] | 1059 | [215, 516] | 1924 | [2521, 2522] | 2789 | [1544, 534] |
| 195 | [376, 377] | 1060 | [1346, 1568] | 1925 | [1600, 1461] | 2790 | [1399, 752] |
| 196 | [378, 3] | 1061 | [1508, 1576] | 1926 | [1496, 1369] | 2791 | [3144, 646] |
| 197 | [379, 380] | 1062 | [1577, 154] | 1927 | [658, 1599] | 2792 | [3145, 667] |
| 198 | [381, 382] | 1063 | [1578, 1350] | 1928 | [2482, 175] | 2793 | [3146, 199] |
| 199 | [383, 384] | 1064 | [1579, 1580] | 1929 | [1699, 1423] | 2794 | [2673, 1561] |
| 200 | [385, 386] | 1065 | [1581, 505] | 1930 | [179, 2436] | 2795 | [2543, 1348] |
| 201 | [387, 388] | 1066 | [1582, 1350] | 1931 | [2494, 1423] | 2796 | [2642, 1383] |
| 202 | [389, 390] | 1067 | [1583, 1584] | 1932 | [2523, 203] | 2797 | [3147, 1674] |
| 203 | [391, 392] | 1068 | [39, 525] | 1933 | [2524, 2498] | 2798 | [1738, 1402] |
| 204 | [393, 394] | 1069 | [1585, 525] | 1934 | [608, 482] | 2799 | [3148, 638] |
| 205 | [395, 396] | 1070 | [48, 1586] | 1935 | [2525, 1322] | 2800 | [622, 1635] |
| 206 | [397, 398] | 1071 | [1587, 1588] | 1936 | [2424, 2477] | 2801 | [3149, 595] |
| 207 | [399, 329] | 1072 | [1589, 1590] | 1937 | [760, 657] | 2802 | [1688, 231] |
| 208 | [400, 401] | 1073 | [1591, 1592] | 1938 | [1574, 1697] | 2803 | [1372, 689] |
| 209 | [402, 403] | 1074 | [1593, 1445] | 1939 | [1351, 1429] | 2804 | [2599, 146] |
| 210 | [404, 405] | 1075 | [1594, 1595] | 1940 | [1521, 588] | 2805 | [685, 579] |
| 211 | [406, 407] | 1076 | [1596, 1597] | 1941 | [2526, 2527] | 2806 | [1744, 2598] |
| 212 | [408, 409] | 1077 | [617, 1365] | 1942 | [2528, 1715] | 2807 | [3150, 1398] |
| 213 | [410, 411] | 1078 | [1489, 693] | 1943 | [2529, 2530] | 2808 | [3151, 2421] |
| 214 | [412, 413] | 1079 | [1598, 1487] | 1944 | [2531, 2532] | 2809 | [477, 2441] |
| 215 | [414, 415] | 1080 | [227, 1477] | 1945 | [2486, 684] | 2810 | [3152, 620] |
| 216 | [416, 416] | 1081 | [698, 1599] | 1946 | [763, 460] | 2811 | [2581, 2638] |
| 217 | [417, 418] | 1082 | [653, 693] | 1947 | [2533, 1739] | 2812 | [1439, 3153] |
| 218 | [419, 420] | 1083 | [1600, 1601] | 1948 | [2534, 1747] | 2813 | [3154, 3136] |
| 219 | [421, 422] | 1084 | [1602, 697] | 1949 | [2505, 596] | 2814 | [1514, 561] |
| 220 | [423, 424] | 1085 | [1603, 1604] | 1950 | [1726, 2535] | 2815 | [2593, 3142] |
| 221 | [425, 426] | 1086 | [1333, 604] | 1951 | [2453, 1544] | 2816 | [1716, 2500] |
| 222 | [427, 428] | 1087 | [45, 1565] | 1952 | [1333, 497] | 2817 | [639, 2481] |
| 223 | [429, 430] | 1088 | [607, 563] | 1953 | [1702, 1356] | 2818 | [3155, 1479] |
| 224 | [431, 432] | 1089 | [50, 234] | 1954 | [541, 2437] | 2819 | [1591, 2459] |
| 225 | [433, 434] | 1090 | [1605, 1606] | 1955 | [183, 1682] | 2820 | [3156, 1579] |
| 226 | [435, 352] | 1091 | [1607, 1539] | 1956 | [662, 1595] | 2821 | [3157, 1356] |
| 227 | [436, 382] | 1092 | [1499, 1608] | 1957 | [2536, 2537] | 2822 | [2473, 2457] |
| 228 | [437, 438] | 1093 | [1609, 711] | 1958 | [480, 1367] | 2823 | [1577, 1406] |
| 229 | [439, 440] | 1094 | [1610, 539] | 1959 | [2538, 508] | 2824 | [3158, 669] |
| 230 | [441, 442] | 1095 | [189, 458] | 1960 | [1455, 645] | 2825 | [3129, 3159] |
| 231 | [443, 444] | 1096 | [1611, 536] | 1961 | [1629, 194] | 2826 | [1443, 34] |
| 232 | [445, 406] | 1097 | [200, 634] | 1962 | [180, 1549] | 2827 | [3160, 2691] |

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| 233 | [446, 447] | 1098 | [1612, 620] | 1963 | [2539, 1346] | 2828 | [3161, 1627] |
| 234 | [448, 449] | 1099 | [1613, 165] | 1964 | [2540, 577] | 2829 | [3162, 613] |
| 235 | [99, 450] | 1100 | [1614, 1474] | 1965 | [1374, 2541] | 2830 | [3163, 748] |
| 236 | [451, 452] | 1101 | [1615, 1616] | 1966 | [1534, 1760] | 2831 | [1668, 203] |
| 237 | [453, 454] | 1102 | [1323, 1617] | 1967 | [1506, 1433] | 2832 | [475, 1326] |
| 238 | [455, 456] | 1103 | [1618, 201] | 1968 | [1594, 663] | 2833 | [3164, 557] |
| 239 | [457, 458] | 1104 | [1619, 642] | 1969 | [601, 40] | 2834 | [3165, 3166] |
| 240 | [459, 460] | 1105 | [1545, 154] | 1970 | [2542, 1576] | 2835 | [2614, 2597] |
| 241 | [461, 462] | 1106 | [713, 1311] | 1971 | [457, 190] | 2836 | [2480, 1334] |
| 242 | [463, 46] | 1107 | [647, 650] | 1972 | [1524, 1664] | 2837 | [3167, 1358] |
| 243 | [464, 465] | 1108 | [1620, 1493] | 1973 | [460, 657] | 2838 | [3168, 127] |
| 244 | [466, 454] | 1109 | [1460, 1601] | 1974 | [2543, 1357] | 2839 | [3169, 1579] |
| 245 | [467, 468] | 1110 | [648, 647] | 1975 | [1666, 1309] | 2840 | [2694, 3159] |
| 246 | [469, 470] | 1111 | [1457, 546] | 1976 | [2544, 746] | 2841 | [1486, 160] |
| 247 | [471, 163] | 1112 | [1621, 650] | 1977 | [2545, 2546] | 2842 | [3170, 157] |
| 248 | [472, 473] | 1113 | [1465, 548] | 1978 | [2547, 1511] | 2843 | [1454, 1709] |
| 249 | [474, 475] | 1114 | [547, 651] | 1979 | [1583, 2548] | 2844 | [1408, 2443] |
| 250 | [133, 476] | 1115 | [651, 1464] | 1980 | [2423, 190] | 2845 | [2601, 1543] |
| 251 | [477, 123] | 1116 | [1391, 621] | 1981 | [123, 1328] | 2846 | [2444, 1482] |
| 252 | [478, 479] | 1117 | [1618, 634] | 1982 | [2549, 1392] | 2847 | [1413, 2604] |
| 253 | [480, 481] | 1118 | [1622, 159] | 1983 | [57, 1743] | 2848 | [57, 1482] |
| 254 | [128, 482] | 1119 | [1623, 1624] | 1984 | [2550, 1468] | 2849 | [1678, 1671] |
| 255 | [31, 483] | 1120 | [10, 568] | 1985 | [2551, 1679] | 2850 | [2513, 2563] |
| 256 | [484, 485] | 1121 | [1625, 636] | 1986 | [2468, 557] | 2851 | [3164, 1521] |
| 257 | [486, 135] | 1122 | [1494, 720] | 1987 | [1760, 1395] | 2852 | [2753, 728] |
| 258 | [487, 488] | 1123 | [1626, 473] | 1988 | [1703, 1642] | 2853 | [2674, 1484] |
| 259 | [489, 490] | 1124 | [1627, 584] | 1989 | [2552, 1637] | 2854 | [2670, 700] |
| 260 | [35, 491] | 1125 | [160, 731] | 1990 | [2553, 211] | 2855 | [3171, 1361] |
| 261 | [492, 493] | 1126 | [1628, 765] | 1991 | [126, 1634] | 2856 | [467, 484] |
| 262 | [140, 141] | 1127 | [1310, 522] | 1992 | [2538, 1655] | 2857 | [3172, 1592] |
| 263 | [494, 495] | 1128 | [1629, 567] | 1993 | [2554, 2555] | 2858 | [3173, 2684] |
| 264 | [496, 497] | 1129 | [714, 548] | 1994 | [2556, 2557] | 2859 | [757, 1329] |
| 265 | [36, 498] | 1130 | [1630, 505] | 1995 | [1553, 750] | 2860 | [762, 1410] |
| 266 | [499, 491] | 1131 | [1310, 679] | 1996 | [2558, 1765] | 2861 | [2454, 215] |
| 267 | [490, 140] | 1132 | [1631, 1584] | 1997 | [2559, 725] | 2862 | [2542, 1509] |
| 268 | [138, 500] | 1133 | [1632, 1454] | 1998 | [611, 1482] | 2863 | [2547, 454] |
| 269 | [139, 138] | 1134 | [1633, 1634] | 1999 | [2560, 661] | 2864 | [2607, 2749] |
| 270 | [498, 489] | 1135 | [1368, 628] | 2000 | [680, 1654] | 2865 | [2665, 489] |
| 271 | [501, 490] | 1136 | [1635, 1636] | 2001 | [213, 1490] | 2866 | [1429, 149] |
| 272 | [498, 502] | 1137 | [718, 1637] | 2002 | [1765, 1313] | 2867 | [1610, 1399] |
| 273 | [503, 493] | 1138 | [1638, 1639] | 2003 | [2561, 1457] | 2868 | [1503, 2489] |
| 274 | [500, 504] | 1139 | [1572, 1640] | 2004 | [42, 1477] | 2869 | [2696, 652] |
| 275 | [140, 500] | 1140 | [1641, 1642] | 2005 | [1603, 1701] | 2870 | [1638, 3174] |
| 276 | [505, 506] | 1141 | [205, 158] | 2006 | [1650, 1531] | 2871 | [1469, 2727] |

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| 277 | [507, 508] | 1142 | [1633, 127] | 2007 | [1558, 209] | 2872 | [1615, 1379] |
| 278 | [509, 510] | 1143 | [1643, 553] | 2008 | [2550, 1571] | 2873 | [3175, 2512] |
| 279 | [511, 512] | 1144 | [1644, 1645] | 2009 | [2562, 2563] | 2874 | [1558, 1421] |
| 280 | [513, 38] | 1145 | [1646, 741] | 2010 | [207, 158] | 2875 | [2726, 1486] |
| 281 | [514, 169] | 1146 | [1647, 1648] | 2011 | [2564, 567] | 2876 | [1672, 1640] |
| 282 | [515, 516] | 1147 | [1649, 1494] | 2012 | [633, 201] | 2877 | [1407, 689] |
| 283 | [517, 518] | 1148 | [1366, 481] | 2013 | [2565, 1473] | 2878 | [1435, 577] |
| 284 | [519, 520] | 1149 | [1643, 1477] | 2014 | [1462, 713] | 2879 | [228, 2710] |
| 285 | [521, 522] | 1150 | [1567, 1316] | 2015 | [519, 44] | 2880 | [2509, 1730] |
| 286 | [523, 524] | 1151 | [1650, 575] | 2016 | [605, 752] | 2881 | [2609, 1328] |
| 287 | [525, 526] | 1152 | [1651, 544] | 2017 | [2566, 1754] | 2882 | [2745, 2532] |
| 288 | [527, 528] | 1153 | [1652, 152] | 2018 | [1428, 32] | 2883 | [3176, 3177] |
| 289 | [529, 530] | 1154 | [540, 213] | 2019 | [1695, 2567] | 2884 | [2648, 690] |
| 290 | [531, 488] | 1155 | [1653, 1425] | 2020 | [2463, 2498] | 2885 | [3178, 536] |
| 291 | [36, 493] | 1156 | [1557, 1412] | 2021 | [2568, 504] | 2886 | [1316, 1303] |
| 292 | [532, 533] | 1157 | [624, 611] | 2022 | [1338, 149] | 2887 | [3179, 1498] |
| 293 | [214, 534] | 1158 | [202, 1320] | 2023 | [2569, 2522] | 2888 | [3180, 1687] |
| 294 | [535, 536] | 1159 | [1384, 38] | 2024 | [694, 2570] | 2889 | [3181, 2636] |
| 295 | [537, 177] | 1160 | [1654, 1655] | 2025 | [2571, 1757] | 2890 | [2458, 1601] |
| 296 | [538, 539] | 1161 | [722, 1656] | 2026 | [2572, 2532] | 2891 | [1723, 10] |
| 297 | [540, 541] | 1162 | [1657, 1617] | 2027 | [1538, 223] | 2892 | [3138, 2519] |
| 298 | [542, 543] | 1163 | [1563, 1375] | 2028 | [2573, 2574] | 2893 | [3182, 2684] |
| 299 | [544, 158] | 1164 | [533, 1549] | 2029 | [487, 169] | 2894 | [1541, 733] |
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| 301 | [155, 192] | 1166 | [1596, 584] | 2031 | [2575, 1565] | 2896 | [2677, 456] |
| 302 | [547, 548] | 1167 | [642, 767] | 2032 | [2576, 1533] | 2897 | [1632, 1677] |
| 303 | [546, 546] | 1168 | [1659, 1660] | 2033 | [2490, 1427] | 2898 | [2546, 1580] |
| 304 | [549, 550] | 1169 | [1382, 1661] | 2034 | [1364, 187] | 2899 | [472, 1440] |
| 305 | [551, 552] | 1170 | [1662, 1518] | 2035 | [1315, 1740] | 2900 | [451, 2475] |
| 306 | [42, 553] | 1171 | [514, 488] | 2036 | [1475, 1346] | 2901 | [1586, 747] |
| 307 | [554, 555] | 1172 | [563, 129] | 2037 | [2577, 557] | 2902 | [1385, 171] |
| 308 | [556, 557] | 1173 | [748, 1656] | 2038 | [2488, 2567] | 2903 | [2525, 1680] |
| 309 | [558, 160] | 1174 | [1340, 701] | 2039 | [1513, 1423] | 2904 | [3183, 1561] |
| 310 | [141, 504] | 1175 | [466, 1511] | 2040 | [532, 180] | 2905 | [3184, 646] |
| 311 | [559, 560] | 1176 | [1341, 234] | 2041 | [2578, 1324] | 2906 | [3185, 2443] |
| 312 | [561, 213] | 1177 | [1663, 1664] | 2042 | [1466, 686] | 2907 | [3186, 2511] |
| 313 | [562, 563] | 1178 | [1665, 561] | 2043 | [1398, 715] | 2908 | [615, 3159] |
| 314 | [564, 565] | 1179 | [1666, 1667] | 2044 | [2579, 1352] | 2909 | [1614, 1395] |
| 315 | [566, 567] | 1180 | [1668, 1320] | 2045 | [187, 201] | 2910 | [1657, 1324] |
| 316 | [475, 568] | 1181 | [1669, 1518] | 2046 | [2553, 2580] | 2911 | [509, 1381] |
| 317 | [569, 570] | 1182 | [524, 1655] | 2047 | [1476, 2477] | 2912 | [3131, 2496] |
| 318 | [571, 572] | 1183 | [517, 1418] | 2048 | [627, 1369] | 2913 | [3132, 2422] |
| 319 | [573, 482] | 1184 | [1316, 1637] | 2049 | [2581, 2512] | 2914 | [2645, 1426] |
| 320 | [574, 575] | 1185 | [1670, 1671] | 2050 | [611, 1743] | 2915 | [3187, 136] |

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| 321 | [576, 577] | 1186 | [1672, 1573] | 2051 | [2582, 1547] | 2916 | [3179, 3188] |
| 322 | [578, 520] | 1187 | [1673, 1674] | 2052 | [1464, 156] | 2917 | [2740, 1736] |
| 323 | [479, 579] | 1188 | [1641, 1674] | 2053 | [2583, 1639] | 2918 | [2486, 2541] |
| 324 | [580, 581] | 1189 | [187, 634] | 2054 | [2562, 2514] | 2919 | [2454, 534] |
| 325 | [582, 144] | 1190 | [1675, 570] | 2055 | [1748, 630] | 2920 | [3189, 1495] |
| 326 | [583, 462] | 1191 | [1593, 185] | 2056 | [1343, 1529] | 2921 | [3190, 1358] |
| 327 | [584, 177] | 1192 | [1626, 1440] | 2057 | [1590, 617] | 2922 | [597, 2655] |
| 328 | [585, 581] | 1193 | [9, 475] | 2058 | [666, 1317] | 2923 | [3191, 452] |
| 329 | [586, 163] | 1194 | [1315, 1413] | 2059 | [2584, 1448] | 2924 | [3192, 1520] |
| 330 | [587, 588] | 1195 | [1676, 1677] | 2060 | [672, 1676] | 2925 | [1613, 1682] |
| 331 | [8, 589] | 1196 | [1484, 1405] | 2061 | [1685, 2454] | 2926 | [34, 2573] |
| 332 | [590, 591] | 1197 | [1678, 1314] | 2062 | [2585, 1687] | 2927 | [3193, 2519] |
| 333 | [592, 233] | 1198 | [1623, 1679] | 2063 | [593, 1734] | 2928 | [3194, 2624] |
| 334 | [593, 594] | 1199 | [515, 1306] | 2064 | [1722, 2570] | 2929 | [3195, 735] |
| 335 | [595, 596] | 1200 | [1321, 1680] | 2065 | [2459, 479] | 2930 | [1607, 223] |
| 336 | [597, 598] | 1201 | [1681, 175] | 2066 | [557, 588] | 2931 | [3196, 589] |
| 337 | [599, 530] | 1202 | [1563, 148] | 2067 | [2586, 1520] | 2932 | [137, 140] |
| 338 | [600, 601] | 1203 | [164, 1682] | 2068 | [1327, 2442] | 2933 | [2662, 1347] |
| 339 | [602, 603] | 1204 | [1683, 1684] | 2069 | [2587, 1539] | 2934 | [1704, 1637] |
| 340 | [496, 604] | 1205 | [1449, 1545] | 2070 | [2588, 2589] | 2935 | [2565, 2440] |
| 341 | [605, 606] | 1206 | [1685, 1544] | 2071 | [2485, 2590] | 2936 | [3197, 2691] |
| 342 | [607, 608] | 1207 | [1686, 1687] | 2072 | [2591, 37] | 2937 | [3198, 1721] |
| 343 | [525, 609] | 1208 | [1688, 1550] | 2073 | [2592, 1702] | 2938 | [1729, 2510] |
| 344 | [610, 611] | 1209 | [1689, 695] | 2074 | [2495, 1357] | 2939 | [3199, 2498] |
| 345 | [612, 552] | 1210 | [1690, 1316] | 2075 | [2593, 512] | 2940 | [2559, 199] |
| 346 | [613, 614] | 1211 | [1691, 1692] | 2076 | [1619, 766] | 2941 | [125, 1375] |
| 347 | [615, 616] | 1212 | [1693, 1694] | 2077 | [1676, 1454] | 2942 | [3200, 2430] |
| 348 | [7, 617] | 1213 | [743, 475] | 2078 | [2594, 460] | 2943 | [3201, 2742] |
| 349 | [618, 619] | 1214 | [1695, 1696] | 2079 | [2499, 1717] | 2944 | [3202, 574] |
| 350 | [620, 621] | 1215 | [1430, 1697] | 2080 | [1301, 528] | 2945 | [3158, 2429] |
| 351 | [622, 623] | 1216 | [1388, 135] | 2081 | [2595, 665] | 2946 | [122, 2441] |
| 352 | [624, 57] | 1217 | [1698, 1699] | 2082 | [1571, 1338] | 2947 | [476, 2718] |
| 353 | [625, 626] | 1218 | [647, 713] | 2083 | [2596, 1312] | 2948 | [3203, 2548] |
| 354 | [627, 628] | 1219 | [703, 1369] | 2084 | [644, 1700] | 2949 | [2645, 644] |
| 355 | [629, 630] | 1220 | [1700, 1701] | 2085 | [576, 1436] | 2950 | [3193, 1459] |
| 356 | [631, 632] | 1221 | [1478, 662] | 2086 | [2597, 217] | 2951 | [3204, 2570] |
| 357 | [633, 634] | 1222 | [1590, 8] | 2087 | [1597, 177] | 2952 | [3205, 531] |
| 358 | [635, 636] | 1223 | [212, 541] | 2088 | [149, 2598] | 2953 | [3185, 495] |
| 359 | [637, 541] | 1224 | [459, 760] | 2089 | [2540, 1436] | 2954 | [3206, 1692] |
| 360 | [53, 520] | 1225 | [43, 520] | 2090 | [2599, 2600] | 2955 | [2732, 624] |
| 361 | [638, 219] | 1226 | [1702, 1359] | 2091 | [1597, 1453] | 2956 | [3207, 164] |
| 362 | [639, 196] | 1227 | [1703, 1674] | 2092 | [1365, 687] | 2957 | [3192, 2664] |
| 363 | [640, 227] | 1228 | [566, 194] | 2093 | [1566, 626] | 2958 | [195, 2481] |
| 364 | [641, 642] | 1229 | [1704, 1303] | 2094 | [124, 1563] | 2959 | [2425, 1531] |

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| 365 | [643, 644] | 1230 | [635, 1705] | 2095 | [623, 1636] | 2960 | [2518, 1603] |
| 366 | [542, 645] | 1231 | [1507, 1556] | 2096 | [1742, 144] | 2961 | [1523, 2664] |
| 367 | [646, 565] | 1232 | [587, 1522] | 2097 | [2601, 691] | 2962 | [142, 491] |
| 368 | [645, 647] | 1233 | [1706, 1707] | 2098 | [2595, 1442] | 2963 | [1669, 1527] |
| 369 | [648, 649] | 1234 | [1708, 1550] | 2099 | [1639, 1696] | 2964 | [1654, 508] |
| 370 | [649, 650] | 1235 | [1709, 1710] | 2100 | [2479, 2512] | 2965 | [2627, 1559] |
| 371 | [651, 652] | 1236 | [1711, 1684] | 2101 | [688, 1373] | 2966 | [1714, 604] |
| 372 | [653, 654] | 1237 | [1712, 1545] | 2102 | [2602, 225] | 2967 | [2497, 2464] |
| 373 | [54, 655] | 1238 | [1713, 178] | 2103 | [2603, 1375] | 2968 | [2582, 632] |
| 374 | [656, 657] | 1239 | [1714, 497] | 2104 | [1740, 2604] | 2969 | [156, 543] |
| 375 | [658, 659] | 1240 | [1451, 1715] | 2105 | [1517, 1527] | 2970 | [3208, 3141] |
| 376 | [660, 661] | 1241 | [1671, 1412] | 2106 | [1602, 2436] | 2971 | [664, 1442] |
| 377 | [662, 663] | 1242 | [1716, 1717] | 2107 | [554, 2605] | 2972 | [3209, 1509] |
| 378 | [664, 665] | 1243 | [1562, 1474] | 2108 | [2606, 2527] | 2973 | [1720, 2620] |
| 379 | [666, 163] | 1244 | [1718, 1719] | 2109 | [218, 1350] | 2974 | [2709, 1734] |
| 380 | [667, 619] | 1245 | [504, 491] | 2110 | [539, 752] | 2975 | [2623, 1694] |
| 381 | [668, 669] | 1246 | [1720, 1721] | 2111 | [2607, 2608] | 2976 | [3210, 1316] |
| 382 | [670, 671] | 1247 | [1722, 695] | 2112 | [2609, 2442] | 2977 | [3211, 1488] |
| 383 | [672, 673] | 1248 | [1723, 475] | 2113 | [2610, 2611] | 2978 | [3212, 1386] |
| 384 | [674, 675] | 1249 | [1724, 1725] | 2114 | [2612, 2613] | 2979 | [2750, 585] |
| 385 | [676, 677] | 1250 | [1726, 189] | 2115 | [2614, 583] | 2980 | [3213, 1699] |
| 386 | [678, 679] | 1251 | [1727, 1450] | 2116 | [2615, 487] | 2981 | [3214, 2654] |
| 387 | [680, 524] | 1252 | [1728, 739] | 2117 | [2616, 45] | 2982 | [2465, 673] |
| 388 | [190, 681] | 1253 | [1729, 1730] | 2118 | [1761, 710] | 2983 | [3215, 603] |
| 389 | [143, 682] | 1254 | [742, 55] | 2119 | [2617, 737] | 2984 | [765, 595] |
| 390 | [683, 684] | 1255 | [1592, 685] | 2120 | [704, 2618] | 2985 | [3181, 2449] |
| 391 | [685, 686] | 1256 | [1341, 1731] | 2121 | [2587, 223] | 2986 | [1706, 591] |
| 392 | [589, 687] | 1257 | [1732, 1550] | 2122 | [2619, 2620] | 2987 | [3216, 2510] |
| 393 | [688, 689] | 1258 | [590, 1707] | 2123 | [2621, 2622] | 2988 | [3217, 756] |
| 394 | [690, 691] | 1259 | [1733, 1734] | 2124 | [2623, 2624] | 2989 | [3218, 1543] |
| 395 | [692, 693] | 1260 | [1735, 1736] | 2125 | [470, 125] | 2990 | [1450, 563] |
| 396 | [694, 695] | 1261 | [1737, 707] | 2126 | [222, 1539] | 2991 | [2652, 1529] |
| 397 | [696, 697] | 1262 | [224, 1410] | 2127 | [1728, 2625] | 2992 | [210, 2580] |
| 398 | [698, 659] | 1263 | [675, 563] | 2128 | [1732, 231] | 2993 | [3219, 1746] |
| 399 | [699, 700] | 1264 | [1398, 565] | 2129 | [2626, 1461] | 2994 | [3216, 1730] |
| 400 | [676, 701] | 1265 | [1738, 1739] | 2130 | [1363, 1563] | 2995 | [3219, 2729] |
| 401 | [702, 606] | 1266 | [584, 1453] | 2131 | [721, 1306] | 2996 | [1708, 231] |
| 402 | [603, 703] | 1267 | [1740, 1741] | 2132 | [2627, 173] | 2997 | [543, 647] |
| 403 | [40, 526] | 1268 | [1742, 682] | 2133 | [1433, 1558] | 2998 | [1569, 575] |
| 404 | [704, 705] | 1269 | [1409, 225] | 2134 | [2502, 1310] | 2999 | [2523, 1320] |
| 405 | [706, 707] | 1270 | [1481, 1743] | 2135 | [1492, 550] | 3000 | [3220, 613] |
| 406 | [708, 709] | 1271 | [1744, 150] | 2136 | [227, 553] | 3001 | [3221, 2481] |
| 407 | [710, 711] | 1272 | [133, 731] | 2137 | [2437, 2628] | 3002 | [3222, 2573] |
| 408 | [712, 642] | 1273 | [1745, 1746] | 2138 | [2629, 2500] | 3003 | [2744, 2574] |

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| 409 | [637, 213] | 1274 | [592, 1747] | 2139 | [1439, 2537] | 3004 | [3140, 1635] |
| 410 | [713, 714] | 1275 | [556, 1521] | 2140 | [2630, 2600] | 3005 | [3218, 691] |
| 411 | [646, 715] | 1276 | [1748, 1529] | 2141 | [1450, 608] | 3006 | [2743, 227] |
| 412 | [716, 8] | 1277 | [1749, 1750] | 2142 | [2631, 1342] | 3007 | [1512, 3136] |
| 413 | [717, 718] | 1278 | [1751, 1608] | 2143 | [1585, 40] | 3008 | [3223, 3224] |
| 414 | [719, 720] | 1279 | [196, 1752] | 2144 | [2632, 463] | 3009 | [1332, 1349] |
| 415 | [183, 165] | 1280 | [1753, 1754] | 2145 | [2633, 1472] | 3010 | [2717, 529] |
| 416 | [204, 560] | 1281 | [1755, 463] | 2146 | [1587, 465] | 3011 | [3225, 2475] |
| 417 | [721, 516] | 1282 | [1756, 146] | 2147 | [458, 554] | 3012 | [1652, 1310] |
| 418 | [722, 723] | 1283 | [1605, 1757] | 2148 | [208, 1421] | 3013 | [3134, 610] |
| 419 | [724, 725] | 1284 | [1758, 1329] | 2149 | [569, 2634] | 3014 | [3226, 670] |
| 420 | [726, 686] | 1285 | [1759, 1721] | 2150 | [2635, 32] | 3015 | [3227, 517] |
| 421 | [727, 215] | 1286 | [1760, 1474] | 2151 | [1479, 1395] | 3016 | [3221, 196] |
| 422 | [728, 729] | 1287 | [750, 1556] | 2152 | [52, 454] | 3017 | [3228, 1493] |
| 423 | [730, 731] | 1288 | [667, 1564] | 2153 | [2448, 2636] | 3018 | [3204, 695] |
| 424 | [732, 733] | 1289 | [1761, 1609] | 2154 | [1731, 1417] | 3019 | [1620, 550] |
| 425 | [734, 735] | 1290 | [1762, 1763] | 2155 | [2637, 598] | 3020 | [2680, 655] |
| 426 | [736, 737] | 1291 | [1764, 1404] | 2156 | [618, 1564] | 3021 | [2703, 1580] |
| 427 | [738, 739] | 1292 | [191, 156] | 2157 | [2479, 2638] | 3022 | [3229, 2747] |
| 428 | [740, 741] | 1293 | [1765, 1456] | 2158 | [2635, 483] | 3023 | [2507, 2447] |
| 429 | [742, 655] | 1294 | [174, 1419] | 2159 | [123, 2442] | 3024 | [3230, 3231] |
| 430 | [743, 10] | 1295 | [1616, 1561] | 2160 | [2594, 760] | 3025 | [3232, 3204] |
| 431 | [513, 744] | 1296 | [1766, 1767] | 2161 | [1699, 729] | 3026 | [3233, 661] |
| 432 | [745, 746] | 1297 | [1768, 1769] | 2162 | [2606, 2639] | 3027 | [3234, 1318] |
| 433 | [170, 747] | 1298 | [1770, 1771] | 2163 | [1579, 1645] | 3028 | [3178, 1334] |
| 434 | [748, 723] | 1299 | [1772, 924] | 2164 | [2640, 2548] | 3029 | [3202, 1650] |
| 435 | [749, 617] | 1300 | [1773, 1774] | 2165 | [583, 217] | 3030 | [1630, 1512] |
| 436 | [750, 552] | 1301 | [1775, 1776] | 2166 | [678, 522] | 3031 | [3235, 1312] |
| 437 | [751, 465] | 1302 | [1777, 1288] | 2167 | [130, 662] | 3032 | [2659, 2511] |
| 438 | [702, 752] | 1303 | [1778, 1779] | 2168 | [1658, 1315] | 3033 | [3236, 2422] |
| 439 | [753, 468] | 1304 | [377, 1780] | 2169 | [745, 1697] | 3034 | [561, 541] |
| 440 | [754, 755] | 1305 | [1781, 1782] | 2170 | [2568, 142] | 3035 | [3237, 585] |
| 441 | [220, 756] | 1306 | [1783, 1784] | 2171 | [2567, 710] | 3036 | [2603, 148] |
| 442 | [757, 707] | 1307 | [1785, 1111] | 2172 | [2641, 689] | 3037 | [585, 2445] |
| 443 | [758, 691] | 1308 | [1786, 1787] | 2173 | [1360, 1533] | 3038 | [3168, 1634] |
| 444 | [759, 760] | 1309 | [900, 1788] | 2174 | [1665, 212] | 3039 | [600, 1585] |
| 445 | [761, 221] | 1310 | [1789, 1054] | 2175 | [2642, 1661] | 3040 | [464, 1588] |
| 446 | [762, 225] | 1311 | [1790, 1106] | 2176 | [1764, 1484] | 3041 | [1452, 180] |
| 447 | [763, 760] | 1312 | [1791, 1792] | 2177 | [1681, 1419] | 3042 | [3225, 452] |
| 448 | [764, 765] | 1313 | [1793, 1794] | 2178 | [1441, 665] | 3043 | [1344, 1431] |
| 449 | [766, 767] | 1314 | [1795, 1796] | 2179 | [2643, 2428] | 3044 | [197, 2436] |
| 450 | [192, 645] | 1315 | [270, 886] | 2180 | [2644, 1391] | 3045 | [3238, 616] |
| 451 | [768, 769] | 1316 | [1797, 1798] | 2181 | [1560, 1617] | 3046 | [1571, 1429] |
| 452 | [770, 771] | 1317 | [1799, 1800] | 2182 | [1659, 2645] | 3047 | [2688, 1616] |

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| 453 | [772, 773] | 1318 | [1032, 1801] | 2183 | [1308, 1667] | 3048 | [3200, 1750] |
| 454 | [101, 774] | 1319 | [1802, 385] | 2184 | [712, 766] | 3049 | [3239, 1542] |
| 455 | [775, 776] | 1320 | [1803, 1804] | 2185 | [1446, 1719] | 3050 | [3240, 1430] |
| 456 | [777, 778] | 1321 | [1805, 1806] | 2186 | [2610, 737] | 3051 | [2669, 642] |
| 457 | [779, 780] | 1322 | [1807, 1808] | 2187 | [2646, 2647] | 3052 | [2564, 194] |
| 458 | [781, 782] | 1323 | [1809, 1810] | 2188 | [2648, 2601] | 3053 | [2549, 621] |
| 459 | [783, 784] | 1324 | [1811, 1812] | 2189 | [2649, 559] | 3054 | [3195, 2667] |
| 460 | [785, 786] | 1325 | [1813, 1814] | 2190 | [2579, 529] | 3055 | [1758, 707] |
| 461 | [787, 788] | 1326 | [20, 1815] | 2191 | [2650, 638] | 3056 | [3241, 1425] |
| 462 | [789, 790] | 1327 | [1816, 1817] | 2192 | [2590, 2541] | 3057 | [1612, 1391] |
| 463 | [791, 792] | 1328 | [237, 1818] | 2193 | [1575, 1431] | 3058 | [3242, 2546] |
| 464 | [793, 794] | 1329 | [1819, 1820] | 2194 | [1422, 747] | 3059 | [652, 192] |
| 465 | [795, 796] | 1330 | [1821, 67] | 2195 | [216, 462] | 3060 | [3243, 3244] |
| 466 | [797, 798] | 1331 | [1822, 1823] | 2196 | [1401, 1739] | 3061 | [3232, 694] |
| 467 | [799, 261] | 1332 | [1824, 1825] | 2197 | [2651, 1402] | 3062 | [2661, 196] |
| 468 | [800, 801] | 1333 | [1826, 1827] | 2198 | [192, 543] | 3063 | [2725, 1392] |
| 469 | [802, 803] | 1334 | [1828, 1829] | 2199 | [2652, 630] | 3064 | [3137, 2437] |
| 470 | [804, 805] | 1335 | [1830, 1799] | 2200 | [2552, 1303] | 3065 | [2561, 546] |
| 471 | [806, 807] | 1336 | [1831, 413] | 2201 | [1675, 2634] | 3066 | [1663, 1525] |
| 472 | [808, 809] | 1337 | [1832, 435] | 2202 | [2503, 1426] | 3067 | [1586, 171] |
| 473 | [810, 811] | 1338 | [272, 1833] | 2203 | [2653, 598] | 3068 | [3245, 669] |
| 474 | [812, 421] | 1339 | [1834, 1835] | 2204 | [1488, 614] | 3069 | [2629, 1717] |
| 475 | [813, 814] | 1340 | [18, 1836] | 2205 | [2452, 601] | 3070 | [159, 133] |
| 476 | [815, 816] | 1341 | [935, 1047] | 2206 | [1727, 675] | 3071 | [3246, 680] |
| 477 | [817, 818] | 1342 | [958, 954] | 2207 | [2585, 2654] | 3072 | [3247, 638] |
| 478 | [819, 820] | 1343 | [1837, 1191] | 2208 | [2534, 233] | 3073 | [3248, 2565] |
| 479 | [821, 822] | 1344 | [1838, 1240] | 2209 | [2626, 1601] | 3074 | [3249, 1650] |
| 480 | [823, 285] | 1345 | [1839, 1840] | 2210 | [1690, 718] | 3075 | [1546, 632] |
| 481 | [824, 825] | 1346 | [1841, 1842] | 2211 | [527, 34] | 3076 | [2683, 2722] |
| 482 | [826, 827] | 1347 | [1843, 1844] | 2212 | [1698, 728] | 3077 | [1362, 33] |
| 483 | [828, 829] | 1348 | [1845, 359] | 2213 | [2637, 2655] | 3078 | [3172, 2459] |
| 484 | [830, 831] | 1349 | [1846, 1170] | 2214 | [2656, 2607] | 3079 | [3250, 1736] |
| 485 | [832, 833] | 1350 | [1835, 1847] | 2215 | [2657, 46] | 3080 | [2531, 1763] |
| 486 | [834, 261] | 1351 | [1848, 288] | 2216 | [1554, 1367] | 3081 | [730, 476] |
| 487 | [835, 836] | 1352 | [1849, 277] | 2217 | [2658, 131] | 3082 | [3206, 60] |
| 488 | [837, 838] | 1353 | [784, 1850] | 2218 | [2659, 2479] | 3083 | [3251, 1730] |
| 489 | [839, 310] | 1354 | [1851, 1852] | 2219 | [1389, 1300] | 3084 | [3173, 2722] |
| 490 | [840, 841] | 1355 | [1853, 1854] | 2220 | [2660, 189] | 3085 | [3228, 550] |
| 491 | [842, 843] | 1356 | [1855, 1856] | 2221 | [602, 1495] | 3086 | [3194, 1694] |
| 492 | [844, 839] | 1357 | [1857, 448] | 2222 | [2597, 462] | 3087 | [2493, 574] |
| 493 | [845, 269] | 1358 | [1858, 1859] | 2223 | [2455, 1427] | 3088 | [135, 135] |
| 494 | [846, 847] | 1359 | [1860, 1861] | 2224 | [2661, 2481] | 3089 | [1749, 2430] |
| 495 | [848, 849] | 1360 | [1136, 1862] | 2225 | [2662, 1568] | 3090 | [3208, 709] |
| 496 | [105, 850] | 1361 | [1863, 1864] | 2226 | [1621, 713] | 3091 | [3252, 52] |

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| 497 | [851, 852] | 1362 | [1865, 71] | 2227 | [2663, 1574] | 3092 | [3253, 1609] |
| 498 | [275, 853] | 1363 | [780, 286] | 2228 | [1519, 2664] | 3093 | [2571, 1606] |
| 499 | [854, 845] | 1364 | [97, 387] | 2229 | [2665, 502] | 3094 | [736, 2611] |
| 500 | [841, 71] | 1365 | [1866, 1867] | 2230 | [2666, 1318] | 3095 | [3254, 2441] |
| 501 | [855, 257] | 1366 | [1868, 1869] | 2231 | [1696, 710] | 3096 | [2640, 1584] |
| 502 | [843, 267] | 1367 | [1870, 1871] | 2232 | [734, 2667] | 3097 | [1357, 50] |
| 503 | [291, 856] | 1368 | [1872, 1873] | 2233 | [2572, 1763] | 3098 | [3255, 487] |
| 504 | [857, 858] | 1369 | [1874, 1875] | 2234 | [2668, 572] | 3099 | [2666, 614] |
| 505 | [859, 860] | 1370 | [1876, 95] | 2235 | [1422, 171] | 3100 | [528, 2573] |
| 506 | [861, 862] | 1371 | [1877, 273] | 2236 | [2535, 458] | 3101 | [1403, 714] |
| 507 | [863, 864] | 1372 | [1878, 1879] | 2237 | [2669, 766] | 3102 | [1673, 1642] |
| 508 | [865, 866] | 1373 | [1880, 1881] | 2238 | [2670, 2522] | 3103 | [3155, 1760] |
| 509 | [867, 868] | 1374 | [850, 1882] | 2239 | [2435, 185] | 3104 | [2720, 1363] |
| 510 | [869, 870] | 1375 | [313, 1883] | 2240 | [2671, 2536] | 3105 | [761, 756] |
| 511 | [871, 872] | 1376 | [1884, 1885] | 2241 | [2672, 671] | 3106 | [3148, 218] |
| 512 | [873, 874] | 1377 | [1886, 271] | 2242 | [2673, 1380] | 3107 | [2687, 1603] |
| 513 | [875, 876] | 1378 | [1887, 857] | 2243 | [2674, 1404] | 3108 | [3256, 1346] |
| 514 | [877, 878] | 1379 | [1888, 1889] | 2244 | [2675, 2527] | 3109 | [156, 645] |
| 515 | [879, 880] | 1380 | [1890, 1891] | 2245 | [2676, 33] | 3110 | [2533, 1402] |
| 516 | [252, 881] | 1381 | [1892, 1893] | 2246 | [2491, 186] | 3111 | [2529, 1537] |
| 517 | [882, 883] | 1382 | [1894, 300] | 2247 | [2677, 2422] | 3112 | [3257, 2611] |
| 518 | [884, 885] | 1383 | [1895, 1896] | 2248 | [2678, 1406] | 3113 | [528, 2744] |
| 519 | [886, 887] | 1384 | [1897, 1898] | 2249 | [152, 522] | 3114 | [2713, 1608] |
| 520 | [888, 889] | 1385 | [305, 1899] | 2250 | [2421, 2608] | 3115 | [3258, 739] |
| 521 | [890, 891] | 1386 | [1900, 1901] | 2251 | [190, 554] | 3116 | [232, 1747] |
| 522 | [892, 893] | 1387 | [1902, 1903] | 2252 | [2679, 1430] | 3117 | [3135, 655] |
| 523 | [894, 895] | 1388 | [262, 832] | 2253 | [1370, 483] | 3118 | [3210, 718] |
| 524 | [896, 897] | 1389 | [1904, 1905] | 2254 | [485, 585] | 3119 | [3253, 710] |
| 525 | [371, 898] | 1390 | [1906, 1907] | 2255 | [1458, 2519] | 3120 | [1497, 3188] |
| 526 | [899, 900] | 1391 | [1908, 1909] | 2256 | [2680, 55] | 3121 | [1693, 2624] |
| 527 | [901, 902] | 1392 | [1127, 1910] | 2257 | [2681, 657] | 3122 | [1592, 479] |
| 528 | [274, 903] | 1393 | [1911, 1912] | 2258 | [1700, 1604] | 3123 | [3258, 2625] |
| 529 | [904, 905] | 1394 | [1913, 1860] | 2259 | [2492, 1522] | 3124 | [2708, 1709] |
| 530 | [906, 907] | 1395 | [1914, 1915] | 2260 | [2682, 1390] | 3125 | [759, 460] |
| 531 | [908, 909] | 1396 | [1916, 1917] | 2261 | [1468, 1429] | 3126 | [3201, 2739] |
| 532 | [910, 911] | 1397 | [1918, 1219] | 2262 | [2672, 1719] | 3127 | [3259, 2536] |
| 533 | [912, 913] | 1398 | [1919, 1920] | 2263 | [661, 1750] | 3128 | [1438, 2536] |
| 534 | [914, 915] | 1399 | [1921, 1905] | 2264 | [2683, 2684] | 3129 | [2157, 295] |
| 535 | [916, 917] | 1400 | [1922, 1923] | 2265 | [2685, 603] | 3130 | [3260, 1960] |
| 536 | [918, 919] | 1401 | [1924, 1925] | 2266 | [1628, 1485] | 3131 | [3052, 3101] |
| 537 | [322, 920] | 1402 | [1926, 1927] | 2267 | [51, 466] | 3132 | [3261, 1149] |
| 538 | [921, 922] | 1403 | [1787, 366] | 2268 | [2686, 2553] | 3133 | [3262, 1069] |
| 539 | [923, 924] | 1404 | [1928, 1117] | 2269 | [2515, 2457] | 3134 | [3263, 116] |
| 540 | [925, 926] | 1405 | [805, 1929] | 2270 | [2687, 1700] | 3135 | [3102, 2991] |

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| 541 | [927, 928] | 1406 | [939, 1128] | 2271 | [2688, 1379] | 3136 | [2241, 3264] |
| 542 | [929, 79] | 1407 | [1038, 1930] | 2272 | [2689, 123] | 3137 | [3059, 2797] |
| 543 | [930, 410] | 1408 | [1931, 1050] | 2273 | [184, 1445] | 3138 | [3265, 2337] |
| 544 | [931, 932] | 1409 | [1932, 1933] | 2274 | [1412, 1740] | 3139 | [3266, 3267] |
| 545 | [933, 98] | 1410 | [1934, 1935] | 2275 | [609, 2690] | 3140 | [3268, 873] |
| 546 | [934, 935] | 1411 | [1936, 1937] | 2276 | [1447, 2691] | 3141 | [3269, 3270] |
| 547 | [936, 937] | 1412 | [266, 1938] | 2277 | [2658, 662] | 3142 | [3271, 3272] |
| 548 | [938, 939] | 1413 | [1939, 1940] | 2278 | [484, 2428] | 3143 | [2095, 3273] |
| 549 | [940, 941] | 1414 | [1941, 1942] | 2279 | [2692, 1765] | 3144 | [3274, 87] |
| 550 | [942, 943] | 1415 | [1943, 1944] | 2280 | [2693, 539] | 3145 | [3275, 826] |
| 551 | [944, 945] | 1416 | [1945, 1946] | 2281 | [642, 1715] | 3146 | [3276, 1968] |
| 552 | [946, 947] | 1417 | [1947, 936] | 2282 | [154, 658] | 3147 | [3277, 1872] |
| 553 | [948, 949] | 1418 | [1948, 1949] | 2283 | [1480, 144] | 3148 | [3278, 421] |
| 554 | [950, 951] | 1419 | [1950, 1951] | 2284 | [2694, 616] | 3149 | [450, 1187] |
| 555 | [782, 952] | 1420 | [1952, 1953] | 2285 | [1297, 1750] | 3150 | [3279, 968] |
| 556 | [953, 954] | 1421 | [363, 1954] | 2286 | [2695, 193] | 3151 | [3280, 2390] |
| 557 | [955, 956] | 1422 | [94, 1955] | 2287 | [2696, 1464] | 3152 | [3281, 1063] |
| 558 | [957, 958] | 1423 | [1956, 1957] | 2288 | [1677, 1709] | 3153 | [2790, 3261] |
| 559 | [959, 340] | 1424 | [945, 106] | 2289 | [2506, 577] | 3154 | [3282, 3283] |
| 560 | [960, 961] | 1425 | [1958, 1959] | 2290 | [2602, 1410] | 3155 | [3284, 269] |
| 561 | [962, 963] | 1426 | [1960, 1961] | 2291 | [2697, 495] | 3156 | [3285, 2066] |
| 562 | [964, 249] | 1427 | [240, 1962] | 2292 | [683, 2541] | 3157 | [3286, 2007] |
| 563 | [965, 966] | 1428 | [1963, 810] | 2293 | [2698, 37] | 3158 | [1279, 3287] |
| 564 | [967, 863] | 1429 | [1903, 290] | 2294 | [2577, 1521] | 3159 | [3288, 3289] |
| 565 | [968, 969] | 1430 | [1964, 1965] | 2295 | [2524, 2464] | 3160 | [3290, 3291] |
| 566 | [970, 971] | 1431 | [1966, 1967] | 2296 | [1371, 138] | 3161 | [3292, 1003] |
| 567 | [972, 973] | 1432 | [971, 1968] | 2297 | [692, 654] | 3162 | [3293, 1032] |
| 568 | [974, 975] | 1433 | [1969, 402] | 2298 | [2699, 1694] | 3163 | [343, 2208] |
| 569 | [976, 794] | 1434 | [1970, 1971] | 2299 | [1490, 2628] | 3164 | [3294, 2094] |
| 570 | [977, 978] | 1435 | [1972, 1973] | 2300 | [2700, 2618] | 3165 | [3295, 801] |
| 571 | [979, 980] | 1436 | [1974, 1975] | 2301 | [2693, 1399] | 3166 | [3296, 2416] |
| 572 | [981, 982] | 1437 | [1882, 1976] | 2302 | [2701, 559] | 3167 | [3297, 994] |
| 573 | [983, 984] | 1438 | [1977, 1978] | 2303 | [1352, 530] | 3168 | [3298, 920] |
| 574 | [985, 986] | 1439 | [1979, 1980] | 2304 | [2428, 585] | 3169 | [3299, 3300] |
| 575 | [987, 988] | 1440 | [63, 1981] | 2305 | [526, 2690] | 3170 | [3301, 397] |
| 576 | [989, 354] | 1441 | [1982, 1983] | 2306 | [1711, 1725] | 3171 | [3264, 405] |
| 577 | [990, 991] | 1442 | [1984, 1985] | 2307 | [623, 2702] | 3172 | [3302, 1174] |
| 578 | [992, 993] | 1443 | [1986, 1987] | 2308 | [2703, 1645] | 3173 | [866, 2345] |
| 579 | [994, 995] | 1444 | [299, 1988] | 2309 | [2554, 59] | 3174 | [3303, 1214] |
| 580 | [996, 997] | 1445 | [1989, 1990] | 2310 | [2704, 2705] | 3175 | [3304, 819] |
| 581 | [998, 999] | 1446 | [1991, 1992] | 2311 | [2706, 742] | 3176 | [3305, 902] |
| 582 | [1000, 1001] | 1447 | [774, 1993] | 2312 | [2707, 1446] | 3177 | [3306, 3121] |
| 583 | [1002, 787] | 1448 | [1994, 1995] | 2313 | [2708, 2450] | 3178 | [3307, 380] |
| 584 | [1003, 1004] | 1449 | [1996, 370] | 2314 | [2709, 594] | 3179 | [3308, 1042] |

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| 585 | [801, 377] | 1450 | [1222, 826] | 2315 | [1414, 2710] | 3180 | [3272, 29] |
| 586 | [1005, 871] | 1451 | [1997, 1998] | 2316 | [2711, 1747] | 3181 | [3309, 3310] |
| 587 | [1006, 1007] | 1452 | [1999, 816] | 2317 | [2712, 2530] | 3182 | [3311, 2318] |
| 588 | [344, 1008] | 1453 | [2000, 2001] | 2318 | [2713, 1500] | 3183 | [3312, 964] |
| 589 | [16, 1009] | 1454 | [1115, 2002] | 2319 | [564, 715] | 3184 | [2251, 888] |
| 590 | [1010, 22] | 1455 | [2003, 1110] | 2320 | [1400, 50] | 3185 | [988, 2048] |
| 591 | [1011, 1012] | 1456 | [2004, 2005] | 2321 | [2714, 526] | 3186 | [3313, 2863] |
| 592 | [1013, 1014] | 1457 | [1457, 1457] | 2322 | [2715, 2622] | 3187 | [3314, 316] |
| 593 | [1015, 1016] | 1458 | [2006, 2007] | 2323 | [2446, 2508] | 3188 | [3315, 3316] |
| 594 | [1017, 1018] | 1459 | [2008, 2009] | 2324 | [2711, 233] | 3189 | [3317, 2058] |
| 595 | [1019, 873] | 1460 | [2010, 2011] | 2325 | [2716, 1313] | 3190 | [3318, 820] |
| 596 | [1020, 1021] | 1461 | [2012, 2013] | 2326 | [2439, 1421] | 3191 | [3319, 1867] |
| 597 | [1022, 1023] | 1462 | [1021, 1292] | 2327 | [1625, 1705] | 3192 | [3320, 2966] |
| 598 | [1024, 1025] | 1463 | [952, 927] | 2328 | [2717, 1352] | 3193 | [862, 1859] |
| 599 | [1026, 1001] | 1464 | [1218, 930] | 2329 | [479, 686] | 3194 | [3321, 1894] |
| 600 | [1027, 79] | 1465 | [2014, 1960] | 2330 | [1413, 1741] | 3195 | [3322, 1232] |
| 601 | [1028, 899] | 1466 | [2015, 2016] | 2331 | [2560, 1297] | 3196 | [999, 1884] |
| 602 | [1029, 1030] | 1467 | [2017, 272] | 2332 | [1299, 1390] | 3197 | [3323, 1806] |
| 603 | [1031, 1032] | 1468 | [2018, 2019] | 2333 | [2501, 485] | 3198 | [1779, 2974] |
| 604 | [1033, 1034] | 1469 | [2020, 2021] | 2334 | [2651, 1739] | 3199 | [3324, 2015] |
| 605 | [1035, 1036] | 1470 | [816, 2022] | 2335 | [652, 156] | 3200 | [3325, 110] |
| 606 | [1037, 1038] | 1471 | [2023, 2024] | 2336 | [2578, 1617] | 3201 | [3326, 3327] |
| 607 | [1039, 1040] | 1472 | [2025, 2026] | 2337 | [176, 1453] | 3202 | [3328, 2110] |
| 608 | [1041, 1042] | 1473 | [2027, 2028] | 2338 | [549, 1493] | 3203 | [3329, 1937] |
| 609 | [78, 1043] | 1474 | [853, 2029] | 2339 | [1737, 1329] | 3204 | [2043, 3330] |
| 610 | [870, 1044] | 1475 | [2030, 2031] | 2340 | [731, 2718] | 3205 | [3331, 2326] |
| 611 | [1045, 1046] | 1476 | [2032, 2033] | 2341 | [2719, 1504] | 3206 | [1896, 3332] |
| 612 | [1047, 1048] | 1477 | [2034, 2035] | 2342 | [1589, 749] | 3207 | [3333, 82] |
| 613 | [1049, 1050] | 1478 | [2036, 1783] | 2343 | [2720, 470] | 3208 | [3334, 2153] |
| 614 | [1051, 1052] | 1479 | [2037, 2038] | 2344 | [2721, 2722] | 3209 | [3335, 2235] |
| 615 | [1053, 1054] | 1480 | [2039, 905] | 2345 | [2617, 2611] | 3210 | [2143, 1037] |
| 616 | [1055, 1056] | 1481 | [264, 980] | 2346 | [766, 1715] | 3211 | [3336, 1076] |
| 617 | [858, 1057] | 1482 | [1044, 1256] | 2347 | [1464, 192] | 3212 | [403, 1208] |
| 618 | [1058, 1059] | 1483 | [2040, 240] | 2348 | [1548, 181] | 3213 | [3337, 1244] |
| 619 | [1040, 1060] | 1484 | [2041, 2042] | 2349 | [2723, 1629] | 3214 | [3338, 2889] |
| 620 | [1061, 1062] | 1485 | [868, 2043] | 2350 | [2724, 183] | 3215 | [3339, 2209] |
| 621 | [1063, 1064] | 1486 | [2044, 815] | 2351 | [2544, 1697] | 3216 | [3340, 2119] |
| 622 | [1065, 1066] | 1487 | [2045, 2046] | 2352 | [2481, 1752] | 3217 | [3100, 3341] |
| 623 | [1067, 1068] | 1488 | [2047, 2048] | 2353 | [2725, 621] | 3218 | [1836, 2169] |
| 624 | [1069, 1070] | 1489 | [2049, 2050] | 2354 | [2726, 159] | 3219 | [3342, 401] |
| 625 | [1071, 822] | 1490 | [926, 1131] | 2355 | [2426, 2727] | 3220 | [3343, 1051] |
| 626 | [1072, 1073] | 1491 | [2051, 2052] | 2356 | [2668, 2477] | 3221 | [3344, 997] |
| 627 | [1074, 1075] | 1492 | [1008, 1998] | 2357 | [1635, 2702] | 3222 | [2962, 2939] |
| 628 | [1076, 1077] | 1493 | [2053, 2054] | 2358 | [2728, 1709] | 3223 | [982, 894] |

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| 629 | [1078, 1079] | 1494 | [2055, 2056] | 2359 | [1745, 2729] | 3224 | [3345, 896] |
| 630 | [1080, 1081] | 1495 | [2057, 1076] | 2360 | [1733, 594] | 3225 | [3346, 1009] |
| 631 | [1082, 1083] | 1496 | [2058, 1810] | 2361 | [2716, 1456] | 3226 | [3347, 1166] |
| 632 | [1084, 1085] | 1497 | [2059, 966] | 2362 | [2535, 190] | 3227 | [3348, 1948] |
| 633 | [1086, 1087] | 1498 | [2060, 2061] | 2363 | [2730, 2636] | 3228 | [3349, 2886] |
| 634 | [1088, 1089] | 1499 | [2062, 2063] | 2364 | [2731, 2732] | 3229 | [3350, 424] |
| 635 | [1090, 1091] | 1500 | [2064, 2065] | 2365 | [1649, 1598] | 3230 | [3351, 1126] |
| 636 | [1092, 1093] | 1501 | [2038, 2066] | 2366 | [2733, 193] | 3231 | [3352, 21] |
| 637 | [1094, 1095] | 1502 | [2067, 265] | 2367 | [2734, 670] | 3232 | [3353, 2329] |
| 638 | [1096, 1097] | 1503 | [2068, 2069] | 2368 | [2735, 609] | 3233 | [3354, 3355] |
| 639 | [1098, 1099] | 1504 | [2070, 2071] | 2369 | [2736, 1416] | 3234 | [3356, 3067] |
| 640 | [1100, 948] | 1505 | [2072, 17] | 2370 | [2737, 1537] | 3235 | [3357, 1793] |
| 641 | [1101, 1070] | 1506 | [2073, 1952] | 2371 | [2738, 2739] | 3236 | [3358, 1992] |
| 642 | [1102, 1103] | 1507 | [1988, 1786] | 2372 | [2590, 684] | 3237 | [2021, 1932] |
| 643 | [1104, 1105] | 1508 | [1818, 829] | 2373 | [226, 42] | 3238 | [1060, 1163] |
| 644 | [1106, 806] | 1509 | [2074, 2075] | 2374 | [1399, 606] | 3239 | [3359, 2322] |
| 645 | [369, 1107] | 1510 | [2076, 2077] | 2375 | [2740, 2741] | 3240 | [3360, 1270] |
| 646 | [1108, 1109] | 1511 | [2078, 846] | 2376 | [2738, 2742] | 3241 | [3361, 249] |
| 647 | [1110, 1111] | 1512 | [2079, 2080] | 2377 | [1735, 2741] | 3242 | [3362, 2262] |
| 648 | [1112, 1113] | 1513 | [2081, 2082] | 2378 | [2630, 146] | 3243 | [3363, 1105] |
| 649 | [303, 868] | 1514 | [2083, 927] | 2379 | [2743, 42] | 3244 | [3364, 1225] |
| 650 | [1107, 938] | 1515 | [1265, 1112] | 2380 | [34, 2744] | 3245 | [3365, 2324] |
| 651 | [1114, 370] | 1516 | [1167, 2084] | 2381 | [732, 1542] | 3246 | [3366, 2273] |
| 652 | [937, 1115] | 1517 | [2085, 2086] | 2382 | [2700, 705] | 3247 | [3367, 20] |
| 653 | [1116, 1117] | 1518 | [2087, 2088] | 2383 | [2745, 1763] | 3248 | [1125, 1944] |
| 654 | [1118, 1119] | 1519 | [2089, 2090] | 2384 | [2746, 2625] | 3249 | [3368, 987] |
| 655 | [1120, 1121] | 1520 | [2091, 2092] | 2385 | [2621, 2747] | 3250 | [3369, 3370] |
| 656 | [1122, 1123] | 1521 | [2093, 1879] | 2386 | [2434, 654] | 3251 | [3371, 3114] |
| 657 | [1124, 1125] | 1522 | [2094, 2095] | 2387 | [2681, 1345] | 3252 | [3372, 1088] |
| 658 | [1126, 1127] | 1523 | [2096, 2097] | 2388 | [681, 2605] | 3253 | [2229, 3373] |
| 659 | [1128, 1129] | 1524 | [2098, 2099] | 2389 | [640, 42] | 3254 | [3374, 1167] |
| 660 | [1130, 1131] | 1525 | [1009, 2100] | 2390 | [32, 473] | 3255 | [3375, 837] |
| 661 | [1132, 1133] | 1526 | [2101, 2102] | 2391 | [2748, 1588] | 3256 | [3376, 900] |
| 662 | [1134, 1135] | 1527 | [2103, 2104] | 2392 | [2528, 767] | 3257 | [3377, 2985] |
| 663 | [413, 1136] | 1528 | [2105, 2020] | 2393 | [1505, 1590] | 3258 | [3378, 3327] |
| 664 | [1052, 1137] | 1529 | [2106, 2107] | 2394 | [1535, 1364] | 3259 | [3379, 3380] |
| 665 | [1138, 1139] | 1530 | [2108, 2109] | 2395 | [675, 608] | 3260 | [3381, 1629] |
| 666 | [1140, 1141] | 1531 | [2110, 2111] | 2396 | [2569, 700] | 3261 | [452, 1525] |
| 667 | [1142, 1143] | 1532 | [2112, 2113] | 2397 | [2699, 2624] | 3262 | [1331, 48] |
| 668 | [1144, 1145] | 1533 | [2114, 2115] | 2398 | [2456, 2474] | 3263 | [3382, 52] |
| 669 | [1146, 1147] | 1534 | [2116, 853] | 2399 | [1381, 1485] | 3264 | [2536, 3153] |
| 670 | [1148, 1149] | 1535 | [2117, 1086] | 2400 | [2421, 2749] | 3265 | [3139, 1568] |
| 671 | [1150, 1151] | 1536 | [2118, 2119] | 2401 | [738, 2625] | 3266 | [3203, 1584] |
| 672 | [1152, 369] | 1537 | [2120, 2121] | 2402 | [1718, 671] | 3267 | [510, 765] |

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| 673 | [1153, 1154] | 1538 | [2122, 2123] | 2403 | [2511, 2638] | 3268 | [3169, 2546] |
| 674 | [1155, 1041] | 1539 | [2124, 2125] | 2404 | [2750, 580] | 3269 | [3135, 55] |
| 675 | [1156, 1157] | 1540 | [949, 2126] | 2405 | [2697, 2443] | 3270 | [470, 1563] |
| 676 | [1158, 1159] | 1541 | [2127, 2128] | 2406 | [145, 2600] | 3271 | [2575, 46] |
| 677 | [1160, 1161] | 1542 | [2129, 2130] | 2407 | [2751, 1616] | 3272 | [1485, 2505] |
| 678 | [1162, 1163] | 1543 | [2131, 2132] | 2408 | [2660, 2535] | 3273 | [3239, 733] |
| 679 | [293, 1164] | 1544 | [1796, 2133] | 2409 | [2631, 178] | 3274 | [154, 698] |
| 680 | [1165, 1166] | 1545 | [2134, 1126] | 2410 | [1691, 60] | 3275 | [3383, 1635] |
| 681 | [365, 1167] | 1546 | [2135, 879] | 2411 | [2714, 609] | 3276 | [3160, 1448] |
| 682 | [1168, 1169] | 1547 | [2136, 2137] | 2412 | [58, 2555] | 3277 | [699, 2522] |
| 683 | [1170, 1171] | 1548 | [2138, 783] | 2413 | [2438, 1352] | 3278 | [3213, 728] |
| 684 | [1172, 1173] | 1549 | [911, 2139] | 2414 | [504, 36] | 3279 | [3384, 1490] |
| 685 | [1174, 1175] | 1550 | [2140, 2141] | 2415 | [2752, 60] | 3280 | [2644, 620] |
| 686 | [820, 1176] | 1551 | [2142, 2143] | 2416 | [1689, 2570] | 3281 | [2545, 1579] |
| 687 | [1057, 854] | 1552 | [2144, 443] | 2417 | [1363, 125] | 3282 | [3238, 3159] |
| 688 | [1177, 1007] | 1553 | [2145, 946] | 2418 | [2753, 1699] | 3283 | [1639, 2567] |
| 689 | [1178, 1179] | 1554 | [2146, 242] | 2419 | [2521, 700] | 3284 | [3385, 1574] |
| 690 | [1180, 1181] | 1555 | [2147, 306] | 2420 | [2754, 2755] | 3285 | [3386, 620] |
| 691 | [1182, 1183] | 1556 | [2148, 2149] | 2421 | [2756, 2757] | 3286 | [3146, 725] |
| 692 | [1151, 1184] | 1557 | [2150, 2151] | 2422 | [2758, 2759] | 3287 | [3229, 2622] |
| 693 | [1185, 1186] | 1558 | [26, 2152] | 2423 | [2760, 950] | 3288 | [2583, 3174] |
| 694 | [1187, 1188] | 1559 | [2153, 2154] | 2424 | [2761, 1046] | 3289 | [2551, 1624] |
| 695 | [1189, 1190] | 1560 | [2155, 1075] | 2425 | [2762, 2763] | 3290 | [1644, 1580] |
| 696 | [1191, 1192] | 1561 | [2156, 2157] | 2426 | [1976, 834] | 3291 | [2730, 2449] |
| 697 | [1193, 1194] | 1562 | [2158, 2057] | 2427 | [2764, 906] | 3292 | [2592, 1358] |
| 698 | [1195, 1196] | 1563 | [803, 2109] | 2428 | [260, 2765] | 3293 | [2689, 2441] |
| 699 | [350, 90] | 1564 | [1157, 2159] | 2429 | [2766, 2767] | 3294 | [2467, 623] |
| 700 | [1197, 1198] | 1565 | [2160, 2161] | 2430 | [1131, 2768] | 3295 | [3387, 1364] |
| 701 | [1199, 1200] | 1566 | [2162, 1175] | 2431 | [2403, 1097] | 3296 | [3388, 183] |
| 702 | [1201, 1202] | 1567 | [1980, 922] | 2432 | [2769, 417] | 3297 | [3389, 180] |
| 703 | [1030, 1203] | 1568 | [1043, 2163] | 2433 | [2770, 1122] | 3298 | [2576, 1361] |
| 704 | [1204, 330] | 1569 | [2164, 312] | 2434 | [2771, 2042] | 3299 | [3390, 1439] |
| 705 | [1205, 1206] | 1570 | [2165, 2166] | 2435 | [2319, 2772] | 3300 | [3391, 1682] |
| 706 | [1207, 1208] | 1571 | [2167, 2168] | 2436 | [954, 2773] | 3301 | [1406, 698] |
| 707 | [1209, 1210] | 1572 | [2169, 2170] | 2437 | [963, 2774] | 3302 | [3392, 466] |
| 708 | [1211, 334] | 1573 | [1099, 2171] | 2438 | [2775, 1839] | 3303 | [1336, 131] |
| 709 | [1212, 1213] | 1574 | [2172, 1813] | 2439 | [2086, 2392] | 3304 | [3236, 456] |
| 710 | [1214, 861] | 1575 | [2173, 2016] | 2440 | [2776, 2777] | 3305 | [3393, 1596] |
| 711 | [1215, 1216] | 1576 | [2174, 2175] | 2441 | [2778, 2779] | 3306 | [3241, 667] |
| 712 | [1217, 1044] | 1577 | [2176, 1195] | 2442 | [951, 2780] | 3307 | [2451, 1684] |
| 713 | [1113, 781] | 1578 | [2177, 1983] | 2443 | [2781, 2782] | 3308 | [3394, 2655] |
| 714 | [1111, 1218] | 1579 | [2178, 2179] | 2444 | [876, 2033] | 3309 | [3250, 2741] |
| 715 | [1219, 1220] | 1580 | [1917, 1904] | 2445 | [833, 2783] | 3310 | [3257, 737] |
| 716 | [1221, 1222] | 1581 | [2180, 861] | 2446 | [2784, 1087] | 3311 | [3395, 731] |

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| 717 | [1223, 1224] | 1582 | [2181, 1137] | 2447 | [2785, 2786] | 3312 | [2431, 1442] |
| 718 | [1225, 1226] | 1583 | [1910, 254] | 2448 | [2787, 2339] | 3313 | [2420, 2607] |
| 719 | [1227, 1228] | 1584 | [2182, 2183] | 2449 | [2788, 2789] | 3314 | [3237, 580] |
| 720 | [1229, 1230] | 1585 | [2184, 24] | 2450 | [2266, 2790] | 3315 | [1712, 153] |
| 721 | [1231, 1232] | 1586 | [1823, 2185] | 2451 | [2400, 883] | 3316 | [3215, 1495] |
| 722 | [1233, 1234] | 1587 | [2139, 2186] | 2452 | [2791, 1110] | 3317 | [2461, 670] |
| 723 | [428, 1235] | 1588 | [2187, 2188] | 2453 | [2792, 1254] | 3318 | [3396, 1699] |
| 724 | [1236, 84] | 1589 | [2189, 845] | 2454 | [2151, 1783] | 3319 | [3386, 1391] |
| 725 | [1237, 1238] | 1590 | [2190, 1866] | 2455 | [2793, 1184] | 3320 | [2641, 1373] |
| 726 | [1239, 1240] | 1591 | [2191, 2192] | 2456 | [2794, 1143] | 3321 | [3147, 1642] |
| 727 | [1241, 252] | 1592 | [1095, 994] | 2457 | [2795, 2796] | 3322 | [3397, 2429] |
| 728 | [1242, 1243] | 1593 | [1188, 944] | 2458 | [2797, 2798] | 3323 | [3398, 1549] |
| 729 | [1244, 1116] | 1594 | [2193, 2194] | 2459 | [409, 1855] | 3324 | [582, 682] |
| 730 | [1245, 1180] | 1595 | [2133, 2006] | 2460 | [2799, 360] | 3325 | [3209, 1576] |
| 731 | [256, 911] | 1596 | [1154, 2000] | 2461 | [2800, 895] | 3326 | [2752, 1692] |
| 732 | [1246, 120] | 1597 | [2195, 244] | 2462 | [2801, 2802] | 3327 | [2715, 2747] |
| 733 | [1247, 1248] | 1598 | [80, 2196] | 2463 | [2803, 2804] | 3328 | [3151, 2607] |
| 734 | [1249, 880] | 1599 | [2197, 2198] | 2464 | [2805, 2806] | 3329 | [3154, 506] |
| 735 | [1250, 1251] | 1600 | [2199, 2010] | 2465 | [2807, 301] | 3330 | [2504, 1547] |
| 736 | [1252, 1253] | 1601 | [2200, 2201] | 2466 | [2170, 2105] | 3331 | [1338, 1744] |
| 737 | [1254, 1255] | 1602 | [1079, 917] | 2467 | [2808, 2249] | 3332 | [2736, 741] |
| 738 | [1256, 1257] | 1603 | [2202, 2110] | 2468 | [2809, 1193] | 3333 | [3249, 574] |
| 739 | [1258, 1259] | 1604 | [1961, 368] | 2469 | [2810, 349] | 3334 | [1759, 2620] |
| 740 | [1260, 1261] | 1605 | [2203, 2204] | 2470 | [1987, 810] | 3335 | [1305, 3136] |
| 741 | [1262, 1263] | 1606 | [2205, 2206] | 2471 | [2811, 1854] | 3336 | [3383, 623] |
| 742 | [1264, 1265] | 1607 | [2207, 2208] | 2472 | [2812, 2383] | 3337 | [3152, 1391] |
| 743 | [297, 974] | 1608 | [2209, 2210] | 2473 | [2813, 1771] | 3338 | [2735, 526] |
| 744 | [1266, 1267] | 1609 | [2211, 1852] | 2474 | [2814, 2815] | 3339 | [3399, 1488] |
| 745 | [1268, 1269] | 1610 | [2212, 1778] | 2475 | [2816, 412] | 3340 | [3217, 221] |
| 746 | [1270, 1271] | 1611 | [2213, 1192] | 2476 | [2817, 313] | 3341 | [3400, 709] |
| 747 | [95, 1272] | 1612 | [2214, 2215] | 2477 | [2818, 2819] | 3342 | [3401, 2639] |
| 748 | [1273, 1274] | 1613 | [2216, 1973] | 2478 | [2820, 2821] | 3343 | [3402, 1434] |
| 749 | [1275, 1156] | 1614 | [2217, 1916] | 2479 | [2822, 2823] | 3344 | [3259, 1439] |
| 750 | [1276, 1227] | 1615 | [2218, 2156] | 2480 | [2824, 346] | 3345 | [3403, 1425] |
| 751 | [1277, 1278] | 1616 | [2219, 1039] | 2481 | [2825, 2826] | 3346 | [3186, 2479] |
| 752 | [1224, 1279] | 1617 | [2220, 2221] | 2482 | [2827, 1123] | 3347 | [3254, 123] |
| 753 | [1280, 260] | 1618 | [2222, 2223] | 2483 | [2828, 831] | 3348 | [3404, 2505] |
| 754 | [1281, 1282] | 1619 | [2224, 111] | 2484 | [2829, 785] | 3349 | [3175, 2638] |
| 755 | [24, 892] | 1620 | [2225, 1103] | 2485 | [2830, 1172] | 3350 | [2737, 2530] |
| 756 | [1283, 1284] | 1621 | [2226, 1790] | 2486 | [2831, 1158] | 3351 | [3405, 523] |
| 757 | [1285, 884] | 1622 | [2227, 271] | 2487 | [1194, 2832] | 3352 | [3406, 45] |
| 758 | [1159, 431] | 1623 | [2228, 2229] | 2488 | [2833, 2211] | 3353 | [3407, 210] |
| 759 | [1286, 906] | 1624 | [2230, 2231] | 2489 | [2834, 2835] | 3354 | [3156, 2546] |
| 760 | [1287, 1288] | 1625 | [2232, 2233] | 2490 | [2836, 2050] | 3355 | [2657, 1565] |

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|---|---|---|---|---|---|---|---|
| 761 | [1289, 1290] | 1626 | [2234, 2235] | 2491 | [2837, 2788] | 3356 | [1530, 481] |
| 762 | [1181, 280] | 1627 | [2236, 91] | 2492 | [2838, 1930] | 3357 | [3384, 2437] |
| 763 | [831, 1124] | 1628 | [2237, 1069] | 2493 | [2839, 2281] | 3358 | [3183, 1380] |
| 764 | [1291, 1019] | 1629 | [2238, 2239] | 2494 | [2840, 2841] | 3359 | [3214, 1687] |
| 765 | [1292, 1293] | 1630 | [2240, 2241] | 2495 | [2842, 935] | 3360 | [1429, 1744] |
| 766 | [1294, 941] | 1631 | [2242, 1135] | 2496 | [818, 2843] | 3361 | [3408, 1650] |
| 767 | [1070, 1295] | 1632 | [2243, 2236] | 2497 | [2844, 2845] | 3362 | [1296, 661] |
| 768 | [1296, 1297] | 1633 | [2244, 1004] | 2498 | [2846, 2847] | 3363 | [3177, 2470] |
| 769 | [1298, 619] | 1634 | [2245, 2246] | 2499 | [811, 2848] | 3364 | [3409, 1702] |
| 770 | [1299, 1300] | 1635 | [2247, 2248] | 2500 | [2849, 2850] | 3365 | [3398, 181] |
| 771 | [1301, 34] | 1636 | [2249, 2250] | 2501 | [2851, 996] | 3366 | [3220, 1488] |
| 772 | [1302, 175] | 1637 | [922, 2251] | 2502 | [2852, 892] | 3367 | [2751, 1379] |
| 773 | [718, 1303] | 1638 | [2252, 856] | 2503 | [2853, 2143] | 3368 | [1581, 1512] |
| 774 | [196, 1304] | 1639 | [2253, 1165] | 2504 | [2854, 1231] | 3369 | [3395, 476] |
| 775 | [1305, 506] | 1640 | [997, 2254] | 2505 | [1893, 2249] | 3370 | [3400, 3141] |
| 776 | [215, 1306] | 1641 | [2255, 2256] | 2506 | [2768, 319] | 3371 | [3410, 1736] |
| 777 | [1307, 510] | 1642 | [2257, 2258] | 2507 | [2855, 361] | 3372 | [3396, 728] |
| 778 | [1308, 1309] | 1643 | [2239, 2259] | 2508 | [2856, 2857] | 3373 | [3199, 2464] |
| 779 | [188, 1310] | 1644 | [2260, 2261] | 2509 | [2858, 2859] | 3374 | [3411, 2421] |
| 780 | [601, 525] | 1645 | [2262, 2263] | 2510 | [2860, 2861] | 3375 | [3196, 1365] |
| 781 | [650, 1311] | 1646 | [2264, 977] | 2511 | [2862, 1913] | 3376 | [3411, 2607] |
| 782 | [1312, 1313] | 1647 | [2265, 2266] | 2512 | [2863, 2864] | 3377 | [3412, 1692] |
| 783 | [1314, 1315] | 1648 | [2267, 2195] | 2513 | [281, 2865] | 3378 | [1485, 595] |
| 784 | [717, 1316] | 1649 | [2268, 2045] | 2514 | [1940, 2866] | 3379 | [2656, 2421] |
| 785 | [162, 1317] | 1650 | [2269, 239] | 2515 | [422, 1059] | 3380 | [3157, 1359] |
| 786 | [613, 1318] | 1651 | [2270, 789] | 2516 | [2867, 1969] | 3381 | [874, 374] |
| 787 | [1319, 1320] | 1652 | [2271, 402] | 2517 | [2868, 341] | 3382 | [3413, 387] |
| 788 | [168, 488] | 1653 | [2272, 1157] | 2518 | [2869, 2334] | 3383 | [3414, 3271] |
| 789 | [524, 508] | 1654 | [2273, 2204] | 2519 | [2870, 2871] | 3384 | [2287, 2051] |
| 790 | [1321, 1322] | 1655 | [1166, 2274] | 2520 | [2872, 1037] | 3385 | [3415, 2934] |
| 791 | [1323, 1324] | 1656 | [2208, 2275] | 2521 | [2873, 2874] | 3386 | [3416, 1196] |
| 792 | [1325, 1326] | 1657 | [2276, 1873] | 2522 | [2875, 2876] | 3387 | [3417, 3005] |
| 793 | [1327, 1328] | 1658 | [2277, 2278] | 2523 | [2877, 2222] | 3388 | [3418, 948] |
| 794 | [706, 1329] | 1659 | [2279, 937] | 2524 | [2878, 1239] | 3389 | [3419, 3099] |
| 795 | [1330, 1331] | 1660 | [2280, 2202] | 2525 | [2879, 2880] | 3390 | [3420, 2346] |
| 796 | [1332, 1333] | 1661 | [2281, 2282] | 2526 | [2881, 2882] | 3391 | [3421, 2901] |
| 797 | [535, 1334] | 1662 | [2283, 400] | 2527 | [2883, 2884] | 3392 | [3422, 2078] |
| 798 | [726, 579] | 1663 | [2284, 1241] | 2528 | [2885, 2886] | 3393 | [3423, 1945] |
| 799 | [1335, 136] | 1664 | [769, 2285] | 2529 | [2773, 2859] | 3394 | [1856, 3424] |
| 800 | [1336, 662] | 1665 | [2286, 1113] | 2530 | [2887, 2882] | 3395 | [2865, 3425] |
| 801 | [1337, 1338] | 1666 | [1048, 2287] | 2531 | [2888, 2889] | 3396 | [3426, 2925] |
| 802 | [1339, 218] | 1667 | [2031, 2288] | 2532 | [2890, 2891] | 3397 | [2864, 119] |
| 803 | [1340, 677] | 1668 | [2289, 2290] | 2533 | [2892, 247] | 3398 | [3427, 3428] |
| 804 | [49, 1341] | 1669 | [2291, 2292] | 2534 | [2893, 2894] | 3399 | [3429, 1874] |

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|---|---|---|---|---|---|---|---|
| 805 | [1342, 197] | 1670 | [2293, 270] | 2535 | [2895, 804] | 3400 | [3430, 3431] |
| 806 | [544, 206] | 1671 | [2294, 1939] | 2536 | [2896, 2897] | 3401 | [1957, 2121] |
| 807 | [1343, 630] | 1672 | [2295, 2296] | 2537 | [1978, 2898] | 3402 | [3432, 1043] |
| 808 | [1344, 626] | 1673 | [2297, 2298] | 2538 | [1920, 2899] | 3403 | [3433, 1040] |
| 809 | [760, 1345] | 1674 | [1825, 2299] | 2539 | [2900, 1843] | 3404 | [3434, 1020] |
| 810 | [610, 57] | 1675 | [2300, 2186] | 2540 | [1295, 2901] | 3405 | [3435, 3269] |
| 811 | [1346, 1347] | 1676 | [2301, 2266] | 2541 | [2902, 2903] | 3406 | [3436, 91] |
| 812 | [1348, 50] | 1677 | [301, 1264] | 2542 | [2904, 65] | 3407 | [3437, 3080] |
| 813 | [1349, 497] | 1678 | [2302, 841] | 2543 | [2905, 1457] | 3408 | [3438, 1895] |
| 814 | [638, 1350] | 1679 | [2303, 2304] | 2544 | [2906, 2165] | 3409 | [3439, 1860] |
| 815 | [1351, 1338] | 1680 | [2063, 2305] | 2545 | [2907, 1917] | 3410 | [1784, 3440] |
| 816 | [1352, 1353] | 1681 | [2306, 786] | 2546 | [2908, 2909] | 3411 | [3441, 289] |
| 817 | [1354, 505] | 1682 | [352, 2307] | 2547 | [2910, 2848] | 3412 | [3442, 2128] |
| 818 | [1355, 1356] | 1683 | [2308, 2309] | 2548 | [2911, 2912] | 3413 | [3389, 533] |
| 819 | [1357, 1341] | 1684 | [2310, 2311] | 2549 | [2913, 2914] | 3414 | [3443, 452] |
| 820 | [41, 227] | 1685 | [2312, 914] | 2550 | [2915, 268] | 3415 | [2466, 1365] |
| 821 | [461, 217] | 1686 | [2313, 2314] | 2551 | [788, 855] | 3416 | [3444, 1512] |
| 822 | [1358, 1359] | 1687 | [2315, 2316] | 2552 | [326, 438] | 3417 | [3382, 466] |
| 823 | [1360, 1361] | 1688 | [2317, 2318] | 2553 | [2916, 2113] | 3418 | [3256, 1434] |
| 824 | [1362, 527] | 1689 | [1141, 2319] | 2554 | [2917, 2381] | 3419 | [3445, 2511] |
| 825 | [469, 1363] | 1690 | [2320, 1778] | 2555 | [2918, 2919] | 3420 | [3444, 505] |
| 826 | [1364, 633] | 1691 | [2321, 2322] | 2556 | [2920, 297] | 3421 | [2517, 127] |
| 827 | [8, 1365] | 1692 | [2323, 2324] | 2557 | [2921, 1017] | 3422 | [3446, 1379] |
| 828 | [1366, 1367] | 1693 | [107, 2325] | 2558 | [2282, 2131] | 3423 | [1755, 45] |
| 829 | [1368, 1369] | 1694 | [2326, 2327] | 2559 | [2922, 2259] | 3424 | [1646, 1416] |
| 830 | [1370, 32] | 1695 | [2328, 894] | 2560 | [2923, 2774] | 3425 | [2586, 2664] |
| 831 | [132, 160] | 1696 | [856, 1215] | 2561 | [1129, 934] | 3426 | [3445, 2479] |
| 832 | [493, 489] | 1697 | [2329, 2330] | 2562 | [2924, 1902] | 3427 | [2682, 1300] |
| 833 | [531, 169] | 1698 | [2331, 1940] | 2563 | [2925, 2926] | 3428 | [3174, 2567] |
| 834 | [1371, 140] | 1699 | [2332, 2333] | 2564 | [2927, 2928] | 3429 | [3408, 574] |
| 835 | [1372, 1373] | 1700 | [1105, 2281] | 2565 | [2929, 2930] | 3430 | [1686, 2654] |
| 836 | [1374, 684] | 1701 | [2334, 2335] | 2566 | [2931, 960] | 3431 | [3251, 2510] |
| 837 | [147, 1375] | 1702 | [2336, 2337] | 2567 | [72, 1826] | 3432 | [3242, 1579] |
| 838 | [1365, 1376] | 1703 | [2338, 1074] | 2568 | [2932, 68] | 3433 | [3402, 1346] |
| 839 | [501, 139] | 1704 | [909, 1942] | 2569 | [2933, 792] | 3434 | [3447, 1311] |
| 840 | [1377, 139] | 1705 | [2339, 2340] | 2570 | [2934, 2935] | 3435 | [2724, 164] |
| 841 | [138, 141] | 1706 | [2341, 814] | 2571 | [2936, 897] | 3436 | [2469, 180] |
| 842 | [1377, 490] | 1707 | [2342, 2343] | 2572 | [2937, 2938] | 3437 | [3448, 2744] |
| 843 | [490, 138] | 1708 | [2344, 2345] | 2573 | [1776, 2303] | 3438 | [3443, 2475] |
| 844 | [1378, 141] | 1709 | [2077, 2346] | 2574 | [2939, 1886] | 3439 | [3446, 1616] |
| 845 | [492, 498] | 1710 | [2002, 2347] | 2575 | [2940, 2941] | 3440 | [1762, 2532] |
| 846 | [1379, 1380] | 1711 | [2348, 1901] | 2576 | [2942, 2943] | 3441 | [2478, 2511] |
| 847 | [460, 1345] | 1712 | [2349, 939] | 2577 | [2944, 344] | 3442 | [2728, 2450] |
| 848 | [1307, 1381] | 1713 | [2350, 2129] | 2578 | [2945, 1203] | 3443 | [3449, 3450] |

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|---|---|---|---|---|---|---|---|
| 849 | [1382, 1383] | 1714 | [887, 2351] | 2579 | [2946, 784] | 3444 | [3451, 3452] |
| 850 | [1384, 744] | 1715 | [111, 2352] | 2580 | [1014, 2947] | 3445 | [3453, 449] |
| 851 | [1385, 747] | 1716 | [2353, 773] | 2581 | [2948, 2949] | 3446 | [3454, 1890] |
| 852 | [1386, 518] | 1717 | [2354, 2355] | 2582 | [2950, 2951] | 3447 | [3455, 1114] |
| 853 | [500, 142] | 1718 | [2356, 776] | 2583 | [2952, 839] | 3448 | [3456, 1002] |
| 854 | [502, 139] | 1719 | [895, 2357] | 2584 | [2111, 2880] | 3449 | [3390, 2536] |
| 855 | [1387, 500] | 1720 | [2358, 1253] | 2585 | [1176, 2938] | 3450 | [3234, 614] |
| 856 | [486, 1388] | 1721 | [2359, 2360] | 2586 | [2953, 284] | 3451 | [3233, 1297] |
| 857 | [503, 498] | 1722 | [807, 2361] | 2587 | [2954, 2802] | 3452 | [3391, 165] |
| 858 | [493, 502] | 1723 | [2362, 1835] | 2588 | [2955, 435] | 3453 | [3191, 2475] |
| 859 | [1389, 1390] | 1724 | [2352, 2363] | 2589 | [2956, 83] | 3454 | [660, 1297] |
| 860 | [716, 617] | 1725 | [2364, 2365] | 2590 | [1915, 2957] | 3455 | [645, 649] |
| 861 | [131, 663] | 1726 | [2366, 938] | 2591 | [2866, 75] | 3456 | [3457, 489] |
| 862 | [1391, 1392] | 1727 | [2367, 429] | 2592 | [2958, 1855] | 3457 | [2783, 1914] |
| 863 | [586, 1317] | 1728 | [2368, 2369] | 2593 | [315, 2226] | | |
| 864 | [1393, 1353] | 1729 | [2370, 2371] | 2594 | [348, 1839] | | |

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 | 577 | 0 | 1154 | 0 | 1731 | 1 | 2308 | 1 | 2885 | 0 |
| 1 | 0 | 578 | 0 | 1155 | 0 | 1732 | 0 | 2309 | 0 | 2886 | 1 |
| 2 | 0 | 579 | 0 | 1156 | 1 | 1733 | 1 | 2310 | 0 | 2887 | 0 |
| 3 | 0 | 580 | 0 | 1157 | 1 | 1734 | 0 | 2311 | 1 | 2888 | 1 |
| 4 | 0 | 581 | 1 | 1158 | 1 | 1735 | 1 | 2312 | 0 | 2889 | 0 |
| 5 | 0 | 582 | 0 | 1159 | 1 | 1736 | 0 | 2313 | 0 | 2890 | 0 |
| 6 | 1 | 583 | 1 | 1160 | 0 | 1737 | 0 | 2314 | 1 | 2891 | 1 |
| 7 | 0 | 584 | 0 | 1161 | 0 | 1738 | 0 | 2315 | 1 | 2892 | 0 |
| 8 | 1 | 585 | 1 | 1162 | 1 | 1739 | 0 | 2316 | 0 | 2893 | 0 |
| 9 | 0 | 586 | 0 | 1163 | 1 | 1740 | 1 | 2317 | 1 | 2894 | 0 |
| 10 | 0 | 587 | 0 | 1164 | 0 | 1741 | 0 | 2318 | 0 | 2895 | 1 |
| 11 | 0 | 588 | 0 | 1165 | 0 | 1742 | 1 | 2319 | 0 | 2896 | 0 |
| 12 | 0 | 589 | 1 | 1166 | 0 | 1743 | 0 | 2320 | 0 | 2897 | 1 |
| 13 | 1 | 590 | 1 | 1167 | 0 | 1744 | 1 | 2321 | 1 | 2898 | 1 |
| 14 | 1 | 591 | 0 | 1168 | 1 | 1745 | 1 | 2322 | 1 | 2899 | 1 |
| 15 | 0 | 592 | 1 | 1169 | 0 | 1746 | 0 | 2323 | 1 | 2900 | 0 |
| 16 | 1 | 593 | 0 | 1170 | 0 | 1747 | 0 | 2324 | 0 | 2901 | 1 |
| 17 | 1 | 594 | 1 | 1171 | 1 | 1748 | 1 | 2325 | 1 | 2902 | 1 |
| 18 | 1 | 595 | 0 | 1172 | 0 | 1749 | 0 | 2326 | 0 | 2903 | 0 |
| 19 | 0 | 596 | 0 | 1173 | 1 | 1750 | 1 | 2327 | 0 | 2904 | 1 |
| 20 | 1 | 597 | 1 | 1174 | 1 | 1751 | 1 | 2328 | 1 | 2905 | 1 |
| 21 | 0 | 598 | 0 | 1175 | 1 | 1752 | 0 | 2329 | 0 | 2906 | 0 |
| 22 | 1 | 599 | 1 | 1176 | 1 | 1753 | 0 | 2330 | 0 | 2907 | 0 |
| 23 | 0 | 600 | 0 | 1177 | 1 | 1754 | 1 | 2331 | 1 | 2908 | 1 |
| 24 | 1 | 601 | 0 | 1178 | 1 | 1755 | 1 | 2332 | 0 | 2909 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0 | 602 | 0 | 1179 | 1 | 1756 | 1 | 2333 | 0 | 2910 | 1 |
| 26 | 1 | 603 | 1 | 1180 | 1 | 1757 | 0 | 2334 | 1 | 2911 | 0 |
| 27 | 1 | 604 | 0 | 1181 | 1 | 1758 | 1 | 2335 | 1 | 2912 | 1 |
| 28 | 1 | 605 | 0 | 1182 | 1 | 1759 | 1 | 2336 | 1 | 2913 | 0 |
| 29 | 1 | 606 | 0 | 1183 | 1 | 1760 | 1 | 2337 | 1 | 2914 | 1 |
| 30 | 0 | 607 | 1 | 1184 | 1 | 1761 | 1 | 2338 | 0 | 2915 | 1 |
| 31 | 0 | 608 | 1 | 1185 | 0 | 1762 | 0 | 2339 | 0 | 2916 | 0 |
| 32 | 0 | 609 | 1 | 1186 | 0 | 1763 | 1 | 2340 | 1 | 2917 | 0 |
| 33 | 1 | 610 | 0 | 1187 | 1 | 1764 | 0 | 2341 | 0 | 2918 | 1 |
| 34 | 1 | 611 | 0 | 1188 | 1 | 1765 | 1 | 2342 | 1 | 2919 | 0 |
| 35 | 1 | 612 | 0 | 1189 | 1 | 1766 | 0 | 2343 | 1 | 2920 | 0 |
| 36 | 1 | 613 | 0 | 1190 | 0 | 1767 | 1 | 2344 | 0 | 2921 | 1 |
| 37 | 1 | 614 | 0 | 1191 | 1 | 1768 | 1 | 2345 | 0 | 2922 | 1 |
| 38 | 1 | 615 | 1 | 1192 | 0 | 1769 | 0 | 2346 | 1 | 2923 | 1 |
| 39 | 0 | 616 | 0 | 1193 | 0 | 1770 | 1 | 2347 | 0 | 2924 | 0 |
| 40 | 1 | 617 | 0 | 1194 | 1 | 1771 | 1 | 2348 | 1 | 2925 | 1 |
| 41 | 1 | 618 | 0 | 1195 | 0 | 1772 | 0 | 2349 | 0 | 2926 | 1 |
| 42 | 0 | 619 | 0 | 1196 | 1 | 1773 | 0 | 2350 | 1 | 2927 | 1 |
| 43 | 0 | 620 | 0 | 1197 | 1 | 1774 | 0 | 2351 | 0 | 2928 | 0 |
| 44 | 0 | 621 | 1 | 1198 | 1 | 1775 | 0 | 2352 | 0 | 2929 | 1 |
| 45 | 1 | 622 | 0 | 1199 | 1 | 1776 | 0 | 2353 | 1 | 2930 | 1 |
| 46 | 1 | 623 | 1 | 1200 | 1 | 1777 | 0 | 2354 | 0 | 2931 | 0 |
| 47 | 0 | 624 | 1 | 1201 | 1 | 1778 | 1 | 2355 | 0 | 2932 | 1 |
| 48 | 0 | 625 | 1 | 1202 | 1 | 1779 | 0 | 2356 | 0 | 2933 | 1 |
| 49 | 1 | 626 | 1 | 1203 | 0 | 1780 | 0 | 2357 | 0 | 2934 | 0 |
| 50 | 0 | 627 | 1 | 1204 | 1 | 1781 | 1 | 2358 | 1 | 2935 | 1 |
| 51 | 0 | 628 | 0 | 1205 | 1 | 1782 | 0 | 2359 | 1 | 2936 | 0 |
| 52 | 0 | 629 | 0 | 1206 | 0 | 1783 | 1 | 2360 | 1 | 2937 | 0 |
| 53 | 1 | 630 | 1 | 1207 | 0 | 1784 | 1 | 2361 | 1 | 2938 | 0 |
| 54 | 1 | 631 | 1 | 1208 | 1 | 1785 | 1 | 2362 | 1 | 2939 | 0 |
| 55 | 1 | 632 | 0 | 1209 | 1 | 1786 | 0 | 2363 | 1 | 2940 | 1 |
| 56 | 1 | 633 | 0 | 1210 | 0 | 1787 | 1 | 2364 | 1 | 2941 | 0 |
| 57 | 1 | 634 | 1 | 1211 | 1 | 1788 | 0 | 2365 | 0 | 2942 | 1 |
| 58 | 1 | 635 | 1 | 1212 | 0 | 1789 | 0 | 2366 | 1 | 2943 | 0 |
| 59 | 0 | 636 | 1 | 1213 | 0 | 1790 | 1 | 2367 | 1 | 2944 | 0 |
| 60 | 0 | 637 | 1 | 1214 | 1 | 1791 | 0 | 2368 | 0 | 2945 | 1 |
| 61 | 1 | 638 | 0 | 1215 | 1 | 1792 | 0 | 2369 | 0 | 2946 | 0 |
| 62 | 0 | 639 | 1 | 1216 | 1 | 1793 | 1 | 2370 | 0 | 2947 | 0 |
| 63 | 1 | 640 | 0 | 1217 | 1 | 1794 | 0 | 2371 | 1 | 2948 | 0 |
| 64 | 0 | 641 | 0 | 1218 | 0 | 1795 | 1 | 2372 | 0 | 2949 | 1 |
| 65 | 1 | 642 | 0 | 1219 | 0 | 1796 | 1 | 2373 | 1 | 2950 | 1 |
| 66 | 1 | 643 | 0 | 1220 | 0 | 1797 | 1 | 2374 | 0 | 2951 | 0 |
| 67 | 0 | 644 | 1 | 1221 | 1 | 1798 | 0 | 2375 | 0 | 2952 | 1 |
| 68 | 1 | 645 | 0 | 1222 | 0 | 1799 | 0 | 2376 | 1 | 2953 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 69 | 0 | 646 | 1 | 1223 | 1 | 1800 | 0 | 2377 | 1 | 2954 | 0 |
| 70 | 1 | 647 | 0 | 1224 | 1 | 1801 | 0 | 2378 | 0 | 2955 | 0 |
| 71 | 1 | 648 | 0 | 1225 | 0 | 1802 | 0 | 2379 | 0 | 2956 | 0 |
| 72 | 1 | 649 | 1 | 1226 | 1 | 1803 | 0 | 2380 | 1 | 2957 | 0 |
| 73 | 1 | 650 | 0 | 1227 | 0 | 1804 | 0 | 2381 | 1 | 2958 | 0 |
| 74 | 0 | 651 | 0 | 1228 | 0 | 1805 | 1 | 2382 | 0 | 2959 | 0 |
| 75 | 1 | 652 | 1 | 1229 | 0 | 1806 | 0 | 2383 | 1 | 2960 | 0 |
| 76 | 0 | 653 | 1 | 1230 | 1 | 1807 | 1 | 2384 | 0 | 2961 | 1 |
| 77 | 0 | 654 | 1 | 1231 | 0 | 1808 | 1 | 2385 | 0 | 2962 | 0 |
| 78 | 1 | 655 | 0 | 1232 | 0 | 1809 | 0 | 2386 | 0 | 2963 | 1 |
| 79 | 1 | 656 | 1 | 1233 | 0 | 1810 | 1 | 2387 | 0 | 2964 | 0 |
| 80 | 0 | 657 | 1 | 1234 | 0 | 1811 | 1 | 2388 | 0 | 2965 | 0 |
| 81 | 1 | 658 | 1 | 1235 | 0 | 1812 | 1 | 2389 | 0 | 2966 | 0 |
| 82 | 0 | 659 | 0 | 1236 | 1 | 1813 | 0 | 2390 | 0 | 2967 | 1 |
| 83 | 0 | 660 | 0 | 1237 | 0 | 1814 | 0 | 2391 | 1 | 2968 | 1 |
| 84 | 0 | 661 | 0 | 1238 | 1 | 1815 | 1 | 2392 | 0 | 2969 | 0 |
| 85 | 0 | 662 | 1 | 1239 | 0 | 1816 | 0 | 2393 | 0 | 2970 | 1 |
| 86 | 0 | 663 | 1 | 1240 | 1 | 1817 | 0 | 2394 | 0 | 2971 | 1 |
| 87 | 0 | 664 | 1 | 1241 | 0 | 1818 | 0 | 2395 | 1 | 2972 | 1 |
| 88 | 1 | 665 | 0 | 1242 | 1 | 1819 | 0 | 2396 | 1 | 2973 | 1 |
| 89 | 1 | 666 | 1 | 1243 | 1 | 1820 | 1 | 2397 | 1 | 2974 | 1 |
| 90 | 1 | 667 | 1 | 1244 | 0 | 1821 | 0 | 2398 | 0 | 2975 | 1 |
| 91 | 1 | 668 | 0 | 1245 | 1 | 1822 | 0 | 2399 | 0 | 2976 | 1 |
| 92 | 1 | 669 | 1 | 1246 | 1 | 1823 | 1 | 2400 | 0 | 2977 | 1 |
| 93 | 0 | 670 | 1 | 1247 | 0 | 1824 | 1 | 2401 | 1 | 2978 | 1 |
| 94 | 0 | 671 | 0 | 1248 | 1 | 1825 | 1 | 2402 | 0 | 2979 | 0 |
| 95 | 1 | 672 | 1 | 1249 | 0 | 1826 | 0 | 2403 | 1 | 2980 | 0 |
| 96 | 1 | 673 | 1 | 1250 | 1 | 1827 | 1 | 2404 | 0 | 2981 | 0 |
| 97 | 0 | 674 | 0 | 1251 | 1 | 1828 | 0 | 2405 | 1 | 2982 | 0 |
| 98 | 0 | 675 | 1 | 1252 | 0 | 1829 | 1 | 2406 | 0 | 2983 | 1 |
| 99 | 1 | 676 | 1 | 1253 | 0 | 1830 | 1 | 2407 | 1 | 2984 | 0 |
| 100 | 0 | 677 | 0 | 1254 | 0 | 1831 | 0 | 2408 | 0 | 2985 | 0 |
| 101 | 1 | 678 | 1 | 1255 | 0 | 1832 | 1 | 2409 | 0 | 2986 | 0 |
| 102 | 0 | 679 | 1 | 1256 | 1 | 1833 | 1 | 2410 | 1 | 2987 | 0 |
| 103 | 1 | 680 | 0 | 1257 | 0 | 1834 | 0 | 2411 | 1 | 2988 | 0 |
| 104 | 1 | 681 | 0 | 1258 | 1 | 1835 | 1 | 2412 | 1 | 2989 | 0 |
| 105 | 1 | 682 | 1 | 1259 | 1 | 1836 | 0 | 2413 | 1 | 2990 | 0 |
| 106 | 1 | 683 | 0 | 1260 | 1 | 1837 | 0 | 2414 | 1 | 2991 | 1 |
| 107 | 0 | 684 | 0 | 1261 | 0 | 1838 | 1 | 2415 | 0 | 2992 | 1 |
| 108 | 1 | 685 | 1 | 1262 | 0 | 1839 | 0 | 2416 | 1 | 2993 | 0 |
| 109 | 1 | 686 | 1 | 1263 | 1 | 1840 | 0 | 2417 | 0 | 2994 | 0 |
| 110 | 1 | 687 | 0 | 1264 | 0 | 1841 | 0 | 2418 | 0 | 2995 | 0 |
| 111 | 1 | 688 | 1 | 1265 | 0 | 1842 | 0 | 2419 | 1 | 2996 | 0 |
| 112 | 1 | 689 | 1 | 1266 | 0 | 1843 | 0 | 2420 | 0 | 2997 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 113 | 1 | 690 | 1 | 1267 | 1 | 1844 | 1 | 2421 | 0 | 2998 | 1 |
| 114 | 1 | 691 | 1 | 1268 | 1 | 1845 | 1 | 2422 | 0 | 2999 | 0 |
| 115 | 1 | 692 | 1 | 1269 | 0 | 1846 | 1 | 2423 | 0 | 3000 | 0 |
| 116 | 0 | 693 | 0 | 1270 | 1 | 1847 | 0 | 2424 | 1 | 3001 | 1 |
| 117 | 1 | 694 | 1 | 1271 | 1 | 1848 | 0 | 2425 | 0 | 3002 | 0 |
| 118 | 0 | 695 | 1 | 1272 | 0 | 1849 | 0 | 2426 | 0 | 3003 | 1 |
| 119 | 1 | 696 | 1 | 1273 | 1 | 1850 | 0 | 2427 | 0 | 3004 | 1 |
| 120 | 1 | 697 | 0 | 1274 | 1 | 1851 | 1 | 2428 | 1 | 3005 | 0 |
| 121 | 0 | 698 | 0 | 1275 | 1 | 1852 | 1 | 2429 | 0 | 3006 | 0 |
| 122 | 0 | 699 | 0 | 1276 | 1 | 1853 | 1 | 2430 | 0 | 3007 | 0 |
| 123 | 1 | 700 | 1 | 1277 | 0 | 1854 | 0 | 2431 | 1 | 3008 | 0 |
| 124 | 1 | 701 | 1 | 1278 | 1 | 1855 | 1 | 2432 | 1 | 3009 | 1 |
| 125 | 0 | 702 | 1 | 1279 | 1 | 1856 | 0 | 2433 | 0 | 3010 | 1 |
| 126 | 0 | 703 | 0 | 1280 | 0 | 1857 | 0 | 2434 | 0 | 3011 | 0 |
| 127 | 1 | 704 | 1 | 1281 | 1 | 1858 | 0 | 2435 | 0 | 3012 | 1 |
| 128 | 1 | 705 | 1 | 1282 | 1 | 1859 | 0 | 2436 | 1 | 3013 | 1 |
| 129 | 1 | 706 | 0 | 1283 | 1 | 1860 | 0 | 2437 | 0 | 3014 | 1 |
| 130 | 1 | 707 | 1 | 1284 | 1 | 1861 | 1 | 2438 | 1 | 3015 | 0 |
| 131 | 0 | 708 | 1 | 1285 | 1 | 1862 | 1 | 2439 | 0 | 3016 | 1 |
| 132 | 0 | 709 | 0 | 1286 | 1 | 1863 | 0 | 2440 | 1 | 3017 | 1 |
| 133 | 0 | 710 | 1 | 1287 | 1 | 1864 | 0 | 2441 | 0 | 3018 | 0 |
| 134 | 1 | 711 | 1 | 1288 | 1 | 1865 | 1 | 2442 | 1 | 3019 | 1 |
| 135 | 0 | 712 | 1 | 1289 | 1 | 1866 | 0 | 2443 | 0 | 3020 | 0 |
| 136 | 0 | 713 | 1 | 1290 | 0 | 1867 | 1 | 2444 | 0 | 3021 | 1 |
| 137 | 1 | 714 | 0 | 1291 | 0 | 1868 | 1 | 2445 | 0 | 3022 | 0 |
| 138 | 0 | 715 | 0 | 1292 | 0 | 1869 | 1 | 2446 | 1 | 3023 | 0 |
| 139 | 1 | 716 | 1 | 1293 | 1 | 1870 | 0 | 2447 | 0 | 3024 | 1 |
| 140 | 1 | 717 | 1 | 1294 | 1 | 1871 | 1 | 2448 | 1 | 3025 | 1 |
| 141 | 1 | 718 | 0 | 1295 | 1 | 1872 | 0 | 2449 | 1 | 3026 | 1 |
| 142 | 0 | 719 | 0 | 1296 | 0 | 1873 | 1 | 2450 | 1 | 3027 | 0 |
| 143 | 1 | 720 | 0 | 1297 | 1 | 1874 | 1 | 2451 | 0 | 3028 | 0 |
| 144 | 0 | 721 | 0 | 1298 | 1 | 1875 | 1 | 2452 | 1 | 3029 | 0 |
| 145 | 0 | 722 | 0 | 1299 | 0 | 1876 | 1 | 2453 | 1 | 3030 | 0 |
| 146 | 1 | 723 | 1 | 1300 | 0 | 1877 | 0 | 2454 | 0 | 3031 | 0 |
| 147 | 1 | 724 | 1 | 1301 | 0 | 1878 | 1 | 2455 | 0 | 3032 | 0 |
| 148 | 1 | 725 | 0 | 1302 | 0 | 1879 | 0 | 2456 | 0 | 3033 | 1 |
| 149 | 0 | 726 | 0 | 1303 | 1 | 1880 | 0 | 2457 | 1 | 3034 | 0 |
| 150 | 0 | 727 | 0 | 1304 | 1 | 1881 | 0 | 2458 | 0 | 3035 | 1 |
| 151 | 0 | 728 | 1 | 1305 | 1 | 1882 | 0 | 2459 | 1 | 3036 | 0 |
| 152 | 1 | 729 | 0 | 1306 | 1 | 1883 | 1 | 2460 | 0 | 3037 | 1 |
| 153 | 1 | 730 | 1 | 1307 | 1 | 1884 | 1 | 2461 | 0 | 3038 | 1 |
| 154 | 1 | 731 | 1 | 1308 | 0 | 1885 | 1 | 2462 | 1 | 3039 | 0 |
| 155 | 1 | 732 | 1 | 1309 | 0 | 1886 | 0 | 2463 | 1 | 3040 | 0 |
| 156 | 0 | 733 | 0 | 1310 | 0 | 1887 | 0 | 2464 | 1 | 3041 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 157 | 0 | 734 | 0 | 1311 | 1 | 1888 | 0 | 2465 | 0 | 3042 | 0 |
| 158 | 0 | 735 | 1 | 1312 | 0 | 1889 | 0 | 2466 | 1 | 3043 | 1 |
| 159 | 1 | 736 | 0 | 1313 | 1 | 1890 | 1 | 2467 | 0 | 3044 | 1 |
| 160 | 1 | 737 | 0 | 1314 | 1 | 1891 | 1 | 2468 | 1 | 3045 | 0 |
| 161 | 0 | 738 | 1 | 1315 | 1 | 1892 | 0 | 2469 | 0 | 3046 | 1 |
| 162 | 0 | 739 | 1 | 1316 | 1 | 1893 | 1 | 2470 | 1 | 3047 | 1 |
| 163 | 1 | 740 | 1 | 1317 | 0 | 1894 | 0 | 2471 | 0 | 3048 | 1 |
| 164 | 0 | 741 | 0 | 1318 | 1 | 1895 | 1 | 2472 | 1 | 3049 | 0 |
| 165 | 0 | 742 | 0 | 1319 | 0 | 1896 | 0 | 2473 | 0 | 3050 | 0 |
| 166 | 0 | 743 | 0 | 1320 | 0 | 1897 | 1 | 2474 | 0 | 3051 | 1 |
| 167 | 0 | 744 | 0 | 1321 | 1 | 1898 | 1 | 2475 | 1 | 3052 | 1 |
| 168 | 0 | 745 | 1 | 1322 | 1 | 1899 | 1 | 2476 | 1 | 3053 | 0 |
| 169 | 0 | 746 | 1 | 1323 | 0 | 1900 | 0 | 2477 | 1 | 3054 | 1 |
| 170 | 0 | 747 | 1 | 1324 | 1 | 1901 | 1 | 2478 | 1 | 3055 | 1 |
| 171 | 0 | 748 | 1 | 1325 | 0 | 1902 | 1 | 2479 | 0 | 3056 | 1 |
| 172 | 1 | 749 | 1 | 1326 | 1 | 1903 | 0 | 2480 | 1 | 3057 | 1 |
| 173 | 0 | 750 | 1 | 1327 | 0 | 1904 | 1 | 2481 | 0 | 3058 | 0 |
| 174 | 1 | 751 | 0 | 1328 | 0 | 1905 | 1 | 2482 | 0 | 3059 | 1 |
| 175 | 0 | 752 | 1 | 1329 | 0 | 1906 | 1 | 2483 | 0 | 3060 | 1 |
| 176 | 1 | 753 | 0 | 1330 | 0 | 1907 | 1 | 2484 | 0 | 3061 | 1 |
| 177 | 1 | 754 | 1 | 1331 | 0 | 1908 | 1 | 2485 | 0 | 3062 | 0 |
| 178 | 1 | 755 | 1 | 1332 | 1 | 1909 | 1 | 2486 | 1 | 3063 | 1 |
| 179 | 0 | 756 | 1 | 1333 | 0 | 1910 | 1 | 2487 | 1 | 3064 | 1 |
| 180 | 1 | 757 | 1 | 1334 | 0 | 1911 | 0 | 2488 | 0 | 3065 | 0 |
| 181 | 0 | 758 | 1 | 1335 | 1 | 1912 | 1 | 2489 | 1 | 3066 | 1 |
| 182 | 0 | 759 | 1 | 1336 | 0 | 1913 | 1 | 2490 | 1 | 3067 | 1 |
| 183 | 1 | 760 | 1 | 1337 | 1 | 1914 | 1 | 2491 | 1 | 3068 | 0 |
| 184 | 0 | 761 | 1 | 1338 | 1 | 1915 | 0 | 2492 | 1 | 3069 | 1 |
| 185 | 0 | 762 | 1 | 1339 | 0 | 1916 | 1 | 2493 | 1 | 3070 | 1 |
| 186 | 1 | 763 | 0 | 1340 | 1 | 1917 | 0 | 2494 | 1 | 3071 | 0 |
| 187 | 1 | 764 | 0 | 1341 | 1 | 1918 | 0 | 2495 | 0 | 3072 | 1 |
| 188 | 1 | 765 | 0 | 1342 | 0 | 1919 | 0 | 2496 | 1 | 3073 | 1 |
| 189 | 0 | 766 | 1 | 1343 | 0 | 1920 | 1 | 2497 | 1 | 3074 | 0 |
| 190 | 1 | 767 | 0 | 1344 | 1 | 1921 | 0 | 2498 | 0 | 3075 | 0 |
| 191 | 0 | 768 | 0 | 1345 | 0 | 1922 | 0 | 2499 | 0 | 3076 | 1 |
| 192 | 1 | 769 | 1 | 1346 | 0 | 1923 | 1 | 2500 | 1 | 3077 | 1 |
| 193 | 1 | 770 | 0 | 1347 | 0 | 1924 | 1 | 2501 | 0 | 3078 | 0 |
| 194 | 1 | 771 | 0 | 1348 | 1 | 1925 | 1 | 2502 | 0 | 3079 | 0 |
| 195 | 0 | 772 | 0 | 1349 | 1 | 1926 | 1 | 2503 | 1 | 3080 | 1 |
| 196 | 1 | 773 | 0 | 1350 | 1 | 1927 | 1 | 2504 | 0 | 3081 | 1 |
| 197 | 1 | 774 | 1 | 1351 | 0 | 1928 | 0 | 2505 | 1 | 3082 | 0 |
| 198 | 0 | 775 | 1 | 1352 | 0 | 1929 | 0 | 2506 | 1 | 3083 | 1 |
| 199 | 1 | 776 | 0 | 1353 | 1 | 1930 | 0 | 2507 | 0 | 3084 | 1 |
| 200 | 1 | 777 | 1 | 1354 | 1 | 1931 | 1 | 2508 | 1 | 3085 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | 0 | 778 | 0 | 1355 | 1 | 1932 | 0 | 2509 | 1 | 3086 | 0 |
| 202 | 1 | 779 | 1 | 1356 | 1 | 1933 | 0 | 2510 | 1 | 3087 | 1 |
| 203 | 1 | 780 | 0 | 1357 | 0 | 1934 | 1 | 2511 | 1 | 3088 | 0 |
| 204 | 1 | 781 | 0 | 1358 | 0 | 1935 | 0 | 2512 | 1 | 3089 | 0 |
| 205 | 1 | 782 | 0 | 1359 | 0 | 1936 | 1 | 2513 | 1 | 3090 | 1 |
| 206 | 1 | 783 | 1 | 1360 | 0 | 1937 | 1 | 2514 | 0 | 3091 | 1 |
| 207 | 0 | 784 | 1 | 1361 | 0 | 1938 | 0 | 2515 | 1 | 3092 | 0 |
| 208 | 1 | 785 | 0 | 1362 | 1 | 1939 | 0 | 2516 | 1 | 3093 | 0 |
| 209 | 1 | 786 | 0 | 1363 | 0 | 1940 | 0 | 2517 | 0 | 3094 | 0 |
| 210 | 1 | 787 | 0 | 1364 | 0 | 1941 | 1 | 2518 | 0 | 3095 | 1 |
| 211 | 1 | 788 | 0 | 1365 | 0 | 1942 | 0 | 2519 | 0 | 3096 | 1 |
| 212 | 1 | 789 | 1 | 1366 | 1 | 1943 | 0 | 2520 | 0 | 3097 | 0 |
| 213 | 1 | 790 | 1 | 1367 | 0 | 1944 | 1 | 2521 | 1 | 3098 | 0 |
| 214 | 1 | 791 | 0 | 1368 | 0 | 1945 | 1 | 2522 | 0 | 3099 | 1 |
| 215 | 0 | 792 | 0 | 1369 | 1 | 1946 | 0 | 2523 | 0 | 3100 | 0 |
| 216 | 1 | 793 | 0 | 1370 | 1 | 1947 | 0 | 2524 | 0 | 3101 | 1 |
| 217 | 0 | 794 | 0 | 1371 | 0 | 1948 | 0 | 2525 | 0 | 3102 | 1 |
| 218 | 1 | 795 | 0 | 1372 | 1 | 1949 | 1 | 2526 | 1 | 3103 | 1 |
| 219 | 0 | 796 | 1 | 1373 | 0 | 1950 | 1 | 2527 | 1 | 3104 | 1 |
| 220 | 1 | 797 | 1 | 1374 | 1 | 1951 | 1 | 2528 | 0 | 3105 | 1 |
| 221 | 0 | 798 | 0 | 1375 | 0 | 1952 | 0 | 2529 | 0 | 3106 | 0 |
| 222 | 1 | 799 | 1 | 1376 | 1 | 1953 | 1 | 2530 | 0 | 3107 | 1 |
| 223 | 0 | 800 | 0 | 1377 | 0 | 1954 | 0 | 2531 | 1 | 3108 | 1 |
| 224 | 0 | 801 | 1 | 1378 | 0 | 1955 | 1 | 2532 | 0 | 3109 | 0 |
| 225 | 0 | 802 | 0 | 1379 | 0 | 1956 | 1 | 2533 | 0 | 3110 | 0 |
| 226 | 1 | 803 | 1 | 1380 | 1 | 1957 | 0 | 2534 | 0 | 3111 | 0 |
| 227 | 1 | 804 | 1 | 1381 | 0 | 1958 | 0 | 2535 | 1 | 3112 | 1 |
| 228 | 0 | 805 | 0 | 1382 | 0 | 1959 | 1 | 2536 | 0 | 3113 | 0 |
| 229 | 0 | 806 | 1 | 1383 | 1 | 1960 | 0 | 2537 | 1 | 3114 | 0 |
| 230 | 1 | 807 | 0 | 1384 | 1 | 1961 | 0 | 2538 | 1 | 3115 | 1 |
| 231 | 1 | 808 | 1 | 1385 | 1 | 1962 | 1 | 2539 | 0 | 3116 | 1 |
| 232 | 1 | 809 | 1 | 1386 | 0 | 1963 | 0 | 2540 | 1 | 3117 | 1 |
| 233 | 1 | 810 | 0 | 1387 | 1 | 1964 | 1 | 2541 | 1 | 3118 | 1 |
| 234 | 0 | 811 | 0 | 1388 | 1 | 1965 | 1 | 2542 | 1 | 3119 | 0 |
| 235 | 1 | 812 | 1 | 1389 | 1 | 1966 | 0 | 2543 | 1 | 3120 | 1 |
| 236 | 0 | 813 | 1 | 1390 | 1 | 1967 | 0 | 2544 | 0 | 3121 | 0 |
| 237 | 0 | 814 | 0 | 1391 | 1 | 1968 | 0 | 2545 | 0 | 3122 | 0 |
| 238 | 1 | 815 | 0 | 1392 | 0 | 1969 | 0 | 2546 | 1 | 3123 | 1 |
| 239 | 1 | 816 | 0 | 1393 | 0 | 1970 | 1 | 2547 | 1 | 3124 | 0 |
| 240 | 1 | 817 | 1 | 1394 | 1 | 1971 | 1 | 2548 | 0 | 3125 | 1 |
| 241 | 0 | 818 | 1 | 1395 | 1 | 1972 | 0 | 2549 | 0 | 3126 | 0 |
| 242 | 0 | 819 | 0 | 1396 | 1 | 1973 | 0 | 2550 | 1 | 3127 | 1 |
| 243 | 0 | 820 | 1 | 1397 | 0 | 1974 | 1 | 2551 | 0 | 3128 | 0 |
| 244 | 1 | 821 | 0 | 1398 | 0 | 1975 | 1 | 2552 | 1 | 3129 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 245 | 1 | 822 | 0 | 1399 | 0 | 1976 | 0 | 2553 | 0 | 3130 | 0 |
| 246 | 0 | 823 | 0 | 1400 | 0 | 1977 | 0 | 2554 | 0 | 3131 | 1 |
| 247 | 1 | 824 | 1 | 1401 | 1 | 1978 | 1 | 2555 | 1 | 3132 | 0 |
| 248 | 1 | 825 | 0 | 1402 | 1 | 1979 | 1 | 2556 | 0 | 3133 | 0 |
| 249 | 1 | 826 | 0 | 1403 | 1 | 1980 | 0 | 2557 | 1 | 3134 | 1 |
| 250 | 0 | 827 | 1 | 1404 | 0 | 1981 | 1 | 2558 | 1 | 3135 | 1 |
| 251 | 1 | 828 | 1 | 1405 | 0 | 1982 | 0 | 2559 | 1 | 3136 | 1 |
| 252 | 0 | 829 | 0 | 1406 | 0 | 1983 | 1 | 2560 | 1 | 3137 | 1 |
| 253 | 0 | 830 | 1 | 1407 | 0 | 1984 | 1 | 2561 | 0 | 3138 | 0 |
| 254 | 1 | 831 | 0 | 1408 | 1 | 1985 | 0 | 2562 | 0 | 3139 | 0 |
| 255 | 0 | 832 | 0 | 1409 | 0 | 1986 | 1 | 2563 | 1 | 3140 | 1 |
| 256 | 1 | 833 | 0 | 1410 | 1 | 1987 | 1 | 2564 | 1 | 3141 | 1 |
| 257 | 0 | 834 | 0 | 1411 | 1 | 1988 | 0 | 2565 | 1 | 3142 | 1 |
| 258 | 1 | 835 | 1 | 1412 | 0 | 1989 | 1 | 2566 | 0 | 3143 | 1 |
| 259 | 1 | 836 | 1 | 1413 | 0 | 1990 | 0 | 2567 | 1 | 3144 | 1 |
| 260 | 1 | 837 | 1 | 1414 | 1 | 1991 | 0 | 2568 | 1 | 3145 | 1 |
| 261 | 0 | 838 | 0 | 1415 | 0 | 1992 | 1 | 2569 | 1 | 3146 | 0 |
| 262 | 1 | 839 | 1 | 1416 | 1 | 1993 | 0 | 2570 | 0 | 3147 | 0 |
| 263 | 0 | 840 | 0 | 1417 | 0 | 1994 | 0 | 2571 | 0 | 3148 | 0 |
| 264 | 1 | 841 | 0 | 1418 | 0 | 1995 | 0 | 2572 | 0 | 3149 | 1 |
| 265 | 1 | 842 | 0 | 1419 | 1 | 1996 | 1 | 2573 | 0 | 3150 | 0 |
| 266 | 0 | 843 | 0 | 1420 | 0 | 1997 | 1 | 2574 | 0 | 3151 | 0 |
| 267 | 0 | 844 | 0 | 1421 | 0 | 1998 | 0 | 2575 | 1 | 3152 | 0 |
| 268 | 0 | 845 | 0 | 1422 | 0 | 1999 | 1 | 2576 | 1 | 3153 | 0 |
| 269 | 1 | 846 | 0 | 1423 | 1 | 2000 | 0 | 2577 | 0 | 3154 | 0 |
| 270 | 1 | 847 | 0 | 1424 | 1 | 2001 | 1 | 2578 | 1 | 3155 | 1 |
| 271 | 1 | 848 | 1 | 1425 | 0 | 2002 | 1 | 2579 | 0 | 3156 | 1 |
| 272 | 1 | 849 | 0 | 1426 | 0 | 2003 | 0 | 2580 | 0 | 3157 | 0 |
| 273 | 1 | 850 | 1 | 1427 | 1 | 2004 | 0 | 2581 | 0 | 3158 | 1 |
| 274 | 0 | 851 | 1 | 1428 | 0 | 2005 | 1 | 2582 | 1 | 3159 | 1 |
| 275 | 1 | 852 | 0 | 1429 | 0 | 2006 | 1 | 2583 | 1 | 3160 | 0 |
| 276 | 1 | 853 | 0 | 1430 | 1 | 2007 | 1 | 2584 | 1 | 3161 | 0 |
| 277 | 0 | 854 | 0 | 1431 | 0 | 2008 | 1 | 2585 | 1 | 3162 | 0 |
| 278 | 0 | 855 | 1 | 1432 | 1 | 2009 | 0 | 2586 | 0 | 3163 | 0 |
| 279 | 1 | 856 | 0 | 1433 | 0 | 2010 | 0 | 2587 | 0 | 3164 | 0 |
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| 281 | 1 | 858 | 0 | 1435 | 0 | 2012 | 0 | 2589 | 0 | 3166 | 1 |
| 282 | 1 | 859 | 1 | 1436 | 1 | 2013 | 1 | 2590 | 0 | 3167 | 1 |
| 283 | 1 | 860 | 1 | 1437 | 0 | 2014 | 1 | 2591 | 0 | 3168 | 1 |
| 284 | 1 | 861 | 0 | 1438 | 0 | 2015 | 1 | 2592 | 0 | 3169 | 1 |
| 285 | 0 | 862 | 1 | 1439 | 1 | 2016 | 0 | 2593 | 0 | 3170 | 0 |
| 286 | 1 | 863 | 0 | 1440 | 1 | 2017 | 0 | 2594 | 0 | 3171 | 0 |
| 287 | 0 | 864 | 0 | 1441 | 0 | 2018 | 0 | 2595 | 0 | 3172 | 0 |
| 288 | 0 | 865 | 1 | 1442 | 1 | 2019 | 1 | 2596 | 0 | 3173 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 289 | 1 | 866 | 1 | 1443 | 1 | 2020 | 1 | 2597 | 0 | 3174 | 0 |
| 290 | 0 | 867 | 0 | 1444 | 1 | 2021 | 1 | 2598 | 1 | 3175 | 1 |
| 291 | 1 | 868 | 1 | 1445 | 1 | 2022 | 1 | 2599 | 1 | 3176 | 1 |
| 292 | 0 | 869 | 1 | 1446 | 0 | 2023 | 1 | 2600 | 0 | 3177 | 1 |
| 293 | 1 | 870 | 0 | 1447 | 1 | 2024 | 1 | 2601 | 0 | 3178 | 0 |
| 294 | 1 | 871 | 1 | 1448 | 0 | 2025 | 0 | 2602 | 1 | 3179 | 0 |
| 295 | 0 | 872 | 1 | 1449 | 1 | 2026 | 0 | 2603 | 0 | 3180 | 1 |
| 296 | 1 | 873 | 0 | 1450 | 0 | 2027 | 0 | 2604 | 1 | 3181 | 0 |
| 297 | 0 | 874 | 0 | 1451 | 1 | 2028 | 0 | 2605 | 1 | 3182 | 0 |
| 298 | 1 | 875 | 0 | 1452 | 1 | 2029 | 1 | 2606 | 0 | 3183 | 1 |
| 299 | 1 | 876 | 0 | 1453 | 0 | 2030 | 1 | 2607 | 1 | 3184 | 1 |
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| 301 | 1 | 878 | 0 | 1455 | 0 | 2032 | 1 | 2609 | 1 | 3186 | 0 |
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| 304 | 0 | 881 | 0 | 1458 | 1 | 2035 | 1 | 2612 | 1 | 3189 | 0 |
| 305 | 1 | 882 | 1 | 1459 | 1 | 2036 | 1 | 2613 | 1 | 3190 | 1 |
| 306 | 0 | 883 | 0 | 1460 | 0 | 2037 | 0 | 2614 | 1 | 3191 | 1 |
| 307 | 1 | 884 | 1 | 1461 | 0 | 2038 | 0 | 2615 | 0 | 3192 | 0 |
| 308 | 1 | 885 | 0 | 1462 | 1 | 2039 | 0 | 2616 | 0 | 3193 | 1 |
| 309 | 1 | 886 | 1 | 1463 | 1 | 2040 | 0 | 2617 | 0 | 3194 | 0 |
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| 311 | 0 | 888 | 1 | 1465 | 1 | 2042 | 1 | 2619 | 0 | 3196 | 0 |
| 312 | 0 | 889 | 0 | 1466 | 1 | 2043 | 0 | 2620 | 0 | 3197 | 0 |
| 313 | 0 | 890 | 0 | 1467 | 0 | 2044 | 0 | 2621 | 0 | 3198 | 0 |
| 314 | 0 | 891 | 0 | 1468 | 0 | 2045 | 1 | 2622 | 0 | 3199 | 0 |
| 315 | 0 | 892 | 0 | 1469 | 1 | 2046 | 0 | 2623 | 1 | 3200 | 1 |
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| 317 | 1 | 894 | 1 | 1471 | 1 | 2048 | 1 | 2625 | 0 | 3202 | 0 |
| 318 | 0 | 895 | 1 | 1472 | 0 | 2049 | 0 | 2626 | 1 | 3203 | 0 |
| 319 | 0 | 896 | 1 | 1473 | 0 | 2050 | 0 | 2627 | 0 | 3204 | 0 |
| 320 | 0 | 897 | 0 | 1474 | 0 | 2051 | 1 | 2628 | 0 | 3205 | 1 |
| 321 | 0 | 898 | 1 | 1475 | 1 | 2052 | 0 | 2629 | 1 | 3206 | 0 |
| 322 | 0 | 899 | 0 | 1476 | 1 | 2053 | 1 | 2630 | 0 | 3207 | 0 |
| 323 | 0 | 900 | 0 | 1477 | 0 | 2054 | 0 | 2631 | 0 | 3208 | 1 |
| 324 | 0 | 901 | 0 | 1478 | 1 | 2055 | 1 | 2632 | 1 | 3209 | 1 |
| 325 | 0 | 902 | 1 | 1479 | 0 | 2056 | 0 | 2633 | 0 | 3210 | 1 |
| 326 | 1 | 903 | 1 | 1480 | 0 | 2057 | 0 | 2634 | 0 | 3211 | 1 |
| 327 | 0 | 904 | 1 | 1481 | 1 | 2058 | 1 | 2635 | 1 | 3212 | 1 |
| 328 | 1 | 905 | 1 | 1482 | 1 | 2059 | 1 | 2636 | 0 | 3213 | 0 |
| 329 | 0 | 906 | 0 | 1483 | 0 | 2060 | 1 | 2637 | 0 | 3214 | 0 |
| 330 | 0 | 907 | 1 | 1484 | 1 | 2061 | 0 | 2638 | 0 | 3215 | 1 |
| 331 | 1 | 908 | 0 | 1485 | 1 | 2062 | 1 | 2639 | 0 | 3216 | 0 |
| 332 | 1 | 909 | 0 | 1486 | 0 | 2063 | 0 | 2640 | 1 | 3217 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 333 | 1 | 910 | 0 | 1487 | 1 | 2064 | 0 | 2641 | 0 | 3218 | 0 |
| 334 | 0 | 911 | 1 | 1488 | 1 | 2065 | 1 | 2642 | 1 | 3219 | 0 |
| 335 | 0 | 912 | 0 | 1489 | 0 | 2066 | 1 | 2643 | 1 | 3220 | 0 |
| 336 | 1 | 913 | 1 | 1490 | 1 | 2067 | 0 | 2644 | 0 | 3221 | 1 |
| 337 | 1 | 914 | 1 | 1491 | 1 | 2068 | 0 | 2645 | 1 | 3222 | 0 |
| 338 | 0 | 915 | 0 | 1492 | 0 | 2069 | 0 | 2646 | 1 | 3223 | 0 |
| 339 | 0 | 916 | 1 | 1493 | 1 | 2070 | 0 | 2647 | 1 | 3224 | 0 |
| 340 | 1 | 917 | 1 | 1494 | 1 | 2071 | 0 | 2648 | 0 | 3225 | 0 |
| 341 | 0 | 918 | 1 | 1495 | 0 | 2072 | 0 | 2649 | 1 | 3226 | 1 |
| 342 | 1 | 919 | 0 | 1496 | 1 | 2073 | 0 | 2650 | 1 | 3227 | 0 |
| 343 | 0 | 920 | 1 | 1497 | 1 | 2074 | 0 | 2651 | 1 | 3228 | 1 |
| 344 | 0 | 921 | 1 | 1498 | 1 | 2075 | 0 | 2652 | 1 | 3229 | 0 |
| 345 | 0 | 922 | 0 | 1499 | 1 | 2076 | 0 | 2653 | 1 | 3230 | 1 |
| 346 | 0 | 923 | 1 | 1500 | 0 | 2077 | 0 | 2654 | 0 | 3231 | 0 |
| 347 | 1 | 924 | 0 | 1501 | 0 | 2078 | 0 | 2655 | 1 | 3232 | 1 |
| 348 | 0 | 925 | 0 | 1502 | 0 | 2079 | 0 | 2656 | 1 | 3233 | 1 |
| 349 | 0 | 926 | 1 | 1503 | 0 | 2080 | 0 | 2657 | 0 | 3234 | 0 |
| 350 | 0 | 927 | 0 | 1504 | 0 | 2081 | 0 | 2658 | 0 | 3235 | 0 |
| 351 | 0 | 928 | 0 | 1505 | 0 | 2082 | 1 | 2659 | 0 | 3236 | 1 |
| 352 | 1 | 929 | 1 | 1506 | 0 | 2083 | 0 | 2660 | 0 | 3237 | 1 |
| 353 | 1 | 930 | 1 | 1507 | 0 | 2084 | 1 | 2661 | 0 | 3238 | 0 |
| 354 | 1 | 931 | 1 | 1508 | 0 | 2085 | 0 | 2662 | 1 | 3239 | 0 |
| 355 | 0 | 932 | 0 | 1509 | 0 | 2086 | 0 | 2663 | 1 | 3240 | 0 |
| 356 | 1 | 933 | 1 | 1510 | 0 | 2087 | 1 | 2664 | 0 | 3241 | 1 |
| 357 | 0 | 934 | 1 | 1511 | 0 | 2088 | 0 | 2665 | 0 | 3242 | 0 |
| 358 | 1 | 935 | 1 | 1512 | 0 | 2089 | 1 | 2666 | 1 | 3243 | 1 |
| 359 | 1 | 936 | 0 | 1513 | 0 | 2090 | 1 | 2667 | 0 | 3244 | 0 |
| 360 | 1 | 937 | 1 | 1514 | 0 | 2091 | 1 | 2668 | 0 | 3245 | 0 |
| 361 | 0 | 938 | 1 | 1515 | 0 | 2092 | 0 | 2669 | 1 | 3246 | 0 |
| 362 | 1 | 939 | 0 | 1516 | 0 | 2093 | 0 | 2670 | 0 | 3247 | 1 |
| 363 | 0 | 940 | 0 | 1517 | 0 | 2094 | 1 | 2671 | 0 | 3248 | 1 |
| 364 | 0 | 941 | 1 | 1518 | 1 | 2095 | 1 | 2672 | 1 | 3249 | 0 |
| 365 | 0 | 942 | 0 | 1519 | 1 | 2096 | 1 | 2673 | 0 | 3250 | 0 |
| 366 | 1 | 943 | 1 | 1520 | 1 | 2097 | 0 | 2674 | 1 | 3251 | 1 |
| 367 | 1 | 944 | 1 | 1521 | 0 | 2098 | 0 | 2675 | 1 | 3252 | 1 |
| 368 | 0 | 945 | 1 | 1522 | 1 | 2099 | 1 | 2676 | 0 | 3253 | 0 |
| 369 | 0 | 946 | 0 | 1523 | 1 | 2100 | 0 | 2677 | 0 | 3254 | 1 |
| 370 | 1 | 947 | 0 | 1524 | 0 | 2101 | 1 | 2678 | 1 | 3255 | 0 |
| 371 | 0 | 948 | 1 | 1525 | 0 | 2102 | 1 | 2679 | 0 | 3256 | 1 |
| 372 | 1 | 949 | 0 | 1526 | 1 | 2103 | 0 | 2680 | 0 | 3257 | 1 |
| 373 | 1 | 950 | 1 | 1527 | 0 | 2104 | 1 | 2681 | 0 | 3258 | 1 |
| 374 | 1 | 951 | 1 | 1528 | 0 | 2105 | 0 | 2682 | 0 | 3259 | 1 |
| 375 | 1 | 952 | 1 | 1529 | 0 | 2106 | 0 | 2683 | 1 | 3260 | 0 |
| 376 | 0 | 953 | 1 | 1530 | 0 | 2107 | 1 | 2684 | 1 | 3261 | 0 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 377 | 1 | 954 | 1 | 1531 | 1 | 2108 | 0 | 2685 | 1 | 3262 | 0 |
| 378 | 1 | 955 | 1 | 1532 | 1 | 2109 | 1 | 2686 | 0 | 3263 | 1 |
| 379 | 1 | 956 | 1 | 1533 | 1 | 2110 | 1 | 2687 | 1 | 3264 | 0 |
| 380 | 1 | 957 | 1 | 1534 | 0 | 2111 | 1 | 2688 | 1 | 3265 | 0 |
| 381 | 0 | 958 | 0 | 1535 | 0 | 2112 | 1 | 2689 | 0 | 3266 | 0 |
| 382 | 1 | 959 | 0 | 1536 | 1 | 2113 | 1 | 2690 | 1 | 3267 | 1 |
| 383 | 1 | 960 | 1 | 1537 | 1 | 2114 | 1 | 2691 | 1 | 3268 | 1 |
| 384 | 0 | 961 | 1 | 1538 | 0 | 2115 | 1 | 2692 | 1 | 3269 | 1 |
| 385 | 1 | 962 | 0 | 1539 | 1 | 2116 | 0 | 2693 | 0 | 3270 | 1 |
| 386 | 1 | 963 | 0 | 1540 | 0 | 2117 | 0 | 2694 | 1 | 3271 | 1 |
| 387 | 0 | 964 | 0 | 1541 | 0 | 2118 | 1 | 2695 | 1 | 3272 | 1 |
| 388 | 1 | 965 | 0 | 1542 | 1 | 2119 | 0 | 2696 | 0 | 3273 | 0 |
| 389 | 1 | 966 | 1 | 1543 | 0 | 2120 | 1 | 2697 | 1 | 3274 | 1 |
| 390 | 0 | 967 | 0 | 1544 | 1 | 2121 | 0 | 2698 | 0 | 3275 | 1 |
| 391 | 1 | 968 | 1 | 1545 | 0 | 2122 | 0 | 2699 | 1 | 3276 | 0 |
| 392 | 1 | 969 | 1 | 1546 | 0 | 2123 | 0 | 2700 | 0 | 3277 | 0 |
| 393 | 1 | 970 | 0 | 1547 | 1 | 2124 | 1 | 2701 | 1 | 3278 | 0 |
| 394 | 1 | 971 | 1 | 1548 | 1 | 2125 | 1 | 2702 | 0 | 3279 | 0 |
| 395 | 1 | 972 | 0 | 1549 | 1 | 2126 | 1 | 2703 | 1 | 3280 | 0 |
| 396 | 1 | 973 | 0 | 1550 | 0 | 2127 | 0 | 2704 | 0 | 3281 | 0 |
| 397 | 1 | 974 | 0 | 1551 | 0 | 2128 | 0 | 2705 | 1 | 3282 | 0 |
| 398 | 0 | 975 | 0 | 1552 | 1 | 2129 | 1 | 2706 | 1 | 3283 | 1 |
| 399 | 0 | 976 | 1 | 1553 | 0 | 2130 | 0 | 2707 | 0 | 3284 | 1 |
| 400 | 1 | 977 | 1 | 1554 | 1 | 2131 | 0 | 2708 | 0 | 3285 | 1 |
| 401 | 1 | 978 | 0 | 1555 | 0 | 2132 | 0 | 2709 | 1 | 3286 | 0 |
| 402 | 1 | 979 | 0 | 1556 | 1 | 2133 | 0 | 2710 | 1 | 3287 | 0 |
| 403 | 1 | 980 | 0 | 1557 | 1 | 2134 | 0 | 2711 | 0 | 3288 | 1 |
| 404 | 1 | 981 | 0 | 1558 | 1 | 2135 | 0 | 2712 | 1 | 3289 | 0 |
| 405 | 0 | 982 | 0 | 1559 | 1 | 2136 | 1 | 2713 | 0 | 3290 | 0 |
| 406 | 1 | 983 | 0 | 1560 | 0 | 2137 | 0 | 2714 | 1 | 3291 | 1 |
| 407 | 1 | 984 | 0 | 1561 | 0 | 2138 | 1 | 2715 | 1 | 3292 | 0 |
| 408 | 1 | 985 | 0 | 1562 | 1 | 2139 | 1 | 2716 | 1 | 3293 | 0 |
| 409 | 1 | 986 | 0 | 1563 | 1 | 2140 | 0 | 2717 | 1 | 3294 | 0 |
| 410 | 1 | 987 | 0 | 1564 | 1 | 2141 | 0 | 2718 | 1 | 3295 | 1 |
| 411 | 1 | 988 | 0 | 1565 | 0 | 2142 | 0 | 2719 | 0 | 3296 | 1 |
| 412 | 1 | 989 | 0 | 1566 | 0 | 2143 | 1 | 2720 | 1 | 3297 | 1 |
| 413 | 1 | 990 | 0 | 1567 | 0 | 2144 | 1 | 2721 | 0 | 3298 | 1 |
| 414 | 0 | 991 | 0 | 1568 | 1 | 2145 | 0 | 2722 | 0 | 3299 | 1 |
| 415 | 1 | 992 | 0 | 1569 | 1 | 2146 | 1 | 2723 | 0 | 3300 | 0 |
| 416 | 1 | 993 | 1 | 1570 | 1 | 2147 | 0 | 2724 | 1 | 3301 | 0 |
| 417 | 0 | 994 | 0 | 1571 | 1 | 2148 | 1 | 2725 | 1 | 3302 | 0 |
| 418 | 0 | 995 | 0 | 1572 | 1 | 2149 | 1 | 2726 | 0 | 3303 | 0 |
| 419 | 1 | 996 | 0 | 1573 | 1 | 2150 | 1 | 2727 | 1 | 3304 | 1 |
| 420 | 0 | 997 | 0 | 1574 | 0 | 2151 | 0 | 2728 | 1 | 3305 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 421 | 0 | 998 | 1 | 1575 | 0 | 2152 | 0 | 2729 | 1 | 3306 | 1 |
| 422 | 1 | 999 | 0 | 1576 | 1 | 2153 | 1 | 2730 | 1 | 3307 | 0 |
| 423 | 1 | 1000 | 0 | 1577 | 0 | 2154 | 1 | 2731 | 1 | 3308 | 0 |
| 424 | 1 | 1001 | 0 | 1578 | 1 | 2155 | 0 | 2732 | 0 | 3309 | 0 |
| 425 | 0 | 1002 | 1 | 1579 | 0 | 2156 | 0 | 2733 | 1 | 3310 | 1 |
| 426 | 0 | 1003 | 0 | 1580 | 0 | 2157 | 0 | 2734 | 1 | 3311 | 0 |
| 427 | 1 | 1004 | 0 | 1581 | 0 | 2158 | 1 | 2735 | 0 | 3312 | 1 |
| 428 | 1 | 1005 | 0 | 1582 | 0 | 2159 | 1 | 2736 | 0 | 3313 | 0 |
| 429 | 0 | 1006 | 0 | 1583 | 1 | 2160 | 0 | 2737 | 0 | 3314 | 1 |
| 430 | 0 | 1007 | 1 | 1584 | 1 | 2161 | 0 | 2738 | 1 | 3315 | 0 |
| 431 | 0 | 1008 | 0 | 1585 | 1 | 2162 | 0 | 2739 | 1 | 3316 | 1 |
| 432 | 1 | 1009 | 0 | 1586 | 1 | 2163 | 0 | 2740 | 0 | 3317 | 0 |
| 433 | 0 | 1010 | 1 | 1587 | 1 | 2164 | 1 | 2741 | 1 | 3318 | 1 |
| 434 | 1 | 1011 | 0 | 1588 | 1 | 2165 | 1 | 2742 | 0 | 3319 | 1 |
| 435 | 1 | 1012 | 0 | 1589 | 1 | 2166 | 1 | 2743 | 0 | 3320 | 0 |
| 436 | 1 | 1013 | 1 | 1590 | 0 | 2167 | 1 | 2744 | 1 | 3321 | 0 |
| 437 | 0 | 1014 | 0 | 1591 | 1 | 2168 | 0 | 2745 | 1 | 3322 | 1 |
| 438 | 1 | 1015 | 0 | 1592 | 0 | 2169 | 1 | 2746 | 0 | 3323 | 0 |
| 439 | 0 | 1016 | 0 | 1593 | 1 | 2170 | 1 | 2747 | 1 | 3324 | 0 |
| 440 | 1 | 1017 | 1 | 1594 | 0 | 2171 | 1 | 2748 | 1 | 3325 | 1 |
| 441 | 1 | 1018 | 1 | 1595 | 0 | 2172 | 0 | 2749 | 1 | 3326 | 0 |
| 442 | 1 | 1019 | 0 | 1596 | 0 | 2173 | 0 | 2750 | 0 | 3327 | 1 |
| 443 | 1 | 1020 | 0 | 1597 | 1 | 2174 | 1 | 2751 | 1 | 3328 | 0 |
| 444 | 1 | 1021 | 1 | 1598 | 0 | 2175 | 1 | 2752 | 0 | 3329 | 0 |
| 445 | 1 | 1022 | 1 | 1599 | 1 | 2176 | 0 | 2753 | 0 | 3330 | 0 |
| 446 | 1 | 1023 | 1 | 1600 | 1 | 2177 | 1 | 2754 | 0 | 3331 | 1 |
| 447 | 0 | 1024 | 0 | 1601 | 1 | 2178 | 0 | 2755 | 1 | 3332 | 0 |
| 448 | 0 | 1025 | 0 | 1602 | 0 | 2179 | 1 | 2756 | 0 | 3333 | 0 |
| 449 | 1 | 1026 | 1 | 1603 | 1 | 2180 | 0 | 2757 | 1 | 3334 | 1 |
| 450 | 1 | 1027 | 0 | 1604 | 0 | 2181 | 0 | 2758 | 0 | 3335 | 1 |
| 451 | 0 | 1028 | 0 | 1605 | 1 | 2182 | 1 | 2759 | 1 | 3336 | 1 |
| 452 | 0 | 1029 | 0 | 1606 | 1 | 2183 | 0 | 2760 | 0 | 3337 | 0 |
| 453 | 0 | 1030 | 0 | 1607 | 1 | 2184 | 1 | 2761 | 1 | 3338 | 0 |
| 454 | 1 | 1031 | 1 | 1608 | 1 | 2185 | 0 | 2762 | 0 | 3339 | 1 |
| 455 | 1 | 1032 | 1 | 1609 | 0 | 2186 | 1 | 2763 | 1 | 3340 | 0 |
| 456 | 1 | 1033 | 0 | 1610 | 1 | 2187 | 1 | 2764 | 0 | 3341 | 0 |
| 457 | 1 | 1034 | 1 | 1611 | 0 | 2188 | 0 | 2765 | 1 | 3342 | 0 |
| 458 | 0 | 1035 | 0 | 1612 | 1 | 2189 | 1 | 2766 | 0 | 3343 | 0 |
| 459 | 1 | 1036 | 0 | 1613 | 1 | 2190 | 0 | 2767 | 1 | 3344 | 1 |
| 460 | 0 | 1037 | 0 | 1614 | 0 | 2191 | 1 | 2768 | 1 | 3345 | 0 |
| 461 | 0 | 1038 | 0 | 1615 | 0 | 2192 | 0 | 2769 | 1 | 3346 | 0 |
| 462 | 1 | 1039 | 1 | 1616 | 1 | 2193 | 0 | 2770 | 0 | 3347 | 1 |
| 463 | 0 | 1040 | 0 | 1617 | 0 | 2194 | 0 | 2771 | 0 | 3348 | 0 |
| 464 | 0 | 1041 | 1 | 1618 | 0 | 2195 | 1 | 2772 | 0 | 3349 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 465 | 0 | 1042 | 0 | 1619 | 0 | 2196 | 1 | 2773 | 0 | 3350 | 0 |
| 466 | 1 | 1043 | 1 | 1620 | 1 | 2197 | 1 | 2774 | 1 | 3351 | 1 |
| 467 | 1 | 1044 | 1 | 1621 | 0 | 2198 | 1 | 2775 | 1 | 3352 | 0 |
| 468 | 0 | 1045 | 0 | 1622 | 1 | 2199 | 1 | 2776 | 1 | 3353 | 1 |
| 469 | 0 | 1046 | 0 | 1623 | 1 | 2200 | 1 | 2777 | 1 | 3354 | 1 |
| 470 | 1 | 1047 | 0 | 1624 | 1 | 2201 | 0 | 2778 | 0 | 3355 | 0 |
| 471 | 1 | 1048 | 1 | 1625 | 0 | 2202 | 1 | 2779 | 1 | 3356 | 0 |
| 472 | 1 | 1049 | 0 | 1626 | 0 | 2203 | 1 | 2780 | 1 | 3357 | 0 |
| 473 | 0 | 1050 | 0 | 1627 | 1 | 2204 | 1 | 2781 | 0 | 3358 | 1 |
| 474 | 1 | 1051 | 0 | 1628 | 1 | 2205 | 1 | 2782 | 1 | 3359 | 0 |
| 475 | 1 | 1052 | 1 | 1629 | 0 | 2206 | 1 | 2783 | 1 | 3360 | 0 |
| 476 | 0 | 1053 | 1 | 1630 | 0 | 2207 | 1 | 2784 | 1 | 3361 | 1 |
| 477 | 1 | 1054 | 1 | 1631 | 0 | 2208 | 0 | 2785 | 0 | 3362 | 0 |
| 478 | 0 | 1055 | 0 | 1632 | 1 | 2209 | 1 | 2786 | 1 | 3363 | 1 |
| 479 | 0 | 1056 | 1 | 1633 | 1 | 2210 | 0 | 2787 | 1 | 3364 | 0 |
| 480 | 0 | 1057 | 0 | 1634 | 0 | 2211 | 0 | 2788 | 1 | 3365 | 0 |
| 481 | 1 | 1058 | 0 | 1635 | 0 | 2212 | 1 | 2789 | 1 | 3366 | 0 |
| 482 | 0 | 1059 | 0 | 1636 | 1 | 2213 | 0 | 2790 | 0 | 3367 | 1 |
| 483 | 1 | 1060 | 0 | 1637 | 0 | 2214 | 1 | 2791 | 1 | 3368 | 0 |
| 484 | 1 | 1061 | 0 | 1638 | 0 | 2215 | 0 | 2792 | 1 | 3369 | 0 |
| 485 | 0 | 1062 | 0 | 1639 | 1 | 2216 | 1 | 2793 | 0 | 3370 | 0 |
| 486 | 0 | 1063 | 1 | 1640 | 0 | 2217 | 0 | 2794 | 0 | 3371 | 1 |
| 487 | 1 | 1064 | 0 | 1641 | 1 | 2218 | 0 | 2795 | 1 | 3372 | 1 |
| 488 | 1 | 1065 | 0 | 1642 | 0 | 2219 | 1 | 2796 | 1 | 3373 | 0 |
| 489 | 1 | 1066 | 0 | 1643 | 0 | 2220 | 0 | 2797 | 0 | 3374 | 1 |
| 490 | 0 | 1067 | 1 | 1644 | 0 | 2221 | 0 | 2798 | 0 | 3375 | 0 |
| 491 | 0 | 1068 | 0 | 1645 | 1 | 2222 | 0 | 2799 | 0 | 3376 | 1 |
| 492 | 0 | 1069 | 1 | 1646 | 1 | 2223 | 0 | 2800 | 0 | 3377 | 1 |
| 493 | 0 | 1070 | 0 | 1647 | 1 | 2224 | 0 | 2801 | 1 | 3378 | 1 |
| 494 | 0 | 1071 | 1 | 1648 | 0 | 2225 | 1 | 2802 | 1 | 3379 | 1 |
| 495 | 1 | 1072 | 1 | 1649 | 0 | 2226 | 0 | 2803 | 1 | 3380 | 0 |
| 496 | 1 | 1073 | 1 | 1650 | 1 | 2227 | 1 | 2804 | 1 | 3381 | 0 |
| 497 | 1 | 1074 | 1 | 1651 | 1 | 2228 | 1 | 2805 | 1 | 3382 | 1 |
| 498 | 1 | 1075 | 0 | 1652 | 1 | 2229 | 0 | 2806 | 1 | 3383 | 1 |
| 499 | 0 | 1076 | 0 | 1653 | 0 | 2230 | 1 | 2807 | 0 | 3384 | 0 |
| 500 | 0 | 1077 | 0 | 1654 | 0 | 2231 | 0 | 2808 | 0 | 3385 | 1 |
| 501 | 1 | 1078 | 0 | 1655 | 0 | 2232 | 0 | 2809 | 1 | 3386 | 1 |
| 502 | 0 | 1079 | 0 | 1656 | 0 | 2233 | 0 | 2810 | 0 | 3387 | 1 |
| 503 | 1 | 1080 | 1 | 1657 | 1 | 2234 | 0 | 2811 | 0 | 3388 | 1 |
| 504 | 1 | 1081 | 0 | 1658 | 0 | 2235 | 0 | 2812 | 1 | 3389 | 1 |
| 505 | 1 | 1082 | 1 | 1659 | 1 | 2236 | 1 | 2813 | 0 | 3390 | 1 |
| 506 | 0 | 1083 | 1 | 1660 | 0 | 2237 | 1 | 2814 | 0 | 3391 | 0 |
| 507 | 0 | 1084 | 0 | 1661 | 0 | 2238 | 0 | 2815 | 0 | 3392 | 0 |
| 508 | 1 | 1085 | 1 | 1662 | 0 | 2239 | 0 | 2816 | 1 | 3393 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 509 | 0 | 1086 | 0 | 1663 | 1 | 2240 | 0 | 2817 | 1 | 3394 | 0 |
| 510 | 1 | 1087 | 1 | 1664 | 1 | 2241 | 1 | 2818 | 1 | 3395 | 0 |
| 511 | 1 | 1088 | 1 | 1665 | 1 | 2242 | 0 | 2819 | 1 | 3396 | 1 |
| 512 | 0 | 1089 | 0 | 1666 | 1 | 2243 | 1 | 2820 | 1 | 3397 | 1 |
| 513 | 0 | 1090 | 1 | 1667 | 1 | 2244 | 1 | 2821 | 0 | 3398 | 0 |
| 514 | 1 | 1091 | 1 | 1668 | 1 | 2245 | 0 | 2822 | 0 | 3399 | 1 |
| 515 | 1 | 1092 | 1 | 1669 | 1 | 2246 | 1 | 2823 | 0 | 3400 | 0 |
| 516 | 0 | 1093 | 0 | 1670 | 0 | 2247 | 0 | 2824 | 1 | 3401 | 0 |
| 517 | 1 | 1094 | 1 | 1671 | 0 | 2248 | 1 | 2825 | 0 | 3402 | 0 |
| 518 | 1 | 1095 | 0 | 1672 | 0 | 2249 | 1 | 2826 | 1 | 3403 | 0 |
| 519 | 1 | 1096 | 0 | 1673 | 1 | 2250 | 0 | 2827 | 0 | 3404 | 0 |
| 520 | 1 | 1097 | 1 | 1674 | 1 | 2251 | 1 | 2828 | 0 | 3405 | 1 |
| 521 | 0 | 1098 | 1 | 1675 | 0 | 2252 | 0 | 2829 | 0 | 3406 | 0 |
| 522 | 0 | 1099 | 1 | 1676 | 0 | 2253 | 1 | 2830 | 0 | 3407 | 1 |
| 523 | 1 | 1100 | 0 | 1677 | 1 | 2254 | 0 | 2831 | 1 | 3408 | 1 |
| 524 | 1 | 1101 | 0 | 1678 | 1 | 2255 | 1 | 2832 | 1 | 3409 | 0 |
| 525 | 0 | 1102 | 0 | 1679 | 0 | 2256 | 0 | 2833 | 0 | 3410 | 1 |
| 526 | 0 | 1103 | 0 | 1680 | 0 | 2257 | 0 | 2834 | 1 | 3411 | 1 |
| 527 | 0 | 1104 | 0 | 1681 | 1 | 2258 | 0 | 2835 | 1 | 3412 | 1 |
| 528 | 0 | 1105 | 0 | 1682 | 1 | 2259 | 1 | 2836 | 1 | 3413 | 1 |
| 529 | 1 | 1106 | 1 | 1683 | 1 | 2260 | 0 | 2837 | 1 | 3414 | 1 |
| 530 | 0 | 1107 | 0 | 1684 | 0 | 2261 | 0 | 2838 | 1 | 3415 | 1 |
| 531 | 0 | 1108 | 1 | 1685 | 0 | 2262 | 1 | 2839 | 1 | 3416 | 1 |
| 532 | 0 | 1109 | 0 | 1686 | 0 | 2263 | 0 | 2840 | 1 | 3417 | 1 |
| 533 | 0 | 1110 | 0 | 1687 | 1 | 2264 | 1 | 2841 | 0 | 3418 | 1 |
| 534 | 1 | 1111 | 0 | 1688 | 1 | 2265 | 1 | 2842 | 0 | 3419 | 1 |
| 535 | 1 | 1112 | 0 | 1689 | 1 | 2266 | 1 | 2843 | 0 | 3420 | 1 |
| 536 | 1 | 1113 | 1 | 1690 | 0 | 2267 | 0 | 2844 | 1 | 3421 | 0 |
| 537 | 0 | 1114 | 0 | 1691 | 1 | 2268 | 0 | 2845 | 0 | 3422 | 0 |
| 538 | 1 | 1115 | 0 | 1692 | 1 | 2269 | 1 | 2846 | 0 | 3423 | 1 |
| 539 | 1 | 1116 | 1 | 1693 | 0 | 2270 | 1 | 2847 | 0 | 3424 | 1 |
| 540 | 0 | 1117 | 0 | 1694 | 0 | 2271 | 1 | 2848 | 1 | 3425 | 0 |
| 541 | 0 | 1118 | 1 | 1695 | 1 | 2272 | 0 | 2849 | 1 | 3426 | 1 |
| 542 | 1 | 1119 | 1 | 1696 | 0 | 2273 | 0 | 2850 | 1 | 3427 | 0 |
| 543 | 1 | 1120 | 0 | 1697 | 0 | 2274 | 0 | 2851 | 0 | 3428 | 0 |
| 544 | 1 | 1121 | 0 | 1698 | 1 | 2275 | 1 | 2852 | 0 | 3429 | 1 |
| 545 | 1 | 1122 | 1 | 1699 | 0 | 2276 | 1 | 2853 | 1 | 3430 | 0 |
| 546 | 1 | 1123 | 0 | 1700 | 0 | 2277 | 0 | 2854 | 0 | 3431 | 1 |
| 547 | 0 | 1124 | 1 | 1701 | 1 | 2278 | 1 | 2855 | 0 | 3432 | 0 |
| 548 | 1 | 1125 | 1 | 1702 | 1 | 2279 | 1 | 2856 | 1 | 3433 | 0 |
| 549 | 0 | 1126 | 1 | 1703 | 0 | 2280 | 0 | 2857 | 0 | 3434 | 0 |
| 550 | 0 | 1127 | 0 | 1704 | 0 | 2281 | 0 | 2858 | 1 | 3435 | 1 |
| 551 | 1 | 1128 | 0 | 1705 | 0 | 2282 | 1 | 2859 | 1 | 3436 | 0 |
| 552 | 0 | 1129 | 0 | 1706 | 0 | 2283 | 0 | 2860 | 1 | 3437 | 1 |

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|---|---|---|---|---|---|---|---|---|---|---|---|
| 553 | 1 | 1130 | 0 | 1707 | 1 | 2284 | 1 | 2861 | 0 | 3438 | 1 |
| 554 | 1 | 1131 | 0 | 1708 | 0 | 2285 | 1 | 2862 | 1 | 3439 | 0 |
| 555 | 0 | 1132 | 0 | 1709 | 0 | 2286 | 1 | 2863 | 1 | 3440 | 0 |
| 556 | 1 | 1133 | 1 | 1710 | 1 | 2287 | 0 | 2864 | 1 | 3441 | 1 |
| 557 | 1 | 1134 | 1 | 1711 | 1 | 2288 | 1 | 2865 | 0 | 3442 | 1 |
| 558 | 1 | 1135 | 0 | 1712 | 0 | 2289 | 1 | 2866 | 0 | 3443 | 1 |
| 559 | 0 | 1136 | 0 | 1713 | 1 | 2290 | 1 | 2867 | 1 | 3444 | 1 |
| 560 | 1 | 1137 | 0 | 1714 | 0 | 2291 | 1 | 2868 | 0 | 3445 | 1 |
| 561 | 0 | 1138 | 0 | 1715 | 1 | 2292 | 0 | 2869 | 0 | 3446 | 0 |
| 562 | 0 | 1139 | 1 | 1716 | 1 | 2293 | 0 | 2870 | 0 | 3447 | 0 |
| 563 | 0 | 1140 | 1 | 1717 | 0 | 2294 | 0 | 2871 | 1 | 3448 | 1 |
| 564 | 0 | 1141 | 1 | 1718 | 0 | 2295 | 0 | 2872 | 0 | 3449 | 1 |
| 565 | 1 | 1142 | 1 | 1719 | 1 | 2296 | 0 | 2873 | 1 | 3450 | 0 |
| 566 | 0 | 1143 | 0 | 1720 | 1 | 2297 | 1 | 2874 | 1 | 3451 | 1 |
| 567 | 0 | 1144 | 0 | 1721 | 1 | 2298 | 1 | 2875 | 0 | 3452 | 0 |
| 568 | 0 | 1145 | 1 | 1722 | 0 | 2299 | 1 | 2876 | 0 | 3453 | 1 |
| 569 | 1 | 1146 | 1 | 1723 | 1 | 2300 | 0 | 2877 | 0 | 3454 | 0 |
| 570 | 1 | 1147 | 0 | 1724 | 0 | 2301 | 0 | 2878 | 0 | 3455 | 0 |
| 571 | 0 | 1148 | 1 | 1725 | 1 | 2302 | 1 | 2879 | 0 | 3456 | 1 |
| 572 | 0 | 1149 | 0 | 1726 | 1 | 2303 | 0 | 2880 | 1 | 3457 | 1 |
| 573 | 0 | 1150 | 0 | 1727 | 1 | 2304 | 1 | 2881 | 1 | | |
| 574 | 0 | 1151 | 1 | 1728 | 0 | 2305 | 0 | 2882 | 1 | | |
| 575 | 0 | 1152 | 1 | 1729 | 0 | 2306 | 1 | 2883 | 1 | | |
| 576 | 0 | 1153 | 1 | 1730 | 0 | 2307 | 1 | 2884 | 0 | | |

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