# Aerobus

v1.2

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# Chapter 1

# Introduction

Aerobus is a C++-20 pure header library for general algebra on polynomials, discrete rings and associated structures.

Everything in Aerobus is expressed as types.

We say that again as it is the most fundamental characteristic of Aerobus :

***Everything is expressed as types***

The library serves two main purposes :

- Express algebra structures and associated operations in type arithmetic, compile-time;
- Provide portable and fast evaluation functions for polynomials.

It is designed to be 'quite easily' extensible.

Given these functions are "generated" at compile time and do not rely on inline assembly, they are actually platform independent, yielding exact same results if processors have same capabilities (such as Fused-Multiply-Add instructions).

## 1.1 HOW TO

- Clone or download the repository somewhere, or just download `aerobus.h`
- In your code, add : `#include "aerobus.h"`
- Compile with -std=c++20 (at least) -I<install_location>

Aerobus provides a definition for low-degree (up to 997) Conway polynomials. To use them, define `AEROBUS_CONWAY_IMPORTS` before including `aerobus.h`.

### 1.1.1 Unit Test

Install Cmake Install a recent compiler (supporting c++20), such as MSVC, G++ or Clang++

Move to the top directory then :
```
cmake -S . -B build
cmake --build build
cd build && ctest
```

Terminal should write :
```
100% tests passed, 0 tests failed out of 48
```

Alternate way :
```
make tests
```

From top directory.

### 1.1.2 Benchmarks

Benchmarks are written for Intel CPUs having AVX512f and AVX512vl flags, they work only on Linux operating system using g++.

In addition of `Cmake` and compiler, install OpenMP. And Google's Benchmark library. Then move to top directory :
```
rm -rf build
mkdir build
cd build
cmake ..
make benchmarks
./benchmarks
```

## 1.2 Structures

### 1.2.1 Predefined discrete euclidean domains

`Aerobus` predefines several simple euclidean domains, such as :

- `aerobus::i32` : integers (32 bits)
- `aerobus::i64` : integers (64 bits)
- `aerobus::zpz<p>` : integers modulo p (prime number) on 32 bits

All these types represent the Ring, meaning the algebraic structure. They have a nested type `val<i>` where `i` is a scalar native value (int32_t or int64_t) to represent actual values in the ring. They have the following "operations", required by the IsEuclideanDomain concept :

- `add_t` : a type (specialization of val), representing addition between two values
- `sub_t` : a type (specialization of val), representing subtraction between two values
- `mul_t` : a type (specialization of val), representing multiplication between two values
- `div_t` : a type (specialization of val), representing division between two values
- `mod_t` : a type (specialization of val), representing modulus between two values

and the following "elements" :

- one : the neutral element for multiplication, val<1>
- zero : the neutral element for addition, val<0>

### 1.2.2 Polynomials

Aerobus defines polynomials as a variadic template structure, with coefficient in an arbitrary discrete euclidean domain. As i32 or i64, they are given same operations and elements, which make them a euclidean domain by themselves. Similarly, aerobus::polynomial represents the algebraic structure, actual values are in aerobus::polynomial::val.

In addition, values have an evaluation function :

```
template<typename valueRing> static constexpr valueRing eval(const valueRing& x) {...}
```

Which can be used at compile time (constexpr evaluation) or runtime.

### 1.2.3 Known polynomials

Aerobus predefines some well known families of polynomials, such as Hermite or Bernstein :

```
using B23 = aerobus::known_polynomials::bernstein<2, 3>; // 3X^2(1-X)
constexpr float x = B32::eval(2.0F); // -12
```

They have their coefficients either in aerobus::i64 or aerobus::q64. Complete list is (but is meant to be extended):

- chebyshev_T
- chebyshev_U
- laguerre
- hermite_prob
- hermite_phys
- bernstein
- legendre
- bernoulli

### 1.2.4 Conway polynomials

When the tag AEROBUS_CONWAY_IMPORTS is defined at compile time (-DAEROBUS_CONWAY_IMPORTS), aerobus provides definition for all Conway polynomials CP(p, n) for p up to 997 and low values for n (usually less than 10).

They can be used to construct finite fields of order $p^n$ ( $\mathbb{F}_{p^n}$):

```
using F2 = zpz<2>;
using PF2 = polynomial<F2>;
using F4 = Quotient<PF2, ConwayPolynomial<2, 2>::type>;
```

### 1.2.5 Taylor series

Aerobus provides definition for Taylor expansion of known functions. They are all templates in two parameters, degree of expansion (size_t) and Integers (typename). Coefficients then live in FractionField<Integers>.

They can be used and evaluated:

```
using namespace aerobus;
using aero_atanh = atanh<i64, 6>;
constexpr float val = aero_atanh::eval(0.1F); // approximation of arctanh(0.1) using taylor expansion of
      degree 6
```

Exposed functions are:

- exp
- expm1 $e^x - 1$
- lnp1 $\ln(x+1)$
- geom $\frac{1}{1-x}$
- sin
- cos
- tan
- sh
- cosh
- tanh
- asin
- acos
- acosh
- asinh
- atanh

Having the capacity of specifying the degree is very important, as users may use other formats than float64 or float32 which require higher or lower degree to achieve correct or acceptable precision.

It's possible to define Taylor expansion by implementing a coeff_at structure which must meet the following requirement :

- Being template in Integers (typename) and index (size_t);
- Exposing a type alias type, some specialization of FractionField<Integers>::val.

For example, to define the serie $1 + x + x^2 + x^3 + \ldots$, users may write:

```
template<typename Integers, size_t i>
struct my_coeff_at {
    using type = typename FractionField<Integers>::one;
};

template<typename Integers, size_t degree>
using my_serie = taylor<Integers, my_coeff_at, degree>;

static constexpr double x = my_serie<i64, 3>::eval(3.0);
```

On x86-64 and CUDA platforms at least, using proper compiler directives, these functions yield very performant assembly, similar or better than standard library implementation in fast math. For example, this code:

```
double compute_expm1(const size_t N, double* in, double* out) {
    using V = aerobus::expm1<aerobus::i64, 13>;
    for (size_t i = 0; i < N; ++i) {
        out[i] = V::eval(in[i]);
    }
}
```

Yields this assembly (clang 17, `-mavx2 -O3`) where we can see a pile of Fused-Multiply-Add vector instructions, generated because we unrolled completely the Horner evaluation loop:

```
compute_expm1(unsigned long, double const*, double*):
  lea      rax, [rdi-1]
  cmp      rax, 2
  jbe      .L5
  mov      rcx, rdi
  xor      eax, eax
  vxorpd  xmm1, xmm1, xmm1
  vbroadcastsd    ymm14, QWORD PTR .LC1[rip]
  vbroadcastsd    ymm13, QWORD PTR .LC3[rip]
  shr      rcx, 2
  vbroadcastsd    ymm12, QWORD PTR .LC5[rip]
  vbroadcastsd    ymm11, QWORD PTR .LC7[rip]
  sal      rcx, 5
  vbroadcastsd    ymm10, QWORD PTR .LC9[rip]
  vbroadcastsd    ymm9, QWORD PTR .LC11[rip]
  vbroadcastsd    ymm8, QWORD PTR .LC13[rip]
  vbroadcastsd    ymm7, QWORD PTR .LC15[rip]
  vbroadcastsd    ymm6, QWORD PTR .LC17[rip]
  vbroadcastsd    ymm5, QWORD PTR .LC19[rip]
  vbroadcastsd    ymm4, QWORD PTR .LC21[rip]
  vbroadcastsd    ymm3, QWORD PTR .LC23[rip]
  vbroadcastsd    ymm2, QWORD PTR .LC25[rip]
.L3:
  vmovupd ymm15, YMMWORD PTR [rsi+rax]
  vmovapd ymm0, ymm15
  vfmadd132pd     ymm0, ymm14, ymm1
  vfmadd132pd     ymm0, ymm13, ymm15
  vfmadd132pd     ymm0, ymm12, ymm15
  vfmadd132pd     ymm0, ymm11, ymm15
  vfmadd132pd     ymm0, ymm10, ymm15
  vfmadd132pd     ymm0, ymm9, ymm15
  vfmadd132pd     ymm0, ymm8, ymm15
  vfmadd132pd     ymm0, ymm7, ymm15
  vfmadd132pd     ymm0, ymm6, ymm15
  vfmadd132pd     ymm0, ymm5, ymm15
  vfmadd132pd     ymm0, ymm4, ymm15
  vfmadd132pd     ymm0, ymm3, ymm15
  vfmadd132pd     ymm0, ymm2, ymm15
  vfmadd132pd     ymm0, ymm1, ymm15
  vmovupd YMMWORD PTR [rdx+rax], ymm0
  add      rax, 32
  cmp      rcx, rax
  jne      .L3
  mov      rax, rdi
  and      rax, -4
  vzeroupper
```

## 1.3 Operations

### 1.3.1 Field of fractions

Given a set (type) satisfies the `IsEuclideanDomain` concept, `Aerobus` allows to define its `field of fractions`.

This new type is again a euclidean domain, especially a field, and therefore we can define polynomials over it.

For example, integers modulo `p` is not a field when `p` is not prime. We then can define its field of fraction and polynomials over it this way:

```
using namespace aerobus;
using ZmZ = zpz<8>;
using Fzmz = FractionField<ZmZ>;
using Pfzmz = polynomial<Fzmz>;
```

The same operation would stand for any set that users would have implemented in place of `ZmZ`.

For example, we can easily define `rational functions` by taking the ring of fractions of polynomials:

```
using namespace aerobus;
using RF64 = FractionField<polynomial<q64>>;
```

Which also have an evaluation function, as polynomial do.

### 1.3.2 Quotient

Given a ring `R`, `Aerobus` provides automatic implementation for `quotient ring` $R/X$ where X is a principal ideal generated by some element, as we know this kind of ideal is two-sided as long as `R` is commutative (and we assume it is).

For example, if we want `R` to be $\mathbb{Z}$ represented as `aerobus::i64`, we can express arithmetic modulo 17 using:

```
using namespace aerobus;
using ZpZ = Quotient<i64, i64::val<17>>;
```

As we could have using `zpz<17>`.

This is mainly used to define finite fields of order $p^n$ using Conway polynomials but may have other applications.

## 1.4 Misc

### 1.4.1 Continued Fractions

`Aerobus` gives an implementation for `continued fractions`. It can be used this way:

```
using namespace aerobus;
using T = ContinuedFraction<1,2,3,4>;
constexpr double x = T::val;
```

As practical examples, `aerobus` gives continued fractions of $\pi$, $e$, $\sqrt{2}$ and $\sqrt{3}$:

```
constexpr double A_SQRT3 = aerobus::SQRT3_fraction::val; // 1.7320508075688772935
```

## 1.5 CUDA

When compiled with `nvcc` and the flag `WITH_CUDA_FP16`, `Aerobus` provides some kind of support of 16 bits integers and floats (aka `__half`).

Unfortunately, NVIDIA did not put enough constexpr in its `cuda_fp16.h` header, so we had to implement our own constexpr static_cast from int16_t to `__half` to make integers polynomials work with `__half`. See `this bug`.

More, it's (at this time), not possible to make it work for `__half2` because of `another bug`.

Please push to make these bug fixed by NVIDIA.

# Chapter 2

# Namespace Index

## 2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

# Chapter 3

# Concept Index

## 3.1 Concepts

Here is a list of all concepts with brief descriptions:

# Chapter 4

# Class Index

## 4.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

# Chapter 5

# File Index

## 5.1 File List

Here is a list of all files with brief descriptions:

# Chapter 6

# Namespace Documentation

## 6.1 aerobus Namespace Reference

main namespace for all publicly exposed types or functions

### Namespaces

- namespace internal

    *internal implementations, subject to breaking changes without notice*
- namespace known_polynomials

    *families of well known polynomials such as Hermite or Bernstein*

### Classes

- struct ContinuedFraction

    *represents a continued fraction a0 +* $\frac{1}{a_1+\frac{1}{a_2+\dots}}$
- struct ContinuedFraction< a0 >

    *Specialization for only one coefficient, technically just 'a0'.*
- struct ContinuedFraction< a0, rest... >

    *specialization for multiple coefficients (strictly more than one)*
- struct ConwayPolynomial
- struct Embed

    *embedding - struct forward declaration*
- struct Embed< i32, i64 >

    *embeds i32 into i64*
- struct Embed< polynomial< Small >, polynomial< Large > >

    *embeds polynomial<Small> into polynomial<Large>*
- struct Embed< q32, q64 >

    *embeds q32 into q64*
- struct Embed< Quotient< Ring, X >, Ring >

    *embeds Quotient<Ring, X> into Ring*
- struct Embed< Ring, FractionField< Ring > >

    *embeds values from Ring to its field of fractions*
- struct Embed< zpz< x >, i32 >

*embeds zpz values into i32*

- struct i32

  *32 bits signed integers, seen as a algebraic ring with related operations*
- struct i64

  *64 bits signed integers, seen as a algebraic ring with related operations*
- struct is_prime

  *checks if n is prime*
- struct polynomial
- struct Quotient

  *Quotient ring by the principal ideal generated by 'X' With i32 as Ring and i32::val<2> as X, Quotient is Z/2Z.*
- struct type_list

  *Empty pure template struct to handle type list.*
- struct type_list<>

  *specialization for empty type list*
- struct zpz

  *congruence classes of integers modulo p (32 bits)*

### Concepts

- concept IsRing

  *Concept to express R is a Ring.*
- concept IsEuclideanDomain

  *Concept to express R is an euclidean domain.*
- concept IsField

  *Concept to express R is a field.*

### Typedefs

- template<typename T , typename A , typename B >
  using gcd_t = typename internal::gcd< T >::template type< A, B >

  *computes the greatest common divisor or A and B*
- template<typename... vals>
  using vadd_t = typename internal::vadd< vals... >::type

  *adds multiple values (v1 + v2 + ... + vn) vals must have same "enclosing_type" and "enclosing_type" must have an add_t binary operator*
- template<typename... vals>
  using vmul_t = typename internal::vmul< vals... >::type

  *multiplies multiple values (v1 + v2 + ... + vn) vals must have same "enclosing_type" and "enclosing_type" must have an mul_t binary operator*
- template<typename val >
  using abs_t = std::conditional_t< val::enclosing_type::template pos_v< val >, val, typename val::enclosing↩
  _type::template sub_t< typename val::enclosing_type::zero, val > >

  *computes absolute value of 'val' val must be a 'value' in a Ring satisfying 'IsEuclideanDomain' concept*
- template<typename Ring >
  using FractionField = typename internal::FractionFieldImpl< Ring >::type

  *Fraction field of an euclidean domain, such as Q for Z.*
- template<typename X , typename Y >
  using add_t = typename X::enclosing_type::template add_t< X, Y >

  *generic addition*
- template<typename X , typename Y >
  using sub_t = typename X::enclosing_type::template sub_t< X, Y >

*generic subtraction*

- template< typename X , typename Y >
  using mul_t = typename X::enclosing_type::template mul_t< X, Y >

  *generic multiplication*
- template< typename X , typename Y >
  using div_t = typename X::enclosing_type::template div_t< X, Y >

  *generic division*
- using q32 = FractionField< i32 >

  *32 bits rationals rationals with 32 bits numerator and denominator*
- using fpq32 = FractionField< polynomial< q32 > >

  *rational fractions with 32 bits rational coefficients rational fractions with rationals coefficients (32 bits numerator and denominator)*
- using q64 = FractionField< i64 >

  *64 bits rationals rationals with 64 bits numerator and denominator*
- using pi64 = polynomial< i64 >

  *polynomial with 64 bits integers coefficients*
- using pq64 = polynomial< q64 >

  *polynomial with 64 bits rationals coefficients*
- using fpq64 = FractionField< polynomial< q64 > >

  *polynomial with 64 bits rational coefficients*
- template< typename Ring , typename v1 , typename v2 >
  using makefraction_t = typename FractionField< Ring >::template val< v1, v2 >

  *helper type : the rational V1/V2 in the field of fractions of Ring*
- template< typename v >
  using embed_int_poly_in_fractions_t = typename Embed< polynomial< typename v::ring_type >, polynomial< FractionField< typename v::ring_type > > >::template type< v >

  *embed a polynomial with integers coefficients into rational coefficients polynomials*
- template< int64_t p, int64_t q>
  using make_q64_t = typename q64::template simplify_t< typename q64::val< i64::inject_constant_t< p >, i64::inject_constant_t< q > > >

  *helper type : make a fraction from numerator and denominator*
- template< int32_t p, int32_t q>
  using make_q32_t = typename q32::template simplify_t< typename q32::val< i32::inject_constant_t< p >, i32::inject_constant_t< q > > >

  *helper type : make a fraction from numerator and denominator*
- template< typename Ring , typename v1 , typename v2 >
  using addfractions_t = typename FractionField< Ring >::template add_t< v1, v2 >

  *helper type : adds two fractions*
- template< typename Ring , typename v1 , typename v2 >
  using mulfractions_t = typename FractionField< Ring >::template mul_t< v1, v2 >

  *helper type : multiplies two fractions*
- template< typename Ring , auto... xs>
  using make_int_polynomial_t = typename polynomial< Ring >::template val< typename Ring::template inject_constant_t< xs >... >

  *make a polynomial with coefficients in Ring*
- template< typename Ring , auto... xs>
  using make_frac_polynomial_t = typename polynomial< FractionField< Ring > >::template val< typename FractionField< Ring >::template inject_constant_t< xs >... >

  *make a polynomial with coefficients in FractionField< Ring>*
- template< typename T , size_t i>
  using factorial_t = typename internal::factorial< T, i >::type

  *computes factorial(i), as type*

- template<typename T , size_t k, size_t n>
  using combination_t = typename internal::combination< T, k, n >::type

  *computes binomial coefficient (k among n) as type*
- template<typename T , size_t n>
  using bernoulli_t = typename internal::bernoulli< T, n >::type

  *nth bernoulli number as type in T*
- template<typename T , size_t n>
  using bell_t = typename internal::bell_helper< T, n >::type

  *Bell numbers.*
- template<typename T , int k>
  using alternate_t = typename internal::alternate< T, k >::type

  *(-1)^k as type in T*
- template<typename T , int n, int k>
  using stirling_1_signed_t = typename internal::stirling_1_helper< T, n, k >::type

  *Stirling number of first king (signed) – as types.*
- template<typename T , int n, int k>
  using stirling_1_unsigned_t = abs_t< typename internal::stirling_1_helper< T, n, k >::type >

  *Stirling number of first king (unsigned) – as types.*
- template<typename T , int n, int k>
  using stirling_2_t = typename internal::stirling_2_helper< T, n, k >::type

  *Stirling number of second king – as types.*
- template<typename T , typename p , size_t n>
  using pow_t = typename internal::pow< T, p, n >::type

  *p^n (as 'val' type in T)*
- template<typename T , template< typename, size_t index > typename coeff_at, size_t deg>
  using taylor = typename internal::make_taylor_impl< T, coeff_at, internal::make_index_sequence_reverse< deg+1 > >::type
- template<typename Integers , size_t deg>
  using exp = taylor< Integers, internal::exp_coeff, deg >

  $e^x$
- template<typename Integers , size_t deg>
  using expm1 = typename polynomial< FractionField< Integers > >::template sub_t< exp< Integers, deg >, typename polynomial< FractionField< Integers > >::one >

  $e^x - 1$
- template<typename Integers , size_t deg>
  using lnp1 = taylor< Integers, internal::lnp1_coeff, deg >

  $\ln(1+x)$
- template<typename Integers , size_t deg>
  using atan = taylor< Integers, internal::atan_coeff, deg >

  $\arctan(x)$
- template<typename Integers , size_t deg>
  using sin = taylor< Integers, internal::sin_coeff, deg >

  $\sin(x)$
- template<typename Integers , size_t deg>
  using sinh = taylor< Integers, internal::sh_coeff, deg >

  $\sinh(x)$
- template<typename Integers , size_t deg>
  using cosh = taylor< Integers, internal::cosh_coeff, deg >

  $\cosh(x)$ *hyperbolic cosine*
- template<typename Integers , size_t deg>
  using cos = taylor< Integers, internal::cos_coeff, deg >

  $\cos(x)$ *cosinus*
- template<typename Integers , size_t deg>
  using geometric_sum = taylor< Integers, internal::geom_coeff, deg >

$\frac{1}{1-x}$ *zero development of* $\frac{1}{1-x}$

- template<typename Integers , size_t deg>
  using asin = taylor< Integers, internal::asin_coeff, deg >

  $\arcsin(x)$ *arc sinus*
- template<typename Integers , size_t deg>
  using asinh = taylor< Integers, internal::asinh_coeff, deg >

  $\operatorname{arcsinh}(x)$ *arc hyperbolic sinus*
- template<typename Integers , size_t deg>
  using atanh = taylor< Integers, internal::atanh_coeff, deg >

  $\operatorname{arctanh}(x)$ *arc hyperbolic tangent*
- template<typename Integers , size_t deg>
  using tan = taylor< Integers, internal::tan_coeff, deg >

  $\tan(x)$ *tangent*
- template<typename Integers , size_t deg>
  using tanh = taylor< Integers, internal::tanh_coeff, deg >

  $\tanh(x)$ *hyperbolic tangent*
- using PI_fraction = ContinuedFraction< 3, 7, 15, 1, 292, 1, 1, 1, 2, 1, 3, 1, 14, 2, 1, 1, 2, 2, 2, 2, 1 >
- using E_fraction = ContinuedFraction< 2, 1, 2, 1, 1, 4, 1, 1, 6, 1, 1, 8, 1, 1, 10, 1, 1, 12, 1, 1, 14, 1, 1 >

  *approximation of* $e$
- using SQRT2_fraction = ContinuedFraction< 1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2 >

  *approximation of* $\sqrt{2}$
- using SQRT3_fraction = ContinuedFraction< 1, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2 >

  *approximation of*

### Functions

- template<typename T >
  T $*$ aligned_malloc (size_t count, size_t alignment)
- brief Conway polynomials tparam p characteristic of the field (prime number) @tparam n degree of extension template< int p

### Variables

- template<typename T , size_t i>
  constexpr T::inner_type factorial_v = internal::factorial<T, i>::value

  *computes factorial(i) as value in T*
- template<typename T , size_t k, size_t n>
  constexpr T::inner_type combination_v = internal::combination<T, k, n>::value

  *computes binomial coefficients (k among n) as value*
- template<typename FloatType , typename T , size_t n>
  constexpr FloatType bernoulli_v = internal::bernoulli<T, n>::template value<FloatType>

  *nth bernoulli number as value in FloatType*
- template<typename T , size_t k>
  constexpr T::inner_type alternate_v = internal::alternate<T, k>::value

  *(-1)^k as value from T*

## 6.1.1 Detailed Description

main namespace for all publicly exposed types or functions

## 6.1.2 Typedef Documentation

### 6.1.2.1 abs_t

```
template<typename val >
using aerobus::abs_t = typedef std::conditional_t< val::enclosing_type::template pos_v<val>,
val, typename val::enclosing_type::template sub_t<typename val::enclosing_type::zero, val> >
```

computes absolute value of 'val' val must be a 'value' in a Ring satisfying 'IsEuclideanDomain' concept

**Template Parameters**

| | |
|---|---|
| *val* | a value in a RIng, such as i64::val<-2> |

### 6.1.2.2 add_t

```
template<typename X , typename Y >
using aerobus::add_t = typedef typename X::enclosing_type::template add_t<X, Y>
```

generic addition

**Template Parameters**

| | |
|---|---|
| *X* | a value in a ring providing add_t operator |
| *Y* | a value in same ring |

### 6.1.2.3 addfractions_t

```
template<typename Ring , typename v1 , typename v2 >
using aerobus::addfractions_t = typedef typename FractionField<Ring>::template add_t<v1, v2>
```

helper type : adds two fractions

**Template Parameters**

| | |
|---|---|
| *Ring* | |
| *v1* | belongs to FractionField<Ring> |
| *v2* | belongs to FranctionField<Ring> |

### 6.1.2.4 alternate_t

```
template<typename T , int k>
using aerobus::alternate_t = typedef typename internal::alternate<T, k>::type
```

(-1)^k as type in T

**Template Parameters**

| | |
|---|---|
| *T* | Ring type, aerobus::i64 for example |

#### 6.1.2.5 asin

```
template<typename Integers , size_t deg>
using aerobus::asin = typedef taylor<Integers, internal::asin_coeff, deg>
```

$\arcsin(x)$ arc sinus

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.6 asinh

```
template<typename Integers , size_t deg>
using aerobus::asinh = typedef taylor<Integers, internal::asinh_coeff, deg>
```

$\operatorname{arcsinh}(x)$ arc hyperbolic sinus

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.7 atan

```
template<typename Integers , size_t deg>
using aerobus::atan = typedef taylor<Integers, internal::atan_coeff, deg>
```

$\arctan(x)$

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.8 atanh

```
template<typename Integers , size_t deg>
using aerobus::atanh = typedef taylor<Integers, internal::atanh_coeff, deg>
```

$\operatorname{arctanh}(x)$ arc hyperbolic tangent

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.9 bell_t

```
template<typename T , size_t n>
using aerobus::bell_t = typedef typename internal::bell_helper<T, n>::type
```

Bell numbers.

**Template Parameters**

| | |
|---|---|
| *T* | ring type, such as aerobus::i64 |
| *n* | index |

#### 6.1.2.10 bernoulli_t

```
template<typename T , size_t n>
using aerobus::bernoulli_t = typedef typename internal::bernoulli<T, n>::type
```

nth bernoulli number as type in T

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (i64) |
| *n* | |

#### 6.1.2.11 combination_t

```
template<typename T , size_t k, size_t n>
using aerobus::combination_t = typedef typename internal::combination<T, k, n>::type
```

computes binomial coefficient (k among n) as type

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (i32 for example) |

#### 6.1.2.12 cos

```
template<typename Integers , size_t deg>
using aerobus::cos = typedef taylor<Integers, internal::cos_coeff, deg>
```

$\cos(x)$ cosinus

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

### 6.1.2.13 cosh

```
template<typename Integers , size_t deg>
using aerobus::cosh = typedef taylor<Integers, internal::cosh_coeff, deg>
```

$\cosh(x)$ hyperbolic cosine

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

### 6.1.2.14 div_t

```
template<typename X , typename Y >
using aerobus::div_t = typedef typename X::enclosing_type::template div_t<X, Y>
```

generic division

**Template Parameters**

| | |
|---|---|
| *X* | a value in a a euclidean domain |
| *Y* | a value in same Euclidean domain |

### 6.1.2.15 E_fraction

```
using aerobus::E_fraction = typedef ContinuedFraction<2, 1, 2, 1, 1, 4, 1, 1, 6, 1, 1, 8, 1,
1, 10, 1, 1, 12, 1, 1, 14, 1, 1>
```

approximation of $e$

### 6.1.2.16 embed_int_poly_in_fractions_t

```
template<typename v >
using aerobus::embed_int_poly_in_fractions_t = typedef typename Embed< polynomial<typename v↩
::ring_type>, polynomial<FractionField<typename v::ring_type> >>::template type<v>
```

embed a polynomial with integers coefficients into rational coefficients polynomials

Lives in polynomial<FractionField<Ring>>

**Template Parameters**

| | |
|---|---|
| *Ring* | Integers |
| *a* | value in polynomial<Ring> |

### 6.1.2.17 exp

```
template<typename Integers , size_t deg>
using aerobus::exp = typedef taylor<Integers, internal::exp_coeff, deg>
```

$e^x$

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

### 6.1.2.18 expm1

```
template<typename Integers , size_t deg>
using aerobus::expm1 = typedef typename polynomial<FractionField<Integers> >::template sub_t<
exp<Integers, deg>, typename polynomial<FractionField<Integers> >::one>
```

$e^x - 1$

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

### 6.1.2.19 factorial_t

```
template<typename T , size_t i>
using aerobus::factorial_t = typedef typename internal::factorial<T, i>::type
```

computes factorial(i), as type

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (e.g. i32) |
| *i* | |

### 6.1.2.20 fpq32

```
using aerobus::fpq32 = typedef FractionField<polynomial<q32> >
```

rational fractions with 32 bits rational coefficients rational fractions with rationals coefficients (32 bits numerator and denominator)

#### 6.1.2.21 fpq64

```
using aerobus::fpq64 = typedef FractionField<polynomial<q64> >
```

polynomial with 64 bits rational coefficients

#### 6.1.2.22 FractionField

```
template<typename Ring >
using aerobus::FractionField = typedef typename internal::FractionFieldImpl<Ring>::type
```

Fraction field of an euclidean domain, such as Q for Z.

**Template Parameters**

| | |
|---|---|
| *Ring* | |

#### 6.1.2.23 gcd_t

```
template<typename T , typename A , typename B >
using aerobus::gcd_t = typedef typename internal::gcd<T>::template type<A, B>
```

computes the greatest common divisor or A and B

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (must be euclidean domain) |

#### 6.1.2.24 geometric_sum

```
template<typename Integers , size_t deg>
using aerobus::geometric_sum = typedef taylor<Integers, internal::geom_coeff, deg>
```

$\frac{1}{1-x}$ zero development of $\frac{1}{1-x}$

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.25 lnp1

```
template<typename Integers , size_t deg>
using aerobus::lnp1 = typedef taylor<Integers, internal::lnp1_coeff, deg>
```

$\ln(1+x)$

**Template Parameters**

| | |
|---|---|
| *T* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.26 make_frac_polynomial_t

```
template<typename Ring , auto... xs>
using aerobus::make_frac_polynomial_t = typedef typename polynomial<FractionField<Ring> >↩
::template val< typename FractionField<Ring>::template inject_constant_t<xs>...>
```

make a polynomial with coefficients in FractionField<Ring>

**Template Parameters**

| | |
|---|---|
| *Ring* | integers |
| *...xs* | values |

#### 6.1.2.27 make_int_polynomial_t

```
template<typename Ring , auto... xs>
using aerobus::make_int_polynomial_t = typedef typename polynomial<Ring>::template val< typename
Ring::template inject_constant_t<xs>...>
```

make a polynomial with coefficients in Ring

**Template Parameters**

| | |
|---|---|
| *Ring* | integers |
| *...xs* | coefficients |

#### 6.1.2.28 make_q32_t

```
template<int32_t p, int32_t q>
using aerobus::make_q32_t = typedef typename q32::template simplify_t< typename q32::val<i32::inject_constant
i32::inject_constant_t<q> >>
```

helper type : make a fraction from numerator and denominator

**Template Parameters**

| | |
|---|---|
| *p* | numerator |
| *q* | denominator |

#### 6.1.2.29 make_q64_t

```
template<int64_t p, int64_t q>
using aerobus::make_q64_t = typedef typename q64::template simplify_t< typename q64::val<i64::inject_constant
i64::inject_constant_t<q> >>
```

helper type : make a fraction from numerator and denominator

**Template Parameters**

| | |
|---|---|
| *p* | numerator |
| *q* | denominator |

#### 6.1.2.30 makefraction_t

```
template<typename Ring , typename v1 , typename v2 >
using aerobus::makefraction_t = typedef typename FractionField<Ring>::template val<v1, v2>
```

helper type : the rational V1/V2 in the field of fractions of Ring

**Template Parameters**

| | |
|---|---|
| *Ring* | the base ring |
| *v1* | value 1 in Ring |
| *v2* | value 2 in Ring |

#### 6.1.2.31 mul_t

```
template<typename X , typename Y >
using aerobus::mul_t = typedef typename X::enclosing_type::template mul_t<X, Y>
```

generic multiplication

**Template Parameters**

| | |
|---|---|
| *X* | a value in a ring providing mul_t operator |
| *Y* | a value in same ring |

#### 6.1.2.32 mulfractions_t

```
template<typename Ring , typename v1 , typename v2 >
using aerobus::mulfractions_t = typedef typename FractionField<Ring>::template mul_t<v1, v2>
```

helper type : multiplies two fractions

**Template Parameters**

| | |
|---|---|
| *Ring* | |
| *v1* | belongs to FractionField<Ring> |
| *v2* | belongs to FranctionField<Ring> |

#### 6.1.2.33 pi64

```
using aerobus::pi64 = typedef polynomial<i64>
```

polynomial with 64 bits integers coefficients

#### 6.1.2.34 PI_fraction

```
using aerobus::PI_fraction = typedef ContinuedFraction<3, 7, 15, 1, 292, 1, 1, 1, 2, 1, 3, 1,
14, 2, 1, 1, 2, 2, 2, 2, 1>
```

representation of $\pi$ as a continued fraction

#### 6.1.2.35 pow_t

```
template<typename T , typename p , size_t n>
using aerobus::pow_t = typedef typename internal::pow<T, p, n>::type
```

p^n (as 'val' type in T)

**Template Parameters**

| | |
|---|---|
| *T* | (some ring type, such as aerobus::i64) |
| *p* | must be an instantiation of T::val |
| *n* | power |

#### 6.1.2.36 pq64

```
using aerobus::pq64 = typedef polynomial<q64>
```

polynomial with 64 bits rationals coefficients

#### 6.1.2.37 q32

```
using aerobus::q32 = typedef FractionField<i32>
```

32 bits rationals rationals with 32 bits numerator and denominator

#### 6.1.2.38 q64

```
using aerobus::q64 = typedef FractionField<i64>
```

64 bits rationals rationals with 64 bits numerator and denominator

#### 6.1.2.39 sin

```
template<typename Integers , size_t deg>
using aerobus::sin = typedef taylor<Integers, internal::sin_coeff, deg>
```

$\sin(x)$

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.40 sinh

```
template<typename Integers , size_t deg>
using aerobus::sinh = typedef taylor<Integers, internal::sh_coeff, deg>
```

$\sinh(x)$

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.41 SQRT2_fraction

```
using aerobus::SQRT2_fraction = typedef ContinuedFraction<1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2,
2, 2, 2, 2, 2, 2, 2, 2, 2, 2>
```

approximation of $\sqrt{2}$

#### 6.1.2.42 SQRT3_fraction

```
using aerobus::SQRT3_fraction = typedef ContinuedFraction<1, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1,
2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2>
```

approximation of

#### 6.1.2.43 stirling_1_signed_t

```
template<typename T , int n, int k>
using aerobus::stirling_1_signed_t = typedef typename internal::stirling_1_helper<T, n, k>↩
::type
```

Stirling number of first king (signed) – as types.

**Template Parameters**

| | |
|---|---|
| *T* | (ring type, such as aerobus::i64) |
| *n* | (integer) |
| *k* | (integer) |

#### 6.1.2.44 stirling_1_unsigned_t

```
template<typename T , int n, int k>
using aerobus::stirling_1_unsigned_t = typedef abs_t<typename internal::stirling_1_helper<T,
n, k>::type>
```

Stirling number of first king (unsigned) – as types.

**Template Parameters**

| | |
|---|---|
| *T* | (ring type, such as aerobus::i64) |
| *n* | (integer) |
| *k* | (integer) |

#### 6.1.2.45 stirling_2_t

```
template<typename T , int n, int k>
using aerobus::stirling_2_t = typedef typename internal::stirling_2_helper<T, n, k>::type
```

Stirling number of second king – as types.

**Template Parameters**

| | |
|---|---|
| *T* | (ring type, such as aerobus::i64) |
| *n* | (integer) |
| *k* | (integer) |

#### 6.1.2.46 sub_t

```
template<typename X , typename Y >
using aerobus::sub_t = typedef typename X::enclosing_type::template sub_t<X, Y>
```

generic subtraction

**Template Parameters**

| | |
|---|---|
| *X* | a value in a ring providing sub_t operator |
| *Y* | a value in same ring |

#### 6.1.2.47 tan

```
template<typename Integers , size_t deg>
using aerobus::tan = typedef taylor<Integers, internal::tan_coeff, deg>
```

$\tan(x)$ tangent

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.48 tanh

```
template<typename Integers , size_t deg>
using aerobus::tanh = typedef taylor<Integers, internal::tanh_coeff, deg>
```

$\tanh(x)$ hyperbolic tangent

**Template Parameters**

| | |
|---|---|
| *Integers* | Ring type (for example i64) |
| *deg* | taylor approximation degree |

#### 6.1.2.49 taylor

```
template<typename T , template< typename, size_t index > typename coeff_at, size_t deg>
using aerobus::taylor = typedef typename internal::make_taylor_impl< T, coeff_at, internal::make_index_sequen
+ 1> >::type
```

**Template Parameters**

| | |
|---|---|
| *T* | Used Ring type (aerobus::i64 for example) |
| *coeff_at* | - implementation giving the 'value' (seen as type in FractionField<T> |
| *deg* | |

#### 6.1.2.50 vadd_t

```
template<typename... vals>
using aerobus::vadd_t = typedef typename internal::vadd<vals...>::type
```

adds multiple values (v1 + v2 + ... + vn) vals must have same "enclosing_type" and "enclosing_type" must have an add_t binary operator

**Template Parameters**

| | |
|---|---|
| *...vals* | |

#### 6.1.2.51 vmul_t

```
template<typename... vals>
using aerobus::vmul_t = typedef typename internal::vmul<vals...>::type
```

multiplies multiple values (v1 + v2 + ... + vn) vals must have same "enclosing_type" and "enclosing_type" must have an mul_t binary operator

**Template Parameters**

| | |
|---|---|
| *...vals* | |

### 6.1.3 Function Documentation

#### 6.1.3.1 aligned_malloc()

```
template<typename T >
T * aerobus::aligned_malloc (
            size_t count,
            size_t alignment )
```

'portable' aligned allocation of count elements of type T

**Template Parameters**

| | |
|---|---|
| *T* | the type of elements to store |

**Parameters**

| | |
|---|---|
| *count* | the number of elements |
| *alignment* | boundary |

#### 6.1.3.2 field()

```
brief Conway polynomials tparam p characteristic of the aerobus::field (
```

```
prime number )
```

## 6.1.4 Variable Documentation

### 6.1.4.1 alternate_v

```
template<typename T , size_t k>
constexpr T::inner_type aerobus::alternate_v = internal::alternate<T, k>::value  [inline],
[constexpr]
```

(-1)^k as value from T

**Template Parameters**

| | |
|---|---|
| *T* | Ring type, aerobus::i64 for example, then result will be an int64_t |

### 6.1.4.2 bernoulli_v

```
template<typename FloatType , typename T , size_t n>
constexpr FloatType aerobus::bernoulli_v = internal::bernoulli<T, n>::template value<Float←
Type>  [inline], [constexpr]
```

nth bernoulli number as value in FloatType

**Template Parameters**

| | |
|---|---|
| *FloatType* | (double or float for example) |
| *T* | (aerobus::i64 for example) |
| *n* | |

### 6.1.4.3 combination_v

```
template<typename T , size_t k, size_t n>
constexpr T::inner_type aerobus::combination_v = internal::combination<T, k, n>::value  [inline],
[constexpr]
```

computes binomial coefficients (k among n) as value

**Template Parameters**

| | |
|---|---|
| *T* | (aerobus::i32 for example) |
| *k* | |
| *n* | |

#### 6.1.4.4 factorial_v

```
template<typename T , size_t i>
constexpr T::inner_type aerobus::factorial_v = internal::factorial<T, i>::value [inline],
[constexpr]
```

computes factorial(i) as value in T

**Template Parameters**

| | |
|---|---|
| *T* | (aerobus::i64 for example) |
| *i* | |

## 6.2 aerobus::internal Namespace Reference

internal implementations, subject to breaking changes without notice

### Classes

- struct **_FractionField**
- struct **_FractionField**< **Ring, std::enable_if_t**< **Ring::is_euclidean_domain** > >
- struct **_is_prime**
- struct **_is_prime**< **0, i** >
- struct **_is_prime**< **1, i** >
- struct **_is_prime**< **2, i** >
- struct **_is_prime**< **3, i** >
- struct **_is_prime**< **5, i** >
- struct **_is_prime**< **7, i** >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n !=2 &&n !=3 &&n % 2 !=0 &&n % 3==0)**> >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n !=2 &&n % 2==0)**> >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n % i==0 &&n** >**=9 &&n % 3 !=0 &&n % 2 !=0 &&i** ∗**i** > **n)**> >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n %(i+2) !=0 &&n % i !=0 &&n** >**=9 &&n % 3 !=0 &&n % 2 !=0 &&(i** ∗**i**<**=n))**> >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n %(i+2)==0 &&n** >**=9 &&n % 3 !=0 &&n % 2 !=0 &&i** ∗**i**<**=n)**> >
- struct **_is_prime**< **n, i, std::enable_if_t**<**(n** >**=9 &&i** ∗**i** > **n)**> >
- struct **AbelHelper**
- struct **AllOneHelper**
- struct **AllOneHelper**< **0, I** >
- struct **alternate**
- struct **alternate**< **T, k, std::enable_if_t**< **k % 2 !=0** > >
- struct **alternate**< **T, k, std::enable_if_t**< **k % 2==0** > >
- struct **asin_coeff**
- struct **asin_coeff_helper**
- struct **asin_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==0** > >
- struct **asin_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==1** > >
- struct **asinh_coeff**
- struct **asinh_coeff_helper**
- struct **asinh_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==0** > >
- struct **asinh_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==1** > >

- struct **atan_coeff**
- struct **atan_coeff_helper**
- struct **atan_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **atan_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **atanh_coeff**
- struct **atanh_coeff_helper**
- struct **atanh_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **atanh_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **bell_helper**
- struct **bell_helper< T, 0 >**
- struct **bell_helper< T, 1 >**
- struct **bell_helper< T, n, std::enable_if_t<(n > 1)> >**
- struct **bernoulli**
- struct **bernoulli< T, 0 >**
- struct **bernoulli_coeff**
- struct **bernoulli_helper**
- struct **bernoulli_helper< T, accum, m, m >**
- struct **bernstein_helper**
- struct **bernstein_helper< 0, 0, I >**
- struct **bernstein_helper< i, m, I, std::enable_if_t<(m > 0) &&(i > 0) &&(i< m)> >**
- struct **bernstein_helper< i, m, I, std::enable_if_t<(m > 0) &&(i==0)> >**
- struct **bernstein_helper< i, m, I, std::enable_if_t<(m > 0) &&(i==m)> >**
- struct **BesselHelper**
- struct **BesselHelper< 0, I >**
- struct **BesselHelper< 1, I >**
- struct **chebyshev_helper**
- struct **chebyshev_helper< 1, 0, I >**
- struct **chebyshev_helper< 1, 1, I >**
- struct **chebyshev_helper< 2, 0, I >**
- struct **chebyshev_helper< 2, 1, I >**
- struct **combination**
- struct **combination_helper**
- struct **combination_helper< T, 0, n >**
- struct **combination_helper< T, k, n, std::enable_if_t<(n >=0 &&k >(n/2) &&k > 0)> >**
- struct **combination_helper< T, k, n, std::enable_if_t<(n >=0 &&k<=(n/2) &&k > 0)> >**
- struct **cos_coeff**
- struct **cos_coeff_helper**
- struct **cos_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **cos_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **cosh_coeff**
- struct **cosh_coeff_helper**
- struct **cosh_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **cosh_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **exp_coeff**
- struct **factorial**
- struct **factorial< T, 0 >**
- struct **factorial< T, x, std::enable_if_t<(x > 0)> >**
- struct **FloatLayout**
- struct **FloatLayout< double >**
- struct **FloatLayout< float >**
- struct **FloatLayout< long double >**
- struct **fma_helper**
- struct **fma_helper< double >**
- struct **fma_helper< float >**
- struct **fma_helper< int16_t >**

- struct **fma_helper< int32_t >**
- struct **fma_helper< int64_t >**
- struct **fma_helper< long double >**
- struct **FractionFieldImpl**
- struct **FractionFieldImpl< Field, std::enable_if_t< Field::is_field > >**
- struct **FractionFieldImpl< Ring, std::enable_if_t<!Ring::is_field > >**
- struct **gcd**

  *greatest common divisor computes the greatest common divisor exposes it in gcd<A, B>::type as long as Ring type is an integral domain*
- struct **gcd< Ring, std::enable_if_t< Ring::is_euclidean_domain > >**
- struct **geom_coeff**
- struct **hermite_helper**
- struct **hermite_helper< 0, known_polynomials::hermite_kind::physicist, I >**
- struct **hermite_helper< 0, known_polynomials::hermite_kind::probabilist, I >**
- struct **hermite_helper< 1, known_polynomials::hermite_kind::physicist, I >**
- struct **hermite_helper< 1, known_polynomials::hermite_kind::probabilist, I >**
- struct **hermite_helper< deg, known_polynomials::hermite_kind::physicist, I >**
- struct **hermite_helper< deg, known_polynomials::hermite_kind::probabilist, I >**
- struct **insert_h**
- struct **is_instantiation_of**
- struct **is_instantiation_of< TT, TT< Ts... > >**
- struct **laguerre_helper**
- struct **laguerre_helper< 0, I >**
- struct **laguerre_helper< 1, I >**
- struct **legendre_helper**
- struct **legendre_helper< 0, I >**
- struct **legendre_helper< 1, I >**
- struct **lnp1_coeff**
- struct **lnp1_coeff< T, 0 >**
- struct **make_taylor_impl**
- struct **make_taylor_impl< T, coeff_at, std::integer_sequence< size_t, Is... > >**
- struct **pop_front_h**
- struct **pow**
- struct **pow< T, p, n, std::enable_if_t< n==0 > >**
- struct **pow< T, p, n, std::enable_if_t<(n % 2==1)> >**
- struct **pow< T, p, n, std::enable_if_t<(n > 0 &&n % 2==0)> >**
- struct **pow_scalar**
- struct **remove_h**
- struct **sh_coeff**
- struct **sh_coeff_helper**
- struct **sh_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **sh_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **sin_coeff**
- struct **sin_coeff_helper**
- struct **sin_coeff_helper< T, i, std::enable_if_t<(i &1)==0 > >**
- struct **sin_coeff_helper< T, i, std::enable_if_t<(i &1)==1 > >**
- struct **split_h**
- struct **split_h< 0, L1, L2 >**
- struct **staticcast**
- struct **stirling_1_helper**
- struct **stirling_1_helper< T, 0, 0 >**
- struct **stirling_1_helper< T, 0, n, std::enable_if_t<(n > 0)> >**
- struct **stirling_1_helper< T, n, 0, std::enable_if_t<(n > 0)> >**
- struct **stirling_1_helper< T, n, k, std::enable_if_t<(k > 0) &&(n > 0)> >**

- struct **stirling_2_helper**
- struct **stirling_2_helper< T, 0, n, std::enable_if_t<(n > 0)> >**
- struct **stirling_2_helper< T, n, 0, std::enable_if_t<(n > 0)> >**
- struct **stirling_2_helper< T, n, k, std::enable_if_t<(k > 0) &&(n > 0) &&(k< n)> >**
- struct **stirling_2_helper< T, n, n, std::enable_if_t<(n >=0)> >**
- struct **tan_coeff**
- struct **tan_coeff_helper**
- struct **tan_coeff_helper< T, i, std::enable_if_t<(i % 2) !=0 > >**
- struct **tan_coeff_helper< T, i, std::enable_if_t<(i % 2)==0 > >**
- struct **tanh_coeff**
- struct **tanh_coeff_helper**
- struct **tanh_coeff_helper< T, i, std::enable_if_t<(i % 2) !=0 > >**
- struct **tanh_coeff_helper< T, i, std::enable_if_t<(i % 2)==0 > >**
- struct **touchard_coeff**
- struct **type_at**
- struct **type_at< 0, T, Ts... >**
- struct **vadd**
- struct **vadd< v1 >**
- struct **vadd< v1, vals... >**
- struct **vmul**
- struct **vmul< v1 >**
- struct **vmul< v1, vals... >**

### Typedefs

- template<size_t i, typename... Ts>
  using type_at_t = typename type_at< i, Ts... >::type
- template<std::size_t N>
  using make_index_sequence_reverse = decltype(index_sequence_reverse(std::make_index_sequence< N >{}))

### Functions

- template<std::size_t... Is>
  constexpr auto index_sequence_reverse (std::index_sequence< Is... > const &) -> decltype(std::index_sequence< sizeof...(Is) - 1U - Is... >{})

### Variables

- template<template< typename... > typename TT, typename T >
  constexpr bool is_instantiation_of_v = is_instantiation_of<TT, T>::value

## 6.2.1 Detailed Description

internal implementations, subject to breaking changes without notice

### 6.2.2 Typedef Documentation

#### 6.2.2.1 make_index_sequence_reverse

```
template<std::size_t N>
using aerobus::internal::make_index_sequence_reverse = typedef decltype(index_sequence_reverse(std↵
::make_index_sequence<N>{}))
```

#### 6.2.2.2 type_at_t

```
template<size_t i, typename... Ts>
using aerobus::internal::type_at_t = typedef typename type_at<i, Ts...>::type
```

### 6.2.3 Function Documentation

#### 6.2.3.1 index_sequence_reverse()

```
template<std::size_t... Is>
constexpr auto aerobus::internal::index_sequence_reverse (
            std::index_sequence< Is... > const & ) -> decltype(std::index_sequence< sizeof...(Is)
- 1U - Is... >{}) [constexpr]
```

### 6.2.4 Variable Documentation

#### 6.2.4.1 is_instantiation_of_v

```
template<template< typename... > typename TT, typename T >
constexpr bool aerobus::internal::is_instantiation_of_v = is_instantiation_of<TT, T>::value
[inline], [constexpr]
```

## 6.3 aerobus::known_polynomials Namespace Reference

families of well known polynomials such as Hermite or Bernstein

**Enumerations**

- enum hermite_kind { probabilist , physicist }

### 6.3.1 Detailed Description

families of well known polynomials such as Hermite or Bernstein

### 6.3.2 Enumeration Type Documentation

#### 6.3.2.1 hermite_kind

```
enum aerobus::known_polynomials::hermite_kind
```

**Enumerator**

| | |
|---|---|
| probabilist | |
| physicist | |

# Chapter 7

# Concept Documentation

## 7.1 aerobus::IsEuclideanDomain Concept Reference

Concept to express R is an euclidean domain.

`#include <aerobus.h>`

### 7.1.1 Concept definition

```
template<typename R>
concept aerobus::IsEuclideanDomain =  IsRing<R> && requires {
        typename R::template div_t<typename R::one, typename R::one>;
        typename R::template mod_t<typename R::one, typename R::one>;
        typename R::template gcd_t<typename R::one, typename R::one>;
        typename R::template eq_t<typename R::one, typename R::one>;
        typename R::template pos_t<typename R::one>;

        R::template pos_v<typename R::one> == true;

        R::is_euclidean_domain == true;
    }
```

### 7.1.2 Detailed Description

Concept to express R is an euclidean domain.

## 7.2 aerobus::IsField Concept Reference

Concept to express R is a field.

`#include <aerobus.h>`

### 7.2.1 Concept definition

```
template<typename R>
concept aerobus::IsField =  IsEuclideanDomain<R> && requires {
        R::is_field == true;
    }
```

### 7.2.2 Detailed Description

Concept to express R is a field.

## 7.3 aerobus::IsRing Concept Reference

Concept to express R is a Ring.

```
#include <aerobus.h>
```

### 7.3.1 Concept definition

```
template<typename R>
concept aerobus::IsRing =  requires {
        typename R::one;
        typename R::zero;
        typename R::template add_t<typename R::one, typename R::one>;
        typename R::template sub_t<typename R::one, typename R::one>;
        typename R::template mul_t<typename R::one, typename R::one>;
    }
```

### 7.3.2 Detailed Description

Concept to express R is a Ring.

# Chapter 8

# Class Documentation

## 8.1 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, E > Struct Template Reference

```
#include <aerobus.h>
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.2 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index< 0||index > 0)> > Struct Template Reference

```
#include <aerobus.h>
```

#### Public Types

- using type = typename Ring::zero

### 8.2.1 Member Typedef Documentation

#### 8.2.1.1 type

```
template<typename Ring >
template<typename coeffN >
template<size_t index>
using aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index<
0||index > 0)> >::type = typename Ring::zero
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.3 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)> > Struct Template Reference

```
#include <aerobus.h>
```

### Public Types

- using type = aN

### 8.3.1 Member Typedef Documentation

#### 8.3.1.1 type

```
template<typename Ring >
template<typename coeffN >
template<size_t index>
using aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)>
>::type = aN
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.4 aerobus::ContinuedFraction< values > Struct Template Reference

represents a continued fraction a0 + $\frac{1}{a_1+\frac{1}{a_2+\dots}}$

```
#include <aerobus.h>
```

### 8.4.1 Detailed Description

**template<int64_t... values>**
**struct aerobus::ContinuedFraction< values >**

represents a continued fraction a0 + $\frac{1}{a_1+\frac{1}{a_2+\dots}}$

**Template Parameters**

| | |
|---|---|
| *...values* | are int64_t |

**Examples**

examples/continued_fractions.cpp.

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.5 aerobus::ContinuedFraction< a0 > Struct Template Reference

Specialization for only one coefficient, technically just 'a0'.

```
#include <aerobus.h>
```

### Public Types

- using type = typename q64::template inject_constant_t< a0 >

    *represented value as aerobus::q64*

### Static Public Attributes

- static constexpr double val = static_cast<double>(a0)

    *represented value as double*

### 8.5.1 Detailed Description

**template<int64_t a0>**
**struct aerobus::ContinuedFraction< a0 >**

Specialization for only one coefficient, technically just 'a0'.

**Template Parameters**

| | |
|---|---|
| *a0* | an integer int64_t |

### 8.5.2 Member Typedef Documentation

#### 8.5.2.1 type

```
template<int64_t a0>
using aerobus::ContinuedFraction< a0 >::type = typename q64::template inject_constant_t<a0>
```

represented value as aerobus::q64

### 8.5.3 Member Data Documentation

#### 8.5.3.1 val

```
template<int64_t a0>
constexpr double aerobus::ContinuedFraction< a0 >::val = static_cast<double>(a0) [static],
[constexpr]
```

represented value as double

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.6 aerobus::ContinuedFraction< a0, rest... > Struct Template Reference

specialization for multiple coefficients (strictly more than one)

`#include <aerobus.h>`

### Public Types

- using type = q64::template add_t< typename q64::template inject_constant_t< a0 >, typename q64::template div_t< typename q64::one, typename ContinuedFraction< rest... >::type > >

    *represented value as aerobus::q64*

### Static Public Attributes

- static constexpr double val = type::template get<double>()

    *reprensented value as double*

### 8.6.1 Detailed Description

**template<int64_t a0, int64_t... rest>**
**struct aerobus::ContinuedFraction< a0, rest... >**

specialization for multiple coefficients (strictly more than one)

**Template Parameters**

| | |
|---|---|
| *a0* | integer (int64_t) |
| *...rest* | integers (int64_t) |

### 8.6.2 Member Typedef Documentation

#### 8.6.2.1 type

```
template<int64_t a0, int64_t... rest>
using aerobus::ContinuedFraction< a0, rest... >::type = q64::template add_t< typename q64↩
::template inject_constant_t<a0>, typename q64::template div_t< typename q64::one, typename
ContinuedFraction<rest...>::type > >
```

represented value as aerobus::q64

### 8.6.3 Member Data Documentation

#### 8.6.3.1 val

```
template<int64_t a0, int64_t... rest>
constexpr double aerobus::ContinuedFraction< a0, rest... >::val = type::template get<double>()
[static], [constexpr]
```

reprensented value as double

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.7 aerobus::ConwayPolynomial Struct Reference

```
#include <aerobus.h>
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.8 aerobus::polynomial< Ring >::compensated_horner< arithmeticType, P >::EFTHorner< index, ghost > Struct Template Reference

```
#include <aerobus.h>
```

#### Static Public Member Functions

- static INLINED void func (arithmeticType x, arithmeticType *pi, arithmeticType *sigma, arithmeticType *r)

### 8.8.1 Member Function Documentation

#### 8.8.1.1 func()

```
template<typename Ring >
template<typename arithmeticType , typename P >
template<int64_t index, int ghost>
static INLINED void aerobus::polynomial< Ring >::compensated_horner< arithmeticType, P >::↩
EFTHorner< index, ghost >::func (
            arithmeticType x,
            arithmeticType * pi,
            arithmeticType * sigma,
            arithmeticType * r ) [inline], [static]
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.9 aerobus::polynomial< Ring >::compensated_horner< arithmeticType, P >::EFTHorner<-1, ghost > Struct Template Reference

```
#include <aerobus.h>
```

**Static Public Member Functions**

- static INLINED DEVICE void func (arithmeticType x, arithmeticType *pi, arithmeticType *sigma, arithmetic↩ Type *r)

### 8.9.1 Member Function Documentation

#### 8.9.1.1 func()

```
template<typename Ring >
template<typename arithmeticType , typename P >
template<int ghost>
static INLINED DEVICE void aerobus::polynomial< Ring >::compensated_horner< arithmeticType, P
>::EFTHorner<-1, ghost >::func (
            arithmeticType x,
            arithmeticType * pi,
            arithmeticType * sigma,
            arithmeticType * r ) [inline], [static]
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.10 aerobus::Embed< Small, Large, E > Struct Template Reference

embedding - struct forward declaration

### 8.10.1 Detailed Description

**template<typename Small, typename Large, typename E = void>**
**struct aerobus::Embed< Small, Large, E >**

embedding - struct forward declaration

**Template Parameters**

| | |
|---|---|
| *Small* | a ring which can be embedded in Large |
| *Large* | a ring in which Small can be embedded |
| *E* | some default type (unused – implementation related) |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.11 aerobus::Embed< i32, i64 > Struct Reference

embeds i32 into i64

```
#include <aerobus.h>
```

**Public Types**

- template<typename val >
  using type = i64::val< static_cast< int64_t >(val::v)>
    *the i64 representation of val*

### 8.11.1 Detailed Description

embeds i32 into i64

### 8.11.2 Member Typedef Documentation

#### 8.11.2.1 type

```
template<typename val >
using aerobus::Embed< i32, i64 >::type = i64::val<static_cast<int64_t>(val::v)>
```

the i64 representation of val

**Template Parameters**

| | |
|---|---|
| *val* | a value in i32 |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.12 aerobus::Embed< polynomial< Small >, polynomial< Large > > Struct Template Reference

embeds polynomial<Small> into polynomial<Large>

```
#include <aerobus.h>
```

### Public Types

- template<typename v >
  using type = typename at_low< v, typename internal::make_index_sequence_reverse< v::degree+1 > >↩
  ::type

  *the polynomial<Large> reprensentation of v*

### 8.12.1 Detailed Description

**template<typename Small, typename Large>**
**struct aerobus::Embed< polynomial< Small >, polynomial< Large > >**

embeds polynomial<Small> into polynomial<Large>

**Template Parameters**

| | |
|---|---|
| *Small* | a rings which can be embedded in Large |
| *Large* | a ring in which Small can be embedded |

### 8.12.2 Member Typedef Documentation

#### 8.12.2.1 type

```
template<typename Small , typename Large >
template<typename v >
using aerobus::Embed< polynomial< Small >, polynomial< Large > >::type = typename at_low<v,
typename internal::make_index_sequence_reverse<v::degree + 1> >::type
```

the polynomial<Large> reprensentation of v

**Template Parameters**

| | |
|---|---|
| *v* | a value in polynomial<Small> |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.13 aerobus::Embed< q32, q64 > Struct Reference

embeds q32 into q64

```
#include <aerobus.h>
```

### Public Types

- template< typename v >
  using type = make_q64_t< static_cast< int64_t >(v::x::v), static_cast< int64_t >(v::y::v)>
    *q64 representation of v*

### 8.13.1 Detailed Description

embeds q32 into q64

### 8.13.2 Member Typedef Documentation

#### 8.13.2.1 type

```
template<typename v >
using aerobus::Embed< q32, q64 >::type = make_q64_t<static_cast<int64_t>(v::x::v), static_↩
cast<int64_t>(v::y::v)>
```

q64 representation of v

**Template Parameters**

| | |
|---|---|
| *v* | a value in q32 |

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.14 aerobus::Embed< Quotient< Ring, X >, Ring > Struct Template Reference

embeds Quotient<Ring, X> into Ring

```
#include <aerobus.h>
```

### Public Types

- template<typename val >
  using type = typename val::raw_t

  *Ring reprensentation of val.*

## 8.14.1 Detailed Description

**template<typename Ring, typename X>**
**struct aerobus::Embed< Quotient< Ring, X >, Ring >**

embeds Quotient<Ring, X> into Ring

**Template Parameters**

| | |
|---|---|
| *Ring* | a Euclidean ring |
| *X* | a value in Ring |

## 8.14.2 Member Typedef Documentation

### 8.14.2.1 type

```
template<typename Ring , typename X >
template<typename val >
using aerobus::Embed< Quotient< Ring, X >, Ring >::type = typename val::raw_t
```

Ring reprensentation of val.

**Template Parameters**

| | |
|---|---|
| *val* | a value in Quotient<Ring, X> |

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.15 aerobus::Embed< Ring, FractionField< Ring > > Struct Template Reference

embeds values from Ring to its field of fractions

```
#include <aerobus.h>
```

### Public Types

- template< typename v >
  using type = typename FractionField< Ring >::template val< v, typename Ring::one >

  *FractionField< Ring > reprensentation of v.*

## 8.15.1 Detailed Description

**template< typename Ring >**
**struct aerobus::Embed< Ring, FractionField< Ring > >**

embeds values from Ring to its field of fractions

**Template Parameters**

| | |
|---|---|
| *Ring* | an integers ring, such as i32 |

## 8.15.2 Member Typedef Documentation

### 8.15.2.1 type

```
template<typename Ring >
template<typename v >
using aerobus::Embed< Ring, FractionField< Ring > >::type = typename FractionField<Ring>↩
::template val<v, typename Ring::one>
```

FractionField< Ring > reprensentation of v.

**Template Parameters**

| | |
|---|---|
| *v* | a Ring value |

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.16 aerobus::Embed< zpz< x >, i32 > Struct Template Reference

embeds zpz values into i32

```
#include <aerobus.h>
```

### Public Types

- template< typename val >
  using type = i32::val< val::v >

    *the i32 reprensentation of val*

## 8.16.1 Detailed Description

**template<int32_t x>**
**struct aerobus::Embed< zpz< x >, i32 >**

embeds zpz values into i32

**Template Parameters**

| | |
|---|---|
| *x* | an integer |

## 8.16.2 Member Typedef Documentation

### 8.16.2.1 type

```
template<int32_t x>
template<typename val >
using aerobus::Embed< zpz< x >, i32 >::type = i32::val<val::v>
```

the i32 reprensentation of val

**Template Parameters**

| | |
|---|---|
| *val* | a value in zpz<x> |

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.17 aerobus::polynomial< Ring >::horner_reduction_t< P > Struct Template Reference

Used to evaluate polynomials over a value in Ring.

```
#include <aerobus.h>
```

### Classes

- struct inner
- struct inner< stop, stop >

### 8.17.1 Detailed Description

**template<typename Ring>**
**template<typename P>**
**struct aerobus::polynomial< Ring >::horner_reduction_t< P >**

Used to evaluate polynomials over a value in Ring.

**Template Parameters**

| | |
|---|---|
| *P* | a value in polynomial<Ring> |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.18 aerobus::i32 Struct Reference

32 bits signed integers, seen as a algebraic ring with related operations

```
#include <aerobus.h>
```

### Classes

- struct val
  *values in i32, again represented as types*

### Public Types

- using inner_type = int32_t
- using zero = val< 0 >
  *constant zero*
- using one = val< 1 >
  *constant one*
- template<auto x>
  using inject_constant_t = val< static_cast< int32_t >(x)>
  *inject a native constant*
- template<typename v >
  using inject_ring_t = v
- template<typename v1 , typename v2 >
  using add_t = typename add< v1, v2 >::type
  *addition operator yields v1 + v2*

- template<typename v1 , typename v2 >
  using sub_t = typename sub< v1, v2 >::type

  *substraction operator yields v1 - v2*
- template<typename v1 , typename v2 >
  using mul_t = typename mul< v1, v2 >::type

  *multiplication operator yields v1 ∗ v2*
- template<typename v1 , typename v2 >
  using div_t = typename div< v1, v2 >::type

  *division operator yields v1 / v2*
- template<typename v1 , typename v2 >
  using mod_t = typename remainder< v1, v2 >::type

  *modulus operator yields v1 % v2*
- template<typename v1 , typename v2 >
  using gt_t = typename gt< v1, v2 >::type

  *strictly greater operator (v1 > v2) yields v1 > v2*
- template<typename v1 , typename v2 >
  using lt_t = typename lt< v1, v2 >::type

  *strict less operator (v1 < v2) yields v1 < v2*
- template<typename v1 , typename v2 >
  using eq_t = typename eq< v1, v2 >::type

  *equality operator (type) yields v1 == v2 as std::integral_constant<bool>*
- template<typename v1 , typename v2 >
  using gcd_t = gcd_t< i32, v1, v2 >

  *greatest common divisor yields GCD(v1, v2)*
- template<typename v >
  using pos_t = typename pos< v >::type

  *positivity operator yields v > 0 as std::true_type or std::false_type*

### Static Public Attributes

- static constexpr bool is_field = false

  *integers are not a field*
- static constexpr bool is_euclidean_domain = true

  *integers are an euclidean domain*
- template<typename v1 , typename v2 >
  static constexpr bool eq_v = eq_t<v1, v2>::value

  *equality operator (boolean value)*
- template<typename v >
  static constexpr bool pos_v = pos_t<v>::value

  *positivity (boolean value) yields v > 0 as boolean value*

## 8.18.1 Detailed Description

32 bits signed integers, seen as a algebraic ring with related operations

**Examples**

examples/compensated_horner.cpp.

## 8.18.2 Member Typedef Documentation

### 8.18.2.1 add_t

```
template<typename v1 , typename v2 >
using aerobus::i32::add_t = typename add<v1, v2>::type
```

addition operator yields v1 + v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

### 8.18.2.2 div_t

```
template<typename v1 , typename v2 >
using aerobus::i32::div_t = typename div<v1, v2>::type
```

division operator yields v1 / v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

### 8.18.2.3 eq_t

```
template<typename v1 , typename v2 >
using aerobus::i32::eq_t = typename eq<v1, v2>::type
```

equality operator (type) yields v1 == v2 as std::integral_constant<bool>

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

### 8.18.2.4 gcd_t

```
template<typename v1 , typename v2 >
using aerobus::i32::gcd_t = gcd_t<i32, v1, v2>
```

greatest common divisor yields GCD(v1, v2)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.5 gt_t

```
template<typename v1 , typename v2 >
using aerobus::i32::gt_t = typename gt<v1, v2>::type
```

strictly greater operator (v1 > v2) yields v1 > v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.6 inject_constant_t

```
template<auto x>
using aerobus::i32::inject_constant_t = val<static_cast<int32_t>(x)>
```

inject a native constant

**Template Parameters**

| | |
|---|---|
| *x* | |

#### 8.18.2.7 inject_ring_t

```
template<typename v >
using aerobus::i32::inject_ring_t = v
```

#### 8.18.2.8 inner_type

```
using aerobus::i32::inner_type = int32_t
```

#### 8.18.2.9 lt_t

```
template<typename v1 , typename v2 >
using aerobus::i32::lt_t = typename lt<v1, v2>::type
```

strict less operator (v1 < v2) yields v1 < v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.10 mod_t

```
template<typename v1 , typename v2 >
using aerobus::i32::mod_t = typename remainder<v1, v2>::type
```

modulus operator yields v1 % v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.11 mul_t

```
template<typename v1 , typename v2 >
using aerobus::i32::mul_t = typename mul<v1, v2>::type
```

multiplication operator yields v1 $*$ v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.12 one

```
using aerobus::i32::one = val<1>
```

constant one

#### 8.18.2.13 pos_t

```
template<typename v >
using aerobus::i32::pos_t = typename pos<v>::type
```

positivity operator yields v $>$ 0 as std::true_type or std::false_type

**Template Parameters**

| | |
|---|---|
| *v* | a value in i32 |

#### 8.18.2.14 sub_t

```
template<typename v1 , typename v2 >
using aerobus::i32::sub_t = typename sub<v1, v2>::type
```

substraction operator yields v1 - v2

**Template Parameters**

| | |
|---|---|
| *v1* | a value in i32 |
| *v2* | a value in i32 |

#### 8.18.2.15 zero

```
using aerobus::i32::zero = val<0>
```

constant zero

### 8.18.3 Member Data Documentation

#### 8.18.3.1 eq_v

```
template<typename v1 , typename v2 >
constexpr bool aerobus::i32::eq_v = eq_t<v1, v2>::value [static], [constexpr]
```

equality operator (boolean value)

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.18.3.2 is_euclidean_domain

```
constexpr bool aerobus::i32::is_euclidean_domain = true [static], [constexpr]
```

integers are an euclidean domain

#### 8.18.3.3 is_field

```
constexpr bool aerobus::i32::is_field = false [static], [constexpr]
```

integers are not a field

#### 8.18.3.4 pos_v

```
template<typename v >
constexpr bool aerobus::i32::pos_v = pos_t<v>::value  [static], [constexpr]
```

positivity (boolean value) yields v $>$ 0 as boolean value

**Template Parameters**

| | |
|---|---|
| *v* | a value in i32 |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.19 aerobus::i64 Struct Reference

64 bits signed integers, seen as a algebraic ring with related operations

```
#include <aerobus.h>
```

### Classes

- struct val

  *values in i64*

### Public Types

- using inner_type = int64_t

  *type of represented values*
- template<auto x>
  using inject_constant_t = val< static_cast< int64_t >(x)>

  *injects constant as an i64 value*
- template<typename v >
  using inject_ring_t = v

  *injects a value used for internal consistency and quotient rings implementations for example i64::inject_ring_t<i64::val<1>> -> i64::val<1>*
- using zero = val< 0 >

  *constant zero*
- using one = val< 1 >

  *constant one*
- template<typename v1 , typename v2 >
  using add_t = typename add< v1, v2 >::type

  *addition operator*
- template<typename v1 , typename v2 >
  using sub_t = typename sub< v1, v2 >::type

  *substraction operator*
- template<typename v1 , typename v2 >
  using mul_t = typename mul< v1, v2 >::type

  *multiplication operator*
- template<typename v1 , typename v2 >
  using div_t = typename div< v1, v2 >::type

  *division operator integer division*
- template<typename v1 , typename v2 >
  using mod_t = typename remainder< v1, v2 >::type

*modulus operator*

- template< typename v1 , typename v2 >
  using gt_t = typename gt< v1, v2 >::type

  *strictly greater operator yields v1 > v2 as std::true_type or std::false_type*
- template< typename v1 , typename v2 >
  using lt_t = typename lt< v1, v2 >::type

  *strict less operator yields v1 < v2 as std::true_type or std::false_type*
- template< typename v1 , typename v2 >
  using eq_t = typename eq< v1, v2 >::type

  *equality operator yields v1 == v2 as std::true_type or std::false_type*
- template< typename v1 , typename v2 >
  using gcd_t = gcd_t< i64, v1, v2 >

  *greatest common divisor yields GCD(v1, v2) as instanciation of i64::val*
- template< typename v >
  using pos_t = typename pos< v >::type

  *is v posititive yields v > 0 as std::true_type or std::false_type*

### Static Public Attributes

- static constexpr bool is_field = false

  *integers are not a field*
- static constexpr bool is_euclidean_domain = true

  *integers are an euclidean domain*
- template< typename v1 , typename v2 >
  static constexpr bool gt_v = gt_t<v1, v2>::value

  *strictly greater operator yields v1 > v2 as boolean value*
- template< typename v1 , typename v2 >
  static constexpr bool lt_v = lt_t<v1, v2>::value

  *strictly smaller operator yields v1 < v2 as boolean value*
- template< typename v1 , typename v2 >
  static constexpr bool eq_v = eq_t<v1, v2>::value

  *equality operator yields v1 == v2 as boolean value*
- template< typename v >
  static constexpr bool pos_v = pos_t<v>::value

  *positivity yields v > 0 as boolean value*

## 8.19.1 Detailed Description

64 bits signed integers, seen as a algebraic ring with related operations

## 8.19.2 Member Typedef Documentation

### 8.19.2.1 add_t

```
template<typename v1 , typename v2 >
using aerobus::i64::add_t = typename add<v1, v2>::type
```

addition operator

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.2 div_t

```
template<typename v1 , typename v2 >
using aerobus::i64::div_t = typename div<v1, v2>::type
```

division operator integer division

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.3 eq_t

```
template<typename v1 , typename v2 >
using aerobus::i64::eq_t = typename eq<v1, v2>::type
```

equality operator yields v1 == v2 as std::true_type or std::false_type

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.4 gcd_t

```
template<typename v1 , typename v2 >
using aerobus::i64::gcd_t = gcd_t<i64, v1, v2>
```

greatest common divisor yields GCD(v1, v2) as instanciation of i64::val

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.5 gt_t

```
template<typename v1 , typename v2 >
using aerobus::i64::gt_t = typename gt<v1, v2>::type
```

strictly greater operator yields v1 > v2 as std::true_type or std::false_type

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.6 inject_constant_t

```
template<auto x>
using aerobus::i64::inject_constant_t = val<static_cast<int64_t>(x)>
```

injects constant as an i64 value

**Template Parameters**

| | |
|---|---|
| *x* | |

#### 8.19.2.7 inject_ring_t

```
template<typename v >
using aerobus::i64::inject_ring_t = v
```

injects a value used for internal consistency and quotient rings implementations for example i64::inject_ring_t<i64::val<1>> -> i64::val<1>

**Template Parameters**

| | |
|---|---|
| *v* | a value in i64 |

#### 8.19.2.8 inner_type

```
using aerobus::i64::inner_type = int64_t
```

type of represented values

#### 8.19.2.9 lt_t

```
template<typename v1 , typename v2 >
using aerobus::i64::lt_t = typename lt<v1, v2>::type
```

strict less operator yields v1 < v2 as std::true_type or std::false_type

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.10 mod_t

```
template<typename v1 , typename v2 >
using aerobus::i64::mod_t = typename remainder<v1, v2>::type
```

modulus operator

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.11 mul_t

```
template<typename v1 , typename v2 >
using aerobus::i64::mul_t = typename mul<v1, v2>::type
```

multiplication operator

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.12 one

```
using aerobus::i64::one = val<1>
```

constant one

#### 8.19.2.13 pos_t

```
template<typename v >
using aerobus::i64::pos_t = typename pos<v>::type
```

is v posititive yields v $>$ 0 as std::true_type or std::false_type

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |

#### 8.19.2.14 sub_t

```
template<typename v1 , typename v2 >
using aerobus::i64::sub_t = typename sub<v1, v2>::type
```

substraction operator

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.2.15 zero

```
using aerobus::i64::zero = val<0>
```

constant zero

### 8.19.3 Member Data Documentation

#### 8.19.3.1 eq_v

```
template<typename v1 , typename v2 >
constexpr bool aerobus::i64::eq_v = eq_t<v1, v2>::value  [static], [constexpr]
```

equality operator yields v1 == v2 as boolean value

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.3.2 gt_v

```
template<typename v1 , typename v2 >
constexpr bool aerobus::i64::gt_v = gt_t<v1, v2>::value  [static], [constexpr]
```

strictly greater operator yields v1 $>$ v2 as boolean value

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.3.3 is_euclidean_domain

```
constexpr bool aerobus::i64::is_euclidean_domain = true  [static], [constexpr]
```

integers are an euclidean domain

#### 8.19.3.4 is_field

```
constexpr bool aerobus::i64::is_field = false  [static], [constexpr]
```

integers are not a field

#### 8.19.3.5 lt_v

```
template<typename v1 , typename v2 >
constexpr bool aerobus::i64::lt_v = lt_t<v1, v2>::value  [static], [constexpr]
```

strictly smaller operator yields v1 < v2 as boolean value

**Template Parameters**

| | |
|---|---|
| *v1* | : an element of aerobus::i64::val |
| *v2* | : an element of aerobus::i64::val |

#### 8.19.3.6 pos_v

```
template<typename v >
constexpr bool aerobus::i64::pos_v = pos_t<v>::value  [static], [constexpr]
```

positivity yields v > 0 as boolean value

**Template Parameters**

| | |
|---|---|
| *v* | : an element of aerobus::i64::val |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.20 aerobus::polynomial< Ring >::horner_reduction_t< P >::inner< index, stop > Struct Template Reference

```
#include <aerobus.h>
```

### Public Types

- template<typename accum , typename x >
  using type = typename horner_reduction_t< P >::template inner< index+1, stop > ::template type< typename Ring::template add_t< typename Ring::template mul_t< x, accum >, typename P::template coeff_at_t< P::degree - index > >, x >

### 8.20.1 Member Typedef Documentation

#### 8.20.1.1 type

```
template<typename Ring >
template<typename P >
template<size_t index, size_t stop>
template<typename accum , typename x >
using aerobus::polynomial< Ring >::horner_reduction_t< P >::inner< index, stop >::type =
typename horner_reduction_t<P>::template inner<index + 1, stop> ::template type< typename
Ring::template add_t< typename Ring::template mul_t<x, accum>, typename P::template coeff_↩
at_t<P::degree - index> >, x>
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.21 aerobus::polynomial< Ring >::horner_reduction_t< P >::inner< stop, stop > Struct Template Reference

```
#include <aerobus.h>
```

**Public Types**

- template<typename accum , typename x >
  using type = accum

### 8.21.1 Member Typedef Documentation

#### 8.21.1.1 type

```
template<typename Ring >
template<typename P >
template<size_t stop>
template<typename accum , typename x >
using aerobus::polynomial< Ring >::horner_reduction_t< P >::inner< stop, stop >::type =
accum
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.22 aerobus::is_prime< n > Struct Template Reference

checks if n is prime

```
#include <aerobus.h>
```

### Static Public Attributes

- static constexpr bool value = internal::_is_prime<n, 5>::value
  *true iff n is prime*

## 8.22.1 Detailed Description

**template<size_t n>**
**struct aerobus::is_prime< n >**

checks if n is prime

**Template Parameters**

| | |
|---|---|
| *n* | |

## 8.22.2 Member Data Documentation

### 8.22.2.1 value

```
template<size_t n>
constexpr bool aerobus::is_prime< n >::value = internal::_is_prime<n, 5>::value  [static],
[constexpr]
```

true iff n is prime

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.23 aerobus::polynomial< Ring > Struct Template Reference

```
#include <aerobus.h>
```

### Classes

- struct horner_reduction_t
  *Used to evaluate polynomials over a value in Ring.*
- struct val
  *values (seen as types) in polynomial ring*
- struct val< coeffN >
  *specialization for constants*

### Public Types

- using zero = val< typename Ring::zero >

    *constant zero*
- using one = val< typename Ring::one >

    *constant one*
- using X = val< typename Ring::one, typename Ring::zero >

    *generator*
- template<typename P >
  using simplify_t = typename simplify< P >::type

    *simplifies a polynomial (recursively deletes highest degree if zero, do nothing otherwise)*
- template<typename v1 , typename v2 >
  using add_t = typename add< v1, v2 >::type

    *adds two polynomials*
- template<typename v1 , typename v2 >
  using sub_t = typename sub< v1, v2 >::type

    *substraction of two polynomials*
- template<typename v1 , typename v2 >
  using mul_t = typename mul< v1, v2 >::type

    *multiplication of two polynomials*
- template<typename v1 , typename v2 >
  using eq_t = typename eq_helper< v1, v2 >::type

    *equality operator*
- template<typename v1 , typename v2 >
  using lt_t = typename lt_helper< v1, v2 >::type

    *strict less operator*
- template<typename v1 , typename v2 >
  using gt_t = typename gt_helper< v1, v2 >::type

    *strict greater operator*
- template<typename v1 , typename v2 >
  using div_t = typename div< v1, v2 >::q_type

    *division operator*
- template<typename v1 , typename v2 >
  using mod_t = typename div_helper< v1, v2, zero, v1 >::mod_type

    *modulo operator*
- template<typename coeff , size_t deg>
  using monomial_t = typename monomial< coeff, deg >::type

    *monomial : coeff X^deg*
- template<typename v >
  using derive_t = typename derive_helper< v >::type

    *derivation operator*
- template<typename v >
  using pos_t = typename Ring::template pos_t< typename v::aN >

    *checks for positivity (an > 0)*
- template<typename v1 , typename v2 >
  using gcd_t = std::conditional_t< Ring::is_euclidean_domain, typename make_unit< gcd_t< polynomial< Ring >, v1, v2 > >::type, void >

    *greatest common divisor of two polynomials*
- template<auto x>
  using inject_constant_t = val< typename Ring::template inject_constant_t< x > >

    *makes the constant (native type) polynomial a_0*
- template<typename v >
  using inject_ring_t = val< v >

    *makes the constant (ring type) polynomial a_0*

**Static Public Attributes**

- static constexpr bool is_field = false
- static constexpr bool is_euclidean_domain = Ring::is_euclidean_domain
- template<typename v >
  static constexpr bool pos_v = pos_t<v>::value

  *positivity operator*

## 8.23.1 Detailed Description

**template<typename Ring>**
**requires IsEuclideanDomain<Ring>**
**struct aerobus::polynomial< Ring >**

polynomial with coefficients in Ring Ring must be an integral domain

**Examples**

examples/compensated_horner.cpp, examples/make_polynomial.cpp, and examples/modular_arithmetic.cpp.

## 8.23.2 Member Typedef Documentation

### 8.23.2.1 add_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::add_t = typename add<v1, v2>::type
```

adds two polynomials

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

### 8.23.2.2 derive_t

```
template<typename Ring >
template<typename v >
using aerobus::polynomial< Ring >::derive_t = typename derive_helper<v>::type
```

derivation operator

**Template Parameters**

| | |
|---|---|
| *v* | |

#### 8.23.2.3 div_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::div_t = typename div<v1, v2>::q_type
```

division operator

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.4 eq_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::eq_t = typename eq_helper<v1, v2>::type
```

equality operator

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.5 gcd_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::gcd_t = std::conditional_t< Ring::is_euclidean_domain,
typename make_unit<gcd_t<polynomial<Ring>, v1, v2> >::type, void>
```

greatest common divisor of two polynomials

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.6 gt_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::gt_t = typename gt_helper<v1, v2>::type
```

strict greater operator

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.7 inject_constant_t

```
template<typename Ring >
template<auto x>
using aerobus::polynomial< Ring >::inject_constant_t = val<typename Ring::template inject_constant_t<x>
>
```

makes the constant (native type) polynomial a_0

**Template Parameters**

| | |
|---|---|
| *x* | |

#### 8.23.2.8 inject_ring_t

```
template<typename Ring >
template<typename v >
using aerobus::polynomial< Ring >::inject_ring_t = val<v>
```

makes the constant (ring type) polynomial a_0

**Template Parameters**

| | |
|---|---|
| *v* | |

#### 8.23.2.9 lt_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::lt_t = typename lt_helper<v1, v2>::type
```

strict less operator

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.10 mod_t

```
template<typename Ring >
```

```
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::mod_t = typename div_helper<v1, v2, zero, v1>::mod_type
```

modulo operator

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.11 monomial_t

```
template<typename Ring >
template<typename coeff , size_t deg>
using aerobus::polynomial< Ring >::monomial_t = typename monomial<coeff, deg>::type
```

monomial : coeff X^deg

**Template Parameters**

| | |
|---|---|
| *coeff* | |
| *deg* | |

#### 8.23.2.12 mul_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::mul_t = typename mul<v1, v2>::type
```

multiplication of two polynomials

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.13 one

```
template<typename Ring >
using aerobus::polynomial< Ring >::one = val<typename Ring::one>
```

constant one

#### 8.23.2.14 pos_t

```
template<typename Ring >
template<typename v >
using aerobus::polynomial< Ring >::pos_t = typename Ring::template pos_t<typename v::aN>
```

checks for positivity (an $>$ 0)

**Template Parameters**

| | |
|---|---|
| *v* | |

#### 8.23.2.15 simplify_t

```
template<typename Ring >
template<typename P >
using aerobus::polynomial< Ring >::simplify_t = typename simplify<P>::type
```

simplifies a polynomial (recursively deletes highest degree if zero, do nothing otherwise)

**Template Parameters**

| | |
|---|---|
| *P* | |

#### 8.23.2.16 sub_t

```
template<typename Ring >
template<typename v1 , typename v2 >
using aerobus::polynomial< Ring >::sub_t = typename sub<v1, v2>::type
```

substraction of two polynomials

**Template Parameters**

| | |
|---|---|
| *v1* | |
| *v2* | |

#### 8.23.2.17 X

```
template<typename Ring >
using aerobus::polynomial< Ring >::X = val<typename Ring::one, typename Ring::zero>
```

generator

#### 8.23.2.18 zero

```
template<typename Ring >
using aerobus::polynomial< Ring >::zero = val<typename Ring::zero>
```

constant zero

### 8.23.3 Member Data Documentation

#### 8.23.3.1 is_euclidean_domain

```
template<typename Ring >
constexpr bool aerobus::polynomial< Ring >::is_euclidean_domain = Ring::is_euclidean_domain
[static], [constexpr]
```

#### 8.23.3.2 is_field

```
template<typename Ring >
constexpr bool aerobus::polynomial< Ring >::is_field = false  [static], [constexpr]
```

#### 8.23.3.3 pos_v

```
template<typename Ring >
template<typename v >
constexpr bool aerobus::polynomial< Ring >::pos_v = pos_t<v>::value  [static], [constexpr]
```

positivity operator

**Template Parameters**

| | |
|---|---|
| *v* | a value in polynomial::val |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.24 aerobus::type_list< Ts >::pop_front Struct Reference

removes types from head of the list

```
#include <aerobus.h>
```

**Public Types**

- using type = typename internal::pop_front_h< Ts... >::head
  *type that was previously head of the list*
- using tail = typename internal::pop_front_h< Ts... >::tail
  *remaining types in parent list when front is removed*

### 8.24.1 Detailed Description

**template<typename... Ts>**
**struct aerobus::type_list< Ts >::pop_front**

removes types from head of the list

### 8.24.2 Member Typedef Documentation

#### 8.24.2.1 tail

```
template<typename... Ts>
using aerobus::type_list< Ts >::pop_front::tail = typename internal::pop_front_h<Ts...>::tail
```

remaining types in parent list when front is removed

#### 8.24.2.2 type

```
template<typename... Ts>
using aerobus::type_list< Ts >::pop_front::type = typename internal::pop_front_h<Ts...>::head
```

type that was previously head of the list

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.25 aerobus::Quotient< Ring, X > Struct Template Reference

Quotient ring by the principal ideal generated by 'X' With i32 as Ring and i32::val<2> as X, Quotient is Z/2Z.

```
#include <aerobus.h>
```

### Classes

- struct val

  *projection values in the quotient ring*

### Public Types

- using zero = val< typename Ring::zero >

  *zero value*
- using one = val< typename Ring::one >

  *one*
- template<typename v1 , typename v2 >
  using add_t = val< typename Ring::template add_t< typename v1::type, typename v2::type > >

  *addition operator*
- template<typename v1 , typename v2 >
  using mul_t = val< typename Ring::template mul_t< typename v1::type, typename v2::type > >

  *substraction operator*
- template<typename v1 , typename v2 >
  using div_t = val< typename Ring::template div_t< typename v1::type, typename v2::type > >

  *division operator*
- template<typename v1 , typename v2 >
  using mod_t = val< typename Ring::template mod_t< typename v1::type, typename v2::type > >

*modulus operator*

- template< typename v1 , typename v2 >
  using eq_t = typename Ring::template eq_t< typename v1::type, typename v2::type >

  *equality operator (as type)*
- template< typename v1 >
  using pos_t = std::true_type

  *positivity operator always true*
- template<auto x>
  using inject_constant_t = val< typename Ring::template inject_constant_t< x > >

  *inject a 'constant' in quotient ring∗*
- template< typename v >
  using inject_ring_t = val< v >

  *projects a value of Ring onto the quotient*

### Static Public Attributes

- template< typename v1 , typename v2 >
  static constexpr bool eq_v = Ring::template eq_t<typename v1::type, typename v2::type>::value

  *addition operator (as boolean value)*
- template< typename v >
  static constexpr bool pos_v = pos_t<v>::value

  *positivity operator always true*
- static constexpr bool is_euclidean_domain = true

  *quotien rings are euclidean domain*

## 8.25.1 Detailed Description

**template<typename Ring, typename X>**
**requires IsRing<Ring>**
**struct aerobus::Quotient< Ring, X >**

Quotient ring by the principal ideal generated by 'X' With i32 as Ring and i32::val<2> as X, Quotient is Z/2Z.

**Template Parameters**

| | |
|---|---|
| *Ring* | A ring type, such as 'i32', must satisfy the IsRing concept |
| *X* | a value in Ring, such as i32::val<2> |

## 8.25.2 Member Typedef Documentation

### 8.25.2.1 add_t

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
using aerobus::Quotient< Ring, X >::add_t = val<typename Ring::template add_t<typename v1↩
::type, typename v2::type> >
```

addition operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.2.2 div_t

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
using aerobus::Quotient< Ring, X >::div_t = val<typename Ring::template div_t<typename v1↩
::type, typename v2::type> >
```

division operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.2.3 eq_t

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
using aerobus::Quotient< Ring, X >::eq_t = typename Ring::template eq_t<typename v1::type,
typename v2::type>
```

equality operator (as type)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.2.4 inject_constant_t

```
template<typename Ring , typename X >
template<auto x>
using aerobus::Quotient< Ring, X >::inject_constant_t = val<typename Ring::template inject_constant_t<x>
>
```

inject a 'constant' in quotient ring*

**Template Parameters**

| | |
|---|---|
| *x* | a 'constant' from Ring point of view |

#### 8.25.2.5 inject_ring_t

```
template<typename Ring , typename X >
template<typename v >
using aerobus::Quotient< Ring, X >::inject_ring_t = val<v>
```

projects a value of Ring onto the quotient

**Template Parameters**

| | |
|---|---|
| *v* | a value in Ring |

#### 8.25.2.6 mod_t

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
using aerobus::Quotient< Ring, X >::mod_t = val<typename Ring::template mod_t<typename v1↩
::type, typename v2::type> >
```

modulus operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.2.7 mul_t

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
using aerobus::Quotient< Ring, X >::mul_t = val<typename Ring::template mul_t<typename v1↩
::type, typename v2::type> >
```

substraction operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.2.8 one

```
template<typename Ring , typename X >
using aerobus::Quotient< Ring, X >::one = val<typename Ring::one>
```

one

#### 8.25.2.9 pos_t

```
template<typename Ring , typename X >
template<typename v1 >
using aerobus::Quotient< Ring, X >::pos_t = std::true_type
```

positivity operator always true

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |

#### 8.25.2.10 zero

```
template<typename Ring , typename X >
using aerobus::Quotient< Ring, X >::zero = val<typename Ring::zero>
```

zero value

### 8.25.3 Member Data Documentation

#### 8.25.3.1 eq_v

```
template<typename Ring , typename X >
template<typename v1 , typename v2 >
constexpr bool aerobus::Quotient< Ring, X >::eq_v = Ring::template eq_t<typename v1::type,
typename v2::type>::value  [static], [constexpr]
```

addition operator (as boolean value)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |
| *v2* | a value in quotient ring |

#### 8.25.3.2 is_euclidean_domain

```
template<typename Ring , typename X >
constexpr bool aerobus::Quotient< Ring, X >::is_euclidean_domain = true  [static], [constexpr]
```

quotien rings are euclidean domain

#### 8.25.3.3 pos_v

```
template<typename Ring , typename X >
template<typename v >
constexpr bool aerobus::Quotient< Ring, X >::pos_v = pos_t<v>::value  [static], [constexpr]
```

positivity operator always true

**Template Parameters**

| | |
|---|---|
| *v1* | a value in quotient ring |

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.26 aerobus::type_list< Ts >::split< index > Struct Template Reference

splits list at index

```
#include <aerobus.h>
```

### Public Types

- using head = typename inner::head
- using tail = typename inner::tail

### 8.26.1 Detailed Description

**template<typename... Ts>**
**template<size_t index>**
**struct aerobus::type_list< Ts >::split< index >**

splits list at index

**Template Parameters**

| | |
|---|---|
| *index* | |

### 8.26.2 Member Typedef Documentation

#### 8.26.2.1 head

```
template<typename... Ts>
template<size_t index>
using aerobus::type_list< Ts >::split< index >::head = typename inner::head
```

#### 8.26.2.2 tail

```
template<typename... Ts>
template<size_t index>
using aerobus::type_list< Ts >::split< index >::tail = typename inner::tail
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

# 8.27 aerobus::type_list< Ts > Struct Template Reference

Empty pure template struct to handle type list.

```
#include <aerobus.h>
```

### Classes

- struct pop_front

  *removes types from head of the list*
- struct split

  *splits list at index*

### Public Types

- template<typename T >
  using push_front = type_list< T, Ts... >

  *Adds T to front of the list.*
- template<size_t index>
  using at = internal::type_at_t< index, Ts... >

  *returns type at index*
- template<typename T >
  using push_back = type_list< Ts..., T >

  *pushes T at the tail of the list*
- template<typename U >
  using concat = typename concat_h< U >::type

  *concatenates two list into one*
- template<typename T , size_t index>
  using insert = typename internal::insert_h< index, type_list< Ts... >, T >::type

  *inserts type at index*
- template<size_t index>
  using remove = typename internal::remove_h< index, type_list< Ts... > >::type

  *removes type at index*

### Static Public Attributes

- static constexpr size_t length = sizeof...(Ts)

  *length of list*

## 8.27.1 Detailed Description

**template<typename... Ts>**
**struct aerobus::type_list< Ts >**

Empty pure template struct to handle type list.

A list of types.

**Template Parameters**

| | |
|---|---|
| *...Ts* | types to store and manipulate at compile time |

## 8.27.2 Member Typedef Documentation

### 8.27.2.1 at

```
template<typename... Ts>
template<size_t index>
using aerobus::type_list< Ts >::at = internal::type_at_t<index, Ts...>
```

returns type at index

**Template Parameters**

| | |
|---|---|
| *index* | |

### 8.27.2.2 concat

```
template<typename... Ts>
template<typename U >
using aerobus::type_list< Ts >::concat = typename concat_h<U>::type
```

concatenates two list into one

**Template Parameters**

| | |
|---|---|
| *U* | |

### 8.27.2.3 insert

```
template<typename... Ts>
template<typename T , size_t index>
using aerobus::type_list< Ts >::insert = typename internal::insert_h<index, type_list<Ts...>,
T>::type
```

inserts type at index

**Template Parameters**

| | |
|---|---|
| *index* | |
| *T* | |

#### 8.27.2.4 push_back

```
template<typename... Ts>
template<typename T >
using aerobus::type_list< Ts >::push_back = type_list<Ts..., T>
```

pushes T at the tail of the list

**Template Parameters**

| | |
|---|---|
| *T* | |

#### 8.27.2.5 push_front

```
template<typename... Ts>
template<typename T >
using aerobus::type_list< Ts >::push_front = type_list<T, Ts...>
```

Adds T to front of the list.

**Template Parameters**

| | |
|---|---|
| *T* | |

#### 8.27.2.6 remove

```
template<typename... Ts>
template<size_t index>
using aerobus::type_list< Ts >::remove = typename internal::remove_h<index, type_list<Ts...>
>::type
```

removes type at index

**Template Parameters**

| | |
|---|---|
| *index* | |

### 8.27.3 Member Data Documentation

#### 8.27.3.1 length

```
template<typename... Ts>
constexpr size_t aerobus::type_list< Ts >::length = sizeof...(Ts) [static], [constexpr]
```

length of list

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.28 aerobus::type_list<> Struct Reference

specialization for empty type list

```
#include <aerobus.h>
```

### Public Types

- template< typename T >
  using push_front = type_list< T >
- template< typename T >
  using push_back = type_list< T >
- template< typename U >
  using concat = U
- template< typename T , size_t index>
  using insert = type_list< T >

### Static Public Attributes

- static constexpr size_t length = 0

### 8.28.1 Detailed Description

specialization for empty type list

### 8.28.2 Member Typedef Documentation

#### 8.28.2.1 concat

```
template<typename U >
using aerobus::type_list<>::concat = U
```

#### 8.28.2.2 insert

```
template<typename T , size_t index>
using aerobus::type_list<>::insert = type_list<T>
```

#### 8.28.2.3 push_back

```
template<typename T >
using aerobus::type_list<>::push_back = type_list<T>
```

#### 8.28.2.4 push_front

```
template<typename T >
using aerobus::type_list<>::push_front = type_list<T>
```

### 8.28.3 Member Data Documentation

#### 8.28.3.1 length

```
constexpr size_t aerobus::type_list<>::length = 0  [static], [constexpr]
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.29 aerobus::i32::val< x > Struct Template Reference

values in i32, again represented as types

```
#include <aerobus.h>
```

### Public Types

- using enclosing_type = i32

  *Enclosing ring type.*
- using is_zero_t = std::bool_constant< x==0 >

  *is value zero*

### Static Public Member Functions

- template<typename valueType >
  static constexpr DEVICE valueType get ()

  *cast x into valueType*
- static std::string to_string ()

  *string representation of value*

### Static Public Attributes

- static constexpr int32_t v = x

  *actual value stored in val type*

### 8.29.1 Detailed Description

**template<int32_t x>**
**struct aerobus::i32::val< x >**

values in i32, again represented as types

**Template Parameters**

| | |
|---|---|
| *x* | an actual integer |

## 8.29.2 Member Typedef Documentation

### 8.29.2.1 enclosing_type

```
template<int32_t x>
using aerobus::i32::val< x >::enclosing_type = i32
```

Enclosing ring type.

### 8.29.2.2 is_zero_t

```
template<int32_t x>
using aerobus::i32::val< x >::is_zero_t = std::bool_constant<x == 0>
```

is value zero

## 8.29.3 Member Function Documentation

### 8.29.3.1 get()

```
template<int32_t x>
template<typename valueType >
static constexpr DEVICE valueType aerobus::i32::val< x >::get ( )  [inline], [static], [constexpr]
```

cast x into valueType

**Template Parameters**

| | |
|---|---|
| *valueType* | double for example |

### 8.29.3.2 to_string()

```
template<int32_t x>
static std::string aerobus::i32::val< x >::to_string ( )  [inline], [static]
```

string representation of value

## 8.29.4 Member Data Documentation

### 8.29.4.1 v

```
template<int32_t x>
constexpr int32_t aerobus::i32::val< x >::v = x  [static], [constexpr]
```

actual value stored in val type

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.30 aerobus::i64::val< x > Struct Template Reference

values in i64

`#include <aerobus.h>`

### Public Types

- using inner_type = int32_t

  *type of represented values*
- using enclosing_type = i64

  *enclosing ring type*
- using is_zero_t = std::bool_constant< x==0 >

  *is value zero*

### Static Public Member Functions

- template<typename valueType >
  static constexpr INLINED DEVICE valueType get ()

  *cast value in valueType*
- static std::string to_string ()

  *string representation*

### Static Public Attributes

- static constexpr int64_t v = x

  *actual value*

### 8.30.1 Detailed Description

**template<int64_t x>**
**struct aerobus::i64::val< x >**

values in i64

**Template Parameters**

| | |
|---|---|
| *x* | an actual integer |

**Examples**

examples/compensated_horner.cpp.

## 8.30.2 Member Typedef Documentation

### 8.30.2.1 enclosing_type

```
template<int64_t x>
using aerobus::i64::val< x >::enclosing_type = i64
```

enclosing ring type

### 8.30.2.2 inner_type

```
template<int64_t x>
using aerobus::i64::val< x >::inner_type = int32_t
```

type of represented values

### 8.30.2.3 is_zero_t

```
template<int64_t x>
using aerobus::i64::val< x >::is_zero_t = std::bool_constant<x == 0>
```

is value zero

## 8.30.3 Member Function Documentation

### 8.30.3.1 get()

```
template<int64_t x>
template<typename valueType >
static constexpr INLINED DEVICE valueType aerobus::i64::val< x >::get ( ) [inline], [static],
[constexpr]
```

cast value in valueType

**Template Parameters**

| | |
|---|---|
| *valueType* | (double for example) |

### 8.30.3.2 to_string()

```
template<int64_t x>
static std::string aerobus::i64::val< x >::to_string ( ) [inline], [static]
```

string representation

### 8.30.4 Member Data Documentation

#### 8.30.4.1 v

```
template<int64_t x>
constexpr int64_t aerobus::i64::val< x >::v = x  [static], [constexpr]
```

actual value

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.31 aerobus::polynomial< Ring >::val< coeffN, coeffs > Struct Template Reference

values (seen as types) in polynomial ring

```
#include <aerobus.h>
```

### Public Types

- using ring_type = Ring
  *ring coefficients live in*
- using enclosing_type = polynomial< Ring >
  *enclosing ring type*
- using aN = coeffN
  *heavy weight coefficient (non zero)*
- using strip = val< coeffs... >
  *remove largest coefficient*
- using is_zero_t = std::bool_constant<(degree==0) &&(aN::is_zero_t::value)>
  *true_type if polynomial is constant zero*
- template<size_t index>
  using coeff_at_t = typename coeff_at< index >::type
  *type of coefficient at index*
- template<typename x >
  using value_at_t = horner_reduction_t< val > ::template inner< 0, degree+1 > ::template type< typename Ring::zero, x >

### Static Public Member Functions

- static std::string to_string ()
  *get a string representation of polynomial*
- template<typename arithmeticType >
  static constexpr DEVICE INLINED arithmeticType eval (const arithmeticType &x)
  *evaluates polynomial seen as a function operating on arithmeticType*
- template<typename arithmeticType >
  static DEVICE INLINED arithmeticType compensated_eval (const arithmeticType &x)
  *Evaluate polynomial on x using compensated horner scheme.*

### Static Public Attributes

- static constexpr size_t degree = sizeof...(coeffs)

  *degree of the polynomial*
- static constexpr bool is_zero_v = is_zero_t::value

  *true if polynomial is constant zero*

## 8.31.1 Detailed Description

**template<typename Ring>**
**template<typename coeffN, typename... coeffs>**
**struct aerobus::polynomial< Ring >::val< coeffN, coeffs >**

values (seen as types) in polynomial ring

**Template Parameters**

| | |
|---|---|
| *coeffN* | high degree coefficient |
| *...coeffs* | lower degree coefficients |

**Examples**

examples/compensated_horner.cpp.

## 8.31.2 Member Typedef Documentation

### 8.31.2.1 aN

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::aN = coeffN
```

heavy weight coefficient (non zero)

### 8.31.2.2 coeff_at_t

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
template<size_t index>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::coeff_at_t = typename coeff_↩
at<index>::type
```

type of coefficient at index

**Template Parameters**

| | |
|---|---|
| *index* | |

#### 8.31.2.3 enclosing_type

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::enclosing_type = polynomial<Ring>
```

enclosing ring type

#### 8.31.2.4 is_zero_t

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::is_zero_t = std::bool_constant<(degree
== 0) && (aN::is_zero_t::value)>
```

true_type if polynomial is constant zero

#### 8.31.2.5 ring_type

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::ring_type = Ring
```

ring coefficients live in

#### 8.31.2.6 strip

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::strip = val<coeffs...>
```

remove largest coefficient

#### 8.31.2.7 value_at_t

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
template<typename x >
using aerobus::polynomial< Ring >::val< coeffN, coeffs >::value_at_t = horner_reduction_t<val>
::template inner<0, degree + 1> ::template type<typename Ring::zero, x>
```

### 8.31.3 Member Function Documentation

#### 8.31.3.1 compensated_eval()

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
template<typename arithmeticType >
static DEVICE INLINED arithmeticType aerobus::polynomial< Ring >::val< coeffN, coeffs >↩
::compensated_eval (
            const arithmeticType & x ) [inline], [static]
```

Evaluate polynomial on x using compensated horner scheme.

This is twice as accurate as simple eval (horner) but cannot be constexpr

Please note this makes no sense on integer types as arithmetic on integers is exact in IEEE

WARNING : this does not work with gcc with -O3 optimization level because gcc does illegal stuff with floating point arithmetic

**Template Parameters**

| | |
|---|---|
| *arithmeticType* | float for example |

**Parameters**

| | |
|---|---|
| *x* | |

#### 8.31.3.2 eval()

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
template<typename arithmeticType >
static constexpr DEVICE INLINED arithmeticType aerobus::polynomial< Ring >::val< coeffN,
coeffs >::eval (
            const arithmeticType & x ) [inline], [static], [constexpr]
```

evaluates polynomial seen as a function operating on arithmeticType

**Template Parameters**

| | |
|---|---|
| *arithmeticType* | usually float or double |

**Parameters**

| | |
|---|---|
| *x* | value |

**Returns**

P(x)

#### 8.31.3.3 to_string()

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
static std::string aerobus::polynomial< Ring >::val< coeffN, coeffs >::to_string ( ) [inline],
[static]
```

get a string representation of polynomial

**Returns**

something like a_n X^n + ... + a_1 X + a_0

### 8.31.4 Member Data Documentation

#### 8.31.4.1 degree

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
constexpr size_t aerobus::polynomial< Ring >::val< coeffN, coeffs >::degree = sizeof...(coeffs)
[static], [constexpr]
```

degree of the polynomial

#### 8.31.4.2 is_zero_v

```
template<typename Ring >
template<typename coeffN , typename... coeffs>
constexpr bool aerobus::polynomial< Ring >::val< coeffN, coeffs >::is_zero_v = is_zero_t↩
::value [static], [constexpr]
```

true if polynomial is constant zero

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.32 aerobus::Quotient< Ring, X >::val< V > Struct Template Reference

projection values in the quotient ring

```
#include <aerobus.h>
```

**Public Types**

- using raw_t = V
- using type = abs_t< typename Ring::template mod_t< V, X > >

### 8.32.1 Detailed Description

**template<typename Ring, typename X>**
**template<typename V>**
**struct aerobus::Quotient< Ring, X >::val< V >**

projection values in the quotient ring

**Template Parameters**

| | |
|---|---|
| *V* | a value from 'Ring' |

### 8.32.2 Member Typedef Documentation

#### 8.32.2.1 raw_t

```
template<typename Ring , typename X >
template<typename V >
using aerobus::Quotient< Ring, X >::val< V >::raw_t = V
```

#### 8.32.2.2 type

```
template<typename Ring , typename X >
template<typename V >
using aerobus::Quotient< Ring, X >::val< V >::type = abs_t<typename Ring::template mod_t<V,
X> >
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.33 aerobus::zpz< p >::val< x > Struct Template Reference

values in zpz

`#include <aerobus.h>`

### Public Types

- using enclosing_type = zpz< p >
  *enclosing ring type*
- using is_zero_t = std::bool_constant< v==0 >
  *true_type if zero*

### Static Public Member Functions

- template<typename valueType >
  static constexpr INLINED DEVICE valueType get ()
  *get value as valueType*
- static std::string to_string ()
  *string representation*

### Static Public Attributes

- static constexpr int32_t v = x % p
  *actual value*
- static constexpr bool is_zero_v = v == 0
  *true if zero*

### 8.33.1 Detailed Description

**template<int32_t p>**
**template<int32_t x>**
**struct aerobus::zpz< p >::val< x >**

values in zpz

**Template Parameters**

| | |
|---|---|
| *x* | an integer |

## 8.33.2 Member Typedef Documentation

### 8.33.2.1 enclosing_type

```
template<int32_t p>
template<int32_t x>
using aerobus::zpz< p >::val< x >::enclosing_type = zpz<p>
```

enclosing ring type

### 8.33.2.2 is_zero_t

```
template<int32_t p>
template<int32_t x>
using aerobus::zpz< p >::val< x >::is_zero_t = std::bool_constant<v == 0>
```

true_type if zero

## 8.33.3 Member Function Documentation

### 8.33.3.1 get()

```
template<int32_t p>
template<int32_t x>
template<typename valueType >
static constexpr INLINED DEVICE valueType aerobus::zpz< p >::val< x >::get ( ) [inline],
[static], [constexpr]
```

get value as valueType

**Template Parameters**

| | |
|---|---|
| *valueType* | an arithmetic type, such as float |

### 8.33.3.2 to_string()

```
template<int32_t p>
template<int32_t x>
static std::string aerobus::zpz< p >::val< x >::to_string ( ) [inline], [static]
```

string representation

**Returns**

a string representation

### 8.33.4 Member Data Documentation

#### 8.33.4.1 is_zero_v

```
template<int32_t p>
template<int32_t x>
constexpr bool aerobus::zpz< p >::val< x >::is_zero_v = v == 0  [static], [constexpr]
```

true if zero

#### 8.33.4.2 v

```
template<int32_t p>
template<int32_t x>
constexpr int32_t aerobus::zpz< p >::val< x >::v = x % p  [static], [constexpr]
```

actual value

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.34 aerobus::polynomial< Ring >::val< coeffN > Struct Template Reference

specialization for constants

```
#include <aerobus.h>
```

### Classes

- struct coeff_at
- struct coeff_at< index, std::enable_if_t<(index< 0||index > 0)> >
- struct coeff_at< index, std::enable_if_t<(index==0)> >

### Public Types

- using ring_type = Ring

    *ring coefficients live in*
- using enclosing_type = polynomial< Ring >

    *enclosing ring type*
- using aN = coeffN
- using strip = val< coeffN >
- using is_zero_t = std::bool_constant< aN::is_zero_t::value >
- template< size_t index>
  using coeff_at_t = typename coeff_at< index >::type
- template<typename x >
  using value_at_t = coeffN

### Static Public Member Functions

- static std::string to_string ()
- template<typename arithmeticType >
  static constexpr DEVICE INLINED arithmeticType eval (const arithmeticType &x)
- template<typename arithmeticType >
  static DEVICE INLINED arithmeticType compensated_eval (const arithmeticType &x)

### Static Public Attributes

- static constexpr size_t degree = 0

  *degree*
- static constexpr bool is_zero_v = is_zero_t::value

## 8.34.1 Detailed Description

**template<typename Ring>**
**template<typename coeffN>**
**struct aerobus::polynomial< Ring >::val< coeffN >**

specialization for constants

**Template Parameters**

| | |
|---|---|
| *coeffN* | |

## 8.34.2 Member Typedef Documentation

### 8.34.2.1 aN

```
template<typename Ring >
template<typename coeffN >
using aerobus::polynomial< Ring >::val< coeffN >::aN = coeffN
```

### 8.34.2.2 coeff_at_t

```
template<typename Ring >
template<typename coeffN >
template<size_t index>
using aerobus::polynomial< Ring >::val< coeffN >::coeff_at_t = typename coeff_at<index>↩
::type
```

### 8.34.2.3 enclosing_type

```
template<typename Ring >
template<typename coeffN >
using aerobus::polynomial< Ring >::val< coeffN >::enclosing_type = polynomial<Ring>
```

enclosing ring type

#### 8.34.2.4 is_zero_t

```
template<typename Ring >
template<typename coeffN >
using aerobus::polynomial< Ring >::val< coeffN >::is_zero_t = std::bool_constant<aN::is_↩
zero_t::value>
```

#### 8.34.2.5 ring_type

```
template<typename Ring >
template<typename coeffN >
using aerobus::polynomial< Ring >::val< coeffN >::ring_type = Ring
```

ring coefficients live in

#### 8.34.2.6 strip

```
template<typename Ring >
template<typename coeffN >
using aerobus::polynomial< Ring >::val< coeffN >::strip = val<coeffN>
```

#### 8.34.2.7 value_at_t

```
template<typename Ring >
template<typename coeffN >
template<typename x >
using aerobus::polynomial< Ring >::val< coeffN >::value_at_t = coeffN
```

### 8.34.3 Member Function Documentation

#### 8.34.3.1 compensated_eval()

```
template<typename Ring >
template<typename coeffN >
template<typename arithmeticType >
static DEVICE INLINED arithmeticType aerobus::polynomial< Ring >::val< coeffN >::compensated↩
_eval (
            const arithmeticType & x )  [inline], [static]
```

#### 8.34.3.2 eval()

```
template<typename Ring >
template<typename coeffN >
template<typename arithmeticType >
static constexpr DEVICE INLINED arithmeticType aerobus::polynomial< Ring >::val< coeffN >↩
::eval (
            const arithmeticType & x )  [inline], [static], [constexpr]
```

#### 8.34.3.3 to_string()

```
template<typename Ring >
template<typename coeffN >
static std::string aerobus::polynomial< Ring >::val< coeffN >::to_string ( )  [inline], [static]
```

### 8.34.4 Member Data Documentation

#### 8.34.4.1 degree

```
template<typename Ring >
template<typename coeffN >
constexpr size_t aerobus::polynomial< Ring >::val< coeffN >::degree = 0  [static], [constexpr]
```

degree

#### 8.34.4.2 is_zero_v

```
template<typename Ring >
template<typename coeffN >
constexpr bool aerobus::polynomial< Ring >::val< coeffN >::is_zero_v = is_zero_t::value  [static],
[constexpr]
```

The documentation for this struct was generated from the following file:

- src/aerobus.h

## 8.35 aerobus::zpz< p > Struct Template Reference

congruence classes of integers modulo p (32 bits)

```
#include <aerobus.h>
```

### Classes

- struct val
  *values in zpz*

### Public Types

- using inner_type = int32_t

    *underlying type for values*
- template<auto x>
  using inject_constant_t = val< static_cast< int32_t >(x)>

    *injects a constant integer into zpz*
- using zero = val< 0 >

    *zero value*
- using one = val< 1 >

    *one value*
- template<typename v1 , typename v2 >
  using add_t = typename add< v1, v2 >::type

    *addition operator*
- template<typename v1 , typename v2 >
  using sub_t = typename sub< v1, v2 >::type

    *substraction operator*
- template<typename v1 , typename v2 >
  using mul_t = typename mul< v1, v2 >::type

    *multiplication operator*
- template<typename v1 , typename v2 >
  using div_t = typename div< v1, v2 >::type

    *division operator*
- template<typename v1 , typename v2 >
  using mod_t = typename remainder< v1, v2 >::type

    *modulo operator*
- template<typename v1 , typename v2 >
  using gt_t = typename gt< v1, v2 >::type

    *strictly greater operator (type)*
- template<typename v1 , typename v2 >
  using lt_t = typename lt< v1, v2 >::type

    *strictly smaller operator (type)*
- template<typename v1 , typename v2 >
  using eq_t = typename eq< v1, v2 >::type

    *equality operator (type)*
- template<typename v1 , typename v2 >
  using gcd_t = gcd_t< i32, v1, v2 >

    *greatest common divisor*
- template<typename v1 >
  using pos_t = typename pos< v1 >::type

    *positivity operator (type)*

### Static Public Attributes

- static constexpr bool is_field = is_prime<p>::value

    *true iff p is prime*
- static constexpr bool is_euclidean_domain = true

    *always true*
- template<typename v1 , typename v2 >
  static constexpr bool gt_v = gt_t<v1, v2>::value

    *strictly greater operator (booleanvalue)*

- template<typename v1 , typename v2 >
  static constexpr bool lt_v = lt_t<v1, v2>::value

  *strictly smaller operator (booleanvalue)*
- template<typename v1 , typename v2 >
  static constexpr bool eq_v = eq_t<v1, v2>::value

  *equality operator (booleanvalue)*
- template<typename v >
  static constexpr bool pos_v = pos_t<v>::value

  *positivity operator (boolean value)*

## 8.35.1 Detailed Description

**template<int32_t p>**
**struct aerobus::zpz< p >**

congruence classes of integers modulo p (32 bits)

if p is prime, zpz

is a field

**Template Parameters**

| | |
|---|---|
| *p* | a integer |

**Examples**

examples/modular_arithmetic.cpp, and examples/polynomials_over_finite_field.cpp.

## 8.35.2 Member Typedef Documentation

### 8.35.2.1 add_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::add_t = typename add<v1, v2>::type
```

addition operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

### 8.35.2.2 div_t

```
template<int32_t p>
```

```
template<typename v1 , typename v2 >
using aerobus::zpz< p >::div_t = typename div<v1, v2>::type
```

division operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.3 eq_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::eq_t = typename eq<v1, v2>::type
```

equality operator (type)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.4 gcd_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::gcd_t = gcd_t<i32, v1, v2>
```

greatest common divisor

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.5 gt_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::gt_t = typename gt<v1, v2>::type
```

strictly greater operator (type)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.6 inject_constant_t

```
template<int32_t p>
template<auto x>
using aerobus::zpz< p >::inject_constant_t = val<static_cast<int32_t>(x)>
```

injects a constant integer into zpz

**Template Parameters**

| | |
|---|---|
| *x* | an integer |

#### 8.35.2.7 inner_type

```
template<int32_t p>
using aerobus::zpz< p >::inner_type = int32_t
```

underlying type for values

#### 8.35.2.8 lt_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::lt_t = typename lt<v1, v2>::type
```

strictly smaller operator (type)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.9 mod_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::mod_t = typename remainder<v1, v2>::type
```

modulo operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.10 mul_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::mul_t = typename mul<v1, v2>::type
```

multiplication operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.11 one

```
template<int32_t p>
using aerobus::zpz< p >::one = val<1>
```

one value

#### 8.35.2.12 pos_t

```
template<int32_t p>
template<typename v1 >
using aerobus::zpz< p >::pos_t = typename pos<v1>::type
```

positivity operator (type)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |

#### 8.35.2.13 sub_t

```
template<int32_t p>
template<typename v1 , typename v2 >
using aerobus::zpz< p >::sub_t = typename sub<v1, v2>::type
```

substraction operator

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.2.14 zero

```
template<int32_t p>
using aerobus::zpz< p >::zero = val<0>
```

zero value

### 8.35.3 Member Data Documentation

#### 8.35.3.1 eq_v

```
template<int32_t p>
template<typename v1 , typename v2 >
constexpr bool aerobus::zpz< p >::eq_v = eq_t<v1, v2>::value  [static], [constexpr]
```

equality operator (booleanvalue)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.3.2 gt_v

```
template<int32_t p>
template<typename v1 , typename v2 >
constexpr bool aerobus::zpz< p >::gt_v = gt_t<v1, v2>::value  [static], [constexpr]
```

strictly greater operator (booleanvalue)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.3.3 is_euclidean_domain

```
template<int32_t p>
constexpr bool aerobus::zpz< p >::is_euclidean_domain = true  [static], [constexpr]
```

always true

#### 8.35.3.4 is_field

```
template<int32_t p>
constexpr bool aerobus::zpz< p >::is_field = is_prime<p>::value  [static], [constexpr]
```

true iff p is prime

#### 8.35.3.5 lt_v

```
template<int32_t p>
template<typename v1 , typename v2 >
constexpr bool aerobus::zpz< p >::lt_v = lt_t<v1, v2>::value  [static], [constexpr]
```

strictly smaller operator (booleanvalue)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |
| *v2* | a value in zpz::val |

#### 8.35.3.6 pos_v

```
template<int32_t p>
template<typename v >
constexpr bool aerobus::zpz< p >::pos_v = pos_t<v>::value  [static], [constexpr]
```

positivity operator (boolean value)

**Template Parameters**

| | |
|---|---|
| *v1* | a value in zpz::val |

The documentation for this struct was generated from the following file:

- src/aerobus.h

# Chapter 9

# File Documentation

## 9.1 README.md File Reference

## 9.2 src/aerobus.h File Reference

```
#include <cstdint>
#include <cstddef>
#include <cstring>
#include <type_traits>
#include <utility>
#include <algorithm>
#include <functional>
#include <string>
#include <concepts>
#include <array>
```

Include dependency graph for aerobus.h:

## 9.3 aerobus.h

Go to the documentation of this file.

```
// -*- lsst-c++ -*-
#ifndef __INC_AEROBUS__ // NOLINT
#define __INC_AEROBUS__

#include <cstdint>
#include <cstddef>
#include <cstring>
#include <type_traits>
#include <utility>
#include <algorithm>
#include <functional>
#include <string>
#include <concepts> // NOLINT
#include <array>
#ifdef WITH_CUDA_FP16
#include <bit>
#include <cuda_fp16.h>
#endif

#ifdef _MSC_VER
#define ALIGNED(x) __declspec(align(x))
#define INLINED __forceinline
#else
#define ALIGNED(x) __attribute__((aligned(x)))
#define INLINED __attribute__((always_inline)) inline
```

```
#endif

#ifdef __CUDACC__
#define DEVICE __host__ __device__
#else
#define DEVICE
#endif




// aligned allocation
namespace aerobus {
    template<typename T>
    T* aligned_malloc(size_t count, size_t alignment) {
        #ifdef _MSC_VER
        return static_cast<T*>(_aligned_malloc(count * sizeof(T), alignment));
        #else
        return static_cast<T*>(aligned_alloc(alignment, count * sizeof(T)));
        #endif
    }
}  // namespace aerobus

// concepts
namespace aerobus {
    template <typename R>
    concept IsRing = requires {
        typename R::one;
        typename R::zero;
        typename R::template add_t<typename R::one, typename R::one>;
        typename R::template sub_t<typename R::one, typename R::one>;
        typename R::template mul_t<typename R::one, typename R::one>;
    };

    template <typename R>
    concept IsEuclideanDomain = IsRing<R> && requires {
        typename R::template div_t<typename R::one, typename R::one>;
        typename R::template mod_t<typename R::one, typename R::one>;
        typename R::template gcd_t<typename R::one, typename R::one>;
        typename R::template eq_t<typename R::one, typename R::one>;
        typename R::template pos_t<typename R::one>;

        R::template pos_v<typename R::one> == true;
        // typename R::template gt_t<typename R::one, typename R::zero>;
        R::is_euclidean_domain == true;
    };

    template<typename R>
    concept IsField = IsEuclideanDomain<R> && requires {
        R::is_field == true;
    };
}  // namespace aerobus

#ifdef WITH_CUDA_FP16
// all this shit is required because of NVIDIA bug https://developer.nvidia.com/bugs/4863696
namespace aerobus {
    namespace internal {
        static consteval DEVICE uint16_t my_internal_float2half(
            const float f, uint32_t &sign, uint32_t &remainder) {
            uint32_t x;
            uint32_t u;
            uint32_t result;
            x = std::bit_cast<int32_t>(f);
            u = (x & 0x7fffffffU);
            sign = ((x » 16U) & 0x8000U);
            // NaN/+Inf/-Inf
            if (u >= 0x7f800000U) {
                remainder = 0U;
                result = ((u == 0x7f800000U) ? (sign | 0x7c00U) : 0x7fffU);
            } else if (u > 0x477fefffU) {  // Overflows
                remainder = 0x80000000U;
                result = (sign | 0x7bffU);
            } else if (u >= 0x38800000U) {  // Normal numbers
                remainder = u « 19U;
                u -= 0x38000000U;
                result = (sign | (u » 13U));
            } else if (u < 0x33000001U) {  // +0/-0
                remainder = u;
                result = sign;
            } else {  // Denormal numbers
                const uint32_t exponent = u » 23U;
                const uint32_t shift = 0x7eU - exponent;
                uint32_t mantissa = (u & 0x7fffffU);
                mantissa |= 0x800000U;
                remainder = mantissa « (32U - shift);
                result = (sign | (mantissa » shift));
                result &= 0x0000FFFFU;
```

```
            }
            return static_cast<uint16_t>(result);
        }

        static consteval DEVICE __half my_float2half_rn(const float a) {
            __half val;
            __half_raw r;
            uint32_t sign = 0U;
            uint32_t remainder = 0U;
            r.x = my_internal_float2half(a, sign, remainder);
            if ((remainder > 0x80000000U) || ((remainder == 0x80000000U) && ((r.x & 0x1U) != 0U))) {
                r.x++;
            }

            val = std::bit_cast<__half>(r);
            return val;
        }

        template <int16_t i>
        static constexpr __half convert_int16_to_half = my_float2half_rn(static_cast<float>(i));


        template <typename Out, int16_t x, typename E = void>
        struct int16_convert_helper;

        template <typename Out, int16_t x>
        struct int16_convert_helper<Out, x,
            std::enable_if_t<!std::is_same_v<Out, __half> && !std::is_same_v<Out, __half2»> {
            static constexpr Out value() {
                return static_cast<Out>(x);
            }
        };

        template <int16_t x>
        struct int16_convert_helper<__half, x> {
            static constexpr __half value() {
                return convert_int16_to_half<x>;
            }
        };

        template <int16_t x>
        struct int16_convert_helper<__half2, x> {
            static constexpr __half2 value() {
                return __half2(convert_int16_to_half<x>, convert_int16_to_half<x>);
            }
        };
    }  // namespace internal
}  // namespace aerobus
#endif

//  cast
namespace aerobus {
    namespace internal {
        template<typename Out, typename In>
        struct staticcast {
            template<auto x>
            static consteval INLINED DEVICE Out func() {
                return static_cast<Out>(x);
            }
        };

        #ifdef WITH_CUDA_FP16
        template<>
        struct staticcast<__half, int16_t> {
            template<int16_t x>
            static consteval INLINED DEVICE __half func() {
                return int16_convert_helper<__half, x>::value();
            }
        };

        template<>
        struct staticcast<__half2, int16_t> {
            template<int16_t x>
            static consteval INLINED DEVICE __half2 func() {
                return int16_convert_helper<__half2, x>::value();
            }
        };
        #endif
    }  // namespace internal
}  // namespace aerobus

// fma_helper, required because nvidia fails to reconstruct fma for fp16 types
namespace aerobus {
    namespace internal {
        template<typename T>
        struct fma_helper;

```

```
        template<>
        struct fma_helper<double> {
            static constexpr INLINED DEVICE double eval(const double x, const double y, const double z) {
                return x * y + z;
            }
        };

        template<>
        struct fma_helper<long double> {
            static constexpr INLINED DEVICE long double eval(
                const long double x, const long double y, const long double z) {
                    return x * y + z;
            }
        };

        template<>
        struct fma_helper<float> {
            static constexpr INLINED DEVICE float eval(const float x, const float y, const float z) {
                return x * y + z;
            }
        };

        template<>
        struct fma_helper<int32_t> {
            static constexpr INLINED DEVICE int16_t eval(const int16_t x, const int16_t y, const int16_t z) {
                return x * y + z;
            }
        };

        template<>
        struct fma_helper<int16_t> {
            static constexpr INLINED DEVICE int32_t eval(const int32_t x, const int32_t y, const int32_t z) {
                return x * y + z;
            }
        };

        template<>
        struct fma_helper<int64_t> {
            static constexpr INLINED DEVICE int64_t eval(const int64_t x, const int64_t y, const int64_t z) {
                return x * y + z;
            }
        };

        #ifdef WITH_CUDA_FP16
        template<>
        struct fma_helper<__half> {
            static constexpr INLINED DEVICE __half eval(const __half x, const __half y, const __half z) {
                #ifdef __CUDA_ARCH__
                return __hfma(x, y, z);
                #else
                return x * y + z;
                #endif
            }
        };
        template<>
        struct fma_helper<__half2> {
            static constexpr INLINED DEVICE __half2 eval(const __half2 x, const __half2 y, const __half2 z) {
                #ifdef __CUDA_ARCH__
                return __hfma2(x, y, z);
                #else
                return x * y + z;
                #endif
            }
        };
        #endif
    }  // namespace internal
}  // namespace aerobus

// compensated horner utilities
namespace aerobus {
    namespace internal {
        template <typename T>
        struct FloatLayout;

        #ifdef _MSC_VER
        template <>
        struct FloatLayout<long double> {
            static constexpr uint8_t exponent = 11;
            static constexpr uint8_t mantissa = 53;
            static constexpr uint8_t r = 27;  // ceil(mantissa/2)
        };
```

```
        #else
        template <>
        struct FloatLayout<long double> {
            static constexpr uint8_t exponent = 15;
            static constexpr uint8_t mantissa = 63;
            static constexpr uint8_t r = 32;  // ceil(mantissa/2)
            static constexpr long double shift = (1LL « r) + 1;
        };
        #endif

        template <>
        struct FloatLayout<double> {
            static constexpr uint8_t exponent = 11;
            static constexpr uint8_t mantissa = 53;
            static constexpr uint8_t r = 27;  // ceil(mantissa/2)
            static constexpr double shift = (1LL « r) + 1;
        };

        template <>
        struct FloatLayout<float> {
            static constexpr uint8_t exponent = 8;
            static constexpr uint8_t mantissa = 24;
            static constexpr uint8_t r = 11;  // ceil(mantissa/2)
            static constexpr float shift = (1 « r) + 1;
        };

        #ifdef WITH_CUDA_FP16
        template <>
        struct FloatLayout<__half> {
            static constexpr uint8_t exponent = 5;
            static constexpr uint8_t mantissa = 11;  // 10 explicitely stored
            static constexpr uint8_t r = 6;  // ceil(mantissa/2)
            static constexpr __half shift = internal::int16_convert_helper<__half, 65>::value();
        };

        template <>
        struct FloatLayout<__half2> {
            static constexpr uint8_t exponent = 5;
            static constexpr uint8_t mantissa = 11;  // 10 explicitely stored
            static constexpr uint8_t r = 6;  // ceil(mantissa/2)
            static constexpr __half2 shift = internal::int16_convert_helper<__half2, 65>::value();
        };
        #endif

        template<typename T>
        static constexpr INLINED DEVICE void split(T a, T *x, T *y) {
            T z = a * FloatLayout<T>::shift;
            *x = z - (z - a);
            *y = a - *x;
        }

        template<typename T>
        static constexpr INLINED DEVICE void two_sum(T a, T b, T *x, T *y) {
            *x = a + b;
            T z = *x - a;
            *y = (a - (*x - z)) + (b - z);
        }

        template<typename T>
        static constexpr INLINED DEVICE void two_prod(T a, T b, T *x, T *y) {
            *x = a * b;
            #ifdef __clang__
            *y = fma_helper<T>::eval(a, b, -*x);
            #else
            T ah, al, bh, bl;
            split(a, &ah, &al);
            split(b, &bh, &bl);
            *y = al * bl - (((*x - ah * bh) - al * bh) - ah * bl);
            #endif
        }

        template<typename T, size_t N>
        static INLINED DEVICE T horner(T *p1, T *p2, T x) {
            T r = p1[0] + p2[0];
            for (int64_t i = N - 1; i >= 0; --i) {
                r = r * x + p1[N - i] + p2[N - i];
            }

            return r;
        }
    }  // namespace internal
}  // namespace aerobus

// utilities
namespace aerobus {
    namespace internal {
        template<template<typename...> typename TT, typename T>
```

```
    struct is_instantiation_of : std::false_type { };

    template<template<typename...> typename TT, typename... Ts>
    struct is_instantiation_of<TT, TT<Ts...» : std::true_type { };

    template<template<typename...> typename TT, typename T>
    inline constexpr bool is_instantiation_of_v = is_instantiation_of<TT, T>::value;

    template <int64_t i, typename T, typename... Ts>
    struct type_at {
        static_assert(i < sizeof...(Ts) + 1, "index out of range");
        using type = typename type_at<i - 1, Ts...>::type;
    };

    template <typename T, typename... Ts> struct type_at<0, T, Ts...> {
        using type = T;
    };

    template <size_t i, typename... Ts>
    using type_at_t = typename type_at<i, Ts...>::type;


    template<size_t n, size_t i, typename E = void>
    struct _is_prime {};

    template<size_t i>
    struct _is_prime<0, i> {
        static constexpr bool value = false;
    };

    template<size_t i>
    struct _is_prime<1, i> {
        static constexpr bool value = false;
    };

    template<size_t i>
    struct _is_prime<2, i> {
        static constexpr bool value = true;
    };

    template<size_t i>
    struct _is_prime<3, i> {
        static constexpr bool value = true;
    };

    template<size_t i>
    struct _is_prime<5, i> {
        static constexpr bool value = true;
    };

    template<size_t i>
    struct _is_prime<7, i> {
        static constexpr bool value = true;
    };

    template<size_t n, size_t i>
    struct _is_prime<n, i, std::enable_if_t<(n != 2 && n % 2 == 0)» {
        static constexpr bool value = false;
    };

    template<size_t n, size_t i>
    struct _is_prime<n, i, std::enable_if_t<(n != 2 && n != 3 && n % 2 != 0 && n % 3 == 0)» {
        static constexpr bool value = false;
    };

    template<size_t n, size_t i>
    struct _is_prime<n, i, std::enable_if_t<(n >= 9 && i * i > n)» {
        static constexpr bool value = true;
    };

    template<size_t n, size_t i>
    struct _is_prime<n, i, std::enable_if_t<(
        n % i == 0 &&
        n >= 9 &&
        n % 3 != 0 &&
        n % 2 != 0 &&
        i * i > n)» {
        static constexpr bool value = true;
    };

    template<size_t n, size_t i>
    struct _is_prime<n, i, std::enable_if_t<(
        n % (i+2) == 0 &&
        n >= 9 &&
        n % 3 != 0 &&
        n % 2 != 0 &&
        i * i <= n)» {
```

```
            static constexpr bool value = true;
        };

        template<size_t n, size_t i>
        struct _is_prime<n, i, std::enable_if_t<(
                n % (i+2) != 0 &&
                n % i != 0 &&
                n >= 9 &&
                n % 3 != 0 &&
                n % 2 != 0 &&
                (i * i <= n))» {
            static constexpr bool value = _is_prime<n, i+6>::value;
        };
    }  // namespace internal

    template<size_t n>
    struct is_prime {
        static constexpr bool value = internal::_is_prime<n, 5>::value;
    };

    template<size_t n>
    static constexpr bool is_prime_v = is_prime<n>::value;

    // gcd
    namespace internal {
        template <std::size_t... Is>
        constexpr auto index_sequence_reverse(std::index_sequence<Is...> const&)
            -> decltype(std::index_sequence<sizeof...(Is) - 1U - Is...>{});

        template <std::size_t N>
        using make_index_sequence_reverse
            = decltype(index_sequence_reverse(std::make_index_sequence<N>{}));

        template<typename Ring, typename E = void>
        struct gcd;

        template<typename Ring>
        struct gcd<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
            template<typename A, typename B, typename E = void>
            struct gcd_helper {};

            // B = 0, A > 0
            template<typename A, typename B>
            struct gcd_helper<A, B, std::enable_if_t<
                ((B::is_zero_t::value) &&
                    (Ring::template gt_t<A, typename Ring::zero>::value))» {
                using type = A;
            };

            // B = 0, A < 0
            template<typename A, typename B>
            struct gcd_helper<A, B, std::enable_if_t<
                ((B::is_zero_t::value) &&
                    !(Ring::template gt_t<A, typename Ring::zero>::value))» {
                using type = typename Ring::template sub_t<typename Ring::zero, A>;
            };

            // B != 0
            template<typename A, typename B>
            struct gcd_helper<A, B, std::enable_if_t<
                (!B::is_zero_t::value)
                » {
            private: // NOLINT
                // A / B
                using k = typename Ring::template div_t<A, B>;
                // A - (A/B)*B = A % B
                using m = typename Ring::template sub_t<A, typename Ring::template mul_t<k, B»;

            public:
                using type = typename gcd_helper<B, m>::type;
            };

            template<typename A, typename B>
            using type = typename gcd_helper<A, B>::type;
        };
    }  // namespace internal

    // vadd and vmul
    namespace internal {
        template<typename... vals>
        struct vmul {};

        template<typename v1, typename... vals>
        struct vmul<v1, vals...> {
            using type = typename v1::enclosing_type::template mul_t<v1, typename vmul<vals...>::type>;
        };
```

```cpp

        template<typename v1>
        struct vmul<v1> {
            using type = v1;
        };

        template<typename... vals>
        struct vadd {};

        template<typename v1, typename... vals>
        struct vadd<v1, vals...> {
            using type = typename v1::enclosing_type::template add_t<v1, typename vadd<vals...>::type>;
        };

        template<typename v1>
        struct vadd<v1> {
            using type = v1;
        };
    }  // namespace internal

    template<typename T, typename A, typename B>
    using gcd_t = typename internal::gcd<T>::template type<A, B>;

    template<typename... vals>
    using vadd_t = typename internal::vadd<vals...>::type;

    template<typename... vals>
    using vmul_t = typename internal::vmul<vals...>::type;

    template<typename val>
    requires IsEuclideanDomain<typename val::enclosing_type>
    using abs_t = std::conditional_t<
                    val::enclosing_type::template pos_v<val>,
                    val, typename val::enclosing_type::template sub_t<typename val::enclosing_type::zero, val>>;
}  // namespace aerobus

// embedding
namespace aerobus {
    template<typename Small, typename Large, typename E = void>
    struct Embed;
}  // namespace aerobus

namespace aerobus {
    template<typename Ring, typename X>
    requires IsRing<Ring>
    struct Quotient {
        template <typename V>
        struct val {
         public:
            using raw_t = V;
            using type = abs_t<typename Ring::template mod_t<V, X>>;
        };

        using zero = val<typename Ring::zero>;

        using one = val<typename Ring::one>;

        template<typename v1, typename v2>
        using add_t = val<typename Ring::template add_t<typename v1::type, typename v2::type>>;

        template<typename v1, typename v2>
        using mul_t = val<typename Ring::template mul_t<typename v1::type, typename v2::type>>;

        template<typename v1, typename v2>
        using div_t = val<typename Ring::template div_t<typename v1::type, typename v2::type>>;

        template<typename v1, typename v2>
        using mod_t = val<typename Ring::template mod_t<typename v1::type, typename v2::type>>;

        template<typename v1, typename v2>
        using eq_t = typename Ring::template eq_t<typename v1::type, typename v2::type>;

        template<typename v1, typename v2>
        static constexpr bool eq_v = Ring::template eq_t<typename v1::type, typename v2::type>::value;

        template<typename v1>
        using pos_t = std::true_type;

        template<typename v>
        static constexpr bool pos_v = pos_t<v>::value;

        static constexpr bool is_euclidean_domain = true;

        template<auto x>
        using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;
```

```
        template<typename v>
        using inject_ring_t = val<v>;
    };

    template<typename Ring, typename X>
    struct Embed<Quotient<Ring, X>, Ring> {
        template<typename val>
        using type = typename val::raw_t;
    };
}  // namespace aerobus

// type_list
namespace aerobus {
    template <typename... Ts>
    struct type_list;

    namespace internal {
        template <typename T, typename... Us>
        struct pop_front_h {
            using tail = type_list<Us...>;
            using head = T;
        };

        template <size_t index, typename L1, typename L2>
        struct split_h {
         private:
            static_assert(index <= L2::length, "index ouf of bounds");
            using a = typename L2::pop_front::type;
            using b = typename L2::pop_front::tail;
            using c = typename L1::template push_back<a>;

         public:
            using head = typename split_h<index - 1, c, b>::head;
            using tail = typename split_h<index - 1, c, b>::tail;
        };

        template <typename L1, typename L2>
        struct split_h<0, L1, L2> {
            using head = L1;
            using tail = L2;
        };

        template <size_t index, typename L, typename T>
        struct insert_h {
            static_assert(index <= L::length, "index ouf of bounds");
            using s = typename L::template split<index>;
            using left = typename s::head;
            using right = typename s::tail;
            using ll = typename left::template push_back<T>;
            using type = typename ll::template concat<right>;
        };

        template <size_t index, typename L>
        struct remove_h {
            using s = typename L::template split<index>;
            using left = typename s::head;
            using right = typename s::tail;
            using rr = typename right::pop_front::tail;
            using type = typename left::template concat<rr>;
        };
    }  // namespace internal

    template <typename... Ts>
    struct type_list {
     private:
        template <typename T>
        struct concat_h;

        template <typename... Us>
        struct concat_h<type_list<Us...» {
            using type = type_list<Ts..., Us...>;
        };

     public:
        static constexpr size_t length = sizeof...(Ts);

        template <typename T>
        using push_front = type_list<T, Ts...>;

        template <size_t index>
        using at = internal::type_at_t<index, Ts...>;

        struct pop_front {
            using type = typename internal::pop_front_h<Ts...>::head;
            using tail = typename internal::pop_front_h<Ts...>::tail;
        };
```

```

        template <typename T>
        using push_back = type_list<Ts..., T>;

        template <typename U>
        using concat = typename concat_h<U>::type;

        template <size_t index>
        struct split {
         private:
            using inner = internal::split_h<index, type_list<>, type_list<Ts...»;

         public:
            using head = typename inner::head;
            using tail = typename inner::tail;
        };

        template <typename T, size_t index>
        using insert = typename internal::insert_h<index, type_list<Ts...>, T>::type;

        template <size_t index>
        using remove = typename internal::remove_h<index, type_list<Ts...»::type;
    };

    template <>
    struct type_list<> {
        static constexpr size_t length = 0;

        template <typename T>
        using push_front = type_list<T>;

        template <typename T>
        using push_back = type_list<T>;

        template <typename U>
        using concat = U;

        // TODO(jewave): assert index == 0
        template <typename T, size_t index>
        using insert = type_list<T>;
    };
}  // namespace aerobus

// i16
#ifdef WITH_CUDA_FP16
// i16
namespace aerobus {
    struct i16 {
        using inner_type = int16_t;
        template<int16_t x>
        struct val {
            using enclosing_type = i16;
            static constexpr int16_t v = x;

            template<typename valueType>
            static constexpr INLINED DEVICE valueType get() {
                return internal::template int16_convert_helper<valueType, x>::value();
            }

            using is_zero_t = std::bool_constant<x == 0>;

            static std::string to_string() {
                return std::to_string(x);
            }
        };

        using zero = val<0>;
        using one = val<1>;
        static constexpr bool is_field = false;
        static constexpr bool is_euclidean_domain = true;
        template<auto x>
        using inject_constant_t = val<static_cast<int16_t>(x)>;

        template<typename v>
        using inject_ring_t = v;

     private:
        template<typename v1, typename v2>
        struct add {
            using type = val<v1::v + v2::v>;
        };

        template<typename v1, typename v2>
        struct sub {
            using type = val<v1::v - v2::v>;
        };

```

```
        template<typename v1, typename v2>
        struct mul {
            using type = val<v1::v* v2::v>;
        };

        template<typename v1, typename v2>
        struct div {
            using type = val<v1::v / v2::v>;
        };

        template<typename v1, typename v2>
        struct remainder {
            using type = val<v1::v % v2::v>;
        };

        template<typename v1, typename v2>
        struct gt {
            using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
        struct lt {
            using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
        struct eq {
            using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
        };

        template<typename v1>
        struct pos {
            using type = std::bool_constant<(v1::v > 0)>;
        };

     public:
        template<typename v1, typename v2>
        using add_t = typename add<v1, v2>::type;

        template<typename v1, typename v2>
        using sub_t = typename sub<v1, v2>::type;

        template<typename v1, typename v2>
        using mul_t = typename mul<v1, v2>::type;

        template<typename v1, typename v2>
        using div_t = typename div<v1, v2>::type;

        template<typename v1, typename v2>
        using mod_t = typename remainder<v1, v2>::type;

        template<typename v1, typename v2>
        using gt_t = typename gt<v1, v2>::type;

        template<typename v1, typename v2>
        using lt_t = typename lt<v1, v2>::type;

        template<typename v1, typename v2>
        using eq_t = typename eq<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool eq_v = eq_t<v1, v2>::value;

        template<typename v1, typename v2>
        using gcd_t = gcd_t<i16, v1, v2>;

        template<typename v>
        using pos_t = typename pos<v>::type;

        template<typename v>
        static constexpr bool pos_v = pos_t<v>::value;
    };
}  // namespace aerobus
#endif

// i32
namespace aerobus {
    struct i32 {
        using inner_type = int32_t;
        template<int32_t x>
        struct val {
            using enclosing_type = i32;
            static constexpr int32_t v = x;

            template<typename valueType>
            static constexpr DEVICE valueType get() {
                return static_cast<valueType>(x);
```

```
        }

        using is_zero_t = std::bool_constant<x == 0>;

        static std::string to_string() {
            return std::to_string(x);
        }
    };

    using zero = val<0>;
    using one = val<1>;
    static constexpr bool is_field = false;
    static constexpr bool is_euclidean_domain = true;
    template<auto x>
    using inject_constant_t = val<static_cast<int32_t>(x)>;

    template<typename v>
    using inject_ring_t = v;

private:
    template<typename v1, typename v2>
    struct add {
        using type = val<v1::v + v2::v>;
    };

    template<typename v1, typename v2>
    struct sub {
        using type = val<v1::v - v2::v>;
    };

    template<typename v1, typename v2>
    struct mul {
        using type = val<v1::v* v2::v>;
    };

    template<typename v1, typename v2>
    struct div {
        using type = val<v1::v / v2::v>;
    };

    template<typename v1, typename v2>
    struct remainder {
        using type = val<v1::v % v2::v>;
    };

    template<typename v1, typename v2>
    struct gt {
        using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
    };

    template<typename v1, typename v2>
    struct lt {
        using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
    };

    template<typename v1, typename v2>
    struct eq {
        using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
    };

    template<typename v1>
    struct pos {
        using type = std::bool_constant<(v1::v > 0)>;
    };

public:
    template<typename v1, typename v2>
    using add_t = typename add<v1, v2>::type;

    template<typename v1, typename v2>
    using sub_t = typename sub<v1, v2>::type;

    template<typename v1, typename v2>
    using mul_t = typename mul<v1, v2>::type;

    template<typename v1, typename v2>
    using div_t = typename div<v1, v2>::type;

    template<typename v1, typename v2>
    using mod_t = typename remainder<v1, v2>::type;

    template<typename v1, typename v2>
    using gt_t = typename gt<v1, v2>::type;

    template<typename v1, typename v2>
    using lt_t = typename lt<v1, v2>::type;

```

```
        template<typename v1, typename v2>
        using eq_t = typename eq<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool eq_v = eq_t<v1, v2>::value;

        template<typename v1, typename v2>
        using gcd_t = gcd_t<i32, v1, v2>;

        template<typename v>
        using pos_t = typename pos<v>::type;

        template<typename v>
        static constexpr bool pos_v = pos_t<v>::value;
    };
}  // namespace aerobus

// i64
namespace aerobus {
    struct i64 {
        using inner_type = int64_t;
        template<int64_t x>
        struct val {
            using inner_type = int32_t;
            using enclosing_type = i64;
            static constexpr int64_t v = x;

            template<typename valueType>
            static constexpr INLINED DEVICE valueType get() {
                return static_cast<valueType>(x);
            }

            using is_zero_t = std::bool_constant<x == 0>;

            static std::string to_string() {
                return std::to_string(x);
            }
        };

        template<auto x>
        using inject_constant_t = val<static_cast<int64_t>(x)>;

        template<typename v>
        using inject_ring_t = v;

        using zero = val<0>;
        using one = val<1>;
        static constexpr bool is_field = false;
        static constexpr bool is_euclidean_domain = true;

     private:
        template<typename v1, typename v2>
        struct add {
            using type = val<v1::v + v2::v>;
        };

        template<typename v1, typename v2>
        struct sub {
            using type = val<v1::v - v2::v>;
        };

        template<typename v1, typename v2>
        struct mul {
            using type = val<v1::v* v2::v>;
        };

        template<typename v1, typename v2>
        struct div {
            using type = val<v1::v / v2::v>;
        };

        template<typename v1, typename v2>
        struct remainder {
            using type = val<v1::v% v2::v>;
        };

        template<typename v1, typename v2>
        struct gt {
            using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
        struct lt {
            using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
```

```
        struct eq {
            using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
        };

        template<typename v>
        struct pos {
            using type = std::bool_constant<(v::v > 0)>;
        };

     public:
        template<typename v1, typename v2>
        using add_t = typename add<v1, v2>::type;

        template<typename v1, typename v2>
        using sub_t = typename sub<v1, v2>::type;

        template<typename v1, typename v2>
        using mul_t = typename mul<v1, v2>::type;

        template<typename v1, typename v2>
        using div_t = typename div<v1, v2>::type;

        template<typename v1, typename v2>
        using mod_t = typename remainder<v1, v2>::type;

        template<typename v1, typename v2>
        using gt_t = typename gt<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool gt_v = gt_t<v1, v2>::value;

        template<typename v1, typename v2>
        using lt_t = typename lt<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool lt_v = lt_t<v1, v2>::value;

        template<typename v1, typename v2>
        using eq_t = typename eq<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool eq_v = eq_t<v1, v2>::value;

        template<typename v1, typename v2>
        using gcd_t = gcd_t<i64, v1, v2>;

        template<typename v>
        using pos_t = typename pos<v>::type;

        template<typename v>
        static constexpr bool pos_v = pos_t<v>::value;
    };

    template<>
    struct Embed<i32, i64> {
        template<typename val>
        using type = i64::val<static_cast<int64_t>(val::v)>;
    };
}  // namespace aerobus

// z/pz
namespace aerobus {
    template<int32_t p>
    struct zpz {
        using inner_type = int32_t;

        template<int32_t x>
        struct val {
            using enclosing_type = zpz<p>;
            static constexpr int32_t v = x % p;

            template<typename valueType>
            static constexpr INLINED DEVICE valueType get() {
                return static_cast<valueType>(x % p);
            }

            using is_zero_t = std::bool_constant<v == 0>;

            static constexpr bool is_zero_v = v == 0;

            static std::string to_string() {
                return std::to_string(x % p);
            }
        };

        template<auto x>
        using inject_constant_t = val<static_cast<int32_t>(x)>;
```

```
        using zero = val<0>;

        using one = val<1>;

        static constexpr bool is_field = is_prime<p>::value;

        static constexpr bool is_euclidean_domain = true;

    private:
        template<typename v1, typename v2>
        struct add {
            using type = val<(v1::v + v2::v) % p>;
        };

        template<typename v1, typename v2>
        struct sub {
            using type = val<(v1::v - v2::v) % p>;
        };

        template<typename v1, typename v2>
        struct mul {
            using type = val<(v1::v* v2::v) % p>;
        };

        template<typename v1, typename v2>
        struct div {
            using type = val<(v1::v% p) / (v2::v % p)>;
        };

        template<typename v1, typename v2>
        struct remainder {
            using type = val<(v1::v% v2::v) % p>;
        };

        template<typename v1, typename v2>
        struct gt {
            using type = std::conditional_t<(v1::v% p > v2::v% p), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
        struct lt {
            using type = std::conditional_t<(v1::v% p < v2::v% p), std::true_type, std::false_type>;
        };

        template<typename v1, typename v2>
        struct eq {
            using type = std::conditional_t<(v1::v% p == v2::v % p), std::true_type, std::false_type>;
        };

        template<typename v1>
        struct pos {
            using type = std::bool_constant<(v1::v > 0)>;
        };

    public:
        template<typename v1, typename v2>
        using add_t = typename add<v1, v2>::type;

        template<typename v1, typename v2>
        using sub_t = typename sub<v1, v2>::type;

        template<typename v1, typename v2>
        using mul_t = typename mul<v1, v2>::type;

        template<typename v1, typename v2>
        using div_t = typename div<v1, v2>::type;

        template<typename v1, typename v2>
        using mod_t = typename remainder<v1, v2>::type;

        template<typename v1, typename v2>
        using gt_t = typename gt<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool gt_v = gt_t<v1, v2>::value;

        template<typename v1, typename v2>
        using lt_t = typename lt<v1, v2>::type;

        template<typename v1, typename v2>
        static constexpr bool lt_v = lt_t<v1, v2>::value;

        template<typename v1, typename v2>
        using eq_t = typename eq<v1, v2>::type;

        template<typename v1, typename v2>
```

```
        static constexpr bool eq_v = eq_t<v1, v2>::value;

        template<typename v1, typename v2>
        using gcd_t = gcd_t<i32, v1, v2>;

        template<typename v1>
        using pos_t = typename pos<v1>::type;

        template<typename v>
        static constexpr bool pos_v = pos_t<v>::value;
    };

    template<int32_t x>
    struct Embed<zpz<x>, i32> {
        template <typename val>
        using type = i32::val<val::v>;
    };
}  // namespace aerobus

// polynomial
namespace aerobus {
    // coeffN x^N + ...
    template<typename Ring>
    requires IsEuclideanDomain<Ring>
    struct polynomial {
        static constexpr bool is_field = false;
        static constexpr bool is_euclidean_domain = Ring::is_euclidean_domain;

        template<typename P>
        struct horner_reduction_t {
            template<size_t index, size_t stop>
            struct inner {
                template<typename accum, typename x>
                using type = typename horner_reduction_t<P>::template inner<index + 1, stop>
                    ::template type<
                        typename Ring::template add_t<
                            typename Ring::template mul_t<x, accum>,
                            typename P::template coeff_at_t<P::degree - index>
                        >, x>;
            };

            template<size_t stop>
            struct inner<stop, stop> {
                template<typename accum, typename x>
                using type = accum;
            };
        };

        template<typename coeffN, typename... coeffs>
        struct val {
            using ring_type = Ring;
            using enclosing_type = polynomial<Ring>;
            static constexpr size_t degree = sizeof...(coeffs);
            using aN = coeffN;
            using strip = val<coeffs...>;
            using is_zero_t = std::bool_constant<(degree == 0) && (aN::is_zero_t::value)>;
            static constexpr bool is_zero_v = is_zero_t::value;

         private:
            template<size_t index, typename E = void>
            struct coeff_at {};

            template<size_t index>
            struct coeff_at<index, std::enable_if_t<(index >= 0 && index <= sizeof...(coeffs))» {
                using type = internal::type_at_t<sizeof...(coeffs) - index, coeffN, coeffs...>;
            };

            template<size_t index>
            struct coeff_at<index, std::enable_if_t<(index < 0 || index > sizeof...(coeffs))» {
                using type = typename Ring::zero;
            };

         public:
            template<size_t index>
            using coeff_at_t = typename coeff_at<index>::type;

            static std::string to_string() {
                return string_helper<coeffN, coeffs...>::func();
            }

            template<typename arithmeticType>
            static constexpr DEVICE INLINED arithmeticType eval(const arithmeticType& x) {
                #ifdef WITH_CUDA_FP16
                arithmeticType start;
                if constexpr (std::is_same_v<arithmeticType, __half2>) {
                    start = __half2(0, 0);
                } else {
```

```
                start = static_cast<arithmeticType>(0);
            }
            #else
            arithmeticType start = static_cast<arithmeticType>(0);
            #endif
            return horner_evaluation<arithmeticType, val>
                    ::template inner<0, degree + 1>
                    ::func(start, x);
        }

        template<typename arithmeticType>
        static DEVICE INLINED arithmeticType compensated_eval(const arithmeticType& x) {
            return compensated_horner<arithmeticType, val>::func(x);
        }

        template<typename x>
        using value_at_t = horner_reduction_t<val>
            ::template inner<0, degree + 1>
            ::template type<typename Ring::zero, x>;
    };

    template<typename coeffN>
    struct val<coeffN> {
        using ring_type = Ring;
        using enclosing_type = polynomial<Ring>;
        static constexpr size_t degree = 0;
        using aN = coeffN;
        using strip = val<coeffN>;
        using is_zero_t = std::bool_constant<aN::is_zero_t::value>;

        static constexpr bool is_zero_v = is_zero_t::value;

        template<size_t index, typename E = void>
        struct coeff_at {};

        template<size_t index>
        struct coeff_at<index, std::enable_if_t<(index == 0)» {
            using type = aN;
        };

        template<size_t index>
        struct coeff_at<index, std::enable_if_t<(index < 0 || index > 0)» {
            using type = typename Ring::zero;
        };

        template<size_t index>
        using coeff_at_t = typename coeff_at<index>::type;

        static std::string to_string() {
            return string_helper<coeffN>::func();
        }

        template<typename arithmeticType>
        static constexpr DEVICE INLINED arithmeticType eval(const arithmeticType& x) {
            return coeffN::template get<arithmeticType>();
        }

        template<typename arithmeticType>
        static DEVICE INLINED arithmeticType compensated_eval(const arithmeticType& x) {
            return coeffN::template get<arithmeticType>();
        }

        template<typename x>
        using value_at_t = coeffN;
    };

    using zero = val<typename Ring::zero>;
    using one = val<typename Ring::one>;
    using X = val<typename Ring::one, typename Ring::zero>;

private:
    template<typename P, typename E = void>
    struct simplify;

    template <typename P1, typename P2, typename I>
    struct add_low;

    template<typename P1, typename P2>
    struct add {
        using type = typename simplify<typename add_low<
        P1,
        P2,
        internal::make_index_sequence_reverse<
        std::max(P1::degree, P2::degree) + 1
        »::type>::type;
    };

```

```
template <typename P1, typename P2, typename I>
struct sub_low;

template <typename P1, typename P2, typename I>
struct mul_low;

template<typename v1, typename v2>
struct mul {
        using type = typename mul_low<
            v1,
            v2,
            internal::make_index_sequence_reverse<
            v1::degree + v2::degree + 1
            »::type;
};

template<typename coeff, size_t deg>
struct monomial;

template<typename v, typename E = void>
struct derive_helper {};

template<typename v>
struct derive_helper<v, std::enable_if_t<v::degree == 0» {
    using type = zero;
};

template<typename v>
struct derive_helper<v, std::enable_if_t<v::degree != 0» {
    using type = typename add<
        typename derive_helper<typename simplify<typename v::strip>::type>::type,
        typename monomial<
            typename Ring::template mul_t<
                typename v::aN,
                typename Ring::template inject_constant_t<(v::degree)>
            >,
            v::degree - 1
        >::type
    >::type;
};

template<typename v1, typename v2, typename E = void>
struct eq_helper {};

template<typename v1, typename v2>
struct eq_helper<v1, v2, std::enable_if_t<v1::degree != v2::degree» {
    using type = std::false_type;
};


template<typename v1, typename v2>
struct eq_helper<v1, v2, std::enable_if_t<
    v1::degree == v2::degree &&
    (v1::degree != 0 || v2::degree != 0) &&
    std::is_same<
    typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
    std::false_type
    >::value
>
> {
    using type = std::false_type;
};

template<typename v1, typename v2>
struct eq_helper<v1, v2, std::enable_if_t<
    v1::degree == v2::degree &&
    (v1::degree != 0 || v2::degree != 0) &&
    std::is_same<
    typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
    std::true_type
    >::value
» {
    using type = typename eq_helper<typename v1::strip, typename v2::strip>::type;
};

template<typename v1, typename v2>
struct eq_helper<v1, v2, std::enable_if_t<
    v1::degree == v2::degree &&
    (v1::degree == 0)
» {
    using type = typename Ring::template eq_t<typename v1::aN, typename v2::aN>;
};

template<typename v1, typename v2, typename E = void>
struct lt_helper {};

template<typename v1, typename v2>
```

```
        struct lt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
            using type = std::true_type;
        };

        template<typename v1, typename v2>
        struct lt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
            using type = typename Ring::template lt_t<typename v1::aN, typename v2::aN>;
        };

        template<typename v1, typename v2>
        struct lt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
            using type = std::false_type;
        };

        template<typename v1, typename v2, typename E = void>
        struct gt_helper {};

        template<typename v1, typename v2>
        struct gt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
            using type = std::true_type;
        };

        template<typename v1, typename v2>
        struct gt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
            using type = std::false_type;
        };

        template<typename v1, typename v2>
        struct gt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
            using type = std::false_type;
        };

        // when high power is zero : strip
        template<typename P>
        struct simplify<P, std::enable_if_t<
            std::is_same<
            typename Ring::zero,
            typename P::aN
            >::value && (P::degree > 0)
        » {
            using type = typename simplify<typename P::strip>::type;
        };

        // otherwise : do nothing
        template<typename P>
        struct simplify<P, std::enable_if_t<
            !std::is_same<
            typename Ring::zero,
            typename P::aN
            >::value && (P::degree > 0)
        » {
            using type = P;
        };

        // do not simplify constants
        template<typename P>
        struct simplify<P, std::enable_if_t<P::degree == 0» {
            using type = P;
        };

        // addition at
        template<typename P1, typename P2, size_t index>
        struct add_at {
            using type =
                typename Ring::template add_t<
                    typename P1::template coeff_at_t<index>,
                    typename P2::template coeff_at_t<index»;
        };

        template<typename P1, typename P2, size_t index>
        using add_at_t = typename add_at<P1, P2, index>::type;

        template<typename P1, typename P2, std::size_t... I>
        struct add_low<P1, P2, std::index_sequence<I...» {
            using type = val<add_at_t<P1, P2, I>...>;
        };

        // substraction at
        template<typename P1, typename P2, size_t index>
        struct sub_at {
            using type =
                typename Ring::template sub_t<
                    typename P1::template coeff_at_t<index>,
                    typename P2::template coeff_at_t<index»;
        };

        template<typename P1, typename P2, size_t index>
```

```
using sub_at_t = typename sub_at<P1, P2, index>::type;

template<typename P1, typename P2, std::size_t... I>
struct sub_low<P1, P2, std::index_sequence<I...» {
    using type = val<sub_at_t<P1, P2, I>...>;
};

template<typename P1, typename P2>
struct sub {
    using type = typename simplify<typename sub_low<
    P1,
    P2,
    internal::make_index_sequence_reverse<
    std::max(P1::degree, P2::degree) + 1
    »::type>::type;
};

// multiplication at
template<typename v1, typename v2, size_t k, size_t index, size_t stop>
struct mul_at_loop_helper {
    using type = typename Ring::template add_t<
        typename Ring::template mul_t<
        typename v1::template coeff_at_t<index>,
        typename v2::template coeff_at_t<k - index>
        >,
        typename mul_at_loop_helper<v1, v2, k, index + 1, stop>::type
    >;
};

template<typename v1, typename v2, size_t k, size_t stop>
struct mul_at_loop_helper<v1, v2, k, stop, stop> {
    using type = typename Ring::template mul_t<
        typename v1::template coeff_at_t<stop>,
        typename v2::template coeff_at_t<0»;
};

template <typename v1, typename v2, size_t k, typename E = void>
struct mul_at {};

template<typename v1, typename v2, size_t k>
struct mul_at<v1, v2, k, std::enable_if_t<(k < 0) || (k > v1::degree + v2::degree)» {
    using type = typename Ring::zero;
};

template<typename v1, typename v2, size_t k>
struct mul_at<v1, v2, k, std::enable_if_t<(k >= 0) && (k <= v1::degree + v2::degree)» {
    using type = typename mul_at_loop_helper<v1, v2, k, 0, k>::type;
};

template<typename P1, typename P2, size_t index>
using mul_at_t = typename mul_at<P1, P2, index>::type;

template<typename P1, typename P2, std::size_t... I>
struct mul_low<P1, P2, std::index_sequence<I...» {
    using type = val<mul_at_t<P1, P2, I>...>;
};

// division helper
template< typename A, typename B, typename Q, typename R, typename E = void>
struct div_helper {};

template<typename A, typename B, typename Q, typename R>
struct div_helper<A, B, Q, R, std::enable_if_t<
    (R::degree < B::degree) ||
    (R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
    using q_type = Q;
    using mod_type = R;
    using gcd_type = B;
};

template<typename A, typename B, typename Q, typename R>
struct div_helper<A, B, Q, R, std::enable_if_t<
    (R::degree >= B::degree) &&
    !(R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
 private: // NOLINT
    using rN = typename R::aN;
    using bN = typename B::aN;
    using pT = typename monomial<typename Ring::template div_t<rN, bN>, R::degree - B::degree>::type;
    using rr = typename sub<R, typename mul<pT, B>::type>::type;
    using qq = typename add<Q, pT>::type;

 public:
    using q_type = typename div_helper<A, B, qq, rr>::q_type;
    using mod_type = typename div_helper<A, B, qq, rr>::mod_type;
    using gcd_type = rr;
};
```

```
        template<typename A, typename B>
        struct div {
            static_assert(Ring::is_euclidean_domain, "cannot divide in that type of Ring");
            using q_type = typename div_helper<A, B, zero, A>::q_type;
            using m_type = typename div_helper<A, B, zero, A>::mod_type;
        };

        template<typename P>
        struct make_unit {
            using type = typename div<P, val<typename P::aN»::q_type;
        };

        template<typename coeff, size_t deg>
        struct monomial {
            using type = typename mul<X, typename monomial<coeff, deg - 1>::type>::type;
        };

        template<typename coeff>
        struct monomial<coeff, 0> {
            using type = val<coeff>;
        };

        template<typename arithmeticType, typename P>
        struct horner_evaluation {
            template<size_t index, size_t stop>
            struct inner {
                static constexpr DEVICE INLINED arithmeticType func(
                    const arithmeticType& accum, const arithmeticType& x) {
                    return horner_evaluation<arithmeticType, P>::template inner<index + 1, stop>::func(
                        internal::fma_helper<arithmeticType>::eval(
                            x,
                            accum,
                            P::template coeff_at_t<P::degree - index>::template get<arithmeticType>()), x);
                }
            };

            template<size_t stop>
            struct inner<stop, stop> {
                static constexpr DEVICE INLINED arithmeticType func(
                    const arithmeticType& accum, const arithmeticType& x) {
                    return accum;
                }
            };
        };

        template<typename arithmeticType, typename P>
        struct compensated_horner {
            template<int64_t index, int ghost>
            struct EFTHorner {
                static INLINED void func(
                        arithmeticType x, arithmeticType *pi, arithmeticType *sigma, arithmeticType *r) {
                    arithmeticType p;
                    internal::two_prod(*r, x, &p, pi + P::degree - index - 1);
                    constexpr arithmeticType coeff = P::template coeff_at_t<index>::template get<arithmeticType>();
                    internal::two_sum<arithmeticType>(
                        p, coeff,
                        r, sigma + P::degree - index - 1);
                    EFTHorner<index - 1, ghost>::func(x, pi, sigma, r);
                }
            };

            template<int ghost>
            struct EFTHorner<-1, ghost> {
                static INLINED DEVICE void func(
                        arithmeticType x, arithmeticType *pi, arithmeticType *sigma, arithmeticType *r) {
                }
            };

            static INLINED DEVICE arithmeticType func(arithmeticType x) {
                arithmeticType pi[P::degree], sigma[P::degree];
                arithmeticType r = P::template coeff_at_t<P::degree>::template get<arithmeticType>();
                EFTHorner<P::degree - 1, 0>::func(x, pi, sigma, &r);
                arithmeticType c = internal::horner<arithmeticType, P::degree - 1>(pi, sigma, x);
                return r + c;
            }
        };

        template<typename coeff, typename... coeffs>
        struct string_helper {
            static std::string func() {
                std::string tail = string_helper<coeffs...>::func();
```

```
              std::string result = "";
              if (Ring::template eq_t<coeff, typename Ring::zero>::value) {
                  return tail;
              } else if (Ring::template eq_t<coeff, typename Ring::one>::value) {
                  if (sizeof...(coeffs) == 1) {
                      result += "x";
                  } else {
                      result += "x^" + std::to_string(sizeof...(coeffs));
                  }
              } else {
                  if (sizeof...(coeffs) == 1) {
                      result += coeff::to_string() + " x";
                  } else {
                      result += coeff::to_string()
                              + " x^" + std::to_string(sizeof...(coeffs));
                  }
              }

              if (!tail.empty()) {
                  if (tail.at(0) != '-') {
                      result += " + " + tail;
                  } else {
                      result += " - " + tail.substr(1);
                  }
              }

              return result;
          }
      };

      template<typename coeff>
      struct string_helper<coeff> {
          static std::string func() {
              if (!std::is_same<coeff, typename Ring::zero>::value) {
                  return coeff::to_string();
              } else {
                  return "";
              }
          }
      };

   public:
      template<typename P>
      using simplify_t = typename simplify<P>::type;

      template<typename v1, typename v2>
      using add_t = typename add<v1, v2>::type;

      template<typename v1, typename v2>
      using sub_t = typename sub<v1, v2>::type;

      template<typename v1, typename v2>
      using mul_t = typename mul<v1, v2>::type;

      template<typename v1, typename v2>
      using eq_t = typename eq_helper<v1, v2>::type;

      template<typename v1, typename v2>
      using lt_t = typename lt_helper<v1, v2>::type;

      template<typename v1, typename v2>
      using gt_t = typename gt_helper<v1, v2>::type;

      template<typename v1, typename v2>
      using div_t = typename div<v1, v2>::q_type;

      template<typename v1, typename v2>
      using mod_t = typename div_helper<v1, v2, zero, v1>::mod_type;

      template<typename coeff, size_t deg>
      using monomial_t = typename monomial<coeff, deg>::type;

      template<typename v>
      using derive_t = typename derive_helper<v>::type;

      template<typename v>
      using pos_t = typename Ring::template pos_t<typename v::aN>;

      template<typename v>
      static constexpr bool pos_v = pos_t<v>::value;

      template<typename v1, typename v2>
      using gcd_t = std::conditional_t<
          Ring::is_euclidean_domain,
          typename make_unit<gcd_t<polynomial<Ring>, v1, v2>::type,
          void>;

```

```
        template<auto x>
        using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;

        template<typename v>
        using inject_ring_t = val<v>;
    };
}  // namespace aerobus

// fraction field
namespace aerobus {
    namespace internal {
        template<typename Ring, typename E = void>
        requires IsEuclideanDomain<Ring>
        struct _FractionField {};

        template<typename Ring>
        requires IsEuclideanDomain<Ring>
        struct _FractionField<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
            static constexpr bool is_field = true;
            static constexpr bool is_euclidean_domain = true;

         private:
            template<typename val1, typename val2, typename E = void>
            struct to_string_helper {};

            template<typename val1, typename val2>
            struct to_string_helper <val1, val2,
                std::enable_if_t<
                Ring::template eq_t<
                val2, typename Ring::one
                >::value
                >
            > {
                static std::string func() {
                    return val1::to_string();
                }
            };

            template<typename val1, typename val2>
            struct to_string_helper<val1, val2,
                std::enable_if_t<
                !Ring::template eq_t<
                val2,
                typename Ring::one
                >::value
                >
            > {
                static std::string func() {
                    return "(" + val1::to_string() + ") / (" + val2::to_string() + ")";
                }
            };

         public:
            template<typename val1, typename val2>
            struct val {
                using x = val1;
                using y = val2;
                using is_zero_t = typename val1::is_zero_t;
                static constexpr bool is_zero_v = val1::is_zero_t::value;

                using ring_type = Ring;
                using enclosing_type = _FractionField<Ring>;

                static constexpr bool is_integer = std::is_same_v<val2, typename Ring::one>;

                template<typename valueType, int ghost = 0>
                struct get_helper {
                    static constexpr INLINED DEVICE valueType get() {
                        return internal::staticcast<valueType, typename ring_type::inner_type>::template func<x::v>() /
                            internal::staticcast<valueType, typename ring_type::inner_type>::template func<y::v>();
                    }
                };

                #ifdef WITH_CUDA_FP16
                template<int ghost>
                struct get_helper<__half, ghost> {
                    static constexpr INLINED DEVICE __half get() {
                        return internal::my_float2half_rn(
                            internal::staticcast<float, typename ring_type::inner_type>::template func<x::v>() /
                            internal::staticcast<float, typename ring_type::inner_type>::template func<y::v>());
                    }
                };

```

```
                template<int ghost>
                struct get_helper<__half2, ghost> {
                    static constexpr INLINED DEVICE __half2 get() {
                        constexpr __half tmp = internal::my_float2half_rn(
                            internal::staticcast<float, typename ring_type::inner_type>::template func<x::v>() /
                            internal::staticcast<float, typename ring_type::inner_type>::template func<y::v>());
                        return __half2(tmp, tmp);
                    }
                };
                #endif

                template<typename valueType>
                static constexpr INLINED DEVICE valueType get() {
                    return get_helper<valueType, 0>::get();
                }

                static std::string to_string() {
                    return to_string_helper<val1, val2>::func();
                }

                template<typename arithmeticType>
                static constexpr DEVICE INLINED arithmeticType eval(const arithmeticType& v) {
                    return x::eval(v) / y::eval(v);
                }
            };

            using zero = val<typename Ring::zero, typename Ring::one>;
            using one = val<typename Ring::one, typename Ring::one>;

            template<typename v>
            using inject_t = val<v, typename Ring::one>;

            template<auto x>
            using inject_constant_t = val<typename Ring::template inject_constant_t<x>, typename Ring::one>;

            template<typename v>
            using inject_ring_t = val<typename Ring::template inject_ring_t<v>, typename Ring::one>;

            using ring_type = Ring;

        private:
            template<typename v, typename E = void>
            struct simplify {};

            // x = 0
            template<typename v>
            struct simplify<v, std::enable_if_t<v::x::is_zero_t::value» {
                using type = typename _FractionField<Ring>::zero;
            };

            // x != 0
            template<typename v>
            struct simplify<v, std::enable_if_t<!v::x::is_zero_t::value» {
             private:
                using _gcd = typename Ring::template gcd_t<typename v::x, typename v::y>;
                using newx = typename Ring::template div_t<typename v::x, _gcd>;
                using newy = typename Ring::template div_t<typename v::y, _gcd>;

                using posx = std::conditional_t<
                                    !Ring::template pos_v<newy>,
                                    typename Ring::template sub_t<typename Ring::zero, newx>,
                                    newx>;
                using posy = std::conditional_t<
                                    !Ring::template pos_v<newy>,
                                    typename Ring::template sub_t<typename Ring::zero, newy>,
                                    newy>;
             public:
                using type = typename _FractionField<Ring>::template val<posx, posy>;
            };

        public:
            template<typename v>
            using simplify_t = typename simplify<v>::type;

        private:
            template<typename v1, typename v2>
            struct add {
             private:
                using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
                using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
                using dividend = typename Ring::template add_t<a, b>;
                using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
                using g = typename Ring::template gcd_t<dividend, diviser>;

```

```
 public:
    using type = typename _FractionField<Ring>::template simplify_t<val<dividend, diviser»;
};

template<typename v>
struct pos {
    using type = std::conditional_t<
        (Ring::template pos_v<typename v::x> && Ring::template pos_v<typename v::y>) ||
        (!Ring::template pos_v<typename v::x> && !Ring::template pos_v<typename v::y>),
        std::true_type,
        std::false_type>;
};

template<typename v1, typename v2>
struct sub {
 private:
    using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
    using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
    using dividend = typename Ring::template sub_t<a, b>;
    using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
    using g = typename Ring::template gcd_t<dividend, diviser>;

 public:
    using type = typename _FractionField<Ring>::template simplify_t<val<dividend, diviser»;
};

template<typename v1, typename v2>
struct mul {
 private:
    using a = typename Ring::template mul_t<typename v1::x, typename v2::x>;
    using b = typename Ring::template mul_t<typename v1::y, typename v2::y>;

 public:
    using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
};

template<typename v1, typename v2, typename E = void>
struct div {};

template<typename v1, typename v2>
struct div<v1, v2, std::enable_if_t<!std::is_same<v2, typename _FractionField<Ring>::zero>::value»  {
 private:
    using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
    using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;

 public:
    using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
};

template<typename v1, typename v2>
struct div<v1, v2, std::enable_if_t<
    std::is_same<zero, v1>::value && std::is_same<v2, zero>::value»  {
    using type = one;
};

template<typename v1, typename v2>
struct eq {
    using type = std::conditional_t<
            std::is_same<typename simplify_t<v1>::x, typename simplify_t<v2>::x>::value &&
            std::is_same<typename simplify_t<v1>::y, typename simplify_t<v2>::y>::value,
        std::true_type,
        std::false_type>;
};

template<typename v1, typename v2, typename E = void>
struct gt;

template<typename v1, typename v2>
struct gt<v1, v2, std::enable_if_t<
    (eq<v1, v2>::type::value)
    » {
    using type = std::false_type;
};

template<typename v1, typename v2>
struct gt<v1, v2, std::enable_if_t<
    (!eq<v1, v2>::type::value) &&
    (!pos<v1>::type::value) && (!pos<v2>::type::value)
    » {
    using type = typename gt<
        typename sub<zero, v1>::type, typename sub<zero, v2>::type
    >::type;
};

```

```
            template<typename v1, typename v2>
            struct gt<v1, v2, std::enable_if_t<
                (!eq<v1, v2>::type::value) &&
                (pos<v1>::type::value) && (!pos<v2>::type::value)
                » {
                using type = std::true_type;
            };

            template<typename v1, typename v2>
            struct gt<v1, v2, std::enable_if_t<
                (!eq<v1, v2>::type::value) &&
                (!pos<v1>::type::value) && (pos<v2>::type::value)
                » {
                using type = std::false_type;
            };

            template<typename v1, typename v2>
            struct gt<v1, v2, std::enable_if_t<
                (!eq<v1, v2>::type::value) &&
                (pos<v1>::type::value) && (pos<v2>::type::value)
                » {
                using type = typename Ring::template gt_t<
                    typename Ring::template mul_t<v1::x, v2::y>,
                    typename Ring::template mul_t<v2::y, v2::x>
                >;
            };

         public:
            template<typename v1, typename v2>
            using add_t = typename add<v1, v2>::type;

            template<typename v1, typename v2>
            using mod_t = zero;

            template<typename v1, typename v2>
            using gcd_t = v1;

            template<typename v1, typename v2>
            using sub_t = typename sub<v1, v2>::type;

            template<typename v1, typename v2>
            using mul_t = typename mul<v1, v2>::type;

            template<typename v1, typename v2>
            using div_t = typename div<v1, v2>::type;

            template<typename v1, typename v2>
            using eq_t = typename eq<v1, v2>::type;

            template<typename v1, typename v2>
            static constexpr bool eq_v = eq<v1, v2>::type::value;

            template<typename v1, typename v2>
            using gt_t = typename gt<v1, v2>::type;

            template<typename v1, typename v2>
            static constexpr bool gt_v = gt<v1, v2>::type::value;

            template<typename v1>
            using pos_t = typename pos<v1>::type;

            template<typename v>
            static constexpr bool pos_v = pos_t<v>::value;
        };

        template<typename Ring, typename E = void>
        requires IsEuclideanDomain<Ring>
        struct FractionFieldImpl {};

        // fraction field of a field is the field itself
        template<typename Field>
        requires IsEuclideanDomain<Field>
        struct FractionFieldImpl<Field, std::enable_if_t<Field::is_field» {
            using type = Field;
            template<typename v>
            using inject_t = v;
        };

        // fraction field of a ring is the actual fraction field
        template<typename Ring>
        requires IsEuclideanDomain<Ring>
        struct FractionFieldImpl<Ring, std::enable_if_t<!Ring::is_field» {
            using type = _FractionField<Ring>;
        };
    }  // namespace internal

    template<typename Ring>
```

```
    requires IsEuclideanDomain<Ring>
    using FractionField = typename internal::FractionFieldImpl<Ring>::type;

    template<typename Ring>
    struct Embed<Ring, FractionField<Ring>> {
        template<typename v>
        using type = typename FractionField<Ring>::template val<v, typename Ring::one>;
    };
}  // namespace aerobus


// short names for common types
namespace aerobus {
    template<typename X, typename Y>
    requires IsRing<typename X::enclosing_type> &&
        (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
    using add_t = typename X::enclosing_type::template add_t<X, Y>;

    template<typename X, typename Y>
    requires IsRing<typename X::enclosing_type> &&
        (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
    using sub_t = typename X::enclosing_type::template sub_t<X, Y>;

    template<typename X, typename Y>
    requires IsRing<typename X::enclosing_type> &&
        (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
    using mul_t = typename X::enclosing_type::template mul_t<X, Y>;

    template<typename X, typename Y>
    requires IsEuclideanDomain<typename X::enclosing_type> &&
        (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
    using div_t = typename X::enclosing_type::template div_t<X, Y>;

    using q32 = FractionField<i32>;

    using fpq32 = FractionField<polynomial<q32>>;

    using q64 = FractionField<i64>;

    using pi64 = polynomial<i64>;

    using pq64 = polynomial<q64>;

    using fpq64 = FractionField<polynomial<q64>>;

    template<typename Ring, typename v1, typename v2>
    using makefraction_t = typename FractionField<Ring>::template val<v1, v2>;

    template<typename v>
    using embed_int_poly_in_fractions_t =
            typename Embed<
                polynomial<typename v::ring_type>,
                polynomial<FractionField<typename v::ring_type>>>::template type<v>;

    template<int64_t p, int64_t q>
    using make_q64_t = typename q64::template simplify_t<
                typename q64::val<i64::inject_constant_t<p>, i64::inject_constant_t<q>>>;

    template<int32_t p, int32_t q>
    using make_q32_t = typename q32::template simplify_t<
                typename q32::val<i32::inject_constant_t<p>, i32::inject_constant_t<q>>>;

    template<typename Ring, typename v1, typename v2>
    using addfractions_t = typename FractionField<Ring>::template add_t<v1, v2>;
    template<typename Ring, typename v1, typename v2>
    using mulfractions_t = typename FractionField<Ring>::template mul_t<v1, v2>;

    template<>
    struct Embed<q32, q64> {
        template<typename v>
        using type = make_q64_t<static_cast<int64_t>(v::x::v), static_cast<int64_t>(v::y::v)>;
    };

    template<typename Small, typename Large>
    struct Embed<polynomial<Small>, polynomial<Large>> {
     private:
        template<typename v, typename i>
        struct at_low;

        template<typename v, size_t i>
        struct at_index {
            using type = typename Embed<Small, Large>::template
  type<typename v::template coeff_at_t<i>>;
        };

        template<typename v, size_t... Is>
        struct at_low<v, std::index_sequence<Is...>> {
```

```
                using type = typename polynomial<Large>::template val<typename at_index<v, Is>::type...>;
            };

         public:
            template<typename v>
            using type = typename at_low<v, typename internal::make_index_sequence_reverse<v::degree +
    1»::type;
        };

        template<typename Ring, auto... xs>
        using make_int_polynomial_t = typename polynomial<Ring>::template val<
                typename Ring::template inject_constant_t<xs>...>;

        template<typename Ring, auto... xs>
        using make_frac_polynomial_t = typename polynomial<FractionField<Ring>>::template val<
                typename FractionField<Ring>::template inject_constant_t<xs>...>;
    }  // namespace aerobus

    // taylor series and common integers (factorial, bernoulli...) appearing in taylor coefficients
    namespace aerobus {
        namespace internal {
            template<typename T, size_t x, typename E = void>
            struct factorial {};

            template<typename T, size_t x>
            struct factorial<T, x, std::enable_if_t<(x > 0)» {
            private:
                template<typename, size_t, typename>
                friend struct factorial;
            public:
                using type = typename T::template mul_t<typename T::template val<x>, typename factorial<T,
    x - 1>::type>;
                static constexpr typename T::inner_type value = type::template get<typename
    T::inner_type>();
            };

            template<typename T>
            struct factorial<T, 0> {
             public:
                using type = typename T::one;
                static constexpr typename T::inner_type value = type::template get<typename
    T::inner_type>();
            };
        }  // namespace internal

        template<typename T, size_t i>
        using factorial_t = typename internal::factorial<T, i>::type;

        template<typename T, size_t i>
        inline constexpr typename T::inner_type factorial_v = internal::factorial<T, i>::value;

        namespace internal {
            template<typename T, size_t k, size_t n, typename E = void>
            struct combination_helper {};

            template<typename T, size_t k, size_t n>
            struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k <= (n / 2) && k > 0)» {
                using type = typename FractionField<T>::template mul_t<
                    typename combination_helper<T, k - 1, n - 1>::type,
                    makefraction_t<T, typename T::template val<n>, typename T::template val<k»>;
            };

            template<typename T, size_t k, size_t n>
            struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k > (n / 2) && k > 0)» {
                using type = typename combination_helper<T, n - k, n>::type;
            };

            template<typename T, size_t n>
            struct combination_helper<T, 0, n> {
                using type = typename FractionField<T>::one;
            };

            template<typename T, size_t k, size_t n>
            struct combination {
                using type = typename internal::combination_helper<T, k, n>::type::x;
                static constexpr typename T::inner_type value =
                            internal::combination_helper<T, k, n>::type::template get<typename
    T::inner_type>();
            };
        }  // namespace internal

        template<typename T, size_t k, size_t n>
        using combination_t = typename internal::combination<T, k, n>::type;

        template<typename T, size_t k, size_t n>
        inline constexpr typename T::inner_type combination_v = internal::combination<T, k, n>::value;

```

```
namespace internal {
    template<typename T, size_t m>
    struct bernoulli;

    template<typename T, typename accum, size_t k, size_t m>
    struct bernoulli_helper {
        using type = typename bernoulli_helper<
            T,
            addfractions_t<T,
                accum,
                mulfractions_t<T,
                    makefraction_t<T,
                        combination_t<T, k, m + 1>,
                        typename T::one>,
                    typename bernoulli<T, k>::type
                >
            >,
            k + 1,
            m>::type;
    };

    template<typename T, typename accum, size_t m>
    struct bernoulli_helper<T, accum, m, m> {
        using type = accum;
    };



    template<typename T, size_t m>
    struct bernoulli {
        using type = typename FractionField<T>::template mul_t<
            typename internal::bernoulli_helper<T, typename FractionField<T>::zero, 0, m>::type,
            makefraction_t<T,
            typename T::template val<static_cast<typename T::inner_type>(-1)>,
            typename T::template val<static_cast<typename T::inner_type>(m + 1)>
            >
        >;

        template<typename floatType>
        static constexpr floatType value = type::template get<floatType>();
    };

    template<typename T>
    struct bernoulli<T, 0> {
        using type = typename FractionField<T>::one;

        template<typename floatType>
        static constexpr floatType value = type::template get<floatType>();
    };
}  // namespace internal

template<typename T, size_t n>
using bernoulli_t = typename internal::bernoulli<T, n>::type;

template<typename FloatType, typename T, size_t n >
inline constexpr FloatType bernoulli_v = internal::bernoulli<T, n>::template value<FloatType>;

// bell numbers
namespace internal {
    template<typename T, size_t n, typename E = void>
    struct bell_helper;

    template <typename T, size_t n>
    struct bell_helper<T, n, std::enable_if_t<(n > 1)» {
        template<typename accum, size_t i, size_t stop>
        struct sum_helper {
         private:
            using left = typename T::template mul_t<
                        combination_t<T, i, n-1>,
                        typename bell_helper<T, i>::type>;
            using new_accum = typename T::template add_t<accum, left>;
         public:
            using type = typename sum_helper<new_accum, i+1, stop>::type;
        };

        template<typename accum, size_t stop>
        struct sum_helper<accum, stop, stop> {
            using type = accum;
        };

        using type = typename sum_helper<typename T::zero, 0, n>::type;
    };

    template<typename T>
    struct bell_helper<T, 0> {
        using type = typename T::one;
    };
```

```cpp

        template<typename T>
        struct bell_helper<T, 1> {
            using type = typename T::one;
        };
    }  // namespace internal

    template<typename T, size_t n>
    using bell_t = typename internal::bell_helper<T, n>::type;

    template<typename T, size_t n>
    static constexpr typename T::inner_type bell_v = bell_t<T, n>::v;

    namespace internal {
        template<typename T, int k, typename E = void>
        struct alternate {};

        template<typename T, int k>
        struct alternate<T, k, std::enable_if_t<k % 2 == 0» {
            using type = typename T::one;
            static constexpr typename T::inner_type value = type::template get<typename T::inner_type>();
        };

        template<typename T, int k>
        struct alternate<T, k, std::enable_if_t<k % 2 != 0» {
            using type = typename T::template sub_t<typename T::zero, typename T::one>;
            static constexpr typename T::inner_type value = type::template get<typename T::inner_type>();
        };
    }  // namespace internal

    template<typename T, int k>
    using alternate_t = typename internal::alternate<T, k>::type;

    template<typename T, size_t k>
    inline constexpr typename T::inner_type alternate_v = internal::alternate<T, k>::value;

    namespace internal {
        template<typename T, int n, int k, typename E = void>
        struct stirling_1_helper {};

        template<typename T>
        struct stirling_1_helper<T, 0, 0> {
            using type = typename T::one;
        };

        template<typename T, int n>
        struct stirling_1_helper<T, n, 0, std::enable_if_t<(n > 0)» {
            using type = typename T::zero;
        };

        template<typename T, int n>
        struct stirling_1_helper<T, 0, n, std::enable_if_t<(n > 0)» {
            using type = typename T::zero;
        };

        template<typename T, int n, int k>
        struct stirling_1_helper<T, n, k, std::enable_if_t<(k > 0) && (n > 0)» {
            using type = typename T::template sub_t<
                            typename stirling_1_helper<T, n-1, k-1>::type,
                            typename T::template mul_t<
                                typename T::template inject_constant_t<n-1>,
                                typename stirling_1_helper<T, n-1, k>::type
                            »;
        };
    }  // namespace internal

    template<typename T, int n, int k>
    using stirling_1_signed_t = typename internal::stirling_1_helper<T, n, k>::type;

    template<typename T, int n, int k>
    using stirling_1_unsigned_t = abs_t<typename internal::stirling_1_helper<T, n, k>::type>;

    template<typename T, int n, int k>
    static constexpr typename T::inner_type stirling_1_unsigned_v = stirling_1_unsigned_t<T, n, k>::v;

    template<typename T, int n, int k>
    static constexpr typename T::inner_type stirling_1_signed_v = stirling_1_signed_t<T, n, k>::v;

    namespace internal {
        template<typename T, int n, int k, typename E = void>
        struct stirling_2_helper {};

        template<typename T, int n>
        struct stirling_2_helper<T, n, n, std::enable_if_t<(n >= 0)» {
            using type = typename T::one;
```

```
        };

        template<typename T, int n>
        struct stirling_2_helper<T, n, 0, std::enable_if_t<(n > 0)» {
            using type = typename T::zero;
        };

        template<typename T, int n>
        struct stirling_2_helper<T, 0, n, std::enable_if_t<(n > 0)» {
            using type = typename T::zero;
        };

        template<typename T, int n, int k>
        struct stirling_2_helper<T, n, k, std::enable_if_t<(k > 0) && (n > 0) && (k < n)» {
            using type = typename T::template add_t<
                            typename stirling_2_helper<T, n-1, k-1>::type,
                            typename T::template mul_t<
                                typename T::template inject_constant_t<k>,
                                typename stirling_2_helper<T, n-1, k>::type
                            »;
        };
    }  // namespace internal

    template<typename T, int n, int k>
    using stirling_2_t = typename internal::stirling_2_helper<T, n, k>::type;

    template<typename T, int n, int k>
    static constexpr typename T::inner_type stirling_2_v = stirling_2_t<T, n, k>::v;

    namespace internal {
        template<typename T>
        struct pow_scalar {
            template<size_t p>
            static constexpr DEVICE INLINED T func(const T& x) { return p == 0 ? static_cast<T>(1) :
                p % 2 == 0 ? func<p/2>(x) * func<p/2>(x) :
                x * func<p/2>(x) * func<p/2>(x);
            }
        };

        template<typename T, typename p, size_t n, typename E = void>
        requires IsEuclideanDomain<T>
        struct pow;

        template<typename T, typename p, size_t n>
        struct pow<T, p, n, std::enable_if_t<(n > 0 && n % 2 == 0)» {
            using type = typename T::template mul_t<
                typename pow<T, p, n/2>::type,
                typename pow<T, p, n/2>::type
            >;
        };

        template<typename T, typename p, size_t n>
        struct pow<T, p, n, std::enable_if_t<(n % 2 == 1)» {
            using type = typename T::template mul_t<
                p,
                typename T::template mul_t<
                    typename pow<T, p, n/2>::type,
                    typename pow<T, p, n/2>::type
                >
            >;
        };

        template<typename T, typename p, size_t n>
        struct pow<T, p, n, std::enable_if_t<n == 0» { using type = typename T::one; };
    }  // namespace internal

    template<typename T, typename p, size_t n>
    using pow_t = typename internal::pow<T, p, n>::type;

    template<typename T, typename p, size_t n>
    static constexpr typename T::inner_type pow_v = internal::pow<T, p, n>::type::v;

    template<typename T, size_t p>
    static constexpr DEVICE INLINED T pow_scalar(const T& x) { return
internal::pow_scalar<T>::template func<p>(x); }

    namespace internal {
        template<typename, template<typename, size_t> typename, class>
        struct make_taylor_impl;

        template<typename T, template<typename, size_t> typename coeff_at, size_t... Is>
        struct make_taylor_impl<T, coeff_at, std::integer_sequence<size_t, Is...» {
            using type = typename polynomial<FractionField<T»::template val<typename coeff_at<T,
Is>::type...>;
        };
    }

```

```
template<typename T, template<typename, size_t index> typename coeff_at, size_t deg>
using taylor = typename internal::make_taylor_impl<
    T,
    coeff_at,
    internal::make_index_sequence_reverse<deg + 1>>::type;

namespace internal {
    template<typename T, size_t i>
    struct exp_coeff {
        using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
    };

    template<typename T, size_t i, typename E = void>
    struct sin_coeff_helper {};

    template<typename T, size_t i>
    struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
    };

    template<typename T, size_t i>
    struct sin_coeff {
        using type = typename sin_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i, typename E = void>
    struct sh_coeff_helper {};

    template<typename T, size_t i>
    struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
    };

    template<typename T, size_t i>
    struct sh_coeff {
        using type = typename sh_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i, typename E = void>
    struct cos_coeff_helper {};

    template<typename T, size_t i>
    struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
    };

    template<typename T, size_t i>
    struct cos_coeff {
        using type = typename cos_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i, typename E = void>
    struct cosh_coeff_helper {};

    template<typename T, size_t i>
    struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
    };

    template<typename T, size_t i>
    struct cosh_coeff {
        using type = typename cosh_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i>
    struct geom_coeff { using type = typename FractionField<T>::one; };

```

```

    template<typename T, size_t i, typename E = void>
    struct atan_coeff_helper;

    template<typename T, size_t i>
    struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = makefraction_t<T, alternate_t<T, i / 2>, typename T::template val<i»;
    };

    template<typename T, size_t i>
    struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct atan_coeff { using type = typename atan_coeff_helper<T, i>::type; };

    template<typename T, size_t i, typename E = void>
    struct asin_coeff_helper;

    template<typename T, size_t i>
    struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = makefraction_t<T,
            factorial_t<T, i - 1>,
            typename T::template mul_t<
                typename T::template val<i>,
                T::template mul_t<
                    pow_t<T, typename T::template inject_constant_t<4>, i / 2>,
                    pow<T, factorial_t<T, i / 2>, 2
                >
            >
            »;
    };

    template<typename T, size_t i>
    struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct asin_coeff {
        using type = typename asin_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i>
    struct lnp1_coeff {
        using type = makefraction_t<T,
            alternate_t<T, i + 1>,
            typename T::template val<i»;
    };

    template<typename T>
    struct lnp1_coeff<T, 0> { using type = typename FractionField<T>::zero; };

    template<typename T, size_t i, typename E = void>
    struct asinh_coeff_helper;

    template<typename T, size_t i>
    struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
        using type = makefraction_t<T,
            typename T::template mul_t<
                alternate_t<T, i / 2>,
                factorial_t<T, i - 1>
            >,
            typename T::template mul_t<
                typename T::template mul_t<
                    typename T::template val<i>,
                    pow_t<T, factorial_t<T, i / 2>, 2>
                >,
                pow_t<T, typename T::template inject_constant_t<4>, i / 2>
            >
        >;
    };

    template<typename T, size_t i>
    struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
        using type = typename FractionField<T>::zero;
    };

    template<typename T, size_t i>
    struct asinh_coeff {
        using type = typename asinh_coeff_helper<T, i>::type;
    };

    template<typename T, size_t i, typename E = void>
    struct atanh_coeff_helper;

```

```
        template<typename T, size_t i>
        struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
            // 1/i
            using type = typename FractionField<T>:: template val<
                typename T::one,
                typename T::template inject_constant_t<i»;
        };

        template<typename T, size_t i>
        struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
            using type = typename FractionField<T>::zero;
        };

        template<typename T, size_t i>
        struct atanh_coeff {
            using type = typename atanh_coeff_helper<T, i>::type;
        };

        template<typename T, size_t i, typename E = void>
        struct tan_coeff_helper;

        template<typename T, size_t i>
        struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0» {
            using type = typename FractionField<T>::zero;
        };

        template<typename T, size_t i>
        struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0» {
        private:
            // 4^((i+1)/2)
            using _4p = typename FractionField<T>::template inject_t<
                pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2»;
            // 4^((i+1)/2) - 1
            using _4pm1 = typename FractionField<T>::template
sub_t<_4p, typename FractionField<T>::one>;
            // (-1)^((i-1)/2)
            using altp = typename FractionField<T>::template inject_t<alternate_t<T, (i - 1) / 2»;
            using dividend = typename FractionField<T>::template mul_t<
                altp,
                FractionField<T>::template mul_t<
                _4p,
                FractionField<T>::template mul_t<
                _4pm1,
                bernoulli_t<T, (i + 1)>
                >
                >
            >;
        public:
            using type = typename FractionField<T>::template div_t<dividend,
                typename FractionField<T>::template inject_t<factorial_t<T, i + 1»>;
        };

        template<typename T, size_t i>
        struct tan_coeff {
            using type = typename tan_coeff_helper<T, i>::type;
        };

        template<typename T, size_t i, typename E = void>
        struct tanh_coeff_helper;

        template<typename T, size_t i>
        struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0» {
            using type = typename FractionField<T>::zero;
        };

        template<typename T, size_t i>
        struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0» {
        private:
            using _4p = typename FractionField<T>::template inject_t<
                pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2»;
            using _4pm1 = typename FractionField<T>::template
sub_t<_4p, typename FractionField<T>::one>;
            using dividend =
                typename FractionField<T>::template mul_t<
                    _4p,
                    typename FractionField<T>::template mul_t<
                        _4pm1,
                        bernoulli_t<T, (i + 1)»>::type;
        public:
            using type = typename FractionField<T>::template div_t<dividend,
                FractionField<T>::template inject_t<factorial_t<T, i + 1»>;
        };

        template<typename T, size_t i>
        struct tanh_coeff {
            using type = typename tanh_coeff_helper<T, i>::type;
        };
```

```
    }  // namespace internal

    template<typename Integers, size_t deg>
    using exp = taylor<Integers, internal::exp_coeff, deg>;

    template<typename Integers, size_t deg>
    using expm1 = typename polynomial<FractionField<Integers>>::template sub_t<
        exp<Integers, deg>,
        typename polynomial<FractionField<Integers>>::one>;

    template<typename Integers, size_t deg>
    using lnp1 = taylor<Integers, internal::lnp1_coeff, deg>;

    template<typename Integers, size_t deg>
    using atan = taylor<Integers, internal::atan_coeff, deg>;

    template<typename Integers, size_t deg>
    using sin = taylor<Integers, internal::sin_coeff, deg>;

    template<typename Integers, size_t deg>
    using sinh = taylor<Integers, internal::sh_coeff, deg>;

    template<typename Integers, size_t deg>
    using cosh = taylor<Integers, internal::cosh_coeff, deg>;

    template<typename Integers, size_t deg>
    using cos = taylor<Integers, internal::cos_coeff, deg>;

    template<typename Integers, size_t deg>
    using geometric_sum = taylor<Integers, internal::geom_coeff, deg>;

    template<typename Integers, size_t deg>
    using asin = taylor<Integers, internal::asin_coeff, deg>;

    template<typename Integers, size_t deg>
    using asinh = taylor<Integers, internal::asinh_coeff, deg>;

    template<typename Integers, size_t deg>
    using atanh = taylor<Integers, internal::atanh_coeff, deg>;

    template<typename Integers, size_t deg>
    using tan = taylor<Integers, internal::tan_coeff, deg>;

    template<typename Integers, size_t deg>
    using tanh = taylor<Integers, internal::tanh_coeff, deg>;
}  // namespace aerobus

// continued fractions
namespace aerobus {
    template<int64_t... values>
    struct ContinuedFraction {};

    template<int64_t a0>
    struct ContinuedFraction<a0> {
        using type = typename q64::template inject_constant_t<a0>;
        static constexpr double val = static_cast<double>(a0);
    };

    template<int64_t a0, int64_t... rest>
    struct ContinuedFraction<a0, rest...> {
        using type = q64::template add_t<
                typename q64::template inject_constant_t<a0>,
                typename q64::template div_t<
                    typename q64::one,
                    typename ContinuedFraction<rest...>::type
                »;

        static constexpr double val = type::template get<double>();
    };

    using PI_fraction =
ContinuedFraction<3, 7, 15, 1, 292, 1, 1, 1, 2, 1, 3, 1, 14, 2, 1, 1, 2, 2, 2, 2, 1>;
    using E_fraction =
ContinuedFraction<2, 1, 2, 1, 1, 4, 1, 1, 6, 1, 1, 8, 1, 1, 10, 1, 1, 12, 1, 1, 14, 1, 1>;
    using SQRT2_fraction =
ContinuedFraction<1, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2, 2>;
    using SQRT3_fraction =
ContinuedFraction<1, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2, 1, 2>;
// NOLINT
}  // namespace aerobus

// known polynomials
namespace aerobus {
    // CChebyshev
    namespace internal {
        template<int kind, size_t deg, typename I>
        struct chebyshev_helper {
```

```
            using type = typename polynomial<I>::template sub_t<
                typename polynomial<I>::template mul_t<
                    typename polynomial<I>::template mul_t<
                        typename polynomial<I>::template inject_constant_t<2>,
                        typename polynomial<I>::X>,
                    typename chebyshev_helper<kind, deg - 1, I>::type
                >,
                typename chebyshev_helper<kind, deg - 2, I>::type
            >;
        };

        template<typename I>
        struct chebyshev_helper<1, 0, I> {
            using type = typename polynomial<I>::one;
        };

        template<typename I>
        struct chebyshev_helper<1, 1, I> {
            using type = typename polynomial<I>::X;
        };

        template<typename I>
        struct chebyshev_helper<2, 0, I> {
            using type = typename polynomial<I>::one;
        };

        template<typename I>
        struct chebyshev_helper<2, 1, I> {
            using type = typename polynomial<I>::template mul_t<
                typename polynomial<I>::template inject_constant_t<2>,
                typename polynomial<I>::X>;
        };
    }  // namespace internal

    // Laguerre
    namespace internal {
        template<size_t deg, typename I>
        struct laguerre_helper {
            using Q = FractionField<I>;
            using PQ = polynomial<Q>;

         private:
            // Lk = (1 / k) * ((2 * k - 1 - x) * lkm1 - (k - 2)Lkm2)
            using lnm2 = typename laguerre_helper<deg - 2, I>::type;
            using lnm1 = typename laguerre_helper<deg - 1, I>::type;
            // -x + 2k-1
            using p = typename PQ::template val<
                typename Q::template inject_constant_t<-1>,
                typename Q::template inject_constant_t<2 * deg - 1»;
            // 1/n
            using factor = typename PQ::template inject_ring_t<
                typename Q::template val<typename I::one, typename I::template inject_constant_t<deg»>;

         public:
            using type = typename PQ::template mul_t <
                factor,
                typename PQ::template sub_t<
                    typename PQ::template mul_t<
                        p,
                        lnm1
                    >,
                    typename PQ::template mul_t<
                        typename PQ::template inject_constant_t<deg-1>,
                        lnm2
                    >
                >
            >;
        };

        template<typename I>
        struct laguerre_helper<0, I> {
            using type = typename polynomial<FractionField<I»::one;
        };

        template<typename I>
        struct laguerre_helper<1, I> {
         private:
            using PQ = polynomial<FractionField<I»;
         public:
            using type = typename PQ::template sub_t<typename PQ::one, typename PQ::X>;
        };
    }  // namespace internal

    // Bernstein
    namespace internal {
        template<size_t i, size_t m, typename I, typename E = void>
```

```
        struct bernstein_helper {};

        template<typename I>
        struct bernstein_helper<0, 0, I> {
            using type = typename polynomial<I>::one;
        };

        template<size_t i, size_t m, typename I>
        struct bernstein_helper<i, m, I, std::enable_if_t<
                    (m > 0) && (i == 0)» {
         private:
            using P = polynomial<I>;
         public:
            using type = typename P::template mul_t<
                    typename P::template sub_t<typename P::one, typename P::X>,
                    typename bernstein_helper<i, m-1, I>::type>;
        };

        template<size_t i, size_t m, typename I>
        struct bernstein_helper<i, m, I, std::enable_if_t<
                    (m > 0) && (i == m)» {
         private:
            using P = polynomial<I>;
         public:
            using type = typename P::template mul_t<
                    typename P::X,
                    typename bernstein_helper<i-1, m-1, I>::type>;
        };

        template<size_t i, size_t m, typename I>
        struct bernstein_helper<i, m, I, std::enable_if_t<
                    (m > 0) && (i > 0) && (i < m)» {
         private:
            using P = polynomial<I>;
         public:
            using type = typename P::template add_t<
                    typename P::template mul_t<
                        typename P::template sub_t<typename P::one, typename P::X>,
                        typename bernstein_helper<i, m-1, I>::type>,
                    typename P::template mul_t<
                        typename P::X,
                        typename bernstein_helper<i-1, m-1, I>::type»;
        };
    }  // namespace internal

    // AllOne polynomials
    namespace internal {
        template<size_t deg, typename I>
        struct AllOneHelper {
            using type = aerobus::add_t<
                typename polynomial<I>::one,
                typename aerobus::mul_t<
                    typename polynomial<I>::X,
                    typename AllOneHelper<deg-1, I>::type
                »;
        };

        template<typename I>
        struct AllOneHelper<0, I> {
            using type = typename polynomial<I>::one;
        };
    }  // namespace internal

    // Bessel polynomials
    namespace internal {
        template<size_t deg, typename I>
        struct BesselHelper {
         private:
            using P = polynomial<I>;
            using factor = typename P::template monomial_t<
                typename I::template inject_constant_t<(2*deg - 1)>,
                1>;
         public:
            using type = typename P::template add_t<
                typename P::template mul_t<
                    factor,
                    typename BesselHelper<deg-1, I>::type
                >,
                typename BesselHelper<deg-2, I>::type
            >;
        };

        template<typename I>
        struct BesselHelper<0, I> {
            using type = typename polynomial<I>::one;
        };

```

```
        template<typename I>
        struct BesselHelper<1, I> {
         private:
            using P = polynomial<I>;
         public:
            using type = typename P::template add_t<
                typename P::one,
                typename P::X
            >;
        };
    }  // namespace internal

    namespace known_polynomials {
        enum hermite_kind {
            probabilist,
            physicist
        };
    }

    // hermite
    namespace internal {
        template<size_t deg, known_polynomials::hermite_kind kind, typename I>
        struct hermite_helper {};

        template<size_t deg, typename I>
        struct hermite_helper<deg, known_polynomials::hermite_kind::probabilist, I> {
         private:
            using hnm1 = typename hermite_helper<deg - 1, known_polynomials::hermite_kind::probabilist, I>::type;
            using hnm2 = typename hermite_helper<deg - 2, known_polynomials::hermite_kind::probabilist, I>::type;

         public:
            using type = typename polynomial<I>::template sub_t<
                typename polynomial<I>::template mul_t<typename polynomial<I>::X, hnm1>,
                typename polynomial<I>::template mul_t<
                    typename polynomial<I>::template inject_constant_t<deg - 1>,
                    hnm2
                >
            >;
        };

        template<size_t deg, typename I>
        struct hermite_helper<deg, known_polynomials::hermite_kind::physicist, I> {
         private:
            using hnm1 = typename hermite_helper<deg - 1, known_polynomials::hermite_kind::physicist, I>::type;
            using hnm2 = typename hermite_helper<deg - 2, known_polynomials::hermite_kind::physicist, I>::type;

         public:
            using type = typename polynomial<I>::template sub_t<
                // 2X Hn-1
                typename polynomial<I>::template mul_t<
                    typename pi64::val<typename I::template inject_constant_t<2>,
                    typename I::zero>, hnm1>,

                typename polynomial<I>::template mul_t<
                    typename polynomial<I>::template inject_constant_t<2*(deg - 1)>,
                    hnm2
                >
            >;
        };

        template<typename I>
        struct hermite_helper<0, known_polynomials::hermite_kind::probabilist, I> {
            using type = typename polynomial<I>::one;
        };

        template<typename I>
        struct hermite_helper<1, known_polynomials::hermite_kind::probabilist, I> {
            using type = typename polynomial<I>::X;
        };

        template<typename I>
        struct hermite_helper<0, known_polynomials::hermite_kind::physicist, I> {
            using type = typename pi64::one;
        };

        template<typename I>
        struct hermite_helper<1, known_polynomials::hermite_kind::physicist, I> {
            // 2X
            using type = typename polynomial<I>::template val<
                typename I::template inject_constant_t<2>,
                typename I::zero>;
        };
    }  // namespace internal
```

```
    // legendre
    namespace internal {
        template<size_t n, typename I>
        struct legendre_helper {
         private:
            using Q = FractionField<I>;
            using PQ = polynomial<Q>;
            // 1/n constant
            // (2n-1)/n X
            using fact_left = typename PQ::template monomial_t<
                makefraction_t<I,
                    typename I::template inject_constant_t<2*n-1>,
                    typename I::template inject_constant_t<n>
                >,
            1>;
            // (n-1) / n
            using fact_right = typename PQ::template val<
                makefraction_t<I,
                    typename I::template inject_constant_t<n-1>,
                    typename I::template inject_constant_t<n»>;

         public:
            using type = PQ::template sub_t<
                    typename PQ::template mul_t<
                        fact_left,
                        typename legendre_helper<n-1, I>::type
                    >,
                    typename PQ::template mul_t<
                        fact_right,
                        typename legendre_helper<n-2, I>::type
                    >
                >;
        };

        template<typename I>
        struct legendre_helper<0, I> {
            using type = typename polynomial<FractionField<I»::one;
        };

        template<typename I>
        struct legendre_helper<1, I> {
            using type = typename polynomial<FractionField<I»::X;
        };
    }  // namespace internal

    // bernoulli polynomials
    namespace internal {
        template<size_t n>
        struct bernoulli_coeff {
            template<typename T, size_t i>
            struct inner {
             private:
                using F = FractionField<T>;
             public:
                using type = typename F::template mul_t<
                    typename F::template inject_ring_t<combination_t<T, i, n»,
                    bernoulli_t<T, n-i>
                >;
            };
        };
    }  // namespace internal

    namespace internal {
        template<size_t n>
        struct touchard_coeff {
            template<typename T, size_t i>
            struct inner {
                using type = stirling_2_t<T, n, i>;
            };
        };
    }  // namespace internal

    namespace internal {
        template<typename I = aerobus::i64>
        struct AbelHelper {
         private:
            using P = aerobus::polynomial<I>;

         public:
            // to keep recursion working, we need to operate on a*n and not just a
            template<size_t deg, I::inner_type an>
            struct Inner {
                // abel(n, a) = (x-an) * abel(n-1, a)
                using type = typename aerobus::mul_t<
                    typename Inner<deg-1, an>::type,
                    typename aerobus::sub_t<typename P::X, typename P::template inject_constant_t<an>>
```

```
                >;
            };

            // abel(0, a) = 1
            template<I::inner_type an>
            struct Inner<0, an> {
                using type = P::one;
            };

            // abel(1, a) = X
            template<I::inner_type an>
            struct Inner<1, an> {
                using type = P::X;
            };
        };
    }  // namespace internal

    namespace known_polynomials {

        template<size_t n, auto a, typename I = aerobus::i64>
        using abel = typename internal::AbelHelper<I>::template Inner<n, a*n>::type;

        template <size_t deg, typename I = aerobus::i64>
        using chebyshev_T = typename internal::chebyshev_helper<1, deg, I>::type;

        template <size_t deg, typename I = aerobus::i64>
        using chebyshev_U = typename internal::chebyshev_helper<2, deg, I>::type;

        template <size_t deg, typename I = aerobus::i64>
        using laguerre = typename internal::laguerre_helper<deg, I>::type;

        template <size_t deg, typename I = aerobus::i64>
        using hermite_prob = typename internal::hermite_helper<deg, hermite_kind::probabilist, I>::type;

        template <size_t deg, typename I = aerobus::i64>
        using hermite_phys = typename internal::hermite_helper<deg, hermite_kind::physicist, I>::type;

        template<size_t i, size_t m, typename I = aerobus::i64>
        using bernstein = typename internal::bernstein_helper<i, m, I>::type;

        template<size_t deg, typename I = aerobus::i64>
        using legendre = typename internal::legendre_helper<deg, I>::type;

        template<size_t deg, typename I = aerobus::i64>
        using bernoulli = taylor<I, internal::bernoulli_coeff<deg>::template inner, deg>;

        template<size_t deg, typename I = aerobus::i64>
        using allone = typename internal::AllOneHelper<deg, I>::type;

        template<size_t deg, typename I = aerobus::i64>
        using bessel = typename internal::BesselHelper<deg, I>::type;

        template<size_t deg, typename I = aerobus::i64>
        using touchard = taylor<I, internal::touchard_coeff<deg>::template inner, deg>;
    }  // namespace known_polynomials
}  // namespace aerobus


#ifdef AEROBUS_CONWAY_IMPORTS

// conway polynomials
namespace aerobus {
    template<int p, int n>
    struct ConwayPolynomial {};

#ifndef DO_NOT_DOCUMENT
    #define ZPZV ZPZ::template val
    #define POLYV aerobus::polynomial<ZPZ>::template val
    template<> struct ConwayPolynomial<2, 1> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 2> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<1>, ZPZV<1»; }; // NOLINT
    template<> struct ConwayPolynomial<2, 3> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 4> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 5> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 6> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 7> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 8> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 9> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1»; };  //
```

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NOLINT
    template<> struct ConwayPolynomial<2, 10> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 11> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 12> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 13> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 14> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 15> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 16> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 17> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 18> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 19> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<2, 20> { using ZPZ = aerobus::zpz<2>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 1> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 2> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<2>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 3> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 4> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 5> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 6> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<2>, ZPZV<2>, ZPZV<0>, ZPZV<1>, ZPZV<2>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 7> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 8> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 9> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 10> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 11> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 12> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 13> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 14> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<1>, ZPZV<2>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 15> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 16> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 17> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 18> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 19> { using ZPZ = aerobus::zpz<3>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1»; };  // NOLINT
    template<> struct ConwayPolynomial<3, 20> { using ZPZ = aerobus::zpz<3>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2>, ZPZV<0>, ZPZV<1>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 1> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 2> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<4>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 3> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 4> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 5> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 6> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<4>, ZPZV<1>, ZPZV<0>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 7> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 8> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<4>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 9> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 10> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<3>, ZPZV<2>, ZPZV<4>, ZPZV<1>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 11> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 12> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<3>, ZPZV<2>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 13> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<3>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 14> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<2>, ZPZV<3>, ZPZV<0>, ZPZV<1>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 15> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<3>, ZPZV<3>, ZPZV<4>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 16> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4>, ZPZV<4>, ZPZV<4>, ZPZV<2>, ZPZV<4>, ZPZV<4>, ZPZV<1>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 17> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<2>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 18> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<0>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 19> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<5, 20> { using ZPZ = aerobus::zpz<5>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<0>, ZPZV<4>, ZPZV<3>, ZPZV<2>, ZPZV<0>, ZPZV<3>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<0>, ZPZV<1>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 1> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 2> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<6>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 3> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<6>, ZPZV<0>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 4> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<4>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 5> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 6> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<5>, ZPZV<4>, ZPZV<6>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 7> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 8> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<6>, ZPZV<2>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 9> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 10> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<4>, ZPZV<1>, ZPZV<2>, ZPZV<3>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 11> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 12> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<5>, ZPZV<3>, ZPZV<2>, ZPZV<4>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<7, 13> { using ZPZ = aerobus::zpz<7>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<6>, ZPZV<0>, ZPZV<4»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 14> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<6>,
ZPZV<2>, ZPZV<0>, ZPZV<3>, ZPZV<6>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 15> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>,
ZPZV<6>, ZPZV<6>, ZPZV<4>, ZPZV<1>, ZPZV<2>, ZPZV<4»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 16> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<5>,
ZPZV<3>, ZPZV<4>, ZPZV<1>, ZPZV<6>, ZPZV<2>, ZPZV<4>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 17> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 18> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<2>, ZPZV<6>, ZPZV<1>,
ZPZV<6>, ZPZV<5>, ZPZV<1>, ZPZV<3>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<2>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<7, 19> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<4»; };  //
NOLINT
    template<> struct ConwayPolynomial<7, 20> { using ZPZ = aerobus::zpz<7>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<6>,
ZPZV<2>, ZPZV<5>, ZPZV<2>, ZPZV<3>, ZPZV<1>, ZPZV<3>, ZPZV<0>, ZPZV<3>, ZPZV<0>, ZPZV<1>, ZPZV<3»; };
// NOLINT
    template<> struct ConwayPolynomial<11, 1> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 2> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<7>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 3> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 4> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<10>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 5> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<0>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 6> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<4>, ZPZV<6>, ZPZV<7>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 7> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 8> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<7>, ZPZV<1>, ZPZV<7>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 9> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<8>, ZPZV<9»; };  //
NOLINT
    template<> struct ConwayPolynomial<11, 10> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<8>, ZPZV<10>, ZPZV<6>, ZPZV<6>,
ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 11> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<10>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 12> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<4>, ZPZV<2>, ZPZV<5>, ZPZV<5>,
ZPZV<6>, ZPZV<5>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 13> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 14> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<9>, ZPZV<6>,
ZPZV<4>, ZPZV<8>, ZPZV<6>, ZPZV<10>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 15> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>,
ZPZV<7>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<0>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 16> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<10>,
ZPZV<1>, ZPZV<3>, ZPZV<5>, ZPZV<3>, ZPZV<10>, ZPZV<9>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 17> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<9»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 18> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<8>, ZPZV<10>, ZPZV<8>,
ZPZV<3>, ZPZV<9>, ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<9>, ZPZV<8>, ZPZV<2>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<11, 19> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<2>, ZPZV<9»; };  //
NOLINT
    template<> struct ConwayPolynomial<11, 20> { using ZPZ = aerobus::zpz<11>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<10>,
ZPZV<9>, ZPZV<1>, ZPZV<5>, ZPZV<7>, ZPZV<2>, ZPZV<4>, ZPZV<5>, ZPZV<5>, ZPZV<6>, ZPZV<5>, ZPZV<2»; };
// NOLINT
    template<> struct ConwayPolynomial<13, 1> { using ZPZ = aerobus::zpz<13>; using type =
POLYV<ZPZV<1>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 2> { using ZPZ = aerobus::zpz<13>; using type =
POLYV<ZPZV<1>, ZPZV<12>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 3> { using ZPZ = aerobus::zpz<13>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 4> { using ZPZ = aerobus::zpz<13>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<12>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 5> { using ZPZ = aerobus::zpz<13>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 6> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<11>, ZPZV<11>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 7> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 8> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<12>, ZPZV<2>, ZPZV<3>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 9> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<8>, ZPZV<12>, ZPZV<12>, ZPZV<11»; }; // NOLINT
    template<> struct ConwayPolynomial<13, 10> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<5>, ZPZV<8>, ZPZV<1>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 11> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 12> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<5>, ZPZV<8>, ZPZV<11>, ZPZV<3>, ZPZV<1>, ZPZV<1>, ZPZV<4>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 13> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 14> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<0>, ZPZV<6>, ZPZV<11>, ZPZV<7>, ZPZV<10>, ZPZV<10>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 15> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<12>, ZPZV<2>, ZPZV<11>, ZPZV<10>, ZPZV<11>, ZPZV<8>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 16> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<12>, ZPZV<8>, ZPZV<2>, ZPZV<12>, ZPZV<9>, ZPZV<12>, ZPZV<6>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 17> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<6>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 18> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<4>, ZPZV<11>, ZPZV<11>, ZPZV<9>, ZPZV<5>, ZPZV<3>, ZPZV<5>, ZPZV<6>, ZPZV<0>, ZPZV<9>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 19> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<13, 20> { using ZPZ = aerobus::zpz<13>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<12>, ZPZV<9>, ZPZV<0>, ZPZV<7>, ZPZV<8>, ZPZV<7>, ZPZV<4>, ZPZV<0>, ZPZV<4>, ZPZV<8>, ZPZV<11>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<17, 1> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 2> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<16>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 3> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 4> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<10>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 5> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 6> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<10>, ZPZV<3>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 7> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 8> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<12>, ZPZV<0>, ZPZV<6>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 9> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<8>, ZPZV<14»; }; // NOLINT
    template<> struct ConwayPolynomial<17, 10> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<6>, ZPZV<5>, ZPZV<9>, ZPZV<12>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 11> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 12> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4>, ZPZV<14>, ZPZV<14>, ZPZV<13>, ZPZV<6>, ZPZV<14>, ZPZV<9>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 13> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 14> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<11>, ZPZV<1>, ZPZV<8>, ZPZV<16>, ZPZV<13>, ZPZV<9>, ZPZV<3>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 15> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<16>, ZPZV<6>, ZPZV<14>, ZPZV<14>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 16> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<13>, ZPZV<5>, ZPZV<2>, ZPZV<12>, ZPZV<13>, ZPZV<12>, ZPZV<1>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 17> { using ZPZ = aerobus::zpz<17>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<14»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 18> { using ZPZ = aerobus::zpz<17>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<16>,
ZPZV<7>, ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<11>, ZPZV<13>, ZPZV<13>, ZPZV<9>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<17, 19> { using ZPZ = aerobus::zpz<17>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<14»; };  //
NOLINT
    template<> struct ConwayPolynomial<17, 20> { using ZPZ = aerobus::zpz<17>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<5>,
ZPZV<16>, ZPZV<14>, ZPZV<13>, ZPZV<3>, ZPZV<14>, ZPZV<9>, ZPZV<1>, ZPZV<13>, ZPZV<2>, ZPZV<5>,
ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 1> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 2> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<18>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 3> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 4> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 5> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 6> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<17>, ZPZV<6>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 7> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 8> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<12>, ZPZV<10>, ZPZV<3>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 9> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<14>, ZPZV<16>, ZPZV<17»; };
// NOLINT
    template<> struct ConwayPolynomial<19, 10> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<13>, ZPZV<17>, ZPZV<3>, ZPZV<4>,
ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 11> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<8>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 12> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<2>, ZPZV<18>, ZPZV<2>, ZPZV<9>,
ZPZV<16>, ZPZV<7>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 13> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 14> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<11>, ZPZV<11>,
ZPZV<1>, ZPZV<5>, ZPZV<16>, ZPZV<7>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 15> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<10>,
ZPZV<11>, ZPZV<13>, ZPZV<15>, ZPZV<14>, ZPZV<0>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 16> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>,
ZPZV<13>, ZPZV<0>, ZPZV<15>, ZPZV<9>, ZPZV<6>, ZPZV<14>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 17> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 18> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<9>, ZPZV<7>,
ZPZV<17>, ZPZV<5>, ZPZV<0>, ZPZV<16>, ZPZV<5>, ZPZV<7>, ZPZV<3>, ZPZV<14>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<19, 19> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<17»; };  //
NOLINT
    template<> struct ConwayPolynomial<19, 20> { using ZPZ = aerobus::zpz<19>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>,
ZPZV<13>, ZPZV<0>, ZPZV<4>, ZPZV<7>, ZPZV<8>, ZPZV<6>, ZPZV<0>, ZPZV<3>, ZPZV<6>, ZPZV<11>, ZPZV<2»;
};  // NOLINT
    template<> struct ConwayPolynomial<23, 1> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 2> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<21>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 3> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 4> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<19>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 5> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 6> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<9>, ZPZV<9>, ZPZV<1>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 7> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 8> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<20>, ZPZV<5>, ZPZV<3>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 9> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<8>, ZPZV<9>, ZPZV<18»; };
// NOLINT
    template<> struct ConwayPolynomial<23, 10> { using ZPZ = aerobus::zpz<23>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<5>, ZPZV<15>, ZPZV<6>, ZPZV<1>,
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ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 11> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<7>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 12> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<21>, ZPZV<15>, ZPZV<14>, ZPZV<12>, ZPZV<18>, ZPZV<12>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 13> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 14> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<5>, ZPZV<16>, ZPZV<1>, ZPZV<18>, ZPZV<19>, ZPZV<1>, ZPZV<22>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 15> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<8>, ZPZV<15>, ZPZV<9>, ZPZV<7>, ZPZV<18>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 16> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<19>, ZPZV<16>, ZPZV<13>, ZPZV<1>, ZPZV<14>, ZPZV<17>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 17> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 18> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<18>, ZPZV<2>, ZPZV<1>, ZPZV<18>, ZPZV<3>, ZPZV<16>, ZPZV<21>, ZPZV<0>, ZPZV<11>, ZPZV<3>, ZPZV<19>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<23, 19> { using ZPZ = aerobus::zpz<23>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<18»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 1> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 2> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<24>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 3> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 4> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<15>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 5> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 6> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<25>, ZPZV<17>, ZPZV<13>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 7> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 8> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<24>, ZPZV<26>, ZPZV<23>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 9> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<22>, ZPZV<22>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 10> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<25>, ZPZV<8>, ZPZV<17>, ZPZV<2>, ZPZV<22>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 11> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<8>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 12> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<19>, ZPZV<28>, ZPZV<9>, ZPZV<16>, ZPZV<25>, ZPZV<1>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 13> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 14> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<3>, ZPZV<14>, ZPZV<10>, ZPZV<21>, ZPZV<18>, ZPZV<27>, ZPZV<5>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 15> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<14>, ZPZV<8>, ZPZV<1>, ZPZV<12>, ZPZV<26>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 16> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<27>, ZPZV<2>, ZPZV<18>, ZPZV<23>, ZPZV<1>, ZPZV<27>, ZPZV<10>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 17> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 18> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<1>, ZPZV<1>, ZPZV<6>, ZPZV<26>, ZPZV<2>, ZPZV<10>, ZPZV<8>, ZPZV<16>, ZPZV<19>, ZPZV<14>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<29, 19> { using ZPZ = aerobus::zpz<29>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<27»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 1> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 2> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<29>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 3> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 4> { using ZPZ = aerobus::zpz<31>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<16>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 5> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 6> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<16>, ZPZV<8>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 7> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 8> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<12>, ZPZV<24>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 9> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<20>, ZPZV<29>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 10> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<26>, ZPZV<13>, ZPZV<13>, ZPZV<13>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 11> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 12> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<14>, ZPZV<28>, ZPZV<2>, ZPZV<9>, ZPZV<25>, ZPZV<12>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 13> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 14> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<5>, ZPZV<1>, ZPZV<1>, ZPZV<18>, ZPZV<18>, ZPZV<6>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 15> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<29>, ZPZV<12>, ZPZV<13>, ZPZV<23>, ZPZV<25>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 16> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<24>, ZPZV<26>, ZPZV<28>, ZPZV<11>, ZPZV<19>, ZPZV<27>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 17> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 18> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<27>, ZPZV<5>, ZPZV<24>, ZPZV<2>, ZPZV<7>, ZPZV<12>, ZPZV<11>, ZPZV<25>, ZPZV<25>, ZPZV<10>, ZPZV<6>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<31, 19> { using ZPZ = aerobus::zpz<31>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<28»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 1> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 2> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<33>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 3> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 4> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<24>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 5> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 6> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<4>, ZPZV<30>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 7> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 8> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<20>, ZPZV<27>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 9> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<20>, ZPZV<32>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 10> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<29>, ZPZV<18>, ZPZV<11>, ZPZV<4>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 11> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 12> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<31>, ZPZV<10>, ZPZV<23>, ZPZV<23>, ZPZV<18>, ZPZV<33>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 13> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 14> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<35>, ZPZV<35>, ZPZV<1>, ZPZV<32>, ZPZV<16>, ZPZV<1>, ZPZV<9>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 15> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<31>, ZPZV<28>, ZPZV<27>, ZPZV<13>, ZPZV<34>, ZPZV<33>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 17> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<35»; };  // NOLINT
    template<> struct ConwayPolynomial<37, 18> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<8>, ZPZV<19>, ZPZV<15>, ZPZV<1>, ZPZV<22>, ZPZV<20>, ZPZV<12>, ZPZV<32>, ZPZV<14>, ZPZV<27>, ZPZV<20>, ZPZV<2»; };  // NOLINT
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template<> struct ConwayPolynomial<37, 19> { using ZPZ = aerobus::zpz<37>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<23>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 1> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 2> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<38>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 3> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 4> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<23>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 5> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<40>, ZPZV<14>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 6> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<33>, ZPZV<39>, ZPZV<6>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 7> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 8> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<32>, ZPZV<20>, ZPZV<6>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 9> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<31>, ZPZV<5>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 10> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<31>, ZPZV<8>, ZPZV<20>, ZPZV<30>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 11> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 12> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<26>, ZPZV<13>, ZPZV<34>, ZPZV<24>, ZPZV<21>, ZPZV<27>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 13> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 14> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<15>, ZPZV<4>, ZPZV<27>, ZPZV<11>, ZPZV<39>, ZPZV<10>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 15> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<29>, ZPZV<16>, ZPZV<2>, ZPZV<35>, ZPZV<10>, ZPZV<21>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 17> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<41, 18> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<7>, ZPZV<20>, ZPZV<23>, ZPZV<35>, ZPZV<38>, ZPZV<24>, ZPZV<12>, ZPZV<29>, ZPZV<10>, ZPZV<6>, ZPZV<6»; };  // NOLINT
template<> struct ConwayPolynomial<41, 19> { using ZPZ = aerobus::zpz<41>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<35»; };  // NOLINT
template<> struct ConwayPolynomial<43, 1> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 2> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<42>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 3> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 4> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<42>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 5> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 6> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<28>, ZPZV<21>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 7> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<42>, ZPZV<7>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 8> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<39>, ZPZV<20>, ZPZV<24>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 9> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<39>, ZPZV<1>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 10> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<26>, ZPZV<36>, ZPZV<5>, ZPZV<27>, ZPZV<24>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 11> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 12> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<34>, ZPZV<27>, ZPZV<16>, ZPZV<17>, ZPZV<6>, ZPZV<23>, ZPZV<38>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 13> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<40»; };  // NOLINT
template<> struct ConwayPolynomial<43, 14> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<38>, ZPZV<22>, ZPZV<24>, ZPZV<37>, ZPZV<18>, ZPZV<4>, ZPZV<19>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<43, 15> { using ZPZ = aerobus::zpz<43>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<37>, ZPZV<22>, ZPZV<42>, ZPZV<4>, ZPZV<15>, ZPZV<37>, ZPZV<40»; };  // NOLINT
    template<> struct ConwayPolynomial<43, 17> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<40»; };  // NOLINT
    template<> struct ConwayPolynomial<43, 18> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<3>, ZPZV<28>, ZPZV<41>, ZPZV<24>, ZPZV<7>, ZPZV<24>, ZPZV<29>, ZPZV<16>, ZPZV<34>, ZPZV<37>, ZPZV<18>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<43, 19> { using ZPZ = aerobus::zpz<43>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<40»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 1> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 2> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<45>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 3> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 4> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<40>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 5> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 6> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<35>, ZPZV<9>, ZPZV<41>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 7> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 8> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<29>, ZPZV<19>, ZPZV<3>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 9> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<19>, ZPZV<1>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 10> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<42>, ZPZV<14>, ZPZV<18>, ZPZV<45>, ZPZV<45>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 11> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 12> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<46>, ZPZV<40>, ZPZV<35>, ZPZV<12>, ZPZV<46>, ZPZV<14>, ZPZV<9>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 13> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 14> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<20>, ZPZV<30>, ZPZV<17>, ZPZV<24>, ZPZV<9>, ZPZV<32>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 15> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<43>, ZPZV<31>, ZPZV<14>, ZPZV<42>, ZPZV<13>, ZPZV<17>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 17> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 18> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<41>, ZPZV<42>, ZPZV<26>, ZPZV<44>, ZPZV<24>, ZPZV<22>, ZPZV<11>, ZPZV<5>, ZPZV<45>, ZPZV<33>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<47, 19> { using ZPZ = aerobus::zpz<47>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<42»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 1> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 2> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<49>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 3> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 4> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<38>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 5> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 6> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<7>, ZPZV<4>, ZPZV<45>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 7> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 8> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<29>, ZPZV<18>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 9> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<5>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 10> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<27>, ZPZV<15>, ZPZV<29>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 11> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 12> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<34>, ZPZV<4>, ZPZV<13>, ZPZV<10>, ZPZV<42>, ZPZV<34>, ZPZV<41>, ZPZV<2»; };  // NOLINT
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    template<> struct ConwayPolynomial<53, 13> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<52>, ZPZV<28>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 14> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<45>, ZPZV<23>, ZPZV<52>, ZPZV<0>, ZPZV<37>, ZPZV<12>, ZPZV<23>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 15> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<31>, ZPZV<15>, ZPZV<11>, ZPZV<20>, ZPZV<4>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 17> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 18> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<52>, ZPZV<31>, ZPZV<51>, ZPZV<27>, ZPZV<0>, ZPZV<39>, ZPZV<44>, ZPZV<6>, ZPZV<8>, ZPZV<16>, ZPZV<11>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<53, 19> { using ZPZ = aerobus::zpz<53>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<51»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 1> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 2> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<58>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 3> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 4> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<40>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 5> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 6> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<18>, ZPZV<38>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 7> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 8> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<32>, ZPZV<2>, ZPZV<50>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 9> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<32>, ZPZV<47>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 10> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<28>, ZPZV<25>, ZPZV<4>, ZPZV<39>, ZPZV<15>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 11> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 12> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<25>, ZPZV<51>, ZPZV<21>, ZPZV<38>, ZPZV<8>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 13> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 14> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<33>, ZPZV<51>, ZPZV<11>, ZPZV<13>, ZPZV<25>, ZPZV<32>, ZPZV<26>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 15> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<57>, ZPZV<24>, ZPZV<23>, ZPZV<13>, ZPZV<39>, ZPZV<58>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 17> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 18> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<37>, ZPZV<38>, ZPZV<27>, ZPZV<11>, ZPZV<14>, ZPZV<7>, ZPZV<44>, ZPZV<16>, ZPZV<47>, ZPZV<34>, ZPZV<32>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<59, 19> { using ZPZ = aerobus::zpz<59>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<57»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 1> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 2> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<60>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 3> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 4> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<40>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 5> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 6> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<49>, ZPZV<3>, ZPZV<29>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 7> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 8> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<57>, ZPZV<1>, ZPZV<56>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 9> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<50>, ZPZV<18>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 10> { using ZPZ = aerobus::zpz<61>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<15>, ZPZV<44>, ZPZV<16>, ZPZV<6>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 11> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 12> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<42>, ZPZV<33>, ZPZV<8>, ZPZV<38>, ZPZV<14>, ZPZV<1>, ZPZV<15>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 13> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 14> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<48>, ZPZV<26>, ZPZV<11>, ZPZV<8>, ZPZV<30>, ZPZV<54>, ZPZV<48>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 15> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<35>, ZPZV<44>, ZPZV<25>, ZPZV<23>, ZPZV<51>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 17> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 18> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<35>, ZPZV<36>, ZPZV<13>, ZPZV<36>, ZPZV<4>, ZPZV<32>, ZPZV<57>, ZPZV<42>, ZPZV<25>, ZPZV<25>, ZPZV<52>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<61, 19> { using ZPZ = aerobus::zpz<61>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<59»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 1> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 2> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<63>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 3> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 4> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<54>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 5> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 6> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<63>, ZPZV<49>, ZPZV<55>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 7> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 8> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<46>, ZPZV<17>, ZPZV<64>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 9> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<49>, ZPZV<55>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 10> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<21>, ZPZV<0>, ZPZV<16>, ZPZV<7>, ZPZV<23>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 11> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<66>, ZPZV<9>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 12> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<57>, ZPZV<27>, ZPZV<4>, ZPZV<55>, ZPZV<64>, ZPZV<21>, ZPZV<27>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 13> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 14> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<22>, ZPZV<5>, ZPZV<56>, ZPZV<0>, ZPZV<1>, ZPZV<37>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 15> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<52>, ZPZV<41>, ZPZV<20>, ZPZV<21>, ZPZV<46>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 17> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 18> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<63>, ZPZV<52>, ZPZV<18>, ZPZV<33>, ZPZV<55>, ZPZV<28>, ZPZV<29>, ZPZV<51>, ZPZV<6>, ZPZV<59>, ZPZV<13>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<67, 19> { using ZPZ = aerobus::zpz<67>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<65»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 1> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<64»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 2> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<69>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 3> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<64»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 4> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<41>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 5> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<64»; };  // NOLINT
    template<> struct ConwayPolynomial<71, 6> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<10>, ZPZV<13>, ZPZV<29>, ZPZV<7»; };  // NOLINT
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template<> struct ConwayPolynomial<71, 7> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 8> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<53>, ZPZV<22>, ZPZV<19>, ZPZV<7»; };  // NOLINT
template<> struct ConwayPolynomial<71, 9> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<43>, ZPZV<62>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 10> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<53>, ZPZV<17>, ZPZV<26>, ZPZV<1>, ZPZV<40>, ZPZV<7»; };  // NOLINT
template<> struct ConwayPolynomial<71, 11> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<48>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 12> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<28>, ZPZV<29>, ZPZV<55>, ZPZV<21>, ZPZV<58>, ZPZV<23>, ZPZV<7»; };  // NOLINT
template<> struct ConwayPolynomial<71, 13> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<27>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 15> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<32>, ZPZV<18>, ZPZV<52>, ZPZV<67>, ZPZV<49>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 17> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<71, 19> { using ZPZ = aerobus::zpz<71>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<64»; };  // NOLINT
template<> struct ConwayPolynomial<73, 1> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 2> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<70>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 3> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 4> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<56>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 5> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 6> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<45>, ZPZV<23>, ZPZV<48>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 7> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 8> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<53>, ZPZV<39>, ZPZV<18>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 9> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<72>, ZPZV<15>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 10> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<15>, ZPZV<23>, ZPZV<33>, ZPZV<32>, ZPZV<69>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 11> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 12> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<69>, ZPZV<52>, ZPZV<26>, ZPZV<20>, ZPZV<46>, ZPZV<29>, ZPZV<25>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<73, 13> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 15> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<33>, ZPZV<57>, ZPZV<57>, ZPZV<62>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 17> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<73, 19> { using ZPZ = aerobus::zpz<73>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<68»; };  // NOLINT
template<> struct ConwayPolynomial<79, 1> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<76»; };  // NOLINT
template<> struct ConwayPolynomial<79, 2> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<78>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<79, 3> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<76»; };  // NOLINT
template<> struct ConwayPolynomial<79, 4> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<66>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<79, 5> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<76»; };  // NOLINT
template<> struct ConwayPolynomial<79, 6> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<28>, ZPZV<68>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<79, 7> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<76»; };  // NOLINT
template<> struct ConwayPolynomial<79, 8> { using ZPZ = aerobus::zpz<79>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<60>, ZPZV<59>, ZPZV<48>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 9> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<57>, ZPZV<19>, ZPZV<76»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 10> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<44>, ZPZV<51>, ZPZV<1>, ZPZV<30>, ZPZV<42>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 11> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<76»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 12> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<29>, ZPZV<45>, ZPZV<52>, ZPZV<7>, ZPZV<40>, ZPZV<59>, ZPZV<62>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 13> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<78>, ZPZV<4>, ZPZV<76»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 17> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<76»; }; // NOLINT
    template<> struct ConwayPolynomial<79, 19> { using ZPZ = aerobus::zpz<79>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<76»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 1> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 2> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<82>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 3> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 4> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<42>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 5> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 6> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<76>, ZPZV<32>, ZPZV<17>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 7> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 8> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<65>, ZPZV<23>, ZPZV<42>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 9> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<24>, ZPZV<18>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 10> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<0>, ZPZV<73>, ZPZV<0>, ZPZV<53>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 11> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 12> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<12>, ZPZV<31>, ZPZV<19>, ZPZV<65>, ZPZV<55>, ZPZV<75>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 13> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 17> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<83, 19> { using ZPZ = aerobus::zpz<83>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<47>, ZPZV<81»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 1> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<86»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 2> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<82>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 3> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<86»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 4> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<72>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 5> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<86»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 6> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<82>, ZPZV<80>, ZPZV<15>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 7> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<86»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 8> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<65>, ZPZV<40>, ZPZV<79>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 9> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<12>, ZPZV<6>, ZPZV<86»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 10> { using ZPZ = aerobus::zpz<89>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<16>, ZPZV<33>, ZPZV<82>, ZPZV<52>, ZPZV<4>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<89, 11> { using ZPZ = aerobus::zpz<89>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<88>,
ZPZV<26>, ZPZV<86»; };  // NOLINT
    template<> struct ConwayPolynomial<89, 12> { using ZPZ = aerobus::zpz<89>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<85>, ZPZV<15>, ZPZV<44>, ZPZV<51>, ZPZV<8>,
ZPZV<70>, ZPZV<52>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<89, 13> { using ZPZ = aerobus::zpz<89>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<86»; };  // NOLINT
    template<> struct ConwayPolynomial<89, 17> { using ZPZ = aerobus::zpz<89>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<86»; };  // NOLINT
    template<> struct ConwayPolynomial<89, 19> { using ZPZ = aerobus::zpz<89>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<34>, ZPZV<86»; };  //
NOLINT
    template<> struct ConwayPolynomial<97, 1> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 2> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<96>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 3> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 4> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<80>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 5> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 6> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<92>, ZPZV<58>, ZPZV<88>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 7> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 8> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<65>, ZPZV<1>, ZPZV<32>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 9> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59>, ZPZV<7>, ZPZV<92»; };
// NOLINT
    template<> struct ConwayPolynomial<97, 10> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<66>, ZPZV<34>, ZPZV<34>, ZPZV<20>,
ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 11> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<5>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 12> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<59>, ZPZV<81>, ZPZV<0>, ZPZV<86>,
ZPZV<78>, ZPZV<94>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 13> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 17> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<92»; };  // NOLINT
    template<> struct ConwayPolynomial<97, 19> { using ZPZ = aerobus::zpz<97>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<92»; };  //
NOLINT
    template<> struct ConwayPolynomial<101, 1> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 2> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<97>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 3> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 4> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<78>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 5> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 6> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<90>, ZPZV<20>, ZPZV<67>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 7> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 8> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<76>, ZPZV<29>, ZPZV<24>, ZPZV<2»; };  //
NOLINT
    template<> struct ConwayPolynomial<101, 9> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<64>, ZPZV<47>, ZPZV<99»; };
// NOLINT
    template<> struct ConwayPolynomial<101, 10> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<67>, ZPZV<49>, ZPZV<100>, ZPZV<100>, ZPZV<52>,
ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 11> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<31>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 12> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<79>, ZPZV<64>, ZPZV<39>, ZPZV<78>, ZPZV<48>,
ZPZV<84>, ZPZV<21>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 13> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 17> { using ZPZ = aerobus::zpz<101>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<31>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<101, 19> { using ZPZ = aerobus::zpz<101>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<99»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 1> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 2> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<102>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 3> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 4> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<88>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 5> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 6> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<96>, ZPZV<9>, ZPZV<30>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 7> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 8> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<70>, ZPZV<71>, ZPZV<49>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 9> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<97>, ZPZV<51>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 10> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<101>, ZPZV<86>, ZPZV<101>, ZPZV<94>, ZPZV<11>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 11> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 12> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<74>, ZPZV<23>, ZPZV<94>, ZPZV<20>, ZPZV<81>, ZPZV<29>, ZPZV<88>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 13> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 17> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<102>, ZPZV<8>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<103, 19> { using ZPZ = aerobus::zpz<103>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<98»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 1> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 2> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<103>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 3> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 4> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<79>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 5> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 6> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<52>, ZPZV<22>, ZPZV<79>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 7> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 8> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<105>, ZPZV<24>, ZPZV<95>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 9> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<3>, ZPZV<66>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 10> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<94>, ZPZV<61>, ZPZV<83>, ZPZV<83>, ZPZV<95>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 11> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 12> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<37>, ZPZV<48>, ZPZV<6>, ZPZV<0>, ZPZV<61>, ZPZV<42>, ZPZV<57>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 13> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 17> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<107, 19> { using ZPZ = aerobus::zpz<107>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<105»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 1> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 2> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<108>, ZPZV<6»; };  // NOLINT
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    template<> struct ConwayPolynomial<109, 3> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 4> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<98>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 5> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 6> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<107>, ZPZV<102>, ZPZV<66>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 7> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 8> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<102>, ZPZV<34>, ZPZV<86>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 9> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<93>, ZPZV<87>, ZPZV<103»; }; // NOLINT
    template<> struct ConwayPolynomial<109, 10> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<71>, ZPZV<55>, ZPZV<16>, ZPZV<75>, ZPZV<69>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 11> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 12> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<50>, ZPZV<53>, ZPZV<37>, ZPZV<8>, ZPZV<65>, ZPZV<103>, ZPZV<28>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 13> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 17> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<109, 19> { using ZPZ = aerobus::zpz<109>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<103»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 1> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 2> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<101>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 3> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 4> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<62>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 5> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 6> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<59>, ZPZV<30>, ZPZV<71>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 7> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 8> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<98>, ZPZV<38>, ZPZV<28>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 9> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<87>, ZPZV<71>, ZPZV<110»; }; // NOLINT
    template<> struct ConwayPolynomial<113, 10> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<108>, ZPZV<57>, ZPZV<45>, ZPZV<83>, ZPZV<56>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 11> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 12> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<23>, ZPZV<62>, ZPZV<4>, ZPZV<98>, ZPZV<56>, ZPZV<10>, ZPZV<27>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 13> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 17> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<113, 19> { using ZPZ = aerobus::zpz<113>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<110»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 1> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 2> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<126>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 3> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 4> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<97>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 5> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 6> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<84>, ZPZV<115>, ZPZV<82>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 7> { using ZPZ = aerobus::zpz<127>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 8> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<104>, ZPZV<55>, ZPZV<8>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 9> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<119>, ZPZV<126>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 10> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<107>, ZPZV<64>, ZPZV<95>, ZPZV<60>, ZPZV<4>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 11> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 12> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<119>, ZPZV<25>, ZPZV<33>, ZPZV<97>, ZPZV<15>, ZPZV<99>, ZPZV<8>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 13> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 17> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<127, 19> { using ZPZ = aerobus::zpz<127>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<124»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 1> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 2> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<127>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 3> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 4> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<109>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 5> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 6> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<66>, ZPZV<4>, ZPZV<22>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 7> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 8> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<72>, ZPZV<116>, ZPZV<104>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 9> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<6>, ZPZV<19>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 10> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<124>, ZPZV<97>, ZPZV<9>, ZPZV<126>, ZPZV<44>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 11> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 12> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<50>, ZPZV<122>, ZPZV<40>, ZPZV<83>, ZPZV<125>, ZPZV<28>, ZPZV<103>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 13> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 17> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<131, 19> { using ZPZ = aerobus::zpz<131>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<129»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 1> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<134»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 2> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<131>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 3> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<134»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 4> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<95>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 5> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<134»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 6> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<116>, ZPZV<102>, ZPZV<3>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 7> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<134»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 8> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<105>, ZPZV<21>, ZPZV<34>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 9> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<80>, ZPZV<122>, ZPZV<134»; };  // NOLINT
    template<> struct ConwayPolynomial<137, 10> { using ZPZ = aerobus::zpz<137>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<20>, ZPZV<67>, ZPZV<93>, ZPZV<119>,
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ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<137, 11> { using ZPZ = aerobus::zpz<137>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<1>, ZPZV<134»; }; // NOLINT
    template<> struct ConwayPolynomial<137, 12> { using ZPZ = aerobus::zpz<137>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<61>, ZPZV<40>, ZPZV<40>, ZPZV<12>, ZPZV<36>,
ZPZV<135>, ZPZV<61>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<137, 13> { using ZPZ = aerobus::zpz<137>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<134»; }; // NOLINT
    template<> struct ConwayPolynomial<137, 17> { using ZPZ = aerobus::zpz<137>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<136>, ZPZV<4>, ZPZV<134»; }; // NOLINT
    template<> struct ConwayPolynomial<137, 19> { using ZPZ = aerobus::zpz<137>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<134»; }; //
NOLINT
    template<> struct ConwayPolynomial<139, 1> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 2> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<138>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 3> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 4> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<96>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 5> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 6> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<46>, ZPZV<10>, ZPZV<118>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 7> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 8> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<103>, ZPZV<36>, ZPZV<21>, ZPZV<2»; }; //
NOLINT
    template<> struct ConwayPolynomial<139, 9> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<70>, ZPZV<87>, ZPZV<137»; };
// NOLINT
    template<> struct ConwayPolynomial<139, 10> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<110>, ZPZV<48>, ZPZV<130>, ZPZV<66>,
ZPZV<106>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 11> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<7>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 12> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<120>, ZPZV<75>, ZPZV<41>, ZPZV<77>, ZPZV<106>,
ZPZV<8>, ZPZV<10>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 13> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 17> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<137»; }; // NOLINT
    template<> struct ConwayPolynomial<139, 19> { using ZPZ = aerobus::zpz<139>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<23>, ZPZV<137»; }; //
NOLINT
    template<> struct ConwayPolynomial<149, 1> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<147»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 2> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<145>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 3> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<147»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 4> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<107>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 5> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<147»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 6> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<105>, ZPZV<33>, ZPZV<55>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 7> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<147»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 8> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<140>, ZPZV<25>, ZPZV<123>, ZPZV<2»; }; //
NOLINT
    template<> struct ConwayPolynomial<149, 9> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<146>, ZPZV<20>, ZPZV<147»;
}; // NOLINT
    template<> struct ConwayPolynomial<149, 10> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<74>, ZPZV<42>, ZPZV<148>, ZPZV<143>, ZPZV<51>,
ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 11> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<33>, ZPZV<147»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 12> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<121>, ZPZV<91>, ZPZV<52>, ZPZV<9>,
ZPZV<104>, ZPZV<110>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<149, 13> { using ZPZ = aerobus::zpz<149>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<147»; };  // NOLINT
    template<> struct ConwayPolynomial<149, 17> { using ZPZ = aerobus::zpz<149>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<29>, ZPZV<147»; };  // NOLINT
    template<> struct ConwayPolynomial<149, 19> { using ZPZ = aerobus::zpz<149>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<147»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 1> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 2> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<149>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 3> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 4> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<89>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 5> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 6> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<125>, ZPZV<18>, ZPZV<15>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 7> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 8> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<140>, ZPZV<122>, ZPZV<43>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 9> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<126>, ZPZV<96>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 10> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<21>, ZPZV<104>, ZPZV<49>, ZPZV<20>, ZPZV<142>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 11> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 12> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<109>, ZPZV<121>, ZPZV<101>, ZPZV<6>, ZPZV<77>, ZPZV<107>, ZPZV<147>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 13> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 17> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<151, 19> { using ZPZ = aerobus::zpz<151>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<145»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 1> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 2> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<152>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 3> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 4> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<136>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 5> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 6> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<130>, ZPZV<43>, ZPZV<144>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 7> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 8> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<97>, ZPZV<40>, ZPZV<153>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 9> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<114>, ZPZV<52>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 10> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<61>, ZPZV<22>, ZPZV<124>, ZPZV<61>, ZPZV<93>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 11> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<29>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 12> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<77>, ZPZV<110>, ZPZV<72>, ZPZV<137>, ZPZV<43>, ZPZV<152>, ZPZV<57>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 13> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<156>, ZPZV<9>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 17> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<157, 19> { using ZPZ = aerobus::zpz<157>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<152»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 1> { using ZPZ = aerobus::zpz<163>; using type =
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POLYV<ZPZV<1>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 2> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<159>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 3> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 4> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<91>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 5> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 6> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<83>, ZPZV<25>, ZPZV<156>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 7> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 8> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<132>, ZPZV<83>, ZPZV<6>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 9> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<162>, ZPZV<127>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 10> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<111>, ZPZV<120>, ZPZV<125>, ZPZV<15>, ZPZV<0>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 11> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 12> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<112>, ZPZV<31>, ZPZV<38>, ZPZV<103>, ZPZV<10>, ZPZV<69>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 13> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 17> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<71>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<163, 19> { using ZPZ = aerobus::zpz<163>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<161»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 1> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 2> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<166>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 3> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 4> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<120>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 5> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 6> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<75>, ZPZV<38>, ZPZV<2>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 7> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 8> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<149>, ZPZV<56>, ZPZV<113>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 9> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<165>, ZPZV<122>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 10> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<85>, ZPZV<68>, ZPZV<109>, ZPZV<143>, ZPZV<148>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 11> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 12> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<142>, ZPZV<10>, ZPZV<142>, ZPZV<131>, ZPZV<140>, ZPZV<41>, ZPZV<57>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 13> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 17> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<32>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<167, 19> { using ZPZ = aerobus::zpz<167>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<162»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 1> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 2> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<169>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 3> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 4> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<102>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 5> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<171»; };  // NOLINT
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    template<> struct ConwayPolynomial<173, 6> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<27>, ZPZV<134>, ZPZV<107>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 7> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 8> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<125>, ZPZV<158>, ZPZV<27>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 9> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<56>, ZPZV<104>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 10> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<156>, ZPZV<164>, ZPZV<48>, ZPZV<106>, ZPZV<58>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 11> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 12> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<29>, ZPZV<64>, ZPZV<46>, ZPZV<166>, ZPZV<0>, ZPZV<159>, ZPZV<22>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 13> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 17> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<173, 19> { using ZPZ = aerobus::zpz<173>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<171»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 1> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 2> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<172>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 3> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 4> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<109>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 5> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 6> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<91>, ZPZV<55>, ZPZV<109>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 7> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 8> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<163>, ZPZV<144>, ZPZV<73>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 9> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<40>, ZPZV<64>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 10> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<115>, ZPZV<71>, ZPZV<150>, ZPZV<49>, ZPZV<87>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 11> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 12> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<103>, ZPZV<83>, ZPZV<43>, ZPZV<76>, ZPZV<8>, ZPZV<177>, ZPZV<1>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 13> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 17> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<179, 19> { using ZPZ = aerobus::zpz<179>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<177»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 1> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<179»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 2> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<177>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 3> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<179»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 4> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<105>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 5> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<179»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 6> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<177>, ZPZV<163>, ZPZV<169>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 7> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<179»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 8> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<108>, ZPZV<22>, ZPZV<149>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<181, 9> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<107>, ZPZV<168>, ZPZV<179»;
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}; // NOLINT
    template<> struct ConwayPolynomial<181, 10> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<154>, ZPZV<104>, ZPZV<94>, ZPZV<57>, ZPZV<88>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<181, 11> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<179»; }; // NOLINT
    template<> struct ConwayPolynomial<181, 12> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<171>, ZPZV<141>, ZPZV<45>, ZPZV<122>, ZPZV<175>, ZPZV<12>, ZPZV<10>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<181, 13> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<179»; }; // NOLINT
    template<> struct ConwayPolynomial<181, 17> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<179»; }; // NOLINT
    template<> struct ConwayPolynomial<181, 19> { using ZPZ = aerobus::zpz<181>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<179»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 1> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 2> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<190>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 3> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 4> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<100>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 5> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 6> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<110>, ZPZV<10>, ZPZV<10>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 7> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 8> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<164>, ZPZV<139>, ZPZV<171>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 9> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<62>, ZPZV<124>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 10> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<113>, ZPZV<47>, ZPZV<173>, ZPZV<74>, ZPZV<156>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 11> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 12> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<79>, ZPZV<168>, ZPZV<25>, ZPZV<49>, ZPZV<90>, ZPZV<7>, ZPZV<151>, ZPZV<19»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 13> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 17> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<191, 19> { using ZPZ = aerobus::zpz<191>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<190>, ZPZV<2>, ZPZV<172»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 1> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 2> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<192>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 3> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 4> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<148>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 5> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 6> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<149>, ZPZV<8>, ZPZV<172>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 7> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 8> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<145>, ZPZV<34>, ZPZV<154>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 9> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<168>, ZPZV<27>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 10> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<51>, ZPZV<77>, ZPZV<0>, ZPZV<89>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 11> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<188»; }; // NOLINT
    template<> struct ConwayPolynomial<193, 12> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<155>, ZPZV<52>, ZPZV<135>, ZPZV<152>,
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ZPZV<90>, ZPZV<46>, ZPZV<28>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<193, 13> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<188»; };  // NOLINT
    template<> struct ConwayPolynomial<193, 17> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<188»; };  // NOLINT
    template<> struct ConwayPolynomial<193, 19> { using ZPZ = aerobus::zpz<193>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<188»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 1> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 2> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<192>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 3> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 4> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<124>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 5> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 6> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<124>, ZPZV<79>, ZPZV<173>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 7> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 8> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<176>, ZPZV<96>, ZPZV<29>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 9> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<127>, ZPZV<8>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 10> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<121>, ZPZV<137>, ZPZV<8>, ZPZV<73>, ZPZV<42>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 11> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 12> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<168>, ZPZV<15>, ZPZV<130>, ZPZV<141>, ZPZV<9>, ZPZV<90>, ZPZV<163>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 13> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 17> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<197, 19> { using ZPZ = aerobus::zpz<197>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<195»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 1> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 2> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<193>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 3> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 4> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 5> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 6> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<90>, ZPZV<58>, ZPZV<79>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 7> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 8> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<160>, ZPZV<23>, ZPZV<159>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 9> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<177>, ZPZV<141>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 10> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<171>, ZPZV<158>, ZPZV<31>, ZPZV<54>, ZPZV<9>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 11> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 12> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<33>, ZPZV<192>, ZPZV<197>, ZPZV<138>, ZPZV<69>, ZPZV<57>, ZPZV<151>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 13> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 17> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<199, 19> { using ZPZ = aerobus::zpz<199>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<196»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 1> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 2> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<207>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 3> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 4> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<161>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 5> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 6> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<81>, ZPZV<194>, ZPZV<133>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 7> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 8> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<200>, ZPZV<87>, ZPZV<29>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 9> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<139>, ZPZV<26>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 10> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<30>, ZPZV<61>, ZPZV<148>, ZPZV<87>, ZPZV<125>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 11> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 12> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<50>, ZPZV<145>, ZPZV<126>, ZPZV<184>, ZPZV<84>, ZPZV<27>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 13> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 17> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<211, 19> { using ZPZ = aerobus::zpz<211>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<209»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 1> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 2> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<221>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 3> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 4> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<163>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 5> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 6> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<68>, ZPZV<24>, ZPZV<196>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 7> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 8> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<139>, ZPZV<98>, ZPZV<138>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 9> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<164>, ZPZV<64>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 10> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<118>, ZPZV<177>, ZPZV<87>, ZPZV<99>, ZPZV<62>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 11> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 12> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<64>, ZPZV<94>, ZPZV<11>, ZPZV<105>, ZPZV<64>, ZPZV<151>, ZPZV<213>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 13> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<23>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 17> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<223, 19> { using ZPZ = aerobus::zpz<223>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<220»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 1> { using ZPZ = aerobus::zpz<227>; using type = POLYV<ZPZV<1>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 2> { using ZPZ = aerobus::zpz<227>; using type = POLYV<ZPZV<1>, ZPZV<220>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 3> { using ZPZ = aerobus::zpz<227>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 4> { using ZPZ = aerobus::zpz<227>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<143>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 5> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 6> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<174>, ZPZV<24>, ZPZV<135>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 7> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 8> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<151>, ZPZV<176>, ZPZV<106>, ZPZV<2»; };  //
NOLINT
    template<> struct ConwayPolynomial<227, 9> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<24>, ZPZV<183>, ZPZV<225»;
};  // NOLINT
    template<> struct ConwayPolynomial<227, 10> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<199>, ZPZV<12>, ZPZV<93>, ZPZV<77>,
ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 11> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<2>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 12> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<123>, ZPZV<99>, ZPZV<160>, ZPZV<96>,
ZPZV<127>, ZPZV<142>, ZPZV<94>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 13> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 17> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<225»; };  // NOLINT
    template<> struct ConwayPolynomial<227, 19> { using ZPZ = aerobus::zpz<227>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<34>, ZPZV<225»; };  //
NOLINT
    template<> struct ConwayPolynomial<229, 1> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 2> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<228>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 3> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 4> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 5> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 6> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<160>, ZPZV<186>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 7> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 8> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<193>, ZPZV<62>, ZPZV<205>, ZPZV<6»; };  //
NOLINT
    template<> struct ConwayPolynomial<229, 9> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<117>, ZPZV<50>, ZPZV<223»;
};  // NOLINT
    template<> struct ConwayPolynomial<229, 10> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<185>, ZPZV<135>, ZPZV<158>, ZPZV<167>,
ZPZV<98>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 11> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<2>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 12> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<131>, ZPZV<140>, ZPZV<25>, ZPZV<6>, ZPZV<172>,
ZPZV<9>, ZPZV<145>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 13> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<47>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 17> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<223»; };  // NOLINT
    template<> struct ConwayPolynomial<229, 19> { using ZPZ = aerobus::zpz<229>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<228>, ZPZV<15>, ZPZV<223»; };  //
NOLINT
    template<> struct ConwayPolynomial<233, 1> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 2> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<232>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 3> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 4> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<158>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 5> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 6> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<122>, ZPZV<215>, ZPZV<32>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 7> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 8> { using ZPZ = aerobus::zpz<233>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<202>, ZPZV<135>, ZPZV<181>, ZPZV<3»; };  //
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NOLINT
    template<> struct ConwayPolynomial<233, 9> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<56>, ZPZV<146>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 10> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<28>, ZPZV<71>, ZPZV<102>, ZPZV<3>, ZPZV<48>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 11> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 12> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<96>, ZPZV<21>, ZPZV<114>, ZPZV<31>, ZPZV<19>, ZPZV<216>, ZPZV<20>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 13> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 17> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<233, 19> { using ZPZ = aerobus::zpz<233>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<230»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 1> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 2> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<237>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 3> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 4> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<132>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 5> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 6> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<237>, ZPZV<60>, ZPZV<200>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 7> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 8> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<201>, ZPZV<202>, ZPZV<54>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 9> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<2>, ZPZV<88>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 10> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<57>, ZPZV<68>, ZPZV<226>, ZPZV<127>, ZPZV<108>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 11> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 12> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<235>, ZPZV<14>, ZPZV<113>, ZPZV<182>, ZPZV<101>, ZPZV<81>, ZPZV<216>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 13> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 17> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<239, 19> { using ZPZ = aerobus::zpz<239>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<232»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 1> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 2> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<238>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 3> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 4> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<152>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 5> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 6> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<83>, ZPZV<6>, ZPZV<5>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 7> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 8> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<173>, ZPZV<212>, ZPZV<153>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 9> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<236>, ZPZV<125>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 10> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<29>, ZPZV<27>, ZPZV<145>, ZPZV<208>, ZPZV<55>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 11> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<3>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 12> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<42>, ZPZV<10>, ZPZV<109>, ZPZV<168>, ZPZV<22>, ZPZV<197>, ZPZV<17>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 13> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 17> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<241, 19> { using ZPZ = aerobus::zpz<241>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<234»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 1> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 2> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<242>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 3> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 4> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<200>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 5> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 6> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<247>, ZPZV<151>, ZPZV<179>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 7> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 8> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<142>, ZPZV<215>, ZPZV<173>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 9> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<187>, ZPZV<106>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 10> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<138>, ZPZV<110>, ZPZV<45>, ZPZV<34>, ZPZV<149>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 11> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<26>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 12> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<192>, ZPZV<53>, ZPZV<20>, ZPZV<20>, ZPZV<15>, ZPZV<201>, ZPZV<232>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 13> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 17> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<251, 19> { using ZPZ = aerobus::zpz<251>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<245»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 1> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 2> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<251>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 3> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 4> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<187>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 5> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 6> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<62>, ZPZV<18>, ZPZV<138>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 7> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<31>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 8> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<179>, ZPZV<140>, ZPZV<162>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 9> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<201>, ZPZV<50>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 10> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<97>, ZPZV<12>, ZPZV<225>, ZPZV<180>, ZPZV<20>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 11> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<40>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 12> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<13>, ZPZV<225>, ZPZV<215>, ZPZV<173>, ZPZV<249>, ZPZV<148>, ZPZV<20>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 13> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 17> { using ZPZ = aerobus::zpz<257>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
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ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<254»; };  // NOLINT
    template<> struct ConwayPolynomial<257, 19> { using ZPZ = aerobus::zpz<257>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<254»; };  //
NOLINT
    template<> struct ConwayPolynomial<263, 1> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<258»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 2> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<261>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 3> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<258»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 4> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<171>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 5> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<258»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 6> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<222>, ZPZV<250>, ZPZV<225>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 7> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<258»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 8> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<227>, ZPZV<170>, ZPZV<7>, ZPZV<5»; };  //
NOLINT
    template<> struct ConwayPolynomial<263, 9> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<261>, ZPZV<29>, ZPZV<258»;
};  // NOLINT
    template<> struct ConwayPolynomial<263, 10> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<245>, ZPZV<231>, ZPZV<198>, ZPZV<145>,
ZPZV<119>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 11> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<2>, ZPZV<258»; };  // NOLINT
    template<> struct ConwayPolynomial<263, 12> { using ZPZ = aerobus::zpz<263>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<172>, ZPZV<174>, ZPZV<162>, ZPZV<252>,
ZPZV<47>, ZPZV<45>, ZPZV<180>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 1> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<267»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 2> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<268>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 3> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<267»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 4> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<262>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 5> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<267»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 6> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<120>, ZPZV<101>, ZPZV<206>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 7> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<267»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 8> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<220>, ZPZV<131>, ZPZV<232>, ZPZV<2»; };  //
NOLINT
    template<> struct ConwayPolynomial<269, 9> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<214>, ZPZV<267>, ZPZV<267»;
};  // NOLINT
    template<> struct ConwayPolynomial<269, 10> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<264>, ZPZV<243>, ZPZV<186>, ZPZV<61>,
ZPZV<10>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 11> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<20>, ZPZV<267»; };  // NOLINT
    template<> struct ConwayPolynomial<269, 12> { using ZPZ = aerobus::zpz<269>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<126>, ZPZV<165>, ZPZV<63>, ZPZV<215>,
ZPZV<132>, ZPZV<180>, ZPZV<150>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 1> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<265»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 2> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<269>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 3> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<265»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 4> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<205>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 5> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<265»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 6> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<207>, ZPZV<207>, ZPZV<81>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 7> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<265»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 8> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<199>, ZPZV<114>, ZPZV<69>, ZPZV<6»; };  //
NOLINT
    template<> struct ConwayPolynomial<271, 9> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<266>, ZPZV<186>, ZPZV<265»;
};  // NOLINT
    template<> struct ConwayPolynomial<271, 10> { using ZPZ = aerobus::zpz<271>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<133>, ZPZV<10>, ZPZV<256>, ZPZV<74>,
ZPZV<126>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<271, 11> { using ZPZ = aerobus::zpz<271>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<265»; }; // NOLINT
    template<> struct ConwayPolynomial<271, 12> { using ZPZ = aerobus::zpz<271>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<162>, ZPZV<210>, ZPZV<116>, ZPZV<205>, ZPZV<237>, ZPZV<256>, ZPZV<130>, ZPZV<6»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 1> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 2> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<274>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 3> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 4> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<222>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 5> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 6> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<33>, ZPZV<9>, ZPZV<118>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 7> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 8> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<187>, ZPZV<159>, ZPZV<176>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 9> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<177>, ZPZV<110>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 10> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<206>, ZPZV<253>, ZPZV<237>, ZPZV<241>, ZPZV<260>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 11> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<272»; }; // NOLINT
    template<> struct ConwayPolynomial<277, 12> { using ZPZ = aerobus::zpz<277>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<183>, ZPZV<218>, ZPZV<240>, ZPZV<40>, ZPZV<180>, ZPZV<115>, ZPZV<202>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 1> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 2> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<280>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 3> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 4> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<176>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 5> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 6> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<151>, ZPZV<13>, ZPZV<27>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 7> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 8> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<195>, ZPZV<279>, ZPZV<140>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 9> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<148>, ZPZV<70>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 10> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<258>, ZPZV<145>, ZPZV<13>, ZPZV<138>, ZPZV<191>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 11> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<278»; }; // NOLINT
    template<> struct ConwayPolynomial<281, 12> { using ZPZ = aerobus::zpz<281>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<202>, ZPZV<68>, ZPZV<103>, ZPZV<116>, ZPZV<58>, ZPZV<28>, ZPZV<191>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 1> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<280»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 2> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<282>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 3> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<280»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 4> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<238>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 5> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<280»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 6> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<199>, ZPZV<68>, ZPZV<73>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 7> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<280»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 8> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<179>, ZPZV<32>, ZPZV<232>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 9> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<136>, ZPZV<65>, ZPZV<280»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 10> { using ZPZ = aerobus::zpz<283>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<271>, ZPZV<185>, ZPZV<68>, ZPZV<100>, ZPZV<219>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<283, 11> { using ZPZ = aerobus::zpz<283>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<4>, ZPZV<280»; };  // NOLINT
    template<> struct ConwayPolynomial<283, 12> { using ZPZ = aerobus::zpz<283>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<20>, ZPZV<8>, ZPZV<96>, ZPZV<229>, ZPZV<49>,
ZPZV<14>, ZPZV<56>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 1> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<291»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 2> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<292>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 3> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<291»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 4> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<166>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 5> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<291»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 6> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<128>, ZPZV<210>, ZPZV<260>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 7> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<291»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 8> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<29>, ZPZV<175>, ZPZV<195>, ZPZV<239>, ZPZV<2»; };  //
NOLINT
    template<> struct ConwayPolynomial<293, 9> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<208>, ZPZV<190>, ZPZV<291»;
};  // NOLINT
    template<> struct ConwayPolynomial<293, 10> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<186>, ZPZV<28>, ZPZV<46>, ZPZV<184>, ZPZV<24>,
ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 11> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
ZPZV<3>, ZPZV<291»; };  // NOLINT
    template<> struct ConwayPolynomial<293, 12> { using ZPZ = aerobus::zpz<293>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<159>, ZPZV<210>, ZPZV<125>, ZPZV<212>,
ZPZV<167>, ZPZV<144>, ZPZV<157>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 1> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<302»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 2> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<306>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 3> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<302»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 4> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<239>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 5> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<302»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 6> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<213>, ZPZV<172>, ZPZV<61>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 7> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<302»; };  // NOLINT
    template<> struct ConwayPolynomial<307, 8> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<283>, ZPZV<232>, ZPZV<131>, ZPZV<5»; };  //
NOLINT
    template<> struct ConwayPolynomial<307, 9> { using ZPZ = aerobus::zpz<307>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<165>, ZPZV<70>, ZPZV<302»;
};  // NOLINT
    template<> struct ConwayPolynomial<311, 1> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<294»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 2> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<310>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 3> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<294»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 4> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<163>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 5> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<294»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 6> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<27>, ZPZV<167>, ZPZV<152>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 7> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<294»; };  // NOLINT
    template<> struct ConwayPolynomial<311, 8> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<162>, ZPZV<118>, ZPZV<2>, ZPZV<17»; };  //
NOLINT
    template<> struct ConwayPolynomial<311, 9> { using ZPZ = aerobus::zpz<311>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<287>, ZPZV<74>, ZPZV<294»;
};  // NOLINT
    template<> struct ConwayPolynomial<313, 1> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<303»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 2> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<310>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 3> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<303»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 4> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<239>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 5> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<303»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 6> { using ZPZ = aerobus::zpz<313>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<196>, ZPZV<213>, ZPZV<253>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 7> { using ZPZ = aerobus::zpz<313>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<303»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 8> { using ZPZ = aerobus::zpz<313>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<306>, ZPZV<99>, ZPZV<106>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<313, 9> { using ZPZ = aerobus::zpz<313>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<267>, ZPZV<300>, ZPZV<303»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 1> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<315»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 2> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<313>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 3> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<315»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 4> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<178>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 5> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<315»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 6> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<195>, ZPZV<156>, ZPZV<4>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 7> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<315»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 8> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<207>, ZPZV<85>, ZPZV<31>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<317, 9> { using ZPZ = aerobus::zpz<317>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<284>, ZPZV<296>, ZPZV<315»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 1> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<328»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 2> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<326>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 3> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<328»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 4> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<290>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 5> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<328»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 6> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<283>, ZPZV<205>, ZPZV<159>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 7> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<328»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 8> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<249>, ZPZV<308>, ZPZV<78>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<331, 9> { using ZPZ = aerobus::zpz<331>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<194>, ZPZV<210>, ZPZV<328»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 1> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<327»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 2> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<332>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 3> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 4> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<25>, ZPZV<224>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 5> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<327»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 6> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<216>, ZPZV<127>, ZPZV<109>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 7> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<327»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 8> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<331>, ZPZV<246>, ZPZV<251>, ZPZV<10»; };  // NOLINT
    template<> struct ConwayPolynomial<337, 9> { using ZPZ = aerobus::zpz<337>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<148>, ZPZV<98>, ZPZV<327»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 1> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<345»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 2> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<343>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 3> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<345»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 4> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<295>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 5> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<345»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 6> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<343>, ZPZV<26>, ZPZV<56>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 7> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<345»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 8> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<187>, ZPZV<213>, ZPZV<117>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<347, 9> { using ZPZ = aerobus::zpz<347>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<235>, ZPZV<252>, ZPZV<345»; };  // NOLINT
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    template<> struct ConwayPolynomial<349, 1> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<347»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 2> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<348>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 3> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<347»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 4> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<279>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 5> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<347»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 6> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<135>, ZPZV<177>, ZPZV<316>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 7> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<347»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 8> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<308>, ZPZV<328>, ZPZV<268>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<349, 9> { using ZPZ = aerobus::zpz<349>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<290>, ZPZV<130>, ZPZV<347»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 1> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<350»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 2> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<348>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 3> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<350»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 4> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<199>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 5> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<350»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 6> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<215>, ZPZV<226>, ZPZV<295>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 7> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<350»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 8> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<182>, ZPZV<26>, ZPZV<37>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<353, 9> { using ZPZ = aerobus::zpz<353>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<319>, ZPZV<49>, ZPZV<350»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 1> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<352»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 2> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<358>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 3> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<352»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 4> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<229>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 5> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<352»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 6> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<309>, ZPZV<327>, ZPZV<327>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 7> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<352»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 8> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<301>, ZPZV<143>, ZPZV<271>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<359, 9> { using ZPZ = aerobus::zpz<359>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<356>, ZPZV<165>, ZPZV<352»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 1> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<361»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 2> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<366>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 3> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<361»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 4> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<295>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 5> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<361»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 6> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<222>, ZPZV<321>, ZPZV<324>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 7> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<361»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 8> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<335>, ZPZV<282>, ZPZV<50>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<367, 9> { using ZPZ = aerobus::zpz<367>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<213>, ZPZV<268>, ZPZV<361»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 1> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<371»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 2> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<369>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 3> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<371»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 4> { using ZPZ = aerobus::zpz<373>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<304>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 5> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<371»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 6> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<126>, ZPZV<83>, ZPZV<108>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 7> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<371»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 8> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<203>, ZPZV<219>, ZPZV<66>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<373, 9> { using ZPZ = aerobus::zpz<373>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<238>, ZPZV<370>, ZPZV<371»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 1> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<377»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 2> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<374>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 3> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<377»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 4> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 5> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<377»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 6> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<374>, ZPZV<364>, ZPZV<246>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 7> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<377»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 8> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<210>, ZPZV<194>, ZPZV<173>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<379, 9> { using ZPZ = aerobus::zpz<379>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<362>, ZPZV<369>, ZPZV<377»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 1> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<378»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 2> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<382>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 3> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<378»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 4> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<309>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 5> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<378»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 6> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<69>, ZPZV<8>, ZPZV<158>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 7> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<378»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 8> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<281>, ZPZV<332>, ZPZV<296>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<383, 9> { using ZPZ = aerobus::zpz<383>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<137>, ZPZV<76>, ZPZV<378»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 1> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<387»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 2> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<379>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 3> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<387»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 4> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<266>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 5> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<387»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 6> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<218>, ZPZV<339>, ZPZV<255>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 7> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<387»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 8> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<351>, ZPZV<19>, ZPZV<290>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<389, 9> { using ZPZ = aerobus::zpz<389>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<258>, ZPZV<308>, ZPZV<387»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 1> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<392»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 2> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<392>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 3> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<392»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 4> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<363>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 5> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<392»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 6> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<382>, ZPZV<274>, ZPZV<287>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<397, 7> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<392»; };  // NOLINT
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template<> struct ConwayPolynomial<397, 8> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<375>, ZPZV<255>, ZPZV<203>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<397, 9> { using ZPZ = aerobus::zpz<397>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<166>, ZPZV<252>, ZPZV<392»; };  // NOLINT
template<> struct ConwayPolynomial<401, 1> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<398»; };  // NOLINT
template<> struct ConwayPolynomial<401, 2> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<396>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<401, 3> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<398»; };  // NOLINT
template<> struct ConwayPolynomial<401, 4> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<372>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<401, 5> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<398»; };  // NOLINT
template<> struct ConwayPolynomial<401, 6> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<115>, ZPZV<81>, ZPZV<51>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<401, 7> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<398»; };  // NOLINT
template<> struct ConwayPolynomial<401, 8> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<380>, ZPZV<113>, ZPZV<164>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<401, 9> { using ZPZ = aerobus::zpz<401>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<199>, ZPZV<158>, ZPZV<398»; };  // NOLINT
template<> struct ConwayPolynomial<409, 1> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<388»; };  // NOLINT
template<> struct ConwayPolynomial<409, 2> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<404>, ZPZV<21»; };  // NOLINT
template<> struct ConwayPolynomial<409, 3> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<388»; };  // NOLINT
template<> struct ConwayPolynomial<409, 4> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<407>, ZPZV<21»; };  // NOLINT
template<> struct ConwayPolynomial<409, 5> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<388»; };  // NOLINT
template<> struct ConwayPolynomial<409, 6> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<372>, ZPZV<53>, ZPZV<364>, ZPZV<21»; };  // NOLINT
template<> struct ConwayPolynomial<409, 7> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<388»; };  // NOLINT
template<> struct ConwayPolynomial<409, 8> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<256>, ZPZV<69>, ZPZV<396>, ZPZV<21»; };  // NOLINT
template<> struct ConwayPolynomial<409, 9> { using ZPZ = aerobus::zpz<409>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<318>, ZPZV<211>, ZPZV<388»; };  // NOLINT
template<> struct ConwayPolynomial<419, 1> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<417»; };  // NOLINT
template<> struct ConwayPolynomial<419, 2> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<418>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<419, 3> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<417»; };  // NOLINT
template<> struct ConwayPolynomial<419, 4> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<373>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<419, 5> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<417»; };  // NOLINT
template<> struct ConwayPolynomial<419, 6> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<411>, ZPZV<33>, ZPZV<257>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<419, 7> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<417»; };  // NOLINT
template<> struct ConwayPolynomial<419, 8> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<234>, ZPZV<388>, ZPZV<151>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<419, 9> { using ZPZ = aerobus::zpz<419>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<93>, ZPZV<386>, ZPZV<417»; };  // NOLINT
template<> struct ConwayPolynomial<421, 1> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<419»; };  // NOLINT
template<> struct ConwayPolynomial<421, 2> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<417>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<421, 3> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<419»; };  // NOLINT
template<> struct ConwayPolynomial<421, 4> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<257>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<421, 5> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<419»; };  // NOLINT
template<> struct ConwayPolynomial<421, 6> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<111>, ZPZV<342>, ZPZV<41>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<421, 7> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<419»; };  // NOLINT
template<> struct ConwayPolynomial<421, 8> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<389>, ZPZV<32>, ZPZV<77>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<421, 9> { using ZPZ = aerobus::zpz<421>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<394>, ZPZV<145>, ZPZV<419»; };  // NOLINT
template<> struct ConwayPolynomial<431, 1> { using ZPZ = aerobus::zpz<431>; using type =
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POLYV<ZPZV<1>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 2> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<430>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 3> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 4> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<323>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 5> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 6> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<161>, ZPZV<202>, ZPZV<182>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 7> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 8> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<243>, ZPZV<286>, ZPZV<115>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<431, 9> { using ZPZ = aerobus::zpz<431>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<71>, ZPZV<329>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 1> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<428»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 2> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<432>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 3> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<428»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 4> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<402>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 5> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<428»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 6> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<244>, ZPZV<353>, ZPZV<360>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 7> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<428»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 8> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<347>, ZPZV<32>, ZPZV<39>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<433, 9> { using ZPZ = aerobus::zpz<433>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<27>, ZPZV<232>, ZPZV<45>, ZPZV<428»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 1> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 2> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<436>, ZPZV<15»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 3> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 4> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<323>, ZPZV<15»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 5> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 6> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<324>, ZPZV<190>, ZPZV<15»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 7> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 8> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<359>, ZPZV<296>, ZPZV<266>, ZPZV<15»; }; // NOLINT
    template<> struct ConwayPolynomial<439, 9> { using ZPZ = aerobus::zpz<439>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<342>, ZPZV<254>, ZPZV<424»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 1> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<441»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 2> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<437>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 3> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<441»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 4> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<383>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 5> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<441»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 6> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<298>, ZPZV<218>, ZPZV<41>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 7> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<441»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 8> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<437>, ZPZV<217>, ZPZV<290>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<443, 9> { using ZPZ = aerobus::zpz<443>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<125>, ZPZV<109>, ZPZV<441»; }; // NOLINT
    template<> struct ConwayPolynomial<449, 1> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<446»; }; // NOLINT
    template<> struct ConwayPolynomial<449, 2> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<444>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<449, 3> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<446»; }; // NOLINT
    template<> struct ConwayPolynomial<449, 4> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<249>, ZPZV<3»; }; // NOLINT
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template<> struct ConwayPolynomial<449, 5> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<446»; };  // NOLINT
template<> struct ConwayPolynomial<449, 6> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<437>, ZPZV<293>, ZPZV<69>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<449, 7> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<446»; };  // NOLINT
template<> struct ConwayPolynomial<449, 8> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<361>, ZPZV<348>, ZPZV<124>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<449, 9> { using ZPZ = aerobus::zpz<449>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<226>, ZPZV<9>, ZPZV<446»; }; // NOLINT
template<> struct ConwayPolynomial<457, 1> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<444»; };  // NOLINT
template<> struct ConwayPolynomial<457, 2> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<454>, ZPZV<13»; };  // NOLINT
template<> struct ConwayPolynomial<457, 3> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<444»; };  // NOLINT
template<> struct ConwayPolynomial<457, 4> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<407>, ZPZV<13»; };  // NOLINT
template<> struct ConwayPolynomial<457, 5> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<444»; };  // NOLINT
template<> struct ConwayPolynomial<457, 6> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<205>, ZPZV<389>, ZPZV<266>, ZPZV<13»; };  // NOLINT
template<> struct ConwayPolynomial<457, 7> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<444»; };  // NOLINT
template<> struct ConwayPolynomial<457, 8> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<365>, ZPZV<296>, ZPZV<412>, ZPZV<13»; };  // NOLINT
template<> struct ConwayPolynomial<457, 9> { using ZPZ = aerobus::zpz<457>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<354>, ZPZV<84>, ZPZV<444»; };  // NOLINT
template<> struct ConwayPolynomial<461, 1> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<459»; };  // NOLINT
template<> struct ConwayPolynomial<461, 2> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<460>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<461, 3> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<459»; };  // NOLINT
template<> struct ConwayPolynomial<461, 4> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<393>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<461, 5> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<459»; };  // NOLINT
template<> struct ConwayPolynomial<461, 6> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<439>, ZPZV<432>, ZPZV<329>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<461, 7> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<459»; };  // NOLINT
template<> struct ConwayPolynomial<461, 8> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<388>, ZPZV<449>, ZPZV<321>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<461, 9> { using ZPZ = aerobus::zpz<461>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<210>, ZPZV<276>, ZPZV<459»; };  // NOLINT
template<> struct ConwayPolynomial<463, 1> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<460»; };  // NOLINT
template<> struct ConwayPolynomial<463, 2> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<461>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<463, 3> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<460»; };  // NOLINT
template<> struct ConwayPolynomial<463, 4> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<17>, ZPZV<262>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<463, 5> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<460»; };  // NOLINT
template<> struct ConwayPolynomial<463, 6> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<462>, ZPZV<51>, ZPZV<110>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<463, 7> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<460»; };  // NOLINT
template<> struct ConwayPolynomial<463, 8> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<234>, ZPZV<414>, ZPZV<396>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<463, 9> { using ZPZ = aerobus::zpz<463>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<433>, ZPZV<227>, ZPZV<460»; };  // NOLINT
template<> struct ConwayPolynomial<467, 1> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<465»; };  // NOLINT
template<> struct ConwayPolynomial<467, 2> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<463>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<467, 3> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<465»; };  // NOLINT
template<> struct ConwayPolynomial<467, 4> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<353>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<467, 5> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<465»; };  // NOLINT
template<> struct ConwayPolynomial<467, 6> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<123>, ZPZV<62>, ZPZV<237>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<467, 7> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<465»; };  // NOLINT
template<> struct ConwayPolynomial<467, 8> { using ZPZ = aerobus::zpz<467>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<318>, ZPZV<413>, ZPZV<289>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<467, 9> { using ZPZ = aerobus::zpz<467>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<397>, ZPZV<447>, ZPZV<465»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 1> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<466»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 2> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<474>, ZPZV<13»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 3> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<466»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 4> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<386>, ZPZV<13»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 5> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<466»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 6> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<243>, ZPZV<287>, ZPZV<334>, ZPZV<13»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 7> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<466»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 8> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<247>, ZPZV<440>, ZPZV<17>, ZPZV<13»; };  // NOLINT
    template<> struct ConwayPolynomial<479, 9> { using ZPZ = aerobus::zpz<479>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<3>, ZPZV<185>, ZPZV<466»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 1> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<484»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 2> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<485>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 3> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<484»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 4> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<483>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 5> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<484»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 6> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<450>, ZPZV<427>, ZPZV<185>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 7> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<484»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 8> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<283>, ZPZV<249>, ZPZV<137>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<487, 9> { using ZPZ = aerobus::zpz<487>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<271>, ZPZV<447>, ZPZV<484»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 1> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<489»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 2> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<487>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 3> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<489»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 4> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<360>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 5> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<489»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 6> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<369>, ZPZV<402>, ZPZV<125>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 7> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<489»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 8> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<378>, ZPZV<372>, ZPZV<216>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<491, 9> { using ZPZ = aerobus::zpz<491>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<149>, ZPZV<453>, ZPZV<489»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 1> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<492»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 2> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<493>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 3> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<492»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 4> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<495>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 5> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<492»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 6> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<407>, ZPZV<191>, ZPZV<78>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 7> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<492»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 8> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<288>, ZPZV<309>, ZPZV<200>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<499, 9> { using ZPZ = aerobus::zpz<499>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<491>, ZPZV<222>, ZPZV<492»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 1> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<498»; };  // NOLINT
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    template<> struct ConwayPolynomial<503, 2> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<498>, ZPZV<5>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 3> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<498>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 4> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<325>, ZPZV<5>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 5> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<498>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 6> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<380>, ZPZV<292>, ZPZV<255>, ZPZV<5>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 7> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<498>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 8> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<441>, ZPZV<203>, ZPZV<316>, ZPZV<5>»; };  // NOLINT
    template<> struct ConwayPolynomial<503, 9> { using ZPZ = aerobus::zpz<503>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<158>, ZPZV<337>, ZPZV<498>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 1> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<507>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 2> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<508>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 3> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<507>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 4> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<408>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 5> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<507>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 6> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<350>, ZPZV<232>, ZPZV<41>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 7> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<507>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 8> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<420>, ZPZV<473>, ZPZV<382>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<509, 9> { using ZPZ = aerobus::zpz<509>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<314>, ZPZV<28>, ZPZV<507>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 1> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<518>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 2> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<515>, ZPZV<3>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 3> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<518>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 4> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<509>, ZPZV<3>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 5> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<518>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 6> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<315>, ZPZV<153>, ZPZV<280>, ZPZV<3>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 7> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<518>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 8> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<462>, ZPZV<407>, ZPZV<312>, ZPZV<3>»; };  // NOLINT
    template<> struct ConwayPolynomial<521, 9> { using ZPZ = aerobus::zpz<521>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<181>, ZPZV<483>, ZPZV<518>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 1> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<521>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 2> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<522>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 3> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<521>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 4> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<382>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 5> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<521>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 6> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<475>, ZPZV<475>, ZPZV<371>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 7> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<521>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 8> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<518>, ZPZV<184>, ZPZV<380>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<523, 9> { using ZPZ = aerobus::zpz<523>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<342>, ZPZV<145>, ZPZV<521>»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 1> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<539>»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 2> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<537>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 3> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<539>»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 4> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<333>, ZPZV<2>»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 5> { using ZPZ = aerobus::zpz<541>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<539»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 6> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<239>, ZPZV<320>, ZPZV<69>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 7> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<539»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 8> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<376>, ZPZV<108>, ZPZV<113>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<541, 9> { using ZPZ = aerobus::zpz<541>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<340>, ZPZV<318>, ZPZV<539»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 1> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<545»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 2> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<543>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 3> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<545»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 4> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<334>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 5> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<545»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 6> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<334>, ZPZV<153>, ZPZV<423>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 7> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<545»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 8> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<368>, ZPZV<20>, ZPZV<180>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<547, 9> { using ZPZ = aerobus::zpz<547>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<238>, ZPZV<263>, ZPZV<545»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 1> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<555»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 2> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<553>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 3> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<555»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 4> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<430>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 5> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<555»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 6> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<202>, ZPZV<192>, ZPZV<253>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 7> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<555»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 8> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<480>, ZPZV<384>, ZPZV<113>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<557, 9> { using ZPZ = aerobus::zpz<557>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<456>, ZPZV<434>, ZPZV<555»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 1> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<561»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 2> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<559>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 3> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<561»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 4> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<20>, ZPZV<399>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 5> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<561»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 6> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<122>, ZPZV<303>, ZPZV<246>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 7> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<561»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 8> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<503>, ZPZV<176>, ZPZV<509>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<563, 9> { using ZPZ = aerobus::zpz<563>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<15>, ZPZV<19>, ZPZV<561»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 1> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<566»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 2> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<568>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 3> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<566»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 4> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<381>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 5> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<566»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 6> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<50>, ZPZV<263>, ZPZV<480>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 7> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<566»; };  // NOLINT
    template<> struct ConwayPolynomial<569, 8> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<527>, ZPZV<173>, ZPZV<241>, ZPZV<3»; };  //
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NOLINT
template<> struct ConwayPolynomial<569, 9> { using ZPZ = aerobus::zpz<569>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<478>, ZPZV<566>, ZPZV<566»; }; // NOLINT
template<> struct ConwayPolynomial<571, 1> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<568»; }; // NOLINT
template<> struct ConwayPolynomial<571, 2> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<570>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<571, 3> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<568»; }; // NOLINT
template<> struct ConwayPolynomial<571, 4> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<402>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<571, 5> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<568»; }; // NOLINT
template<> struct ConwayPolynomial<571, 6> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<221>, ZPZV<295>, ZPZV<33>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<571, 7> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<568»; }; // NOLINT
template<> struct ConwayPolynomial<571, 8> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<363>, ZPZV<119>, ZPZV<371>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<571, 9> { using ZPZ = aerobus::zpz<571>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<34>, ZPZV<545>, ZPZV<179>, ZPZV<568»; }; // NOLINT
template<> struct ConwayPolynomial<577, 1> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<572»; }; // NOLINT
template<> struct ConwayPolynomial<577, 2> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<572>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<577, 3> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<572»; }; // NOLINT
template<> struct ConwayPolynomial<577, 4> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<494>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<577, 5> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<572»; }; // NOLINT
template<> struct ConwayPolynomial<577, 6> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<450>, ZPZV<25>, ZPZV<283>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<577, 7> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<572»; }; // NOLINT
template<> struct ConwayPolynomial<577, 8> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<450>, ZPZV<545>, ZPZV<321>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<577, 9> { using ZPZ = aerobus::zpz<577>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<576>, ZPZV<449>, ZPZV<572»; }; // NOLINT
template<> struct ConwayPolynomial<587, 1> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<585»; }; // NOLINT
template<> struct ConwayPolynomial<587, 2> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<583>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<587, 3> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<585»; }; // NOLINT
template<> struct ConwayPolynomial<587, 4> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<444>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<587, 5> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<585»; }; // NOLINT
template<> struct ConwayPolynomial<587, 6> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<204>, ZPZV<121>, ZPZV<226>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<587, 7> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<585»; }; // NOLINT
template<> struct ConwayPolynomial<587, 8> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<492>, ZPZV<44>, ZPZV<91>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<587, 9> { using ZPZ = aerobus::zpz<587>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<333>, ZPZV<55>, ZPZV<585»; }; // NOLINT
template<> struct ConwayPolynomial<593, 1> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<590»; }; // NOLINT
template<> struct ConwayPolynomial<593, 2> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<592>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<593, 3> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<590»; }; // NOLINT
template<> struct ConwayPolynomial<593, 4> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<419>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<593, 5> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<590»; }; // NOLINT
template<> struct ConwayPolynomial<593, 6> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<345>, ZPZV<65>, ZPZV<478>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<593, 7> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<590»; }; // NOLINT
template<> struct ConwayPolynomial<593, 8> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<350>, ZPZV<291>, ZPZV<495>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<593, 9> { using ZPZ = aerobus::zpz<593>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<223>, ZPZV<523>, ZPZV<590»; }; // NOLINT
template<> struct ConwayPolynomial<599, 1> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<592»; }; // NOLINT
template<> struct ConwayPolynomial<599, 2> { using ZPZ = aerobus::zpz<599>; using type =
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POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 3> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<592»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 4> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<419>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 5> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<592»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 6> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<515>, ZPZV<274>, ZPZV<586>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 7> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<592»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 8> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<440>, ZPZV<37>, ZPZV<124>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<599, 9> { using ZPZ = aerobus::zpz<599>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<114>, ZPZV<98>, ZPZV<592»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 1> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<594»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 2> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 3> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<594»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 4> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<347>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 5> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<594»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 6> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<128>, ZPZV<440>, ZPZV<49>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 7> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<594»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 8> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<550>, ZPZV<241>, ZPZV<490>, ZPZV<7»; }; // NOLINT
    template<> struct ConwayPolynomial<601, 9> { using ZPZ = aerobus::zpz<601>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<487>, ZPZV<590>, ZPZV<594»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 1> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<604»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 2> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<606>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 3> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<604»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 4> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<449>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 5> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<604»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 6> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<45>, ZPZV<478>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 7> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<604»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 8> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<468>, ZPZV<35>, ZPZV<449>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<607, 9> { using ZPZ = aerobus::zpz<607>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<444>, ZPZV<129>, ZPZV<604»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 1> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<611»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 2> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<609>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 3> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<611»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 4> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<333>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 5> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<32>, ZPZV<611»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 6> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<609>, ZPZV<595>, ZPZV<601>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 7> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<611»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 8> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<489>, ZPZV<57>, ZPZV<539>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<613, 9> { using ZPZ = aerobus::zpz<613>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<513>, ZPZV<536>, ZPZV<611»; }; // NOLINT
    template<> struct ConwayPolynomial<617, 1> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<614»; }; // NOLINT
    template<> struct ConwayPolynomial<617, 2> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<612>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<617, 3> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<614»; }; // NOLINT
    template<> struct ConwayPolynomial<617, 4> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<503>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<617, 5> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<614»; }; // NOLINT
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template<> struct ConwayPolynomial<617, 6> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<318>, ZPZV<595>, ZPZV<310>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<617, 7> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<614»; };  // NOLINT
template<> struct ConwayPolynomial<617, 8> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<519>, ZPZV<501>, ZPZV<155>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<617, 9> { using ZPZ = aerobus::zpz<617>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<388>, ZPZV<543>, ZPZV<614»; };  // NOLINT
template<> struct ConwayPolynomial<619, 1> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<617»; };  // NOLINT
template<> struct ConwayPolynomial<619, 2> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<618>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<619, 3> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<617»; };  // NOLINT
template<> struct ConwayPolynomial<619, 4> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<492>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<619, 5> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<617»; };  // NOLINT
template<> struct ConwayPolynomial<619, 6> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<238>, ZPZV<468>, ZPZV<347>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<619, 7> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<617»; };  // NOLINT
template<> struct ConwayPolynomial<619, 8> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<416>, ZPZV<383>, ZPZV<225>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<619, 9> { using ZPZ = aerobus::zpz<619>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<579>, ZPZV<310>, ZPZV<617»; };  // NOLINT
template<> struct ConwayPolynomial<631, 1> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<628»; };  // NOLINT
template<> struct ConwayPolynomial<631, 2> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<629>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<631, 3> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<628»; };  // NOLINT
template<> struct ConwayPolynomial<631, 4> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<376>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<631, 5> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<628»; };  // NOLINT
template<> struct ConwayPolynomial<631, 6> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<516>, ZPZV<541>, ZPZV<106>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<631, 7> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<628»; };  // NOLINT
template<> struct ConwayPolynomial<631, 8> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<379>, ZPZV<516>, ZPZV<187>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<631, 9> { using ZPZ = aerobus::zpz<631>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<296>, ZPZV<413>, ZPZV<628»; };  // NOLINT
template<> struct ConwayPolynomial<641, 1> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<638»; };  // NOLINT
template<> struct ConwayPolynomial<641, 2> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<635>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<641, 3> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<638»; };  // NOLINT
template<> struct ConwayPolynomial<641, 4> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<629>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<641, 5> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<638»; };  // NOLINT
template<> struct ConwayPolynomial<641, 6> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<105>, ZPZV<557>, ZPZV<294>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<641, 7> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<638»; };  // NOLINT
template<> struct ConwayPolynomial<641, 8> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<356>, ZPZV<392>, ZPZV<332>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<641, 9> { using ZPZ = aerobus::zpz<641>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<66>, ZPZV<141>, ZPZV<638»; };  // NOLINT
template<> struct ConwayPolynomial<643, 1> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<632»; };  // NOLINT
template<> struct ConwayPolynomial<643, 2> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<641>, ZPZV<11»; };  // NOLINT
template<> struct ConwayPolynomial<643, 3> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<632»; };  // NOLINT
template<> struct ConwayPolynomial<643, 4> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<600>, ZPZV<11»; };  // NOLINT
template<> struct ConwayPolynomial<643, 5> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<632»; };  // NOLINT
template<> struct ConwayPolynomial<643, 6> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<345>, ZPZV<412>, ZPZV<293>, ZPZV<11»; };  // NOLINT
template<> struct ConwayPolynomial<643, 7> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<632»; };  // NOLINT
template<> struct ConwayPolynomial<643, 8> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<631>, ZPZV<573>, ZPZV<569>, ZPZV<11»; };  // NOLINT
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    template<> struct ConwayPolynomial<643, 9> { using ZPZ = aerobus::zpz<643>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<591>, ZPZV<475>, ZPZV<632»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 1> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<642»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 2> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<645>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 3> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<642»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 4> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<643>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 5> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<642»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 6> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<308>, ZPZV<385>, ZPZV<642>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 7> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<642»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 8> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<603>, ZPZV<259>, ZPZV<271>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<647, 9> { using ZPZ = aerobus::zpz<647>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<561>, ZPZV<123>, ZPZV<642»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 1> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<651»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 2> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<649>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 3> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<651»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 4> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<596>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 5> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<651»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 6> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<45>, ZPZV<220>, ZPZV<242>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 7> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<651»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 8> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<385>, ZPZV<18>, ZPZV<296>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<653, 9> { using ZPZ = aerobus::zpz<653>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<365>, ZPZV<60>, ZPZV<651»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 1> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<657»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 2> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<655>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 3> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<657»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 4> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<351>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 5> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<657»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 6> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<371>, ZPZV<105>, ZPZV<223>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 7> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<657»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 8> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<358>, ZPZV<246>, ZPZV<90>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<659, 9> { using ZPZ = aerobus::zpz<659>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<592>, ZPZV<46>, ZPZV<657»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 1> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<659»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 2> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<660>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 3> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<659»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 4> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<616>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 5> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<659»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 6> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<551>, ZPZV<456>, ZPZV<382>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 7> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<659»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 8> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<612>, ZPZV<285>, ZPZV<72>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<661, 9> { using ZPZ = aerobus::zpz<661>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<18>, ZPZV<389>, ZPZV<220>, ZPZV<659»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 1> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<668»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 2> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<672>, ZPZV<5»; };  // NOLINT
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    template<> struct ConwayPolynomial<673, 3> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<668»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 4> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<416>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 5> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<668»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 6> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<524>, ZPZV<248>, ZPZV<35>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 7> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<668»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 8> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<669>, ZPZV<587>, ZPZV<302>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<673, 9> { using ZPZ = aerobus::zpz<673>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<347>, ZPZV<553>, ZPZV<668»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 1> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<675»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 2> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<672>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 3> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<675»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 4> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<631>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 5> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<675»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 6> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<446>, ZPZV<632>, ZPZV<50>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 7> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<675»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 8> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<363>, ZPZV<619>, ZPZV<152>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<677, 9> { using ZPZ = aerobus::zpz<677>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<504>, ZPZV<404>, ZPZV<675»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 1> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<678»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 2> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<682>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 3> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<678»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 4> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<455>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 5> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<678»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 6> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<644>, ZPZV<109>, ZPZV<434>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 7> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<678»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 8> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<383>, ZPZV<184>, ZPZV<65>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<683, 9> { using ZPZ = aerobus::zpz<683>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<85>, ZPZV<444>, ZPZV<678»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 1> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<688»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 2> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<686>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 3> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<688»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 4> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<632>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 5> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<688»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 6> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<579>, ZPZV<408>, ZPZV<262>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 7> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<688»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 8> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<356>, ZPZV<425>, ZPZV<321>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<691, 9> { using ZPZ = aerobus::zpz<691>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<556>, ZPZV<443>, ZPZV<688»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 1> { using ZPZ = aerobus::zpz<701>; using type = POLYV<ZPZV<1>, ZPZV<699»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 2> { using ZPZ = aerobus::zpz<701>; using type = POLYV<ZPZV<1>, ZPZV<697>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 3> { using ZPZ = aerobus::zpz<701>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<699»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 4> { using ZPZ = aerobus::zpz<701>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<379>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 5> { using ZPZ = aerobus::zpz<701>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<699»; };  // NOLINT
    template<> struct ConwayPolynomial<701, 6> { using ZPZ = aerobus::zpz<701>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<571>, ZPZV<327>, ZPZV<285>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<701, 7> { using ZPZ = aerobus::zpz<701>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<699»; }; // NOLINT
    template<> struct ConwayPolynomial<701, 8> { using ZPZ = aerobus::zpz<701>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<619>, ZPZV<206>, ZPZV<593>, ZPZV<2»; }; //
NOLINT
    template<> struct ConwayPolynomial<701, 9> { using ZPZ = aerobus::zpz<701>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<459>, ZPZV<373>, ZPZV<699»;
}; // NOLINT
    template<> struct ConwayPolynomial<709, 1> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<707»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 2> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<705>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 3> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<707»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 4> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<384>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 5> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<707»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 6> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<669>, ZPZV<514>, ZPZV<295>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 7> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<707»; }; // NOLINT
    template<> struct ConwayPolynomial<709, 8> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<689>, ZPZV<233>, ZPZV<79>, ZPZV<2»; }; //
NOLINT
    template<> struct ConwayPolynomial<709, 9> { using ZPZ = aerobus::zpz<709>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<257>, ZPZV<171>, ZPZV<707»;
}; // NOLINT
    template<> struct ConwayPolynomial<719, 1> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<708»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 2> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<715>, ZPZV<11»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 3> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<708»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 4> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<602>, ZPZV<11»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 5> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<708»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 6> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<533>, ZPZV<591>, ZPZV<182>, ZPZV<11»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 7> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<708»; }; // NOLINT
    template<> struct ConwayPolynomial<719, 8> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<714>, ZPZV<362>, ZPZV<244>, ZPZV<11»; }; //
NOLINT
    template<> struct ConwayPolynomial<719, 9> { using ZPZ = aerobus::zpz<719>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<288>, ZPZV<560>, ZPZV<708»;
}; // NOLINT
    template<> struct ConwayPolynomial<727, 1> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<722»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 2> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<725>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 3> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<722»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 4> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<723>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 5> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<722»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 6> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<86>, ZPZV<397>, ZPZV<672>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 7> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<722»; }; // NOLINT
    template<> struct ConwayPolynomial<727, 8> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<639>, ZPZV<671>, ZPZV<368>, ZPZV<5»; }; //
NOLINT
    template<> struct ConwayPolynomial<727, 9> { using ZPZ = aerobus::zpz<727>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<573>, ZPZV<502>, ZPZV<722»;
}; // NOLINT
    template<> struct ConwayPolynomial<733, 1> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<727»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 2> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<732>, ZPZV<6»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 3> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<727»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 4> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<539>, ZPZV<6»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 5> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<727»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 6> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<174>, ZPZV<549>, ZPZV<151>, ZPZV<6»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 7> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<727»; }; // NOLINT
    template<> struct ConwayPolynomial<733, 8> { using ZPZ = aerobus::zpz<733>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<532>, ZPZV<610>, ZPZV<142>, ZPZV<6»; }; //
NOLINT
    template<> struct ConwayPolynomial<733, 9> { using ZPZ = aerobus::zpz<733>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<337>, ZPZV<6>, ZPZV<727»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 1> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<736»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 2> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<734>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 3> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<736»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 4> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<678>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 5> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<736»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 6> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<422>, ZPZV<447>, ZPZV<625>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 7> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<44>, ZPZV<736»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 8> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<401>, ZPZV<169>, ZPZV<25>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<739, 9> { using ZPZ = aerobus::zpz<739>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<616>, ZPZV<81>, ZPZV<736»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 1> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<738»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 2> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<742>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 3> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<738»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 4> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<425>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 5> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<738»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 6> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<236>, ZPZV<471>, ZPZV<88>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 7> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<738»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 8> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<551>, ZPZV<279>, ZPZV<588>, ZPZV<5»; }; // NOLINT
    template<> struct ConwayPolynomial<743, 9> { using ZPZ = aerobus::zpz<743>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<327>, ZPZV<676>, ZPZV<738»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 1> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<748»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 2> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<749>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 3> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<748»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 4> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<525>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 5> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<748»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 6> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<298>, ZPZV<633>, ZPZV<539>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 7> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<748»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 8> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<741>, ZPZV<243>, ZPZV<672>, ZPZV<3»; }; // NOLINT
    template<> struct ConwayPolynomial<751, 9> { using ZPZ = aerobus::zpz<751>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<703>, ZPZV<489>, ZPZV<748»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 1> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 2> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<753>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 3> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 4> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<537>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 5> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 6> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<753>, ZPZV<739>, ZPZV<745>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 7> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 8> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<494>, ZPZV<110>, ZPZV<509>, ZPZV<2»; }; // NOLINT
    template<> struct ConwayPolynomial<757, 9> { using ZPZ = aerobus::zpz<757>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<688>, ZPZV<702>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<761, 1> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<755»; }; // NOLINT
    template<> struct ConwayPolynomial<761, 2> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<758>, ZPZV<6»; }; // NOLINT
    template<> struct ConwayPolynomial<761, 3> { using ZPZ = aerobus::zpz<761>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<755»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 4> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<658>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 5> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<755»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 6> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<634>, ZPZV<597>, ZPZV<155>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 7> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<755»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 8> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<603>, ZPZV<144>, ZPZV<540>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<761, 9> { using ZPZ = aerobus::zpz<761>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<317>, ZPZV<571>, ZPZV<755»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 1> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<758»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 2> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<765>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 3> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<758»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 4> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<32>, ZPZV<741>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 5> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<758»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 6> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<43>, ZPZV<326>, ZPZV<650>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 7> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<758»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 8> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<560>, ZPZV<574>, ZPZV<632>, ZPZV<11»; };  // NOLINT
    template<> struct ConwayPolynomial<769, 9> { using ZPZ = aerobus::zpz<769>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<623>, ZPZV<751>, ZPZV<758»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 1> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<771»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 2> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<772>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 3> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<771»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 4> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<444>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 5> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<771»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 6> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<91>, ZPZV<3>, ZPZV<581>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 7> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<771»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 8> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<484>, ZPZV<94>, ZPZV<693>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<773, 9> { using ZPZ = aerobus::zpz<773>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<216>, ZPZV<574>, ZPZV<771»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 1> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<785»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 2> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<786>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 3> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<785»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 4> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<605>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 5> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<785»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 6> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<98>, ZPZV<512>, ZPZV<606>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 7> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<785»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 8> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<612>, ZPZV<26>, ZPZV<715>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<787, 9> { using ZPZ = aerobus::zpz<787>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<480>, ZPZV<573>, ZPZV<785»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 1> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<795»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 2> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<793>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 3> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<795»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 4> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<717>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 5> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<795»; };  // NOLINT
    template<> struct ConwayPolynomial<797, 6> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<657>, ZPZV<396>, ZPZV<71>, ZPZV<2»; };  // NOLINT
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template<> struct ConwayPolynomial<797, 7> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<795»; };  // NOLINT
template<> struct ConwayPolynomial<797, 8> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<596>, ZPZV<747>, ZPZV<389>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<797, 9> { using ZPZ = aerobus::zpz<797>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<240>, ZPZV<599>, ZPZV<795»; };  // NOLINT
template<> struct ConwayPolynomial<809, 1> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<806»; };  // NOLINT
template<> struct ConwayPolynomial<809, 2> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<799>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<809, 3> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<806»; };  // NOLINT
template<> struct ConwayPolynomial<809, 4> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<644>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<809, 5> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<806»; };  // NOLINT
template<> struct ConwayPolynomial<809, 6> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<562>, ZPZV<75>, ZPZV<43>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<809, 7> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<806»; };  // NOLINT
template<> struct ConwayPolynomial<809, 8> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<593>, ZPZV<745>, ZPZV<673>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<809, 9> { using ZPZ = aerobus::zpz<809>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<341>, ZPZV<727>, ZPZV<806»; };  // NOLINT
template<> struct ConwayPolynomial<811, 1> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<808»; };  // NOLINT
template<> struct ConwayPolynomial<811, 2> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<806>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<811, 3> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<808»; };  // NOLINT
template<> struct ConwayPolynomial<811, 4> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<453>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<811, 5> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<808»; };  // NOLINT
template<> struct ConwayPolynomial<811, 6> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<780>, ZPZV<755>, ZPZV<307>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<811, 7> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<808»; };  // NOLINT
template<> struct ConwayPolynomial<811, 8> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<663>, ZPZV<806>, ZPZV<525>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<811, 9> { using ZPZ = aerobus::zpz<811>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<382>, ZPZV<200>, ZPZV<808»; };  // NOLINT
template<> struct ConwayPolynomial<821, 1> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<819»; };  // NOLINT
template<> struct ConwayPolynomial<821, 2> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<816>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<821, 3> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<819»; };  // NOLINT
template<> struct ConwayPolynomial<821, 4> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<662>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<821, 5> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<819»; };  // NOLINT
template<> struct ConwayPolynomial<821, 6> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<160>, ZPZV<130>, ZPZV<803>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<821, 7> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<819»; };  // NOLINT
template<> struct ConwayPolynomial<821, 8> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<626>, ZPZV<556>, ZPZV<589>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<821, 9> { using ZPZ = aerobus::zpz<821>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<650>, ZPZV<557>, ZPZV<819»; };  // NOLINT
template<> struct ConwayPolynomial<823, 1> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<820»; };  // NOLINT
template<> struct ConwayPolynomial<823, 2> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<821>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<823, 3> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<820»; };  // NOLINT
template<> struct ConwayPolynomial<823, 4> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<819>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<823, 5> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<820»; };  // NOLINT
template<> struct ConwayPolynomial<823, 6> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<822>, ZPZV<616>, ZPZV<744>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<823, 7> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<820»; };  // NOLINT
template<> struct ConwayPolynomial<823, 8> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<451>, ZPZV<437>, ZPZV<31>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<823, 9> { using ZPZ = aerobus::zpz<823>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<740>, ZPZV<609>, ZPZV<820»;
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}; // NOLINT
template<> struct ConwayPolynomial<827, 1> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<825»; }; // NOLINT
template<> struct ConwayPolynomial<827, 2> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<821>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<827, 3> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<825»; }; // NOLINT
template<> struct ConwayPolynomial<827, 4> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<18>, ZPZV<605>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<827, 5> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<825»; }; // NOLINT
template<> struct ConwayPolynomial<827, 6> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<685>, ZPZV<601>, ZPZV<691>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<827, 7> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<825»; }; // NOLINT
template<> struct ConwayPolynomial<827, 8> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<812>, ZPZV<79>, ZPZV<32>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<827, 9> { using ZPZ = aerobus::zpz<827>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<177>, ZPZV<372>, ZPZV<825»; }; // NOLINT
template<> struct ConwayPolynomial<829, 1> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<827»; }; // NOLINT
template<> struct ConwayPolynomial<829, 2> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<828>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<829, 3> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<827»; }; // NOLINT
template<> struct ConwayPolynomial<829, 4> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<604>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<829, 5> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<827»; }; // NOLINT
template<> struct ConwayPolynomial<829, 6> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<341>, ZPZV<476>, ZPZV<817>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<829, 7> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<827»; }; // NOLINT
template<> struct ConwayPolynomial<829, 8> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<468>, ZPZV<241>, ZPZV<138>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<829, 9> { using ZPZ = aerobus::zpz<829>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<621>, ZPZV<552>, ZPZV<827»; }; // NOLINT
template<> struct ConwayPolynomial<839, 1> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<828»; }; // NOLINT
template<> struct ConwayPolynomial<839, 2> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<838>, ZPZV<11»; }; // NOLINT
template<> struct ConwayPolynomial<839, 3> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<828»; }; // NOLINT
template<> struct ConwayPolynomial<839, 4> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<609>, ZPZV<11»; }; // NOLINT
template<> struct ConwayPolynomial<839, 5> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<828»; }; // NOLINT
template<> struct ConwayPolynomial<839, 6> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<370>, ZPZV<537>, ZPZV<23>, ZPZV<11»; }; // NOLINT
template<> struct ConwayPolynomial<839, 7> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<828»; }; // NOLINT
template<> struct ConwayPolynomial<839, 8> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<553>, ZPZV<779>, ZPZV<329>, ZPZV<11»; }; // NOLINT
template<> struct ConwayPolynomial<839, 9> { using ZPZ = aerobus::zpz<839>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<349>, ZPZV<206>, ZPZV<828»; }; // NOLINT
template<> struct ConwayPolynomial<853, 1> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<851»; }; // NOLINT
template<> struct ConwayPolynomial<853, 2> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<852>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<853, 3> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<851»; }; // NOLINT
template<> struct ConwayPolynomial<853, 4> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<623>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<853, 5> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<851»; }; // NOLINT
template<> struct ConwayPolynomial<853, 6> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<276>, ZPZV<194>, ZPZV<512>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<853, 7> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<851»; }; // NOLINT
template<> struct ConwayPolynomial<853, 8> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<544>, ZPZV<846>, ZPZV<118>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<853, 9> { using ZPZ = aerobus::zpz<853>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<677>, ZPZV<821>, ZPZV<851»; }; // NOLINT
template<> struct ConwayPolynomial<857, 1> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<854»; }; // NOLINT
template<> struct ConwayPolynomial<857, 2> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<850>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<857, 3> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<854»; }; // NOLINT
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template<> struct ConwayPolynomial<857, 4> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<528>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<857, 5> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<854»; };  // NOLINT
template<> struct ConwayPolynomial<857, 6> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<32>, ZPZV<824>, ZPZV<65>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<857, 7> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<854»; };  // NOLINT
template<> struct ConwayPolynomial<857, 8> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<611>, ZPZV<552>, ZPZV<494>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<857, 9> { using ZPZ = aerobus::zpz<857>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<308>, ZPZV<719>, ZPZV<854»; };  // NOLINT
template<> struct ConwayPolynomial<859, 1> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<857»; };  // NOLINT
template<> struct ConwayPolynomial<859, 2> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<858>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<859, 3> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<857»; };  // NOLINT
template<> struct ConwayPolynomial<859, 4> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<530>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<859, 5> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<857»; };  // NOLINT
template<> struct ConwayPolynomial<859, 6> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<419>, ZPZV<646>, ZPZV<566>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<859, 7> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<857»; };  // NOLINT
template<> struct ConwayPolynomial<859, 8> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<522>, ZPZV<446>, ZPZV<672>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<859, 9> { using ZPZ = aerobus::zpz<859>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<648>, ZPZV<845>, ZPZV<857»; };  // NOLINT
template<> struct ConwayPolynomial<863, 1> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<858»; };  // NOLINT
template<> struct ConwayPolynomial<863, 2> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<862>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<863, 3> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<858»; };  // NOLINT
template<> struct ConwayPolynomial<863, 4> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<770>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<863, 5> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<858»; };  // NOLINT
template<> struct ConwayPolynomial<863, 6> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<330>, ZPZV<62>, ZPZV<300>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<863, 7> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<858»; };  // NOLINT
template<> struct ConwayPolynomial<863, 8> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<765>, ZPZV<576>, ZPZV<849>, ZPZV<5»; };  // NOLINT
template<> struct ConwayPolynomial<863, 9> { using ZPZ = aerobus::zpz<863>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<381>, ZPZV<1>, ZPZV<858»; };  // NOLINT
template<> struct ConwayPolynomial<877, 1> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<875»; };  // NOLINT
template<> struct ConwayPolynomial<877, 2> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<873>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<877, 3> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<875»; };  // NOLINT
template<> struct ConwayPolynomial<877, 4> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<604>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<877, 5> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<875»; };  // NOLINT
template<> struct ConwayPolynomial<877, 6> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<629>, ZPZV<400>, ZPZV<855>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<877, 7> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<875»; };  // NOLINT
template<> struct ConwayPolynomial<877, 8> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<767>, ZPZV<319>, ZPZV<347>, ZPZV<2»; };  // NOLINT
template<> struct ConwayPolynomial<877, 9> { using ZPZ = aerobus::zpz<877>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<770>, ZPZV<278>, ZPZV<875»; };  // NOLINT
template<> struct ConwayPolynomial<881, 1> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<878»; };  // NOLINT
template<> struct ConwayPolynomial<881, 2> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<869>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<881, 3> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<878»; };  // NOLINT
template<> struct ConwayPolynomial<881, 4> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<447>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<881, 5> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<878»; };  // NOLINT
template<> struct ConwayPolynomial<881, 6> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<218>, ZPZV<419>, ZPZV<231>, ZPZV<3»; };  // NOLINT
template<> struct ConwayPolynomial<881, 7> { using ZPZ = aerobus::zpz<881>; using type =
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POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<878»; };  // NOLINT
    template<> struct ConwayPolynomial<881, 8> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<635>, ZPZV<490>, ZPZV<561>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<881, 9> { using ZPZ = aerobus::zpz<881>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<587>, ZPZV<510>, ZPZV<878»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 1> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<881»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 2> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<879>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 3> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<881»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 4> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<715>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 5> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<881»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 6> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<879>, ZPZV<865>, ZPZV<871>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 7> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<881»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 8> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<740>, ZPZV<762>, ZPZV<768>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<883, 9> { using ZPZ = aerobus::zpz<883>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<360>, ZPZV<557>, ZPZV<881»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 1> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<882»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 2> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<885>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 3> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<882»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 4> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<883>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 5> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<882»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 6> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<775>, ZPZV<341>, ZPZV<28>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 7> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<882»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 8> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<781>, ZPZV<381>, ZPZV<706>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<887, 9> { using ZPZ = aerobus::zpz<887>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<727>, ZPZV<345>, ZPZV<882»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 1> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<905»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 2> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<903>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 3> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<905»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 4> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<478>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 5> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<905»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 6> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<626>, ZPZV<752>, ZPZV<266>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 7> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<905»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 8> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<584>, ZPZV<518>, ZPZV<811>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<907, 9> { using ZPZ = aerobus::zpz<907>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<783>, ZPZV<57>, ZPZV<905»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 1> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<894»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 2> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<909>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 3> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<894»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 4> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<887>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 5> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<894»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 6> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<172>, ZPZV<683>, ZPZV<19>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 7> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<894»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 8> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<708>, ZPZV<590>, ZPZV<168>, ZPZV<17»; };  // NOLINT
    template<> struct ConwayPolynomial<911, 9> { using ZPZ = aerobus::zpz<911>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<679>, ZPZV<116>, ZPZV<894»; };  // NOLINT
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template<> struct ConwayPolynomial<919, 1> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<912»; }; // NOLINT
template<> struct ConwayPolynomial<919, 2> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<910>, ZPZV<7»; }; // NOLINT
template<> struct ConwayPolynomial<919, 3> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<912»; }; // NOLINT
template<> struct ConwayPolynomial<919, 4> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<602>, ZPZV<7»; }; // NOLINT
template<> struct ConwayPolynomial<919, 5> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<912»; }; // NOLINT
template<> struct ConwayPolynomial<919, 6> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<312>, ZPZV<817>, ZPZV<113>, ZPZV<7»; }; // NOLINT
template<> struct ConwayPolynomial<919, 7> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<912»; }; // NOLINT
template<> struct ConwayPolynomial<919, 8> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<708>, ZPZV<202>, ZPZV<504>, ZPZV<7»; }; // NOLINT
template<> struct ConwayPolynomial<919, 9> { using ZPZ = aerobus::zpz<919>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<410>, ZPZV<623>, ZPZV<912»; }; // NOLINT
template<> struct ConwayPolynomial<929, 1> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<926»; }; // NOLINT
template<> struct ConwayPolynomial<929, 2> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<917>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<929, 3> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<926»; }; // NOLINT
template<> struct ConwayPolynomial<929, 4> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<787>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<929, 5> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<926»; }; // NOLINT
template<> struct ConwayPolynomial<929, 6> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<805>, ZPZV<92>, ZPZV<86>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<929, 7> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<926»; }; // NOLINT
template<> struct ConwayPolynomial<929, 8> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<699>, ZPZV<292>, ZPZV<586>, ZPZV<3»; }; // NOLINT
template<> struct ConwayPolynomial<929, 9> { using ZPZ = aerobus::zpz<929>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<481>, ZPZV<199>, ZPZV<926»; }; // NOLINT
template<> struct ConwayPolynomial<937, 1> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<932»; }; // NOLINT
template<> struct ConwayPolynomial<937, 2> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<934>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<937, 3> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<932»; }; // NOLINT
template<> struct ConwayPolynomial<937, 4> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<23>, ZPZV<585>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<937, 5> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<932»; }; // NOLINT
template<> struct ConwayPolynomial<937, 6> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<794>, ZPZV<727>, ZPZV<934>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<937, 7> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<24>, ZPZV<932»; }; // NOLINT
template<> struct ConwayPolynomial<937, 8> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<658>, ZPZV<26>, ZPZV<53>, ZPZV<5»; }; // NOLINT
template<> struct ConwayPolynomial<937, 9> { using ZPZ = aerobus::zpz<937>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<533>, ZPZV<483>, ZPZV<932»; }; // NOLINT
template<> struct ConwayPolynomial<941, 1> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<939»; }; // NOLINT
template<> struct ConwayPolynomial<941, 2> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<940>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<941, 3> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<939»; }; // NOLINT
template<> struct ConwayPolynomial<941, 4> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<505>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<941, 5> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<939»; }; // NOLINT
template<> struct ConwayPolynomial<941, 6> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<459>, ZPZV<694>, ZPZV<538>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<941, 7> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<939»; }; // NOLINT
template<> struct ConwayPolynomial<941, 8> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<805>, ZPZV<675>, ZPZV<590>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<941, 9> { using ZPZ = aerobus::zpz<941>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<708>, ZPZV<197>, ZPZV<939»; }; // NOLINT
template<> struct ConwayPolynomial<947, 1> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<945»; }; // NOLINT
template<> struct ConwayPolynomial<947, 2> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<943>, ZPZV<2»; }; // NOLINT
template<> struct ConwayPolynomial<947, 3> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<945»; }; // NOLINT
template<> struct ConwayPolynomial<947, 4> { using ZPZ = aerobus::zpz<947>; using type =
```

```
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<894>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<947, 5> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<945»; };  // NOLINT
    template<> struct ConwayPolynomial<947, 6> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<880>, ZPZV<787>, ZPZV<95>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<947, 7> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<945»; };  // NOLINT
    template<> struct ConwayPolynomial<947, 8> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<845>, ZPZV<597>, ZPZV<581>, ZPZV<2»; };  // NOLINT
    template<> struct ConwayPolynomial<947, 9> { using ZPZ = aerobus::zpz<947>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<269>, ZPZV<808>, ZPZV<945»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 1> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<950»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 2> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<947>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 3> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<950»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 4> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<865>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 5> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<950»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 6> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<507>, ZPZV<829>, ZPZV<730>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 7> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<950»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 8> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<579>, ZPZV<658>, ZPZV<108>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<953, 9> { using ZPZ = aerobus::zpz<953>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<819>, ZPZV<316>, ZPZV<950»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 1> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<962»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 2> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<965>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 3> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<962»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 4> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<963>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 5> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<962»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 6> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<805>, ZPZV<948>, ZPZV<831>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 7> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<962»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 8> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<840>, ZPZV<502>, ZPZV<136>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<967, 9> { using ZPZ = aerobus::zpz<967>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<512>, ZPZV<783>, ZPZV<962»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 1> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<965»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 2> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<970>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 3> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<965»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 4> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<527>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 5> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<965»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 6> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<970>, ZPZV<729>, ZPZV<718>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 7> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<965»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 8> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<725>, ZPZV<281>, ZPZV<206>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<971, 9> { using ZPZ = aerobus::zpz<971>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<805>, ZPZV<473>, ZPZV<965»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 1> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<974»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 2> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<972>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 3> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<974»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 4> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<800>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 5> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<974»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 6> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<729>, ZPZV<830>, ZPZV<753>, ZPZV<3»; };  // NOLINT
    template<> struct ConwayPolynomial<977, 7> { using ZPZ = aerobus::zpz<977>; using type = POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<974»; };  // NOLINT
```

```
    template<> struct ConwayPolynomial<977, 8> { using ZPZ = aerobus::zpz<977>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<855>, ZPZV<807>, ZPZV<77>, ZPZV<3»; };  //
NOLINT
    template<> struct ConwayPolynomial<977, 9> { using ZPZ = aerobus::zpz<977>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<450>, ZPZV<740>, ZPZV<974»;
};  // NOLINT
    template<> struct ConwayPolynomial<983, 1> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<978»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 2> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<981>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 3> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<978»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 4> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<567>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 5> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<978»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 6> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<849>, ZPZV<296>, ZPZV<228>, ZPZV<5»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 7> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<978»; };  // NOLINT
    template<> struct ConwayPolynomial<983, 8> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<738>, ZPZV<276>, ZPZV<530>, ZPZV<5»; };  //
NOLINT
    template<> struct ConwayPolynomial<983, 9> { using ZPZ = aerobus::zpz<983>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<858>, ZPZV<87>, ZPZV<978»;
};  // NOLINT
    template<> struct ConwayPolynomial<991, 1> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<985»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 2> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<989>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 3> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<985»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 4> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<794>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 5> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<985»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 6> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<637>, ZPZV<855>, ZPZV<278>, ZPZV<6»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 7> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<985»; };  // NOLINT
    template<> struct ConwayPolynomial<991, 8> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<941>, ZPZV<786>, ZPZV<234>, ZPZV<6»; };  //
NOLINT
    template<> struct ConwayPolynomial<991, 9> { using ZPZ = aerobus::zpz<991>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<466>, ZPZV<222>, ZPZV<985»;
};  // NOLINT
    template<> struct ConwayPolynomial<997, 1> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<990»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 2> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<995>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 3> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<990»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 4> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<622>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 5> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<990»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 6> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<981>, ZPZV<58>, ZPZV<260>, ZPZV<7»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 7> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<990»; };  // NOLINT
    template<> struct ConwayPolynomial<997, 8> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<934>, ZPZV<473>, ZPZV<241>, ZPZV<7»; };  //
NOLINT
    template<> struct ConwayPolynomial<997, 9> { using ZPZ = aerobus::zpz<997>; using type =
POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<39>, ZPZV<732>, ZPZV<616>, ZPZV<990»;
};  // NOLINT
#endif  // DO_NOT_DOCUMENT
}  // namespace aerobus
#endif  // AEROBUS_CONWAY_IMPORTS

#endif // __INC_AEROBUS__ // NOLINT
```

## 9.4 src/examples.h File Reference

## 9.5 examples.h

Go to the documentation of this file.

```
#ifndef SRC_EXAMPLES_H_
#define SRC_EXAMPLES_H_
#endif  // SRC_EXAMPLES_H_
```

# Chapter 10

# Examples

## 10.1 examples/hermite.cpp

How to use aerobus::known_polynomials::hermite_phys polynomials

```
#include <cmath>
#include <iostream>
#include "../src/aerobus.h"

namespace standardlib {
    double H3(double x) {
        return 8 * std::pow(x, 3) - 12 * x;
    }

    double H4(double x) {
        return 16 * std::pow(x, 4) - 48 * x * x + 12;
    }
}

namespace aerobuslib {
    double H3(double x) {
        return 8 * aerobus::pow_scalar<double, 3>(x) - 12 * x;
    }

    double H4(double x) {
        return 16 * aerobus::pow_scalar<double, 4>(x) - 48 * x * x + 12;
    }
}

int main() {
    std::cout << std::hermite(3, 10) << '=' << standardlib::H3(10) << '\n'
              << std::hermite(4, 10) << '=' << standardlib::H4(10) << '\n';
    std::cout << aerobus::known_polynomials::hermite_phys<3>::eval(10) << '=' << aerobuslib::H3(10) << '\n'
              << aerobus::known_polynomials::hermite_phys<4>::eval(10) << '=' << aerobuslib::H4(10) << '\n';
}
```

## 10.2 examples/custom_taylor.cpp

How to implement your own Taylor serie using aerobus::taylor

```
#include <cmath>
#include <iostream>
#include <iomanip>
#include "../src/aerobus.h"


template<typename T, size_t i>
struct my_coeff {
    using type = aerobus::makefraction_t<T, aerobus::bell_t<T, i>, aerobus::factorial_t<T, i>>;
};

template<size_t deg>
```

```
using F = aerobus::taylor<aerobus::i64, my_coeff, deg>;

int main() {
    constexpr double x = F<15>::eval(0.1);
    double xx = std::exp(std::exp(0.1) - 1);
    std::cout « std::setprecision(18) « x « " == " « xx « std::endl;
}
```

## 10.3 examples/fp16.cu

How to leverage CUDA __half and __half2 16 bits floating points number using aerobus::i16 Warning : due to an NVIDIA bug (lack of constexpr operators), performance is not good

```
// TO compile with nvcc -O3 -std=c++20 -arch=sm_90 fp16.cu
// TO GET optimal performances, modify cuda_fp16.h by adding __CUDA_FP16_CONSTEXPR__ to line 5039 (version
      12.6)
#include <cstdio>

#define WITH_CUDA_FP16
#include "../src/aerobus.h"

/*
change int_type to aerobus::i32 (or i64) and float_type to float (resp. double)
to see how good is the generated assembly compared to what nvcc generates for 16 bits
*/
using int_type = aerobus::i16;
using float_type = __half2;


constexpr size_t N = 1 « 24;

template<typename T>
struct Expm1Degree;

template<>
struct Expm1Degree<double> {
    static constexpr size_t val = 18;
};

template<>
struct Expm1Degree<float> {
    static constexpr size_t val = 11;
};

template<>
struct Expm1Degree<__half2> {
    static constexpr size_t val = 6;
};

template<>
struct Expm1Degree<__half> {
    static constexpr size_t val = 6;
};

double rand(double min, double max) {
  double range = (max - min);
  double div = RAND_MAX / range;
  return min + (rand() / div);  // NOLINT
}

template<typename T>
struct GetRandT;

template<>
struct GetRandT<double> {
    static double func(double min, double max) {
        return rand(min, max);
    }
};

template<>
struct GetRandT<float> {
    static float func(double min, double max) {
        return (float) rand(min, max);
    }
};

template<>
struct GetRandT<__half2> {
    static __half2 func(double min, double max) {
        return __half2(__float2half((float)rand(min, max)), __float2half((float)rand(min, max)));
    }
```

```
};

template<>
struct GetRandT<__half> {
    static __half func(double min, double max) {
        return __float2half((float)rand(min, max));
    }
};

using EXPM1 = aerobus::expm1<int_type, Expm1Degree<float_type>::val>;


__device__ INLINED float_type f(float_type x) {
    return EXPM1::eval(x);
}

__global__ void run(size_t N, float_type* in, float_type* out) {
    for(size_t i = threadIdx.x + blockDim.x * blockIdx.x; i < N; i += blockDim.x * gridDim.x) {
        out[i] = f(f(f(f(f(f(f(f(f(f(in[i])))))))))));
    }
}

int main() {
    float_type *d_in, *d_out;
    cudaMalloc<float_type>(&d_in, N * sizeof(float_type));
    cudaMalloc<float_type>(&d_out, N * sizeof(float_type));

    float_type *in = reinterpret_cast<float_type*>(malloc(N * sizeof(float_type)));
    float_type *out = reinterpret_cast<float_type*>(malloc(N * sizeof(float_type)));

    for(size_t i = 0; i < N; ++i) {
        in[i] = GetRandT<float_type>::func(-0.01, 0.01);
    }

    cudaMemcpy(d_in, in, N * sizeof(float_type), cudaMemcpyHostToDevice);

    run«<128, 512»>(N, d_in, d_out);

    cudaMemcpy(out, d_out, N * sizeof(float_type), cudaMemcpyDeviceToHost);

    cudaFree(d_in);
    cudaFree(d_out);
}

// generated SASS :

/*
HFMA2.MMA R5, R6, RZ, 0.0013885498046875, 0.0013885498046875 ;
HFMA2 R5, R6, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2.MMA R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2 R5, R6, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2.MMA R5, R6, R5, 0.5, 0.5 ;
HFMA2 R5, R6, R5, 1, 1 ;
HFMA2.MMA R5, R6, R5, RZ ;
HFMA2 R7, R5, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
HFMA2.MMA R7, R5, R7, 0.008331298828125, 0.008331298828125 ;
HFMA2 R7, R5, R7, 0.041656494140625, 0.041656494140625 ;
HFMA2.MMA R7, R5, R7, 0.1666259765625, 0.1666259765625 ;
HFMA2 R7, R5, R7, 0.5, 0.5 ;
HFMA2.MMA R7, R5, R7, 1, 1 ;
HFMA2 R7, R5, R7, RZ.H0_H0 ;
HFMA2.MMA R5, R7, RZ, 0.0013885498046875, 0.0013885498046875 ;
HFMA2 R5, R7, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2.MMA R5, R7, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2 R5, R7, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2.MMA R5, R7, R5, 0.5, 0.5 ;
HFMA2 R5, R7, R5, 1, 1 ;
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HFMA2 R6, R5, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
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HFMA2 R6, R5, R6, 0.041656494140625, 0.041656494140625 ;
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HFMA2 R6, R5, R6, 0.5, 0.5 ;
HFMA2.MMA R6, R5, R6, 1, 1 ;
HFMA2 R6, R5, R6, RZ.H0_H0 ;
HFMA2.MMA R5, R6, RZ, 0.0013885498046875, 0.0013885498046875 ;
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HFMA2.MMA R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2 R5, R6, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2.MMA R5, R6, R5, 0.5, 0.5 ;
HFMA2 R5, R6, R5, 1, 1 ;
HFMA2.MMA R5, R6, R5, RZ ;
HFMA2 R6, R5, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
HFMA2.MMA R6, R5, R6, 0.008331298828125, 0.008331298828125 ;
HFMA2 R6, R5, R6, 0.041656494140625, 0.041656494140625 ;
HFMA2.MMA R6, R5, R6, 0.1666259765625, 0.1666259765625 ;
HFMA2 R6, R5, R6, 0.5, 0.5 ;
```

```
HFMA2.MMA R6, R5, R6, 1, 1 ;
HFMA2 R6, R5, R6, RZ.H0_H0 ;
HFMA2.MMA R5, R6, RZ, 0.0013885498046875, 0.0013885498046875 ;
HFMA2 R5, R6, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2.MMA R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
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HFMA2.MMA R5, R6, R5, 0.5, 0.5 ;
HFMA2 R5, R6, R5, 1, 1 ;
HFMA2.MMA R5, R6, R5, RZ ;
HFMA2 R6, R5, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
HFMA2.MMA R6, R5, R6, 0.008331298828125, 0.008331298828125 ;
HFMA2 R6, R5, R6, 0.041656494140625, 0.041656494140625 ;
HFMA2.MMA R6, R5, R6, 0.1666259765625, 0.1666259765625 ;
HFMA2 R6, R5, R6, 0.5, 0.5 ;
HFMA2.MMA R6, R5, R6, 1, 1 ;
HFMA2 R6, R5, R6, RZ.H0_H0 ;
HFMA2.MMA R5, R6, RZ, 0.0013885498046875, 0.0013885498046875 ;
HFMA2 R5, R6, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2.MMA R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2 R5, R6, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2.MMA R5, R6, R5, 0.5, 0.5 ;
HFMA2 R5, R6, R5, 1, 1 ;
HFMA2.MMA R5, R6, R5, RZ ;
HFMA2 R6, R5, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
HFMA2.MMA R6, R5, R6, 0.008331298828125, 0.008331298828125 ;
HFMA2 R6, R5, R6, 0.041656494140625, 0.041656494140625 ;
HFMA2.MMA R6, R5, R6, 0.1666259765625, 0.1666259765625 ;
HFMA2 R6, R5, R6, 0.5, 0.5 ;
HFMA2.MMA R6, R5, R6, 1, 1 ;
HFMA2 R6, R5, R6, RZ.H0_H0 ;
HFMA2.MMA R5, R6, RZ, 0.0013885498046875, 0.0013885498046875 ;
HFMA2 R5, R6, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2.MMA R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2 R5, R6, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2.MMA R5, R6, R5, 0.5, 0.5 ;
HFMA2 R5, R6, R5, 1, 1 ;
HFMA2.MMA R6, R6, R5, RZ ;
HFMA2 R5, R6, RZ.H0_H0, 0.0013885498046875, 0.0013885498046875 ;
HFMA2.MMA R5, R6, R5, 0.008331298828125, 0.008331298828125 ;
HFMA2 R5, R6, R5, 0.041656494140625, 0.041656494140625 ;
HFMA2.MMA R5, R6, R5, 0.1666259765625, 0.1666259765625 ;
HFMA2 R5, R6, R5, 0.5, 0.5 ;
HFMA2.MMA R7, R6, R5, 1, 1 ;
IADD3.X R5, R8, UR11, RZ, P0, !PT ;
IADD3 R3, P0, R2, R3, RZ ;
IADD3.X R0, RZ, R0, RZ, P0, !PT ;
ISETP.GE.U32.AND P0, PT, R3, UR8, PT ;
HFMA2 R7, R6, R7, RZ.H0_H0 ;
ISETP.GE.U32.AND.EX P0, PT, R0, UR9, PT, P0 ;
STG.E desc[UR6][R4.64], R7 ;
*/
```

## 10.4 examples/continued_fractions.cpp

How to use aerobus::ContinuedFraction to get approximations of known numbers

```
#include <cmath>
#include <iostream>
#include <iomanip>
#include "../src/aerobus.h"

static constexpr double PHI = aerobus::ContinuedFraction<
        1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,
        1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1>::val;

static const double phi = (std::sqrt(5.0) + 1.0)/2.0;

int main() {
    std::cout « std::setprecision(15) « "Aerobus  PHI : " « PHI « std::endl;
    std::cout « std::setprecision(15) « "Computed PHI : " « phi « std::endl;
    return 0;
}
```

## 10.5 examples/modular_arithmetic.cpp

How to use aerobus::zpz to perform computations on rational fractions with coefficients in modular rings

```
#include <iostream>
#include "../src/aerobus.h"

using FIELD = aerobus::zpz<2>;
using POLYNOMIALS = aerobus::polynomial<FIELD>;
using FRACTIONS = aerobus::FractionField<POLYNOMIALS>;

// x^3 + 2x^2 + 1, with coefficients in Z/2Z, actually x^3 + 1
using P = aerobus::make_int_polynomial_t<FIELD, 1, 2, 0, 1>;
// x^3 + 5x^2 + 7x + 11 with coefficients in Z/17Z, meaning actually x^3 + x^2 + 1
using Q = aerobus::make_int_polynomial_t<FIELD, 1, 5, 8, 1>;

// P/Q in the field of fractions of polynomials
using F = aerobus::makefraction_t<POLYNOMIALS, P, Q>;

int main() {
    const double v = F::eval<double>(1.0);
    std::cout « "expected = " « 2.0/3.0 « std::endl;
    std::cout « "value    = " « v « std::endl;
    return 0;
}
```

## 10.6 examples/make_polynomial.cpp

How to build your own sequence of known polynomials, here `Abel polynomials`

```
#include <iostream>
#include "../src/aerobus.h"


// let's build Abel polynomials from scratch using Aerobus
// note : it's now integrated in the main library, but still serves as an example

template<typename I = aerobus::i64>
struct AbelHelper {
 private:
    using P = aerobus::polynomial<I>;

 public:
    // to keep recursion working, we need to operate on a*n and not just a
    template<size_t deg, I::inner_type an>
    struct Inner {
        // abel(n, a) = (x-an) * abel(n-1, a)
        using type = typename aerobus::mul_t<
            typename Inner<deg-1, an>::type,
            typename aerobus::sub_t<typename P::X, typename P::template inject_constant_t<an>>
        >;
    };

    // abel(0, a) = 1
    template<I::inner_type an>
    struct Inner<0, an> {
        using type = P::one;
    };

    // abel(1, a) = X
    template<I::inner_type an>
    struct Inner<1, an> {
        using type = P::X;
    };
};

template<size_t n, auto a, typename I = aerobus::i64>
using AbelPolynomials = typename AbelHelper<I>::template Inner<n, a*n>::type;

using A2_3 = AbelPolynomials<3, 2>;

int main() {
    std::cout « "expected = x^3 - 12 x^2 + 36 x" « std::endl;
    std::cout « "aerobus  = " « A2_3::to_string() « std::endl;
    return 0;
}
```

## 10.7 examples/polynomials_over_finite_field.cpp

How to build a known polynomial (here aerobus::known_polynomials::allone) with coefficients in a finite field (here aerobus::zpz<2>) and get its value when evaluated at a value in this field (here 1).

```
#include <iostream>
```

```
#include "../src/aerobus.h"

using GF2 = aerobus::zpz<2>;
using P = aerobus::known_polynomials::allone<8, GF2>;

int main() {
    // at this point, value_at_1 is an instanciation of zpz<2>::val
    using value_at_1 = P::template value_at_t<GF2::template inject_constant_t<1»;
    // here we get its value in an arithmetic type, here int32_t
    constexpr int32_t x = value_at_1::template get<int32_t>();
    // ensure that 1+1+1+1+1+1+1+1 in Z/2Z is equal to one
    std::cout « "expected = " « 1 « std::endl;
    std::cout « "computed = " « x « std::endl;
    return 0;
}
```

## 10.8 examples/compensated_horner.cpp

How to use compensated horner evaluation scheme to get better accuracy when evaluating polynomials close to its roots

**See also**

publication

```
// run with ./generate_comp_horner.sh in this directory
// that will compile and run this sample and plot all the generated data
#include "../src/aerobus.h"

using namespace aerobus;  // NOLINT

constexpr size_t NB_POINTS = 400;

template<typename P, typename T, bool compensated>
DEVICE INLINED T eval(const T& x) {
    if constexpr (compensated) {
        return P::template compensated_eval<T>(x);
    } else {
        return P::template eval<T>(x);
    }
}

template<typename T>
DEVICE T exact_large(const T& x) {
    return pow_scalar<T, 5>(0.75 - x) * pow_scalar<T, 11>(1 - x);
}

template<typename T>
DEVICE T exact_small(const T& x) {
    return pow_scalar<T, 3>(x - 1);
}

template<typename P, typename T, bool compensated>
void run(T left, T right, const char *file_name, T (*exact)(const T&)) {
    FILE *f = ::fopen(file_name, "w+");
    T step = (right - left) / NB_POINTS;
    T x = left;
    for (size_t i = 0; i <= NB_POINTS; ++i) {
        ::fprintf(f, "%e %e %e\n", x, eval<P, T, compensated>(x), exact(x));
        x += step;
    }
    ::fclose(f);
}

int main() {
    {
        // (0.75 - x)^5 * (1 - x)^11
        using P = mul_t<
            pow_t<pq64, pq64::val<
                typename q64::template inject_constant_t<-1>,
                q64::val<i64::val<3>, i64::val<4>», 5>,
            pow_t<pq64, pq64::val<typename q64::template inject_constant_t<-1>, typename q64::one>, 11>
        >;
        using FLOAT = double;
        run<P, FLOAT, false>(0.68, 1.15, "plots/large_sample_horner.dat", &exact_large);
        run<P, FLOAT, true>(0.68, 1.15, "plots/large_sample_comp_horner.dat", &exact_large);

        run<P, FLOAT, false>(0.74995, 0.75005, "plots/first_root_horner.dat", &exact_large);
```

```
        run<P, FLOAT, true>(0.74995, 0.75005, "plots/first_root_comp_horner.dat", &exact_large);

        run<P, FLOAT, false>(0.9935, 1.0065, "plots/second_root_horner.dat", &exact_large);
        run<P, FLOAT, true>(0.9935, 1.0065, "plots/second_root_comp_horner.dat", &exact_large);
    }
    {
        // (x - 1) ^ 3
        using P = make_int_polynomial_t<i32, 1, -3, 3, -1>;

        run<P, double, false>(1-0.00005, 1+0.00005, "plots/double.dat", &exact_small);
        run<P, float, true>(1-0.00005, 1+0.00005, "plots/float_comp.dat", &exact_small);
    }
}
```

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