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. Then move to top directory :

```
rm -rf build
mkdir build
cd build
cmake ..
make aerobus_benchmarks
./aerobus_benchmarks
```

results on my laptop :

```
./benchmarks_avx512.exe
[std math] 5.358e-01 Gsin/s
[std fast math] 3.389e+00 Gsin/s
[aerobus deg 1] 1.871e+01 Gsin/s
average error (vs std) : 4.36e-02
max error (vs std) : 1.50e-01
[aerobus deg 3] 1.943e+01 Gsin/s
average error (vs std) : 1.85e-04
max error (vs std) : 8.17e-04
[aerobus deg 5] 1.335e+01 Gsin/s
average error (vs std) : 6.07e-07
max error (vs std) : 3.63e-06
[aerobus deg 7] 8.634e+00 Gsin/s
average error (vs std) : 1.27e-09
max error (vs std) : 9.75e-09
[aerobus deg 9] 6.171e+00 Gsin/s
average error (vs std) : 1.89e-12
max error (vs std) : 1.78e-11
[aerobus deg 11] 4.731e+00 Gsin/s
average error (vs std) : 2.12e-15
max error (vs std) : 2.40e-14
[aerobus deg 13] 3.862e+00 Gsin/s
average error (vs std) : 3.16e-17
max error (vs std) : 3.33e-16
[aerobus deg 15] 3.359e+00 Gsin/s
average error (vs std) : 3.13e-17
max error (vs std) : 3.33e-16
[aerobus deg 17] 2.947e+00 Gsin/s
average error (vs std) : 3.13e-17
max error (vs std) : 3.33e-16
average error (vs std) : 3.13e-17
max error (vs std) : 3.33e-16
```

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 Fraction↩ Field<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 π, 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
- 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_signed_t = typename internal::stirling_helper< T, n, k >::type

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

  Stirling number of first king (unsigned) – 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 >
- 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, 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 >
  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>
```

$\text{arcsinh}(x)$ 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>
```

$\text{arctanh}(x)$ 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>
```

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
```

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>
```

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>
```

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>
```

approximation of

6.1.2.43 stirling_signed_t

```
template<typename T , int n, int k>
using aerobus::stirling_signed_t = typedef typename internal::stirling_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_unsigned_t

```
template<typename T , int n, int k>
using aerobus::stirling_unsigned_t = typedef abs_t<typename internal::stirling_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 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

6.1.2.46 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

6.1.2.47 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

6.1.2.48 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	

6.1.2.49 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	

6.1.2.50 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<FloatType>
[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 **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, l >**
- struct **bernstein_helper< i, m, l, std::enable_if_t<(m > 0) &&(i > 0) &&(i< m)> >**
- struct **bernstein_helper< i, m, l, std::enable_if_t<(m > 0) &&(i==0)> >**
- struct **bernstein_helper< i, m, l, std::enable_if_t<(m > 0) &&(i==m)> >**
- struct **chebyshev_helper**
- struct **chebyshev_helper< 1, 0, l >**
- struct **chebyshev_helper< 1, 1, l >**
- struct **chebyshev_helper< 2, 0, l >**
- struct **chebyshev_helper< 2, 1, l >**
- 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 **fma_helper**
- struct **fma_helper< double >**
- struct **fma_helper< float >**
- struct **fma_helper< int32_t >**
- struct **fma_helper< int64_t >**
- 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, l** >
- struct **hermite_helper**< **0, known_polynomials::hermite_kind::probabilist, l** >
- struct **hermite_helper**< **1, known_polynomials::hermite_kind::physicist, l** >
- struct **hermite_helper**< **1, known_polynomials::hermite_kind::probabilist, l** >
- struct **hermite_helper**< **deg, known_polynomials::hermite_kind::physicist, l** >
- struct **hermite_helper**< **deg, known_polynomials::hermite_kind::probabilist, l** >
- struct **insert_h**
- struct **is_instantiation_of**
- struct **is_instantiation_of**< **TT, TT**< **Ts...** > >
- struct **laguerre_helper**
- struct **laguerre_helper**< **0, l** >
- struct **laguerre_helper**< **1, l** >
- struct **legendre_helper**
- struct **legendre_helper**< **0, l** >
- struct **legendre_helper**< **1, l** >
- struct **lnp1_coeff**
- struct **lnp1_coeff**< **T, 0** >
- struct **make_taylor_impl**
- struct **make_taylor_impl**< **T, coeff_at, std::integer_sequence**< **size_t, ls...** > >
- 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 **stirling_helper**
- struct **stirling_helper**< **T, 0, 0** >
- struct **stirling_helper**< **T, 0, n, std::enable_if_t**<**(n** > **0)**> >
- struct **stirling_helper**< **T, n, 0, std::enable_if_t**<**(n** > **0)**> >
- struct **stirling_helper**< **T, n, k, std::enable_if_t**<**(k** > **0) &&(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 **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

Typedefs

- template<size_t deg, typename I = aerobus::i64>
  using chebyshev_T = typename internal::chebyshev_helper< 1, deg, I >::type

  Chebyshev polynomials of first kind.
- template<size_t deg, typename I = aerobus::i64>
  using chebyshev_U = typename internal::chebyshev_helper< 2, deg, I >::type

  Chebyshev polynomials of second kind.
- template<size_t deg, typename I = aerobus::i64>
  using laguerre = typename internal::laguerre_helper< deg, I >::type

  Laguerre polynomials.
- template<size_t deg, typename I = aerobus::i64>
  using hermite_prob = typename internal::hermite_helper< deg, hermite_kind::probabilist, I >::type

  Hermite polynomials - probabilist form.
- template<size_t deg, typename I = aerobus::i64>
  using hermite_phys = typename internal::hermite_helper< deg, hermite_kind::physicist, I >::type

  Hermite polynomials - physicist form.
- template<size_t i, size_t m, typename I = aerobus::i64>
  using bernstein = typename internal::bernstein_helper< i, m, I >::type

  Bernstein polynomials.
- template<size_t deg, typename I = aerobus::i64>
  using legendre = typename internal::legendre_helper< deg, I >::type

  Legendre polynomials.
- template<size_t deg, typename I = aerobus::i64>
  using bernoulli = taylor< I, internal::bernoulli_coeff< deg >::template inner, deg >

  Bernoulli polynomials.

Enumerations

- enum hermite_kind { probabilist , physicist }

6.3.1 Detailed Description

families of well known polynomials such as Hermite or Bernstein

6.3.2 Typedef Documentation

6.3.2.1 bernoulli

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::bernoulli = typedef taylor<I, internal::bernoulli_coeff<deg>↩
::template inner, deg>
```

Bernoulli polynomials.

Lives in polynomial<FractionField<I>>

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial
I	Integers ring (defaults to aerobus::i64)

6.3.2.2 bernstein

```
template<size_t i, size_t m, typename I = aerobus::i64>
using aerobus::known_polynomials::bernstein = typedef typename internal::bernstein_helper<i,
m, I>::type
```

Bernstein polynomials.

Lives in polynomial

See also

See in Wikipedia

Template Parameters

i	*index of polynomial (between 0 and m)*
m	*degree of polynomial*
I	*Integers ring (defaults to aerobus::i64)*

6.3.2.3 chebyshev_T

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::chebyshev_T = typedef typename internal::chebyshev_helper<1,
deg, I>::type
```

Chebyshev polynomials of first kind.

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial
integer	rings (defaults to aerobus::i64)

6.3.2.4 chebyshev_U

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::chebyshev_U = typedef typename internal::chebyshev_helper<2,
deg, I>::type
```

Chebyshev polynomials of second kind.

Lives in polynomial

See also

See in Wikipedia

Template Parameters

deg	*degree of polynomial*
integer	*rings (defaults to aerobus::i64)*

6.3.2.5 hermite_phys

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::hermite_phys = typedef typename internal::hermite_helper<deg,
hermite_kind::physicist, I>::type
```

Hermite polynomials - physicist form.

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial

6.3.2.6 hermite_prob

```
template<size_t deg, typename I = aerobus::i64>
```

```
using aerobus::known_polynomials::hermite_prob = typedef typename internal::hermite_helper<deg,
hermite_kind::probabilist, I>::type
```

Hermite polynomials - probabilist form.

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial

6.3.2.7 laguerre

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::laguerre = typedef typename internal::laguerre_helper<deg,
I>::type
```

Laguerre polynomials.

Lives in polynomial<FractionField<I>>

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial
I	Integers ring (defaults to aerobus::i64)

6.3.2.8 legendre

```
template<size_t deg, typename I = aerobus::i64>
using aerobus::known_polynomials::legendre = typedef typename internal::legendre_helper<deg,
I>::type
```

Legendre polynomials.

Lives in polynomial<FractionField<I>>

See also

See in Wikipedia

Template Parameters

deg	degree of polynomial
I	Integers Ring (defaults to aerobus::i64)

6.3.3 Enumeration Type Documentation

6.3.3.1 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

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::Embed< Small, Large, E > Struct Template Reference

embedding - struct forward declaration

8.8.1 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

8.9 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

8.9.1 Detailed Description

embeds i32 into i64

8.9.2 Member Typedef Documentation

8.9.2.1 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

8.10 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

8.10.1 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

8.10.2 Member Typedef Documentation

8.10.2.1 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

8.11 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

8.11.1 Detailed Description

embeds q32 into q64

8.11.2 Member Typedef Documentation

8.11.2.1 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

8.12 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.

8.12.1 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

8.12.2 Member Typedef Documentation

8.12.2.1 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

8.13 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.

8.13.1 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

8.13.2 Member Typedef Documentation

8.13.2.1 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

8.14 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

8.14.1 Detailed Description

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

embeds zpz values into i32

Template Parameters

x	an integer

8.14.2 Member Typedef Documentation

8.14.2.1 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

8.15 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)>
- template<typename v >
  using inject_ring_t = v
- 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

  modulus operator yields v1 % v2 for example : i32::mod_t<i32::val<7>, i32::val<2>>
- 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 >
  using gcd_t = gcd_t< i32, v1, v2 >
- template<typename v >
  using pos_t = typename pos< v >::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
- template<typename v >
  static constexpr bool pos_v = pos_t<v>::value

8.15.1 Detailed Description

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

8.15.2 Member Typedef Documentation

8.15.2.1 add_t

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

8.15.2.2 div_t

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

8.15.2.3 eq_t

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

8.15.2.4 gcd_t

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

8.15.2.5 gt_t

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

8.15.2.6 inject_constant_t

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

8.15.2.7 inject_ring_t

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

8.15.2.8 inner_type

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

8.15.2.9 lt_t

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

8.15.2.10 mod_t

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

modulus operator yields v1 % v2 for example : i32::mod_t<i32::val<7>, i32::val<2>>

Template Parameters

v1	a value in i32
v2	a value in i32

8.15.2.11 mul_t

```
template<typename v1 , typename v2 >
```

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

8.15.2.12 one

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

constant one

8.15.2.13 pos_t

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

8.15.2.14 sub_t

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

8.15.2.15 zero

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

constant zero

8.15.3 Member Data Documentation

8.15.3.1 eq_v

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

8.15.3.2 is_euclidean_domain

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

integers are an euclidean domain

8.15.3.3 is_field

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

integers are not a field

8.15.3.4 pos_v

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

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

- src/aerobus.h

8.16 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)>
- 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
- 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 >
  using gcd_t = gcd_t< i64, v1, v2 >
- template<typename v >
  using pos_t = typename pos< v >::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
- template<typename v1 , typename v2 >
  static constexpr bool eq_v = eq_t<v1, v2>::value
- template<typename v >
  static constexpr bool pos_v = pos_t<v>::value

8.16.1 Detailed Description

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

8.16.2 Member Typedef Documentation

8.16.2.1 add_t

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

8.16.2.2 div_t

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

8.16.2.3 eq_t

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

8.16.2.4 gcd_t

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

8.16.2.5 gt_t

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

8.16.2.6 inject_constant_t

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

8.16.2.7 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

8.16.2.8 inner_type

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

type of represented values

8.16.2.9 lt_t

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

8.16.2.10 mod_t

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

8.16.2.11 mul_t

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

8.16.2.12 one

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

constant one

8.16.2.13 pos_t

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

8.16.2.14 sub_t

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

8.16.2.15 zero

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

constant zero

8.16.3 Member Data Documentation

8.16.3.1 eq_v

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

8.16.3.2 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

8.16.3.3 is_euclidean_domain

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

integers are an euclidean domain

8.16.3.4 is_field

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

integers are not a field

8.16.3.5 lt_v

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

8.16.3.6 pos_v

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

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

- src/aerobus.h

8.17 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

8.17.1 Detailed Description

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

checks if n is prime

Template Parameters

n	

8.17.2 Member Data Documentation

8.17.2.1 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

8.18 aerobus::polynomial< Ring > Struct Template Reference

`#include <aerobus.h>`

Classes

- 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 > >
- template<typename v >
  using inject_ring_t = val< v >

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

8.18.1 Detailed Description

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

polynomial with coefficients in Ring Ring must be an integral domain

8.18.2 Member Typedef Documentation

8.18.2.1 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	

8.18.2.2 derive_t

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

derivation operator

Template Parameters

v	

8.18.2.3 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	

8.18.2.4 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	

8.18.2.5 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	

8.18.2.6 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	

8.18.2.7 inject_constant_t

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

8.18.2.8 inject_ring_t

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

8.18.2.9 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	

8.18.2.10 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	

8.18.2.11 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	

8.18.2.12 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	

8.18.2.13 one

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

constant one

8.18.2.14 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	

8.18.2.15 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	

8.18.2.16 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	

8.18.2.17 X

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

generator

8.18.2.18 zero

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

constant zero

8.18.3 Member Data Documentation

8.18.3.1 is_euclidean_domain

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

8.18.3.2 is_field

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

8.18.3.3 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

8.19 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

8.19.1 Detailed Description

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

removes types from head of the list

8.19.2 Member Typedef Documentation

8.19.2.1 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

8.19.2.2 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

8.20 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 > >
- template<typename v >
  using inject_ring_t = val< v >

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

8.20.1 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>

8.20.2 Member Typedef Documentation

8.20.2.1 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

8.20.2.2 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

8.20.2.3 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

8.20.2.4 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>
>
```

8.20.2.5 inject_ring_t

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

8.20.2.6 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

8.20.2.7 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

8.20.2.8 one

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

one

8.20.2.9 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

8.20.2.10 zero

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

zero value

8.20.3 Member Data Documentation

8.20.3.1 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

8.20.3.2 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

8.20.3.3 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

8.21 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

8.21.1 Detailed Description

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

splits list at index

Template Parameters

index	

8.21.2 Member Typedef Documentation

8.21.2.1 head

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

8.21.2.2 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

8.22 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

8.22.1 Detailed Description

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

Empty pure template struct to handle type list.

8.22.2 Member Typedef Documentation

8.22.2.1 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	

8.22.2.2 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	

8.22.2.3 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	

8.22.2.4 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	

8.22.2.5 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	

8.22.2.6 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	

8.22.3 Member Data Documentation

8.22.3.1 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

8.23 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

8.23.1 Detailed Description

specialization for empty type list

8.23.2 Member Typedef Documentation

8.23.2.1 concat

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

8.23.2.2 insert

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

8.23.2.3 push_back

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

8.23.2.4 push_front

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

8.23.3 Member Data Documentation

8.23.3.1 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

8.24 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

- static std::string to_string ()
  string representation of value

Static Public Attributes

- static constexpr int32_t v = x
  actual value stored in val type
- template<typename valueType >
  static constexpr valueType get = static_cast<valueType>(x)
  cast x into valueType

8.24.1 Detailed Description

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

values in i32, again represented as types

Template Parameters

x	an actual integer

8.24.2 Member Typedef Documentation

8.24.2.1 enclosing_type

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

Enclosing ring type.

8.24.2.2 is_zero_t

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

is value zero

8.24.3 Member Function Documentation

8.24.3.1 to_string()

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

string representation of value

8.24.4 Member Data Documentation

8.24.4.1 get

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

cast x into valueType

Template Parameters

valueType	double for example

8.24.4.2 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

8.25 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

- static std::string to_string ()
  string representation

Static Public Attributes

- static constexpr int64_t v = x
  actual value
- template<typename valueType >
  static constexpr valueType get = static_cast<valueType>(x)
  cast value in valueType

8.25.1 Detailed Description

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

values in i64

Template Parameters

x	an actual integer

8.25.2 Member Typedef Documentation

8.25.2.1 enclosing_type

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

enclosing ring type

8.25.2.2 inner_type

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

type of represented values

8.25.2.3 is_zero_t

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

is value zero

8.25.3 Member Function Documentation

8.25.3.1 to_string()

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

string representation

8.25.4 Member Data Documentation

8.25.4.1 get

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

cast value in valueType

Template Parameters

valueType	(double for example)

8.25.4.2 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

8.26 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

Static Public Member Functions

- static std::string to_string ()
  get a string representation of polynomial
- template<typename valueRing >
  static constexpr DEVICE INLINED valueRing eval (const valueRing &x)
  evaluates polynomial seen as a function operating on ValueRing

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

8.26.1 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

8.26.2 Member Typedef Documentation

8.26.2.1 aN

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

heavy weight coefficient (non zero)

8.26.2.2 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	

8.26.2.3 enclosing_type

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

enclosing ring type

8.26.2.4 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

8.26.2.5 ring_type

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

ring coefficients live in

8.26.2.6 strip

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

remove largest coefficient

8.26.3 Member Function Documentation

8.26.3.1 eval()

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

evaluates polynomial seen as a function operating on ValueRing

Template Parameters

valueRing	usually float or double

Parameters

x	value

Returns

P(x)

8.26.3.2 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

8.26.4 Member Data Documentation

8.26.4.1 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

8.26.4.2 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

8.27 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 > >

8.27.1 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'

8.27.2 Member Typedef Documentation

8.27.2.1 raw_t

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

8.27.2.2 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

8.28 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

- static std::string to_string ()
  string representation

Static Public Attributes

- static constexpr int32_t v = x % p
  actual value
- template<typename valueType >
  static constexpr valueType get = static_cast<valueType>(x % p)
  get value as valueType
- static constexpr bool is_zero_v = v == 0
  true if zero

8.28.1 Detailed Description

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

values in zpz

Template Parameters

x	an integer

8.28.2 Member Typedef Documentation

8.28.2.1 enclosing_type

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

enclosing ring type

8.28.2.2 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

8.28.3 Member Function Documentation

8.28.3.1 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

8.28.4 Member Data Documentation

8.28.4.1 get

```
template<int32_t p>
template<int32_t x>
template<typename valueType >
constexpr valueType aerobus::zpz< p >::val< x >::get = static_cast<valueType>(x % p)  [static],
[constexpr]
```

get value as valueType

Template Parameters

valueType	an arithmetic type, such as float

8.28.4.2 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

8.28.4.3 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

8.29 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

Static Public Member Functions

- static std::string to_string ()

Static Public Attributes

- static constexpr size_t degree = 0

  degree
- static constexpr bool is_zero_v = is_zero_t::value

8.29.1 Detailed Description

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

specialization for constants

Template Parameters

coeffN	

8.29.2 Member Typedef Documentation

8.29.2.1 aN

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

8.29.2.2 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
```

8.29.2.3 enclosing_type

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

enclosing ring type

8.29.2.4 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>
```

8.29.2.5 ring_type

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

ring coefficients live in

8.29.2.6 strip

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

8.29.3 Member Function Documentation

8.29.3.1 to_string()

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

8.29.4 Member Data Documentation

8.29.4.1 degree

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

degree

8.29.4.2 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

8.30 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)

8.30.1 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

8.30.2 Member Typedef Documentation

8.30.2.1 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

8.30.2.2 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

8.30.2.3 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

8.30.2.4 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

8.30.2.5 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

8.30.2.6 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

8.30.2.7 inner_type

```
template<int32_t p>
using aerobus::zpz< p >::inner_type = int32_t
```

underlying type for values

8.30.2.8 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

8.30.2.9 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

8.30.2.10 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

8.30.2.11 one

```
template<int32_t p>
using aerobus::zpz< p >::one = val<1>
```

one value

8.30.2.12 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

8.30.2.13 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

8.30.2.14 zero

```
template<int32_t p>
using aerobus::zpz< p >::zero = val<0>
```

zero value

8.30.3 Member Data Documentation

8.30.3.1 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

8.30.3.2 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

8.30.3.3 is_euclidean_domain

```
template<int32_t p>
constexpr bool aerobus::zpz< p >::is_euclidean_domain = true  [static], [constexpr]
```

always true

8.30.3.4 is_field

```
template<int32_t p>
constexpr bool aerobus::zpz< p >::is_field = is_prime<p>::value  [static], [constexpr]
```

true iff p is prime

8.30.3.5 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

8.30.3.6 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.

```
00001 // -*- lsst-c++ -*-
00002 #ifndef __INC_AEROBUS__ // NOLINT
00003 #define __INC_AEROBUS__
00004
00005 #include <cstdint>
00006 #include <cstddef>
00007 #include <cstring>
00008 #include <type_traits>
00009 #include <utility>
00010 #include <algorithm>
00011 #include <functional>
00012 #include <string>
00013 #include <concepts> // NOLINT
00014 #include <array>
00015 #ifdef WITH_CUDA_FP16
00016 #include <bit>
00017 #include <cuda_fp16.h>
00018 #endif
00019
00023 #ifdef _MSC_VER
00024 #define ALIGNED(x) __declspec(align(x))
00025 #define INLINED __forceinline
00026 #else
00027 #define ALIGNED(x) __attribute__((aligned(x)))
00028 #define INLINED __attribute__((always_inline)) inline
```

```
00029 #endif
00030
00031 #ifdef __CUDACC__
00032 #define DEVICE __host__ __device__
00033 #else
00034 #define DEVICE
00035 #endif
00036
00038
00040
00042
00043 // aligned allocation
00044 namespace aerobus {
00051     template<typename T>
00052     T* aligned_malloc(size_t count, size_t alignment) {
00053         #ifdef _MSC_VER
00054         return static_cast<T*>(_aligned_malloc(count * sizeof(T), alignment));
00055         #else
00056         return static_cast<T*>(aligned_alloc(alignment, count * sizeof(T)));
00057         #endif
00058     }
00059 }  // namespace aerobus
00060
00061 // concepts
00062 namespace aerobus {
00064     template <typename R>
00065     concept IsRing = requires {
00066         typename R::one;
00067         typename R::zero;
00068         typename R::template add_t<typename R::one, typename R::one>;
00069         typename R::template sub_t<typename R::one, typename R::one>;
00070         typename R::template mul_t<typename R::one, typename R::one>;
00071     };
00072
00074     template <typename R>
00075     concept IsEuclideanDomain = IsRing<R> && requires {
00076         typename R::template div_t<typename R::one, typename R::one>;
00077         typename R::template mod_t<typename R::one, typename R::one>;
00078         typename R::template gcd_t<typename R::one, typename R::one>;
00079         typename R::template eq_t<typename R::one, typename R::one>;
00080         typename R::template pos_t<typename R::one>;
00081
00082         R::template pos_v<typename R::one> == true;
00083         // typename R::template gt_t<typename R::one, typename R::zero>;
00084         R::is_euclidean_domain == true;
00085     };
00086
00088     template<typename R>
00089     concept IsField = IsEuclideanDomain<R> && requires {
00090         R::is_field == true;
00091     };
00092 }  // namespace aerobus
00093
00094 #ifdef WITH_CUDA_FP16
00095 // all this shit is required because of NVIDIA bug https://developer.nvidia.com/bugs/4863696
00096 namespace aerobus {
00097     namespace internal {
00098         static consteval uint16_t my_internal_float2half(
00099             const float f, uint32_t &sign, uint32_t &remainder) {
00100             uint32_t x;
00101             uint32_t u;
00102             uint32_t result;
00103             x = std::bit_cast<int32_t>(f);
00104             u = (x & 0x7fffffffU);
00105             sign = ((x >> 16U) & 0x8000U);
00106             // NaN/+Inf/-Inf
00107             if (u >= 0x7f800000U) {
00108                 remainder = 0U;
00109                 result = ((u == 0x7f800000U) ? (sign | 0x7c00U) : 0x7fffU);
00110             } else if (u > 0x477fefffU) {  // Overflows
00111                 remainder = 0x80000000U;
00112                 result = (sign | 0x7bffU);
00113             } else if (u >= 0x38800000U) {  // Normal numbers
00114                 remainder = u << 19U;
00115                 u -= 0x38000000U;
00116                 result = (sign | (u >> 13U));
00117             } else if (u < 0x33000001U) {  // +0/-0
00118                 remainder = u;
00119                 result = sign;
00120             } else {  // Denormal numbers
00121                 const uint32_t exponent = u >> 23U;
00122                 const uint32_t shift = 0x7eU - exponent;
00123                 uint32_t mantissa = (u & 0x7fffffU);
00124                 mantissa |= 0x800000U;
00125                 remainder = mantissa << (32U - shift);
00126                 result = (sign | (mantissa >> shift));
00127                 result &= 0x0000FFFFU;
```

```
00128             }
00129             return static_cast<uint16_t>(result);
00130         }
00131 
00132         static consteval __half my_float2half_rn(const float a) {
00133             __half val;
00134             __half_raw r;
00135             uint32_t sign = 0U;
00136             uint32_t remainder = 0U;
00137             r.x = my_internal_float2half(a, sign, remainder);
00138             if ((remainder > 0x80000000U) || ((remainder == 0x80000000U) && ((r.x & 0x1U) != 0U))) {
00139                 r.x++;
00140             }
00141 
00142             val = std::bit_cast<__half>(r);
00143             return val;
00144         }
00145 
00146         template<int16_t i>
00147         static constexpr __half convert_int16_to_half = my_float2half_rn(static_cast<float>(i));
00148     }  // namespace internal
00149 }  // namespace aerobus
00150 #endif
00151 
00152 // fma_helper, required because nvidia fails to reconstruct fma
00153 namespace aerobus {
00154     namespace internal {
00155         template<typename T>
00156         struct fma_helper;
00157 
00158         template<>
00159         struct fma_helper<double> {
00160             static constexpr INLINED DEVICE double eval(const double x, const double y, const double
      z) {
00161                 return x * y + z;
00162             }
00163         };
00164 
00165         template<>
00166         struct fma_helper<float> {
00167             static constexpr INLINED DEVICE float eval(const float x, const float y, const float z) {
00168                 return x * y + z;
00169             }
00170         };
00171 
00172         template<>
00173         struct fma_helper<int32_t> {
00174             static constexpr INLINED DEVICE int32_t eval(const int32_t x, const int32_t y, const
      int32_t z) {
00175                 return x * y + z;
00176             }
00177         };
00178 
00179         template<>
00180         struct fma_helper<int64_t> {
00181             static constexpr INLINED DEVICE int64_t eval(const int64_t x, const int64_t y, const
      int64_t z) {
00182                 return x * y + z;
00183             }
00184         };
00185 
00186         #ifdef WITH_CUDA_FP16
00187         template<>
00188         struct fma_helper<__half> {
00189             static constexpr INLINED DEVICE __half eval(const __half x, const __half y, const __half
      z) {
00190                 #ifdef __CUDA_ARCH__
00191                 return __hfma(x, y, z);
00192                 #else
00193                 return x * y + z;
00194                 #endif
00195             }
00196         };
00197         template<>
00198         struct fma_helper<__half2> {
00199             static constexpr INLINED DEVICE __half2 eval(const __half2 x, const __half2 y, const
      __half2 z) {
00200                 #ifdef __CUDA_ARCH__
00201                 return __hfma2(x, y, z);
00202                 #else
00203                 return x * y + z;
00204                 #endif
00205             }
00206         };
00207         #endif
00208     }  // namespace internal
00209 }  // namespace aerobus
```

```
00210
00211 // utilities
00212 namespace aerobus {
00213     namespace internal {
00214         template<template<typename...> typename TT, typename T>
00215         struct is_instantiation_of : std::false_type { };
00216
00217         template<template<typename...> typename TT, typename... Ts>
00218         struct is_instantiation_of<TT, TT<Ts...>> : std::true_type { };
00219
00220         template<template<typename...> typename TT, typename T>
00221         inline constexpr bool is_instantiation_of_v = is_instantiation_of<TT, T>::value;
00222
00223         template <int64_t i, typename T, typename... Ts>
00224         struct type_at {
00225             static_assert(i < sizeof...(Ts) + 1, "index out of range");
00226             using type = typename type_at<i - 1, Ts...>::type;
00227         };
00228
00229         template <typename T, typename... Ts> struct type_at<0, T, Ts...> {
00230             using type = T;
00231         };
00232
00233         template <size_t i, typename... Ts>
00234         using type_at_t = typename type_at<i, Ts...>::type;
00235
00236
00237         template<size_t n, size_t i, typename E = void>
00238         struct _is_prime {};
00239
00240         template<size_t i>
00241         struct _is_prime<0, i> {
00242             static constexpr bool value = false;
00243         };
00244
00245         template<size_t i>
00246         struct _is_prime<1, i> {
00247             static constexpr bool value = false;
00248         };
00249
00250         template<size_t i>
00251         struct _is_prime<2, i> {
00252             static constexpr bool value = true;
00253         };
00254
00255         template<size_t i>
00256         struct _is_prime<3, i> {
00257             static constexpr bool value = true;
00258         };
00259
00260         template<size_t i>
00261         struct _is_prime<5, i> {
00262             static constexpr bool value = true;
00263         };
00264
00265         template<size_t i>
00266         struct _is_prime<7, i> {
00267             static constexpr bool value = true;
00268         };
00269
00270         template<size_t n, size_t i>
00271         struct _is_prime<n, i, std::enable_if_t<(n != 2 && n % 2 == 0)>> {
00272             static constexpr bool value = false;
00273         };
00274
00275         template<size_t n, size_t i>
00276         struct _is_prime<n, i, std::enable_if_t<(n != 2 && n != 3 && n % 2 != 0 && n % 3 == 0)>> {
00277             static constexpr bool value = false;
00278         };
00279
00280         template<size_t n, size_t i>
00281         struct _is_prime<n, i, std::enable_if_t<(n >= 9 && i * i > n)>> {
00282             static constexpr bool value = true;
00283         };
00284
00285         template<size_t n, size_t i>
00286         struct _is_prime<n, i, std::enable_if_t<(
00287             n % i == 0 &&
00288             n >= 9 &&
00289             n % 3 != 0 &&
00290             n % 2 != 0 &&
00291             i * i > n)>> {
00292             static constexpr bool value = true;
00293         };
00294
00295         template<size_t n, size_t i>
00296         struct _is_prime<n, i, std::enable_if_t<(
```

```
00297             n % (i+2) == 0 &&
00298             n >= 9 &&
00299             n % 3 != 0 &&
00300             n % 2 != 0 &&
00301             i * i <= n)» {
00302             static constexpr bool value = true;
00303         };
00304
00305         template<size_t n, size_t i>
00306         struct _is_prime<n, i, std::enable_if_t<(
00307                 n % (i+2) != 0 &&
00308                 n % i != 0 &&
00309                 n >= 9 &&
00310                 n % 3 != 0 &&
00311                 n % 2 != 0 &&
00312                 (i * i <= n))» {
00313             static constexpr bool value = _is_prime<n, i+6>::value;
00314         };
00315
00316     }  // namespace internal
00317
00320     template<size_t n>
00321     struct is_prime {
00323         static constexpr bool value = internal::_is_prime<n, 5>::value;
00324     };
00325
00329     template<size_t n>
00330     static constexpr bool is_prime_v = is_prime<n>::value;
00331
00332     // gcd
00333     namespace internal {
00334         template <std::size_t... Is>
00335         constexpr auto index_sequence_reverse(std::index_sequence<Is...> const&)
00336             -> decltype(std::index_sequence<sizeof...(Is) - 1U - Is...>{});
00337
00338         template <std::size_t N>
00339         using make_index_sequence_reverse
00340             = decltype(index_sequence_reverse(std::make_index_sequence<N>{}));
00341
00347         template<typename Ring, typename E = void>
00348         struct gcd;
00349
00350         template<typename Ring>
00351         struct gcd<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
00352             template<typename A, typename B, typename E = void>
00353             struct gcd_helper {};
00354
00355             // B = 0, A > 0
00356             template<typename A, typename B>
00357             struct gcd_helper<A, B, std::enable_if_t<
00358                 ((B::is_zero_t::value) &&
00359                     (Ring::template gt_t<A, typename Ring::zero>::value))» {
00360                 using type = A;
00361             };
00362
00363             // B = 0, A < 0
00364             template<typename A, typename B>
00365             struct gcd_helper<A, B, std::enable_if_t<
00366                 ((B::is_zero_t::value) &&
00367                     !(Ring::template gt_t<A, typename Ring::zero>::value))» {
00368                 using type = typename Ring::template sub_t<typename Ring::zero, A>;
00369             };
00370
00371             // B != 0
00372             template<typename A, typename B>
00373             struct gcd_helper<A, B, std::enable_if_t<
00374                 (!B::is_zero_t::value)
00375                 » {
00376             private: // NOLINT
00377                 // A / B
00378                 using k = typename Ring::template div_t<A, B>;
00379                 // A - (A/B)*B = A % B
00380                 using m = typename Ring::template sub_t<A, typename Ring::template mul_t<k, B»;
00381
00382             public:
00383                 using type = typename gcd_helper<B, m>::type;
00384             };
00385
00386             template<typename A, typename B>
00387             using type = typename gcd_helper<A, B>::type;
00388         };
00389     }  // namespace internal
00390
00391     // vadd and vmul
00392     namespace internal {
00393         template<typename... vals>
00394         struct vmul {};
```

```
00395
00396         template<typename v1, typename... vals>
00397         struct vmul<v1, vals...> {
00398             using type = typename v1::enclosing_type::template mul_t<v1, typename
      vmul<vals...>::type>;
00399         };
00400
00401         template<typename v1>
00402         struct vmul<v1> {
00403             using type = v1;
00404         };
00405
00406         template<typename... vals>
00407         struct vadd {};
00408
00409         template<typename v1, typename... vals>
00410         struct vadd<v1, vals...> {
00411             using type = typename v1::enclosing_type::template add_t<v1, typename
      vadd<vals...>::type>;
00412         };
00413
00414         template<typename v1>
00415         struct vadd<v1> {
00416             using type = v1;
00417         };
00418     }  // namespace internal
00419
00422     template<typename T, typename A, typename B>
00423     using gcd_t = typename internal::gcd<T>::template type<A, B>;
00424
00428     template<typename... vals>
00429     using vadd_t = typename internal::vadd<vals...>::type;
00430
00434     template<typename... vals>
00435     using vmul_t = typename internal::vmul<vals...>::type;
00436
00440     template<typename val>
00441     requires IsEuclideanDomain<typename val::enclosing_type>
00442     using abs_t = std::conditional_t<
00443                     val::enclosing_type::template pos_v<val>,
00444                     val, typename val::enclosing_type::template
      sub_t<typename val::enclosing_type::zero, val>>;
00445 }  // namespace aerobus
00446
00447 // embedding
00448 namespace aerobus {
00453     template<typename Small, typename Large, typename E = void>
00454     struct Embed;
00455 }  // namespace aerobus
00456
00457 namespace aerobus {
00462     template<typename Ring, typename X>
00463     requires IsRing<Ring>
00464     struct Quotient {
00467         template <typename V>
00468         struct val {
00469          public:
00470             using raw_t = V;
00471             using type = abs_t<typename Ring::template mod_t<V, X>>;
00472         };
00473
00475         using zero = val<typename Ring::zero>;
00476
00478         using one = val<typename Ring::one>;
00479
00483         template<typename v1, typename v2>
00484         using add_t = val<typename Ring::template add_t<typename v1::type, typename v2::type>>;
00485
00489         template<typename v1, typename v2>
00490         using mul_t = val<typename Ring::template mul_t<typename v1::type, typename v2::type>>;
00491
00495         template<typename v1, typename v2>
00496         using div_t = val<typename Ring::template div_t<typename v1::type, typename v2::type>>;
00497
00501         template<typename v1, typename v2>
00502         using mod_t = val<typename Ring::template mod_t<typename v1::type, typename v2::type>>;
00503
00507         template<typename v1, typename v2>
00508         using eq_t = typename Ring::template eq_t<typename v1::type, typename v2::type>;
00509
00513         template<typename v1, typename v2>
00514         static constexpr bool eq_v = Ring::template eq_t<typename v1::type, typename v2::type>::value;
00515
00519         template<typename v1>
00520         using pos_t = std::true_type;
00521
00525         template<typename v>
```

```
00526         static constexpr bool pos_v = pos_t<v>::value;
00527
00529         static constexpr bool is_euclidean_domain = true;
00530
00536         template<auto x>
00537         using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;
00538
00544         template<typename v>
00545         using inject_ring_t = val<v>;
00546     };
00547
00551     template<typename Ring, typename X>
00552     struct Embed<Quotient<Ring, X>, Ring> {
00555         template<typename val>
00556         using type = typename val::raw_t;
00557     };
00558 }  // namespace aerobus
00559
00560 // type_list
00561 namespace aerobus {
00563     template <typename... Ts>
00564     struct type_list;
00565
00566     namespace internal {
00567         template <typename T, typename... Us>
00568         struct pop_front_h {
00569             using tail = type_list<Us...>;
00570             using head = T;
00571         };
00572
00573         template <size_t index, typename L1, typename L2>
00574         struct split_h {
00575          private:
00576             static_assert(index <= L2::length, "index ouf of bounds");
00577             using a = typename L2::pop_front::type;
00578             using b = typename L2::pop_front::tail;
00579             using c = typename L1::template push_back<a>;
00580
00581          public:
00582             using head = typename split_h<index - 1, c, b>::head;
00583             using tail = typename split_h<index - 1, c, b>::tail;
00584         };
00585
00586         template <typename L1, typename L2>
00587         struct split_h<0, L1, L2> {
00588             using head = L1;
00589             using tail = L2;
00590         };
00591
00592         template <size_t index, typename L, typename T>
00593         struct insert_h {
00594             static_assert(index <= L::length, "index ouf of bounds");
00595             using s = typename L::template split<index>;
00596             using left = typename s::head;
00597             using right = typename s::tail;
00598             using ll = typename left::template push_back<T>;
00599             using type = typename ll::template concat<right>;
00600         };
00601
00602         template <size_t index, typename L>
00603         struct remove_h {
00604             using s = typename L::template split<index>;
00605             using left = typename s::head;
00606             using right = typename s::tail;
00607             using rr = typename right::pop_front::tail;
00608             using type = typename left::template concat<rr>;
00609         };
00610     }  // namespace internal
00611
00615     template <typename... Ts>
00616     struct type_list {
00617      private:
00618         template <typename T>
00619         struct concat_h;
00620
00621         template <typename... Us>
00622         struct concat_h<type_list<Us...>> {
00623             using type = type_list<Ts..., Us...>;
00624         };
00625
00626      public:
00628         static constexpr size_t length = sizeof...(Ts);
00629
00632         template <typename T>
00633         using push_front = type_list<T, Ts...>;
00634
00637         template <size_t index>
```

```
00638         using at = internal::type_at_t<index, Ts...>;
00639
00641         struct pop_front {
00643             using type = typename internal::pop_front_h<Ts...>::head;
00645             using tail = typename internal::pop_front_h<Ts...>::tail;
00646         };
00647
00650         template <typename T>
00651         using push_back = type_list<Ts..., T>;
00652
00655         template <typename U>
00656         using concat = typename concat_h<U>::type;
00657
00660         template <size_t index>
00661         struct split {
00662          private:
00663             using inner = internal::split_h<index, type_list<>, type_list<Ts...»;
00664
00665          public:
00666             using head = typename inner::head;
00667             using tail = typename inner::tail;
00668         };
00669
00673         template <typename T, size_t index>
00674         using insert = typename internal::insert_h<index, type_list<Ts...>, T>::type;
00675
00678         template <size_t index>
00679         using remove = typename internal::remove_h<index, type_list<Ts...»::type;
00680     };
00681
00683     template <>
00684     struct type_list<> {
00685         static constexpr size_t length = 0;
00686
00687         template <typename T>
00688         using push_front = type_list<T>;
00689
00690         template <typename T>
00691         using push_back = type_list<T>;
00692
00693         template <typename U>
00694         using concat = U;
00695
00696         // TODO(jewave): assert index == 0
00697         template <typename T, size_t index>
00698         using insert = type_list<T>;
00699     };
00700 }  // namespace aerobus
00701
00702 // i16
00703 #ifdef WITH_CUDA_FP16
00704 // i16
00705 namespace aerobus {
00706     namespace internal {
00707         template<int16_t x, typename Out, typename E = void>
00708         struct int16_convert_helper;
00709
00710         template<int16_t x, typename Out>
00711         struct int16_convert_helper<x, Out, std::enable_if_t<
00712             !std::is_same_v<Out, __half> &&
00713             !std::is_same_v<Out, __half2>
00714         » {
00715             static constexpr Out value = static_cast<Out>(x);
00716         };
00717
00718         template<int16_t x>
00719         struct int16_convert_helper<x, __half> {
00720             static constexpr __half value = internal::convert_int16_to_half<x>;
00721         };
00722
00723         // this won't compile because of NVIDIA https://developer.nvidia.com/bugs/4872028
00724         template<int16_t x>
00725         struct int16_convert_helper<x, __half2> {
00726             static constexpr __half2 value = {
00727                 internal::convert_int16_to_half<x>,
00728                 internal::convert_int16_to_half<x>
00729             };
00730         };
00731     }  // namespace internal
00733     struct i16 {
00734         using inner_type = int16_t;
00737         template<int16_t x>
00738         struct val {
00740             using enclosing_type = i16;
00742             static constexpr int16_t v = x;
00743
00746             template<typename valueType>
```

```
00747             static constexpr valueType get = internal::template int16_convert_helper<x,
      valueType>::value;
00748
00750             using is_zero_t = std::bool_constant<x == 0>;
00751
00753             static std::string to_string() {
00754                 return std::to_string(x);
00755             }
00756         };
00757
00759         using zero = val<0>;
00761         using one = val<1>;
00763         static constexpr bool is_field = false;
00765         static constexpr bool is_euclidean_domain = true;
00769         template<auto x>
00770         using inject_constant_t = val<static_cast<int16_t>(x)>;
00771
00772         template<typename v>
00773         using inject_ring_t = v;
00774
00775     private:
00776         template<typename v1, typename v2>
00777         struct add {
00778             using type = val<v1::v + v2::v>;
00779         };
00780
00781         template<typename v1, typename v2>
00782         struct sub {
00783             using type = val<v1::v - v2::v>;
00784         };
00785
00786         template<typename v1, typename v2>
00787         struct mul {
00788             using type = val<v1::v* v2::v>;
00789         };
00790
00791         template<typename v1, typename v2>
00792         struct div {
00793             using type = val<v1::v / v2::v>;
00794         };
00795
00796         template<typename v1, typename v2>
00797         struct remainder {
00798             using type = val<v1::v % v2::v>;
00799         };
00800
00801         template<typename v1, typename v2>
00802         struct gt {
00803             using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
00804         };
00805
00806         template<typename v1, typename v2>
00807         struct lt {
00808             using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
00809         };
00810
00811         template<typename v1, typename v2>
00812         struct eq {
00813             using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
00814         };
00815
00816         template<typename v1>
00817         struct pos {
00818             using type = std::bool_constant<(v1::v > 0)>;
00819         };
00820
00821     public:
00827         template<typename v1, typename v2>
00828         using add_t = typename add<v1, v2>::type;
00829
00835         template<typename v1, typename v2>
00836         using sub_t = typename sub<v1, v2>::type;
00837
00843         template<typename v1, typename v2>
00844         using mul_t = typename mul<v1, v2>::type;
00845
00851         template<typename v1, typename v2>
00852         using div_t = typename div<v1, v2>::type;
00853
00859         template<typename v1, typename v2>
00860         using mod_t = typename remainder<v1, v2>::type;
00861
00867         template<typename v1, typename v2>
00868         using gt_t = typename gt<v1, v2>::type;
00869
00875         template<typename v1, typename v2>
00876         using lt_t = typename lt<v1, v2>::type;
```

```
00877
00883         template<typename v1, typename v2>
00884         using eq_t = typename eq<v1, v2>::type;
00885
00890         template<typename v1, typename v2>
00891         static constexpr bool eq_v = eq_t<v1, v2>::value;
00892
00898         template<typename v1, typename v2>
00899         using gcd_t = gcd_t<i16, v1, v2>;
00900
00905         template<typename v>
00906         using pos_t = typename pos<v>::type;
00907
00912         template<typename v>
00913         static constexpr bool pos_v = pos_t<v>::value;
00914     };
00915 }  // namespace aerobus
00916 #endif
00917
00918 // i32
00919 namespace aerobus {
00921     struct i32 {
00922         using inner_type = int32_t;
00925         template<int32_t x>
00926         struct val {
00928             using enclosing_type = i32;
00930             static constexpr int32_t v = x;
00931
00934             template<typename valueType>
00935             static constexpr valueType get = static_cast<valueType>(x);
00936
00938             using is_zero_t = std::bool_constant<x == 0>;
00939
00941             static std::string to_string() {
00942                 return std::to_string(x);
00943             }
00944         };
00945
00947         using zero = val<0>;
00949         using one = val<1>;
00951         static constexpr bool is_field = false;
00953         static constexpr bool is_euclidean_domain = true;
00957         template<auto x>
00958         using inject_constant_t = val<static_cast<int32_t>(x)>;
00959
00960         template<typename v>
00961         using inject_ring_t = v;
00962
00963      private:
00964         template<typename v1, typename v2>
00965         struct add {
00966             using type = val<v1::v + v2::v>;
00967         };
00968
00969         template<typename v1, typename v2>
00970         struct sub {
00971             using type = val<v1::v - v2::v>;
00972         };
00973
00974         template<typename v1, typename v2>
00975         struct mul {
00976             using type = val<v1::v* v2::v>;
00977         };
00978
00979         template<typename v1, typename v2>
00980         struct div {
00981             using type = val<v1::v / v2::v>;
00982         };
00983
00984         template<typename v1, typename v2>
00985         struct remainder {
00986             using type = val<v1::v % v2::v>;
00987         };
00988
00989         template<typename v1, typename v2>
00990         struct gt {
00991             using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
00992         };
00993
00994         template<typename v1, typename v2>
00995         struct lt {
00996             using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
00997         };
00998
00999         template<typename v1, typename v2>
01000         struct eq {
01001             using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
```

```
01002         };
01003
01004         template<typename v1>
01005         struct pos {
01006             using type = std::bool_constant<(v1::v > 0)>;
01007         };
01008
01009     public:
01015         template<typename v1, typename v2>
01016         using add_t = typename add<v1, v2>::type;
01017
01023         template<typename v1, typename v2>
01024         using sub_t = typename sub<v1, v2>::type;
01025
01031         template<typename v1, typename v2>
01032         using mul_t = typename mul<v1, v2>::type;
01033
01039         template<typename v1, typename v2>
01040         using div_t = typename div<v1, v2>::type;
01041
01047         template<typename v1, typename v2>
01048         using mod_t = typename remainder<v1, v2>::type;
01049
01055         template<typename v1, typename v2>
01056         using gt_t = typename gt<v1, v2>::type;
01057
01063         template<typename v1, typename v2>
01064         using lt_t = typename lt<v1, v2>::type;
01065
01071         template<typename v1, typename v2>
01072         using eq_t = typename eq<v1, v2>::type;
01073
01078         template<typename v1, typename v2>
01079         static constexpr bool eq_v = eq_t<v1, v2>::value;
01080
01086         template<typename v1, typename v2>
01087         using gcd_t = gcd_t<i32, v1, v2>;
01088
01093         template<typename v>
01094         using pos_t = typename pos<v>::type;
01095
01100         template<typename v>
01101         static constexpr bool pos_v = pos_t<v>::value;
01102     };
01103 }  // namespace aerobus
01104
01105 // i64
01106 namespace aerobus {
01108     struct i64 {
01110         using inner_type = int64_t;
01113         template<int64_t x>
01114         struct val {
01116             using inner_type = int32_t;
01118             using enclosing_type = i64;
01120             static constexpr int64_t v = x;
01121
01124             template<typename valueType>
01125             static constexpr valueType get = static_cast<valueType>(x);
01126
01128             using is_zero_t = std::bool_constant<x == 0>;
01129
01131             static std::string to_string() {
01132                 return std::to_string(x);
01133             }
01134         };
01135
01139         template<auto x>
01140         using inject_constant_t = val<static_cast<int64_t>(x)>;
01141
01146         template<typename v>
01147         using inject_ring_t = v;
01148
01150         using zero = val<0>;
01152         using one = val<1>;
01154         static constexpr bool is_field = false;
01156         static constexpr bool is_euclidean_domain = true;
01157
01158     private:
01159         template<typename v1, typename v2>
01160         struct add {
01161             using type = val<v1::v + v2::v>;
01162         };
01163
01164         template<typename v1, typename v2>
01165         struct sub {
01166             using type = val<v1::v - v2::v>;
01167         };
```

```
01168
01169         template<typename v1, typename v2>
01170         struct mul {
01171             using type = val<v1::v* v2::v>;
01172         };
01173
01174         template<typename v1, typename v2>
01175         struct div {
01176             using type = val<v1::v / v2::v>;
01177         };
01178
01179         template<typename v1, typename v2>
01180         struct remainder {
01181             using type = val<v1::v% v2::v>;
01182         };
01183
01184         template<typename v1, typename v2>
01185         struct gt {
01186             using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
01187         };
01188
01189         template<typename v1, typename v2>
01190         struct lt {
01191             using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
01192         };
01193
01194         template<typename v1, typename v2>
01195         struct eq {
01196             using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
01197         };
01198
01199         template<typename v>
01200         struct pos {
01201             using type = std::bool_constant<(v::v > 0)>;
01202         };
01203
01204      public:
01209         template<typename v1, typename v2>
01210         using add_t = typename add<v1, v2>::type;
01211
01216         template<typename v1, typename v2>
01217         using sub_t = typename sub<v1, v2>::type;
01218
01223         template<typename v1, typename v2>
01224         using mul_t = typename mul<v1, v2>::type;
01225
01231         template<typename v1, typename v2>
01232         using div_t = typename div<v1, v2>::type;
01233
01238         template<typename v1, typename v2>
01239         using mod_t = typename remainder<v1, v2>::type;
01240
01246         template<typename v1, typename v2>
01247         using gt_t = typename gt<v1, v2>::type;
01248
01253         template<typename v1, typename v2>
01254         static constexpr bool gt_v = gt_t<v1, v2>::value;
01255
01261         template<typename v1, typename v2>
01262         using lt_t = typename lt<v1, v2>::type;
01263
01269         template<typename v1, typename v2>
01270         static constexpr bool lt_v = lt_t<v1, v2>::value;
01271
01277         template<typename v1, typename v2>
01278         using eq_t = typename eq<v1, v2>::type;
01279
01285         template<typename v1, typename v2>
01286         static constexpr bool eq_v = eq_t<v1, v2>::value;
01287
01293         template<typename v1, typename v2>
01294         using gcd_t = gcd_t<i64, v1, v2>;
01295
01300         template<typename v>
01301         using pos_t = typename pos<v>::type;
01302
01307         template<typename v>
01308         static constexpr bool pos_v = pos_t<v>::value;
01309     };
01310
01312     template<>
01313     struct Embed<i32, i64> {
01316         template<typename val>
01317         using type = i64::val<static_cast<int64_t>(val::v)>;
01318     };
01319 }  // namespace aerobus
01320
```

```
01321 // z/pz
01322 namespace aerobus {
01328     template<int32_t p>
01329     struct zpz {
01331         using inner_type = int32_t;
01332 
01335         template<int32_t x>
01336         struct val {
01338             using enclosing_type = zpz<p>;
01340             static constexpr int32_t v = x % p;
01341 
01344             template<typename valueType>
01345             static constexpr valueType get = static_cast<valueType>(x % p);
01346 
01348             using is_zero_t = std::bool_constant<v == 0>;
01349 
01351             static constexpr bool is_zero_v = v == 0;
01352 
01355             static std::string to_string() {
01356                 return std::to_string(x % p);
01357             }
01358         };
01359 
01362         template<auto x>
01363         using inject_constant_t = val<static_cast<int32_t>(x)>;
01364 
01366         using zero = val<0>;
01367 
01369         using one = val<1>;
01370 
01372         static constexpr bool is_field = is_prime<p>::value;
01373 
01375         static constexpr bool is_euclidean_domain = true;
01376 
01377     private:
01378         template<typename v1, typename v2>
01379         struct add {
01380             using type = val<(v1::v + v2::v) % p>;
01381         };
01382 
01383         template<typename v1, typename v2>
01384         struct sub {
01385             using type = val<(v1::v - v2::v) % p>;
01386         };
01387 
01388         template<typename v1, typename v2>
01389         struct mul {
01390             using type = val<(v1::v* v2::v) % p>;
01391         };
01392 
01393         template<typename v1, typename v2>
01394         struct div {
01395             using type = val<(v1::v% p) / (v2::v % p)>;
01396         };
01397 
01398         template<typename v1, typename v2>
01399         struct remainder {
01400             using type = val<(v1::v% v2::v) % p>;
01401         };
01402 
01403         template<typename v1, typename v2>
01404         struct gt {
01405             using type = std::conditional_t<(v1::v% p > v2::v% p), std::true_type, std::false_type>;
01406         };
01407 
01408         template<typename v1, typename v2>
01409         struct lt {
01410             using type = std::conditional_t<(v1::v% p < v2::v% p), std::true_type, std::false_type>;
01411         };
01412 
01413         template<typename v1, typename v2>
01414         struct eq {
01415             using type = std::conditional_t<(v1::v% p == v2::v % p), std::true_type, std::false_type>;
01416         };
01417 
01418         template<typename v1>
01419         struct pos {
01420             using type = std::bool_constant<(v1::v > 0)>;
01421         };
01422 
01423     public:
01427         template<typename v1, typename v2>
01428         using add_t = typename add<v1, v2>::type;
01429 
01433         template<typename v1, typename v2>
01434         using sub_t = typename sub<v1, v2>::type;
01435 
```

```
01439         template<typename v1, typename v2>
01440         using mul_t = typename mul<v1, v2>::type;
01441
01445         template<typename v1, typename v2>
01446         using div_t = typename div<v1, v2>::type;
01447
01451         template<typename v1, typename v2>
01452         using mod_t = typename remainder<v1, v2>::type;
01453
01457         template<typename v1, typename v2>
01458         using gt_t = typename gt<v1, v2>::type;
01459
01463         template<typename v1, typename v2>
01464         static constexpr bool gt_v = gt_t<v1, v2>::value;
01465
01469         template<typename v1, typename v2>
01470         using lt_t = typename lt<v1, v2>::type;
01471
01475         template<typename v1, typename v2>
01476         static constexpr bool lt_v = lt_t<v1, v2>::value;
01477
01481         template<typename v1, typename v2>
01482         using eq_t = typename eq<v1, v2>::type;
01483
01487         template<typename v1, typename v2>
01488         static constexpr bool eq_v = eq_t<v1, v2>::value;
01489
01493         template<typename v1, typename v2>
01494         using gcd_t = gcd_t<i32, v1, v2>;
01495
01498         template<typename v1>
01499         using pos_t = typename pos<v1>::type;
01500
01503         template<typename v>
01504         static constexpr bool pos_v = pos_t<v>::value;
01505     };
01506
01509     template<int32_t x>
01510     struct Embed<zpz<x>, i32> {
01513         template <typename val>
01514         using type = i32::val<val::v>;
01515     };
01516 }  // namespace aerobus
01517
01518 // polynomial
01519 namespace aerobus {
01520     // coeffN x^N + ...
01525     template<typename Ring>
01526     requires IsEuclideanDomain<Ring>
01527     struct polynomial {
01528         static constexpr bool is_field = false;
01529         static constexpr bool is_euclidean_domain = Ring::is_euclidean_domain;
01530
01534         template<typename coeffN, typename... coeffs>
01535         struct val {
01537             using ring_type = Ring;
01539             using enclosing_type = polynomial<Ring>;
01541             static constexpr size_t degree = sizeof...(coeffs);
01543             using aN = coeffN;
01545             using strip = val<coeffs...>;
01547             using is_zero_t = std::bool_constant<(degree == 0) && (aN::is_zero_t::value)>;
01549             static constexpr bool is_zero_v = is_zero_t::value;
01550
01551          private:
01552             template<size_t index, typename E = void>
01553             struct coeff_at {};
01554
01555             template<size_t index>
01556             struct coeff_at<index, std::enable_if_t<(index >= 0 && index <= sizeof...(coeffs))>> {
01557                 using type = internal::type_at_t<sizeof...(coeffs) - index, coeffN, coeffs...>;
01558             };
01559
01560             template<size_t index>
01561             struct coeff_at<index, std::enable_if_t<(index < 0 || index > sizeof...(coeffs))>> {
01562                 using type = typename Ring::zero;
01563             };
01564
01565          public:
01568             template<size_t index>
01569             using coeff_at_t = typename coeff_at<index>::type;
01570
01573             static std::string to_string() {
01574                 return string_helper<coeffN, coeffs...>::func();
01575             }
01576
01581             template<typename valueRing>
01582             static constexpr DEVICE INLINED valueRing eval(const valueRing& x) {
```

```
01583                 #ifdef WITH_CUDA_FP16
01584                 valueRing start;
01585                 if constexpr (std::is_same_v<valueRing, __half2>) {
01586                     start = { 0, 0 };
01587                 } else {
01588                     start = static_cast<valueRing>(0);
01589                 }
01590                 #else
01591                 valueRing start = static_cast<valueRing>(0);
01592                 #endif
01593                 return horner_evaluation<valueRing, val>
01594                         ::template inner<0, degree + 1>
01595                         ::func(start, x);
01596             }
01597         };
01598
01601         template<typename coeffN>
01602         struct val<coeffN> {
01604             using ring_type = Ring;
01606             using enclosing_type = polynomial<Ring>;
01608             static constexpr size_t degree = 0;
01609             using aN = coeffN;
01610             using strip = val<coeffN>;
01611             using is_zero_t = std::bool_constant<aN::is_zero_t::value>;
01612
01613             static constexpr bool is_zero_v = is_zero_t::value;
01614
01615             template<size_t index, typename E = void>
01616             struct coeff_at {};
01617
01618             template<size_t index>
01619             struct coeff_at<index, std::enable_if_t<(index == 0)» {
01620                 using type = aN;
01621             };
01622
01623             template<size_t index>
01624             struct coeff_at<index, std::enable_if_t<(index < 0 || index > 0)» {
01625                 using type = typename Ring::zero;
01626             };
01627
01628             template<size_t index>
01629             using coeff_at_t = typename coeff_at<index>::type;
01630
01631             static std::string to_string() {
01632                 return string_helper<coeffN>::func();
01633             }
01634         };
01635
01637         using zero = val<typename Ring::zero>;
01639         using one = val<typename Ring::one>;
01641         using X = val<typename Ring::one, typename Ring::zero>;
01642
01643     private:
01644         template<typename P, typename E = void>
01645         struct simplify;
01646
01647         template <typename P1, typename P2, typename I>
01648         struct add_low;
01649
01650         template<typename P1, typename P2>
01651         struct add {
01652             using type = typename simplify<typename add_low<
01653             P1,
01654             P2,
01655             internal::make_index_sequence_reverse<
01656             std::max(P1::degree, P2::degree) + 1
01657             »::type>::type;
01658         };
01659
01660         template <typename P1, typename P2, typename I>
01661         struct sub_low;
01662
01663         template <typename P1, typename P2, typename I>
01664         struct mul_low;
01665
01666         template<typename v1, typename v2>
01667         struct mul {
01668                 using type = typename mul_low<
01669                     v1,
01670                     v2,
01671                     internal::make_index_sequence_reverse<
01672                     v1::degree + v2::degree + 1
01673                     »::type;
01674         };
01675
01676         template<typename coeff, size_t deg>
01677         struct monomial;
```

```
01678
01679         template<typename v, typename E = void>
01680         struct derive_helper {};
01681
01682         template<typename v>
01683         struct derive_helper<v, std::enable_if_t<v::degree == 0» {
01684             using type = zero;
01685         };
01686
01687         template<typename v>
01688         struct derive_helper<v, std::enable_if_t<v::degree != 0» {
01689             using type = typename add<
01690                 typename derive_helper<typename simplify<typename v::strip>::type>::type,
01691                 typename monomial<
01692                     typename Ring::template mul_t<
01693                         typename v::aN,
01694                         typename Ring::template inject_constant_t<(v::degree)>
01695                     >,
01696                     v::degree - 1
01697                 >::type
01698             >::type;
01699         };
01700
01701         template<typename v1, typename v2, typename E = void>
01702         struct eq_helper {};
01703
01704         template<typename v1, typename v2>
01705         struct eq_helper<v1, v2, std::enable_if_t<v1::degree != v2::degree» {
01706             using type = std::false_type;
01707         };
01708
01709
01710         template<typename v1, typename v2>
01711         struct eq_helper<v1, v2, std::enable_if_t<
01712             v1::degree == v2::degree &&
01713             (v1::degree != 0 || v2::degree != 0) &&
01714             std::is_same<
01715             typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
01716             std::false_type
01717             >::value
01718         >
01719         > {
01720             using type = std::false_type;
01721         };
01722
01723         template<typename v1, typename v2>
01724         struct eq_helper<v1, v2, std::enable_if_t<
01725             v1::degree == v2::degree &&
01726             (v1::degree != 0 || v2::degree != 0) &&
01727             std::is_same<
01728             typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
01729             std::true_type
01730             >::value
01731         » {
01732             using type = typename eq_helper<typename v1::strip, typename v2::strip>::type;
01733         };
01734
01735         template<typename v1, typename v2>
01736         struct eq_helper<v1, v2, std::enable_if_t<
01737             v1::degree == v2::degree &&
01738             (v1::degree == 0)
01739         » {
01740             using type = typename Ring::template eq_t<typename v1::aN, typename v2::aN>;
01741         };
01742
01743         template<typename v1, typename v2, typename E = void>
01744         struct lt_helper {};
01745
01746         template<typename v1, typename v2>
01747         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
01748             using type = std::true_type;
01749         };
01750
01751         template<typename v1, typename v2>
01752         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
01753             using type = typename Ring::template lt_t<typename v1::aN, typename v2::aN>;
01754         };
01755
01756         template<typename v1, typename v2>
01757         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
01758             using type = std::false_type;
01759         };
01760
01761         template<typename v1, typename v2, typename E = void>
01762         struct gt_helper {};
01763
01764         template<typename v1, typename v2>
```

```
01765         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
01766             using type = std::true_type;
01767         };
01768
01769         template<typename v1, typename v2>
01770         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
01771             using type = std::false_type;
01772         };
01773
01774         template<typename v1, typename v2>
01775         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
01776             using type = std::false_type;
01777         };
01778
01779         // when high power is zero : strip
01780         template<typename P>
01781         struct simplify<P, std::enable_if_t<
01782             std::is_same<
01783             typename Ring::zero,
01784             typename P::aN
01785             >::value && (P::degree > 0)
01786         » {
01787             using type = typename simplify<typename P::strip>::type;
01788         };
01789
01790         // otherwise : do nothing
01791         template<typename P>
01792         struct simplify<P, std::enable_if_t<
01793             !std::is_same<
01794             typename Ring::zero,
01795             typename P::aN
01796             >::value && (P::degree > 0)
01797         » {
01798             using type = P;
01799         };
01800
01801         // do not simplify constants
01802         template<typename P>
01803         struct simplify<P, std::enable_if_t<P::degree == 0» {
01804             using type = P;
01805         };
01806
01807         // addition at
01808         template<typename P1, typename P2, size_t index>
01809         struct add_at {
01810             using type =
01811                 typename Ring::template add_t<
01812                     typename P1::template coeff_at_t<index>,
01813                     typename P2::template coeff_at_t<index>>;
01814         };
01815
01816         template<typename P1, typename P2, size_t index>
01817         using add_at_t = typename add_at<P1, P2, index>::type;
01818
01819         template<typename P1, typename P2, std::size_t... I>
01820         struct add_low<P1, P2, std::index_sequence<I...» {
01821             using type = val<add_at_t<P1, P2, I>...>;
01822         };
01823
01824         // substraction at
01825         template<typename P1, typename P2, size_t index>
01826         struct sub_at {
01827             using type =
01828                 typename Ring::template sub_t<
01829                     typename P1::template coeff_at_t<index>,
01830                     typename P2::template coeff_at_t<index>>;
01831         };
01832
01833         template<typename P1, typename P2, size_t index>
01834         using sub_at_t = typename sub_at<P1, P2, index>::type;
01835
01836         template<typename P1, typename P2, std::size_t... I>
01837         struct sub_low<P1, P2, std::index_sequence<I...» {
01838             using type = val<sub_at_t<P1, P2, I>...>;
01839         };
01840
01841         template<typename P1, typename P2>
01842         struct sub {
01843             using type = typename simplify<typename sub_low<
01844             P1,
01845             P2,
01846             internal::make_index_sequence_reverse<
01847             std::max(P1::degree, P2::degree) + 1
01848             »::type>::type;
01849         };
01850
01851         // multiplication at
```

```
01852         template<typename v1, typename v2, size_t k, size_t index, size_t stop>
01853         struct mul_at_loop_helper {
01854             using type = typename Ring::template add_t<
01855                 typename Ring::template mul_t<
01856                 typename v1::template coeff_at_t<index>,
01857                 typename v2::template coeff_at_t<k - index>
01858                 >,
01859                 typename mul_at_loop_helper<v1, v2, k, index + 1, stop>::type
01860             >;
01861         };
01862
01863         template<typename v1, typename v2, size_t k, size_t stop>
01864         struct mul_at_loop_helper<v1, v2, k, stop, stop> {
01865             using type = typename Ring::template mul_t<
01866                 typename v1::template coeff_at_t<stop>,
01867                 typename v2::template coeff_at_t<0>>;
01868         };
01869
01870         template <typename v1, typename v2, size_t k, typename E = void>
01871         struct mul_at {};
01872
01873         template<typename v1, typename v2, size_t k>
01874         struct mul_at<v1, v2, k, std::enable_if_t<(k < 0) || (k > v1::degree + v2::degree)» {
01875             using type = typename Ring::zero;
01876         };
01877
01878         template<typename v1, typename v2, size_t k>
01879         struct mul_at<v1, v2, k, std::enable_if_t<(k >= 0) && (k <= v1::degree + v2::degree)» {
01880             using type = typename mul_at_loop_helper<v1, v2, k, 0, k>::type;
01881         };
01882
01883         template<typename P1, typename P2, size_t index>
01884         using mul_at_t = typename mul_at<P1, P2, index>::type;
01885
01886         template<typename P1, typename P2, std::size_t... I>
01887         struct mul_low<P1, P2, std::index_sequence<I...» {
01888             using type = val<mul_at_t<P1, P2, I>...>;
01889         };
01890
01891         // division helper
01892         template< typename A, typename B, typename Q, typename R, typename E = void>
01893         struct div_helper {};
01894
01895         template<typename A, typename B, typename Q, typename R>
01896         struct div_helper<A, B, Q, R, std::enable_if_t<
01897             (R::degree < B::degree) ||
01898             (R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
01899             using q_type = Q;
01900             using mod_type = R;
01901             using gcd_type = B;
01902         };
01903
01904         template<typename A, typename B, typename Q, typename R>
01905         struct div_helper<A, B, Q, R, std::enable_if_t<
01906             (R::degree >= B::degree) &&
01907             !(R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
01908          private: // NOLINT
01909             using rN = typename R::aN;
01910             using bN = typename B::aN;
01911             using pT = typename monomial<typename Ring::template div_t<rN, bN>, R::degree -
     B::degree>::type;
01912             using rr = typename sub<R, typename mul<pT, B>::type>::type;
01913             using qq = typename add<Q, pT>::type;
01914
01915          public:
01916             using q_type = typename div_helper<A, B, qq, rr>::q_type;
01917             using mod_type = typename div_helper<A, B, qq, rr>::mod_type;
01918             using gcd_type = rr;
01919         };
01920
01921         template<typename A, typename B>
01922         struct div {
01923             static_assert(Ring::is_euclidean_domain, "cannot divide in that type of Ring");
01924             using q_type = typename div_helper<A, B, zero, A>::q_type;
01925             using m_type = typename div_helper<A, B, zero, A>::mod_type;
01926         };
01927
01928         template<typename P>
01929         struct make_unit {
01930             using type = typename div<P, val<typename P::aN>>::q_type;
01931         };
01932
01933         template<typename coeff, size_t deg>
01934         struct monomial {
01935             using type = typename mul<X, typename monomial<coeff, deg - 1>::type>::type;
01936         };
01937
```

```
01938         template<typename coeff>
01939         struct monomial<coeff, 0> {
01940             using type = val<coeff>;
01941         };
01942 
01943         template<typename valueRing, typename P>
01944         struct horner_evaluation {
01945             template<size_t index, size_t stop>
01946             struct inner {
01947                 static constexpr DEVICE INLINED valueRing func(const valueRing& accum, const
      valueRing& x) {
01948                     constexpr valueRing coeff =
01949                         static_cast<valueRing>(P::template coeff_at_t<P::degree - index>::template
      get<valueRing>);
01950                     return horner_evaluation<valueRing, P>::template inner<index + 1, stop>::func(
01951                         internal::fma_helper<valueRing>::eval(x, accum, coeff), x);
01952                 }
01953             };
01954 
01955             template<size_t stop>
01956             struct inner<stop, stop> {
01957                 static constexpr DEVICE INLINED valueRing func(const valueRing& accum, const
      valueRing& x) {
01958                     return accum;
01959                 }
01960             };
01961         };
01962 
01963         template<typename coeff, typename... coeffs>
01964         struct string_helper {
01965             static std::string func() {
01966                 std::string tail = string_helper<coeffs...>::func();
01967                 std::string result = "";
01968                 if (Ring::template eq_t<coeff, typename Ring::zero>::value) {
01969                     return tail;
01970                 } else if (Ring::template eq_t<coeff, typename Ring::one>::value) {
01971                     if (sizeof...(coeffs) == 1) {
01972                         result += "x";
01973                     } else {
01974                         result += "x^" + std::to_string(sizeof...(coeffs));
01975                     }
01976                 } else {
01977                     if (sizeof...(coeffs) == 1) {
01978                         result += coeff::to_string() + " x";
01979                     } else {
01980                         result += coeff::to_string()
01981                                 + " x^" + std::to_string(sizeof...(coeffs));
01982                     }
01983                 }
01984 
01985                 if (!tail.empty()) {
01986                     result += " + " + tail;
01987                 }
01988 
01989                 return result;
01990             }
01991         };
01992 
01993         template<typename coeff>
01994         struct string_helper<coeff> {
01995             static std::string func() {
01996                 if (!std::is_same<coeff, typename Ring::zero>::value) {
01997                     return coeff::to_string();
01998                 } else {
01999                     return "";
02000                 }
02001             }
02002         };
02003 
02004     public:
02007         template<typename P>
02008         using simplify_t = typename simplify<P>::type;
02009 
02013         template<typename v1, typename v2>
02014         using add_t = typename add<v1, v2>::type;
02015 
02019         template<typename v1, typename v2>
02020         using sub_t = typename sub<v1, v2>::type;
02021 
02025         template<typename v1, typename v2>
02026         using mul_t = typename mul<v1, v2>::type;
02027 
02031         template<typename v1, typename v2>
02032         using eq_t = typename eq_helper<v1, v2>::type;
02033 
02037         template<typename v1, typename v2>
02038         using lt_t = typename lt_helper<v1, v2>::type;
```

```
02039
02043         template<typename v1, typename v2>
02044         using gt_t = typename gt_helper<v1, v2>::type;
02045
02049         template<typename v1, typename v2>
02050         using div_t = typename div<v1, v2>::q_type;
02051
02055         template<typename v1, typename v2>
02056         using mod_t = typename div_helper<v1, v2, zero, v1>::mod_type;
02057
02061         template<typename coeff, size_t deg>
02062         using monomial_t = typename monomial<coeff, deg>::type;
02063
02066         template<typename v>
02067         using derive_t = typename derive_helper<v>::type;
02068
02071         template<typename v>
02072         using pos_t = typename Ring::template pos_t<typename v::aN>;
02073
02076         template<typename v>
02077         static constexpr bool pos_v = pos_t<v>::value;
02078
02082         template<typename v1, typename v2>
02083         using gcd_t = std::conditional_t<
02084             Ring::is_euclidean_domain,
02085             typename make_unit<gcd_t<polynomial<Ring>, v1, v2»::type,
02086             void>;
02087
02091         template<auto x>
02092         using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;
02093
02097         template<typename v>
02098         using inject_ring_t = val<v>;
02099     };
02100 }  // namespace aerobus
02101
02102 // fraction field
02103 namespace aerobus {
02104     namespace internal {
02105         template<typename Ring, typename E = void>
02106         requires IsEuclideanDomain<Ring>
02107         struct _FractionField {};
02108
02109         template<typename Ring>
02110         requires IsEuclideanDomain<Ring>
02111         struct _FractionField<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
02113             static constexpr bool is_field = true;
02114             static constexpr bool is_euclidean_domain = true;
02115
02116          private:
02117             template<typename val1, typename val2, typename E = void>
02118             struct to_string_helper {};
02119
02120             template<typename val1, typename val2>
02121             struct to_string_helper <val1, val2,
02122                 std::enable_if_t<
02123                 Ring::template eq_t<
02124                 val2, typename Ring::one
02125                 >::value
02126                 >
02127             > {
02128                 static std::string func() {
02129                     return val1::to_string();
02130                 }
02131             };
02132
02133             template<typename val1, typename val2>
02134             struct to_string_helper<val1, val2,
02135                 std::enable_if_t<
02136                 !Ring::template eq_t<
02137                 val2,
02138                 typename Ring::one
02139                 >::value
02140                 >
02141             > {
02142                 static std::string func() {
02143                     return "(" + val1::to_string() + ") / (" + val2::to_string() + ")";
02144                 }
02145             };
02146
02147          public:
02151             template<typename val1, typename val2>
02152             struct val {
02154                 using x = val1;
02156                 using y = val2;
02158                 using is_zero_t = typename val1::is_zero_t;
02160                 static constexpr bool is_zero_v = val1::is_zero_t::value;
```

```
02161
02163                 using ring_type = Ring;
02164                 using enclosing_type = _FractionField<Ring>;
02165
02168                  static constexpr bool is_integer = std::is_same_v<val2, typename Ring::one>;
02169
02173                 template<typename valueType>
02174                 static constexpr valueType get = static_cast<valueType>(x::v) /
      static_cast<valueType>(y::v);
02175
02178                 static std::string to_string() {
02179                     return to_string_helper<val1, val2>::func();
02180                 }
02181
02186                 template<typename valueRing>
02187                 static constexpr DEVICE INLINED valueRing eval(const valueRing& v) {
02188                     return x::eval(v) / y::eval(v);
02189                 }
02190             };
02191
02193             using zero = val<typename Ring::zero, typename Ring::one>;
02195             using one = val<typename Ring::one, typename Ring::one>;
02196
02199             template<typename v>
02200             using inject_t = val<v, typename Ring::one>;
02201
02204             template<auto x>
02205             using inject_constant_t = val<typename Ring::template inject_constant_t<x>, typename
      Ring::one>;
02206
02209             template<typename v>
02210             using inject_ring_t = val<typename Ring::template inject_ring_t<v>, typename Ring::one>;
02211
02213             using ring_type = Ring;
02214
02215         private:
02216             template<typename v, typename E = void>
02217             struct simplify {};
02218
02219             // x = 0
02220             template<typename v>
02221             struct simplify<v, std::enable_if_t<v::x::is_zero_t::value» {
02222                 using type = typename _FractionField<Ring>::zero;
02223             };
02224
02225             // x != 0
02226             template<typename v>
02227             struct simplify<v, std::enable_if_t<!v::x::is_zero_t::value» {
02228              private:
02229                 using _gcd = typename Ring::template gcd_t<typename v::x, typename v::y>;
02230                 using newx = typename Ring::template div_t<typename v::x, _gcd>;
02231                 using newy = typename Ring::template div_t<typename v::y, _gcd>;
02232
02233                 using posx = std::conditional_t<
02234                                 !Ring::template pos_v<newy>,
02235                                 typename Ring::template sub_t<typename Ring::zero, newx>,
02236                                 newx>;
02237                 using posy = std::conditional_t<
02238                                 !Ring::template pos_v<newy>,
02239                                 typename Ring::template sub_t<typename Ring::zero, newy>,
02240                                 newy>;
02241              public:
02242                 using type = typename _FractionField<Ring>::template val<posx, posy>;
02243             };
02244
02245         public:
02248             template<typename v>
02249             using simplify_t = typename simplify<v>::type;
02250
02251         private:
02252             template<typename v1, typename v2>
02253             struct add {
02254              private:
02255                 using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
02256                 using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
02257                 using dividend = typename Ring::template add_t<a, b>;
02258                 using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
02259                 using g = typename Ring::template gcd_t<dividend, diviser>;
02260
02261              public:
02262                 using type = typename _FractionField<Ring>::template simplify_t<val<dividend,
      diviser»;
02263             };
02264
02265             template<typename v>
02266             struct pos {
02267                 using type = std::conditional_t<
```

```
02268                     (Ring::template pos_v<typename v::x> && Ring::template pos_v<typename v::y>) ||
02269                     (!Ring::template pos_v<typename v::x> && !Ring::template pos_v<typename v::y>),
02270                     std::true_type,
02271                     std::false_type>;
02272             };
02273
02274             template<typename v1, typename v2>
02275             struct sub {
02276              private:
02277                 using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
02278                 using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
02279                 using dividend = typename Ring::template sub_t<a, b>;
02280                 using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
02281                 using g = typename Ring::template gcd_t<dividend, diviser>;
02282
02283              public:
02284                 using type = typename _FractionField<Ring>::template simplify_t<val<dividend,
     diviser»;
02285             };
02286
02287             template<typename v1, typename v2>
02288             struct mul {
02289              private:
02290                 using a = typename Ring::template mul_t<typename v1::x, typename v2::x>;
02291                 using b = typename Ring::template mul_t<typename v1::y, typename v2::y>;
02292
02293              public:
02294                 using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
02295             };
02296
02297             template<typename v1, typename v2, typename E = void>
02298             struct div {};
02299
02300             template<typename v1, typename v2>
02301             struct div<v1, v2, std::enable_if_t<!std::is_same<v2, typename
     _FractionField<Ring>::zero>::value»  {
02302              private:
02303                 using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
02304                 using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
02305
02306              public:
02307                 using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
02308             };
02309
02310             template<typename v1, typename v2>
02311             struct div<v1, v2, std::enable_if_t<
02312                 std::is_same<zero, v1>::value && std::is_same<v2, zero>::value»  {
02313                 using type = one;
02314             };
02315
02316             template<typename v1, typename v2>
02317             struct eq {
02318                 using type = std::conditional_t<
02319                         std::is_same<typename simplify_t<v1>::x, typename simplify_t<v2>::x>::value &&
02320                         std::is_same<typename simplify_t<v1>::y, typename simplify_t<v2>::y>::value,
02321                     std::true_type,
02322                     std::false_type>;
02323             };
02324
02325             template<typename v1, typename v2, typename E = void>
02326             struct gt;
02327
02328             template<typename v1, typename v2>
02329             struct gt<v1, v2, std::enable_if_t<
02330                 (eq<v1, v2>::type::value)
02331                 » {
02332                 using type = std::false_type;
02333             };
02334
02335             template<typename v1, typename v2>
02336             struct gt<v1, v2, std::enable_if_t<
02337                 (!eq<v1, v2>::type::value) &&
02338                 (!pos<v1>::type::value) && (!pos<v2>::type::value)
02339                 » {
02340                 using type = typename gt<
02341                     typename sub<zero, v1>::type, typename sub<zero, v2>::type
02342                 >::type;
02343             };
02344
02345             template<typename v1, typename v2>
02346             struct gt<v1, v2, std::enable_if_t<
02347                 (!eq<v1, v2>::type::value) &&
02348                 (pos<v1>::type::value) && (!pos<v2>::type::value)
02349                 » {
02350                 using type = std::true_type;
02351             };
02352
```

```
02353             template<typename v1, typename v2>
02354             struct gt<v1, v2, std::enable_if_t<
02355                 (!eq<v1, v2>::type::value) &&
02356                 (!pos<v1>::type::value) && (pos<v2>::type::value)
02357                 » {
02358                 using type = std::false_type;
02359             };
02360
02361             template<typename v1, typename v2>
02362             struct gt<v1, v2, std::enable_if_t<
02363                 (!eq<v1, v2>::type::value) &&
02364                 (pos<v1>::type::value) && (pos<v2>::type::value)
02365                 » {
02366                 using type = typename Ring::template gt_t<
02367                     typename Ring::template mul_t<v1::x, v2::y>,
02368                     typename Ring::template mul_t<v2::y, v2::x>
02369                 >;
02370             };
02371
02372         public:
02377             template<typename v1, typename v2>
02378             using add_t = typename add<v1, v2>::type;
02379
02384             template<typename v1, typename v2>
02385             using mod_t = zero;
02386
02391             template<typename v1, typename v2>
02392             using gcd_t = v1;
02393
02397             template<typename v1, typename v2>
02398             using sub_t = typename sub<v1, v2>::type;
02399
02403             template<typename v1, typename v2>
02404             using mul_t = typename mul<v1, v2>::type;
02405
02409             template<typename v1, typename v2>
02410             using div_t = typename div<v1, v2>::type;
02411
02415             template<typename v1, typename v2>
02416             using eq_t = typename eq<v1, v2>::type;
02417
02421             template<typename v1, typename v2>
02422             static constexpr bool eq_v = eq<v1, v2>::type::value;
02423
02427             template<typename v1, typename v2>
02428             using gt_t = typename gt<v1, v2>::type;
02429
02433             template<typename v1, typename v2>
02434             static constexpr bool gt_v = gt<v1, v2>::type::value;
02435
02438             template<typename v1>
02439             using pos_t = typename pos<v1>::type;
02440
02443             template<typename v>
02444             static constexpr bool pos_v = pos_t<v>::value;
02445         };
02446
02447         template<typename Ring, typename E = void>
02448         requires IsEuclideanDomain<Ring>
02449         struct FractionFieldImpl {};
02450
02451         // fraction field of a field is the field itself
02452         template<typename Field>
02453         requires IsEuclideanDomain<Field>
02454         struct FractionFieldImpl<Field, std::enable_if_t<Field::is_field» {
02455             using type = Field;
02456             template<typename v>
02457             using inject_t = v;
02458         };
02459
02460         // fraction field of a ring is the actual fraction field
02461         template<typename Ring>
02462         requires IsEuclideanDomain<Ring>
02463         struct FractionFieldImpl<Ring, std::enable_if_t<!Ring::is_field» {
02464             using type = _FractionField<Ring>;
02465         };
02466     }  // namespace internal
02467
02471     template<typename Ring>
02472     requires IsEuclideanDomain<Ring>
02473     using FractionField = typename internal::FractionFieldImpl<Ring>::type;
02474
02477     template<typename Ring>
02478     struct Embed<Ring, FractionField<Ring» {
02481         template<typename v>
02482         using type = typename FractionField<Ring>::template val<v, typename Ring::one>;
02483     };
```

```
02484 }  // namespace aerobus
02485
02486
02487 // short names for common types
02488 namespace aerobus {
02492     template<typename X, typename Y>
02493     requires IsRing<typename X::enclosing_type> &&
02494         (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02495     using add_t = typename X::enclosing_type::template add_t<X, Y>;
02496
02500     template<typename X, typename Y>
02501     requires IsRing<typename X::enclosing_type> &&
02502         (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02503     using sub_t = typename X::enclosing_type::template sub_t<X, Y>;
02504
02508     template<typename X, typename Y>
02509     requires IsRing<typename X::enclosing_type> &&
02510         (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02511     using mul_t = typename X::enclosing_type::template mul_t<X, Y>;
02512
02516     template<typename X, typename Y>
02517     requires IsEuclideanDomain<typename X::enclosing_type> &&
02518         (std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02519     using div_t = typename X::enclosing_type::template div_t<X, Y>;
02520
02523     using q32 = FractionField<i32>;
02524
02527     using fpq32 = FractionField<polynomial<q32>>;
02528
02531     using q64 = FractionField<i64>;
02532
02534     using pi64 = polynomial<i64>;
02535
02537     using pq64 = polynomial<q64>;
02538
02540     using fpq64 = FractionField<polynomial<q64>>;
02541
02546     template<typename Ring, typename v1, typename v2>
02547     using makefraction_t = typename FractionField<Ring>::template val<v1, v2>;
02548
02555     template<typename v>
02556     using embed_int_poly_in_fractions_t =
02557             typename Embed<
02558                 polynomial<typename v::ring_type>,
02559                 polynomial<FractionField<typename v::ring_type>>::template type<v>;
02560
02564     template<int64_t p, int64_t q>
02565     using make_q64_t = typename q64::template simplify_t<
02566                 typename q64::val<i64::inject_constant_t<p>, i64::inject_constant_t<q>>;
02567
02571     template<int32_t p, int32_t q>
02572     using make_q32_t = typename q32::template simplify_t<
02573                 typename q32::val<i32::inject_constant_t<p>, i32::inject_constant_t<q>>;
02574
02579     template<typename Ring, typename v1, typename v2>
02580     using addfractions_t = typename FractionField<Ring>::template add_t<v1, v2>;
02585     template<typename Ring, typename v2>
02586     using mulfractions_t = typename FractionField<Ring>::template mul_t<v1, v2>;
02587
02589     template<>
02590     struct Embed<q32, q64> {
02593         template<typename v>
02594         using type = make_q64_t<static_cast<int64_t>(v::x::v), static_cast<int64_t>(v::y::v)>;
02595     };
02596
02600     template<typename Small, typename Large>
02601     struct Embed<polynomial<Small>, polynomial<Large>> {
02602      private:
02603         template<typename v, typename i>
02604         struct at_low;
02605
02606         template<typename v, size_t i>
02607         struct at_index {
02608             using type = typename Embed<Small, Large>::template
      type<typename v::template coeff_at_t<i>>;
02609         };
02610
02611         template<typename v, size_t... Is>
02612         struct at_low<v, std::index_sequence<Is...>> {
02613             using type = typename polynomial<Large>::template val<typename at_index<v, Is>::type...>;
02614         };
02615
02616      public:
02619         template<typename v>
02620         using type = typename
      at_low<v, typename internal::make_index_sequence_reverse<v::degree + 1>>::type;
02621     };
```

```
02622
02626     template<typename Ring, auto... xs>
02627     using make_int_polynomial_t = typename polynomial<Ring>::template val<
02628             typename Ring::template inject_constant_t<xs>...>;
02629
02633     template<typename Ring, auto... xs>
02634     using make_frac_polynomial_t = typename polynomial<FractionField<Ring>>::template val<
02635             typename FractionField<Ring>::template inject_constant_t<xs>...>;
02636 }  // namespace aerobus
02637
02638 // taylor series and common integers (factorial, bernoulli...) appearing in taylor coefficients
02639 namespace aerobus {
02640     namespace internal {
02641         template<typename T, size_t x, typename E = void>
02642         struct factorial {};
02643
02644         template<typename T, size_t x>
02645         struct factorial<T, x, std::enable_if_t<(x > 0)>> {
02646         private:
02647             template<typename, size_t, typename>
02648             friend struct factorial;
02649         public:
02650             using type = typename T::template mul_t<typename T::template val<x>, typename factorial<T,
      x - 1>::type>;
02651             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>;
02652         };
02653
02654         template<typename T>
02655         struct factorial<T, 0> {
02656          public:
02657             using type = typename T::one;
02658             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>;
02659         };
02660     }  // namespace internal
02661
02665     template<typename T, size_t i>
02666     using factorial_t = typename internal::factorial<T, i>::type;
02667
02671     template<typename T, size_t i>
02672     inline constexpr typename T::inner_type factorial_v = internal::factorial<T, i>::value;
02673
02674     namespace internal {
02675         template<typename T, size_t k, size_t n, typename E = void>
02676         struct combination_helper {};
02677
02678         template<typename T, size_t k, size_t n>
02679         struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k <= (n / 2) && k > 0)>> {
02680             using type = typename FractionField<T>::template mul_t<
02681                 typename combination_helper<T, k - 1, n - 1>::type,
02682                 makefraction_t<T, typename T::template val<n>, typename T::template val<k>>;
02683         };
02684
02685         template<typename T, size_t k, size_t n>
02686         struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k > (n / 2) && k > 0)>> {
02687             using type = typename combination_helper<T, n - k, n>::type;
02688         };
02689
02690         template<typename T, size_t n>
02691         struct combination_helper<T, 0, n> {
02692             using type = typename FractionField<T>::one;
02693         };
02694
02695         template<typename T, size_t k, size_t n>
02696         struct combination {
02697             using type = typename internal::combination_helper<T, k, n>::type::x;
02698             static constexpr typename T::inner_type value =
02699                         internal::combination_helper<T, k, n>::type::template
      get<typename T::inner_type>;
02700         };
02701     }  // namespace internal
02702
02705     template<typename T, size_t k, size_t n>
02706     using combination_t = typename internal::combination<T, k, n>::type;
02707
02712     template<typename T, size_t k, size_t n>
02713     inline constexpr typename T::inner_type combination_v = internal::combination<T, k, n>::value;
02714
02715     namespace internal {
02716         template<typename T, size_t m>
02717         struct bernoulli;
02718
02719         template<typename T, typename accum, size_t k, size_t m>
02720         struct bernoulli_helper {
02721             using type = typename bernoulli_helper<
02722                 T,
```

```
02723                 addfractions_t<T,
02724                     accum,
02725                     mulfractions_t<T,
02726                         makefraction_t<T,
02727                             combination_t<T, k, m + 1>,
02728                             typename T::one>,
02729                         typename bernoulli<T, k>::type
02730                     >
02731                 >,
02732                 k + 1,
02733                 m>::type;
02734         };
02735
02736         template<typename T, typename accum, size_t m>
02737         struct bernoulli_helper<T, accum, m, m> {
02738             using type = accum;
02739         };
02740
02741
02742
02743         template<typename T, size_t m>
02744         struct bernoulli {
02745             using type = typename FractionField<T>::template mul_t<
02746                 typename internal::bernoulli_helper<T, typename FractionField<T>::zero, 0, m>::type,
02747                 makefraction_t<T,
02748                 typename T::template val<static_cast<typename T::inner_type>(-1)>,
02749                 typename T::template val<static_cast<typename T::inner_type>(m + 1)>
02750                 >
02751             >;
02752
02753             template<typename floatType>
02754             static constexpr floatType value = type::template get<floatType>;
02755         };
02756
02757         template<typename T>
02758         struct bernoulli<T, 0> {
02759             using type = typename FractionField<T>::one;
02760
02761             template<typename floatType>
02762             static constexpr floatType value = type::template get<floatType>;
02763         };
02764     }  // namespace internal
02765
02769     template<typename T, size_t n>
02770     using bernoulli_t = typename internal::bernoulli<T, n>::type;
02771
02776     template<typename FloatType, typename T, size_t n >
02777     inline constexpr FloatType bernoulli_v = internal::bernoulli<T, n>::template value<FloatType>;
02778
02779     // bell numbers
02780     namespace internal {
02781         template<typename T, size_t n, typename E = void>
02782         struct bell_helper;
02783
02784         template <typename T, size_t n>
02785         struct bell_helper<T, n, std::enable_if_t<(n > 1)» {
02786             template<typename accum, size_t i, size_t stop>
02787             struct sum_helper {
02788              private:
02789                 using left = typename T::template mul_t<
02790                             combination_t<T, i, n-1>,
02791                             typename bell_helper<T, i>::type>;
02792                 using new_accum = typename T::template add_t<accum, left>;
02793              public:
02794                 using type = typename sum_helper<new_accum, i+1, stop>::type;
02795             };
02796
02797             template<typename accum, size_t stop>
02798             struct sum_helper<accum, stop, stop> {
02799                 using type = accum;
02800             };
02801
02802             using type = typename sum_helper<typename T::zero, 0, n>::type;
02803         };
02804
02805         template<typename T>
02806         struct bell_helper<T, 0> {
02807             using type = typename T::one;
02808         };
02809
02810         template<typename T>
02811         struct bell_helper<T, 1> {
02812             using type = typename T::one;
02813         };
02814     }  // namespace internal
02815
02819     template<typename T, size_t n>
```

```
02820     using bell_t = typename internal::bell_helper<T, n>::type;
02821
02825     template<typename T, size_t n>
02826     static constexpr typename T::inner_type bell_v = bell_t<T, n>::v;
02827
02828     namespace internal {
02829         template<typename T, int k, typename E = void>
02830         struct alternate {};
02831
02832         template<typename T, int k>
02833         struct alternate<T, k, std::enable_if_t<k % 2 == 0>> {
02834             using type = typename T::one;
02835             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>;
02836         };
02837
02838         template<typename T, int k>
02839         struct alternate<T, k, std::enable_if_t<k % 2 != 0>> {
02840             using type = typename T::template sub_t<typename T::zero, typename T::one>;
02841             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>;
02842         };
02843     }  // namespace internal
02844
02847     template<typename T, int k>
02848     using alternate_t = typename internal::alternate<T, k>::type;
02849
02850     namespace internal {
02851         template<typename T, int n, int k, typename E = void>
02852         struct stirling_helper {};
02853
02854         template<typename T>
02855         struct stirling_helper<T, 0, 0> {
02856             using type = typename T::one;
02857         };
02858
02859         template<typename T, int n>
02860         struct stirling_helper<T, n, 0, std::enable_if_t<(n > 0)>> {
02861             using type = typename T::zero;
02862         };
02863
02864         template<typename T, int n>
02865         struct stirling_helper<T, 0, n, std::enable_if_t<(n > 0)>> {
02866             using type = typename T::zero;
02867         };
02868
02869         template<typename T, int n, int k>
02870         struct stirling_helper<T, n, k, std::enable_if_t<(k > 0) && (n > 0)>> {
02871             using type = typename T::template sub_t<
02872                             typename stirling_helper<T, n-1, k-1>::type,
02873                             typename T::template mul_t<
02874                                 typename T::template inject_constant_t<n-1>,
02875                                 typename stirling_helper<T, n-1, k>::type
02876                             >;
02877         };
02878     }  // namespace internal
02879
02884     template<typename T, int n, int k>
02885     using stirling_signed_t = typename internal::stirling_helper<T, n, k>::type;
02886
02891     template<typename T, int n, int k>
02892     using stirling_unsigned_t = abs_t<typename internal::stirling_helper<T, n, k>::type>;
02893
02898     template<typename T, int n, int k>
02899     static constexpr typename T::inner_type stirling_signed_v = stirling_signed_t<T, n, k>::v;
02900
02901
02906     template<typename T, int n, int k>
02907     static constexpr typename T::inner_type stirling_unsigned_v = stirling_unsigned_t<T, n, k>::v;
02908
02911     template<typename T, size_t k>
02912     inline constexpr typename T::inner_type alternate_v = internal::alternate<T, k>::value;
02913
02914     namespace internal {
02915         template<typename T>
02916         struct pow_scalar {
02917             template<size_t p>
02918             static constexpr DEVICE INLINED T func(const T& x) { return p == 0 ? static_cast<T>(1) :
02919                 p % 2 == 0 ? func<p/2>(x) * func<p/2>(x) :
02920                 x * func<p/2>(x) * func<p/2>(x);
02921             }
02922         };
02923
02924         template<typename T, typename p, size_t n, typename E = void>
02925         requires IsEuclideanDomain<T>
02926         struct pow;
02927
```

```
02928         template<typename T, typename p, size_t n>
02929         struct pow<T, p, n, std::enable_if_t<(n > 0 && n % 2 == 0)» {
02930             using type = typename T::template mul_t<
02931                 typename pow<T, p, n/2>::type,
02932                 typename pow<T, p, n/2>::type
02933             >;
02934         };
02935 
02936         template<typename T, typename p, size_t n>
02937         struct pow<T, p, n, std::enable_if_t<(n % 2 == 1)» {
02938             using type = typename T::template mul_t<
02939                 p,
02940                 typename T::template mul_t<
02941                     typename pow<T, p, n/2>::type,
02942                     typename pow<T, p, n/2>::type
02943                 >
02944             >;
02945         };
02946 
02947         template<typename T, typename p, size_t n>
02948         struct pow<T, p, n, std::enable_if_t<n == 0» { using type = typename T::one; };
02949     }  // namespace internal
02950 
02955     template<typename T, typename p, size_t n>
02956     using pow_t = typename internal::pow<T, p, n>::type;
02957 
02962     template<typename T, typename p, size_t n>
02963     static constexpr typename T::inner_type pow_v = internal::pow<T, p, n>::type::v;
02964 
02965     template<typename T, size_t p>
02966     static constexpr DEVICE INLINED T pow_scalar(const T& x) { return
    internal::pow_scalar<T>::template func<p>(x); }
02967 
02968     namespace internal {
02969         template<typename, template<typename, size_t> typename, class>
02970         struct make_taylor_impl;
02971 
02972         template<typename T, template<typename, size_t> typename coeff_at, size_t... Is>
02973         struct make_taylor_impl<T, coeff_at, std::integer_sequence<size_t, Is...» {
02974             using type = typename polynomial<FractionField<T>>::template
    val<typename coeff_at<T, Is>::type...>;
02975         };
02976     }
02977 
02982     template<typename T, template<typename, size_t index> typename coeff_at, size_t deg>
02983     using taylor = typename internal::make_taylor_impl<
02984         T,
02985         coeff_at,
02986         internal::make_index_sequence_reverse<deg + 1>>::type;
02987 
02988     namespace internal {
02989         template<typename T, size_t i>
02990         struct exp_coeff {
02991             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
02992         };
02993 
02994         template<typename T, size_t i, typename E = void>
02995         struct sin_coeff_helper {};
02996 
02997         template<typename T, size_t i>
02998         struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
02999             using type = typename FractionField<T>::zero;
03000         };
03001 
03002         template<typename T, size_t i>
03003         struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
03004             using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
03005         };
03006 
03007         template<typename T, size_t i>
03008         struct sin_coeff {
03009             using type = typename sin_coeff_helper<T, i>::type;
03010         };
03011 
03012         template<typename T, size_t i, typename E = void>
03013         struct sh_coeff_helper {};
03014 
03015         template<typename T, size_t i>
03016         struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
03017             using type = typename FractionField<T>::zero;
03018         };
03019 
03020         template<typename T, size_t i>
03021         struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
03022             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
03023         };
03024 
```

```
03025         template<typename T, size_t i>
03026         struct sh_coeff {
03027             using type = typename sh_coeff_helper<T, i>::type;
03028         };
03029
03030         template<typename T, size_t i, typename E = void>
03031         struct cos_coeff_helper {};
03032
03033         template<typename T, size_t i>
03034         struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03035             using type = typename FractionField<T>::zero;
03036         };
03037
03038         template<typename T, size_t i>
03039         struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03040             using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
03041         };
03042
03043         template<typename T, size_t i>
03044         struct cos_coeff {
03045             using type = typename cos_coeff_helper<T, i>::type;
03046         };
03047
03048         template<typename T, size_t i, typename E = void>
03049         struct cosh_coeff_helper {};
03050
03051         template<typename T, size_t i>
03052         struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03053             using type = typename FractionField<T>::zero;
03054         };
03055
03056         template<typename T, size_t i>
03057         struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03058             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
03059         };
03060
03061         template<typename T, size_t i>
03062         struct cosh_coeff {
03063             using type = typename cosh_coeff_helper<T, i>::type;
03064         };
03065
03066         template<typename T, size_t i>
03067         struct geom_coeff { using type = typename FractionField<T>::one; };
03068
03069
03070         template<typename T, size_t i, typename E = void>
03071         struct atan_coeff_helper;
03072
03073         template<typename T, size_t i>
03074         struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03075             using type = makefraction_t<T, alternate_t<T, i / 2>, typename T::template val<i>>;
03076         };
03077
03078         template<typename T, size_t i>
03079         struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03080             using type = typename FractionField<T>::zero;
03081         };
03082
03083         template<typename T, size_t i>
03084         struct atan_coeff { using type = typename atan_coeff_helper<T, i>::type; };
03085
03086         template<typename T, size_t i, typename E = void>
03087         struct asin_coeff_helper;
03088
03089         template<typename T, size_t i>
03090         struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03091             using type = makefraction_t<T,
03092                 factorial_t<T, i - 1>,
03093                 typename T::template mul_t<
03094                     typename T::template val<i>,
03095                     T::template mul_t<
03096                         pow_t<T, typename T::template inject_constant_t<4>, i / 2>,
03097                         pow<T, factorial_t<T, i / 2>, 2
03098                     >
03099                 >
03100                 >;
03101         };
03102
03103         template<typename T, size_t i>
03104         struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03105             using type = typename FractionField<T>::zero;
03106         };
03107
03108         template<typename T, size_t i>
03109         struct asin_coeff {
03110             using type = typename asin_coeff_helper<T, i>::type;
03111         };
```

```
03112
03113         template<typename T, size_t i>
03114         struct lnp1_coeff {
03115             using type = makefraction_t<T,
03116                 alternate_t<T, i + 1>,
03117                 typename T::template val<i>>;
03118         };
03119
03120         template<typename T>
03121         struct lnp1_coeff<T, 0> { using type = typename FractionField<T>::zero; };
03122
03123         template<typename T, size_t i, typename E = void>
03124         struct asinh_coeff_helper;
03125
03126         template<typename T, size_t i>
03127         struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03128             using type = makefraction_t<T,
03129                 typename T::template mul_t<
03130                     alternate_t<T, i / 2>,
03131                     factorial_t<T, i - 1>
03132                 >,
03133                 typename T::template mul_t<
03134                     typename T::template mul_t<
03135                         typename T::template val<i>,
03136                         pow_t<T, factorial_t<T, i / 2>, 2>
03137                     >,
03138                     pow_t<T, typename T::template inject_constant_t<4>, i / 2>
03139                 >
03140             >;
03141         };
03142
03143         template<typename T, size_t i>
03144         struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03145             using type = typename FractionField<T>::zero;
03146         };
03147
03148         template<typename T, size_t i>
03149         struct asinh_coeff {
03150             using type = typename asinh_coeff_helper<T, i>::type;
03151         };
03152
03153         template<typename T, size_t i, typename E = void>
03154         struct atanh_coeff_helper;
03155
03156         template<typename T, size_t i>
03157         struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
03158             // 1/i
03159             using type = typename FractionField<T>:: template val<
03160                 typename T::one,
03161                 typename T::template inject_constant_t<i>>;
03162         };
03163
03164         template<typename T, size_t i>
03165         struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
03166             using type = typename FractionField<T>::zero;
03167         };
03168
03169         template<typename T, size_t i>
03170         struct atanh_coeff {
03171             using type = typename atanh_coeff_helper<T, i>::type;
03172         };
03173
03174         template<typename T, size_t i, typename E = void>
03175         struct tan_coeff_helper;
03176
03177         template<typename T, size_t i>
03178         struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0>> {
03179             using type = typename FractionField<T>::zero;
03180         };
03181
03182         template<typename T, size_t i>
03183         struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0>> {
03184         private:
03185             // 4^((i+1)/2)
03186             using _4p = typename FractionField<T>::template inject_t<
03187                 pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2>>;
03188             // 4^((i+1)/2) - 1
03189             using _4pm1 = typename FractionField<T>::template
      sub_t<_4p, typename FractionField<T>::one>;
03190             // (-1)^((i-1)/2)
03191             using altp = typename FractionField<T>::template inject_t<alternate_t<T, (i - 1) / 2>>;
03192             using dividend = typename FractionField<T>::template mul_t<
03193                 altp,
03194                 FractionField<T>::template mul_t<
03195                 _4p,
03196                 FractionField<T>::template mul_t<
03197                 _4pm1,
```

```
03198                 bernoulli_t<T, (i + 1)>
03199                 >
03200                 >
03201             >;
03202         public:
03203             using type = typename FractionField<T>::template div_t<dividend,
03204                 typename FractionField<T>::template inject_t<factorial_t<T, i + 1>»;
03205         };
03206 
03207         template<typename T, size_t i>
03208         struct tan_coeff {
03209             using type = typename tan_coeff_helper<T, i>::type;
03210         };
03211 
03212         template<typename T, size_t i, typename E = void>
03213         struct tanh_coeff_helper;
03214 
03215         template<typename T, size_t i>
03216         struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0» {
03217             using type = typename FractionField<T>::zero;
03218         };
03219 
03220         template<typename T, size_t i>
03221         struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0» {
03222         private:
03223             using _4p = typename FractionField<T>::template inject_t<
03224                 pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2»;
03225             using _4pm1 = typename FractionField<T>::template
      sub_t<_4p, typename FractionField<T>::one>;
03226             using dividend =
03227                 typename FractionField<T>::template mul_t<
03228                     _4p,
03229                     typename FractionField<T>::template mul_t<
03230                         _4pm1,
03231                         bernoulli_t<T, (i + 1)»>::type;
03232         public:
03233             using type = typename FractionField<T>::template div_t<dividend,
03234                 FractionField<T>::template inject_t<factorial_t<T, i + 1>»;
03235         };
03236 
03237         template<typename T, size_t i>
03238         struct tanh_coeff {
03239             using type = typename tanh_coeff_helper<T, i>::type;
03240         };
03241     }  // namespace internal
03242 
03246     template<typename Integers, size_t deg>
03247     using exp = taylor<Integers, internal::exp_coeff, deg>;
03248 
03252     template<typename Integers, size_t deg>
03253     using expm1 = typename polynomial<FractionField<Integers>>::template sub_t<
03254         exp<Integers, deg>,
03255         typename polynomial<FractionField<Integers>>::one>;
03256 
03260     template<typename Integers, size_t deg>
03261     using lnp1 = taylor<Integers, internal::lnp1_coeff, deg>;
03262 
03266     template<typename Integers, size_t deg>
03267     using atan = taylor<Integers, internal::atan_coeff, deg>;
03268 
03272     template<typename Integers, size_t deg>
03273     using sin = taylor<Integers, internal::sin_coeff, deg>;
03274 
03278     template<typename Integers, size_t deg>
03279     using sinh = taylor<Integers, internal::sh_coeff, deg>;
03280 
03285     template<typename Integers, size_t deg>
03286     using cosh = taylor<Integers, internal::cosh_coeff, deg>;
03287 
03292     template<typename Integers, size_t deg>
03293     using cos = taylor<Integers, internal::cos_coeff, deg>;
03294 
03299     template<typename Integers, size_t deg>
03300     using geometric_sum = taylor<Integers, internal::geom_coeff, deg>;
03301 
03306     template<typename Integers, size_t deg>
03307     using asin = taylor<Integers, internal::asin_coeff, deg>;
03308 
03313     template<typename Integers, size_t deg>
03314     using asinh = taylor<Integers, internal::asinh_coeff, deg>;
03315 
03320     template<typename Integers, size_t deg>
03321     using atanh = taylor<Integers, internal::atanh_coeff, deg>;
03322 
03327     template<typename Integers, size_t deg>
03328     using tan = taylor<Integers, internal::tan_coeff, deg>;
03329 
```

```
03334     template<typename Integers, size_t deg>
03335     using tanh = taylor<Integers, internal::tanh_coeff, deg>;
03336 }  // namespace aerobus
03337
03338 // continued fractions
03339 namespace aerobus {
03342     template<int64_t... values>
03343     struct ContinuedFraction {};
03344
03347     template<int64_t a0>
03348     struct ContinuedFraction<a0> {
03350         using type = typename q64::template inject_constant_t<a0>;
03352         static constexpr double val = static_cast<double>(a0);
03353     };
03354
03358     template<int64_t a0, int64_t... rest>
03359     struct ContinuedFraction<a0, rest...> {
03361         using type = q64::template add_t<
03362                 typename q64::template inject_constant_t<a0>,
03363                 typename q64::template div_t<
03364                     typename q64::one,
03365                     typename ContinuedFraction<rest...>::type
03366                 »;
03367
03369         static constexpr double val = type::template get<double>;
03370     };
03371
03376     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>;
03379     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>;
03381     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>;
03383     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>;
      // NOLINT
03384 }  // namespace aerobus
03385
03386 // known polynomials
03387 namespace aerobus {
03388     // CChebyshev
03389     namespace internal {
03390         template<int kind, size_t deg, typename I>
03391         struct chebyshev_helper {
03392             using type = typename polynomial<I>::template sub_t<
03393                 typename polynomial<I>::template mul_t<
03394                     typename polynomial<I>::template mul_t<
03395                         typename polynomial<I>::template inject_constant_t<2>,
03396                         typename polynomial<I>::X>,
03397                     typename chebyshev_helper<kind, deg - 1, I>::type
03398                 >,
03399                 typename chebyshev_helper<kind, deg - 2, I>::type
03400             >;
03401         };
03402
03403         template<typename I>
03404         struct chebyshev_helper<1, 0, I> {
03405             using type = typename polynomial<I>::one;
03406         };
03407
03408         template<typename I>
03409         struct chebyshev_helper<1, 1, I> {
03410             using type = typename polynomial<I>::X;
03411         };
03412
03413         template<typename I>
03414         struct chebyshev_helper<2, 0, I> {
03415             using type = typename polynomial<I>::one;
03416         };
03417
03418         template<typename I>
03419         struct chebyshev_helper<2, 1, I> {
03420             using type = typename polynomial<I>::template mul_t<
03421                 typename polynomial<I>::template inject_constant_t<2>,
03422                 typename polynomial<I>::X>;
03423         };
03424     }  // namespace internal
03425
03426     // Laguerre
03427     namespace internal {
03428         template<size_t deg, typename I>
03429         struct laguerre_helper {
03430             using Q = FractionField<I>;
03431             using PQ = polynomial<Q>;
03432
03433          private:
03434             // Lk = (1 / k) * ((2 * k - 1 - x) * lkm1 - (k - 2)Lkm2)
```

```
03435             using lnm2 = typename laguerre_helper<deg - 2, I>::type;
03436             using lnm1 = typename laguerre_helper<deg - 1, I>::type;
03437             // -x + 2k-1
03438             using p = typename PQ::template val<
03439                 typename Q::template inject_constant_t<-1>,
03440                 typename Q::template inject_constant_t<2 * deg - 1»;
03441             // 1/n
03442             using factor = typename PQ::template inject_ring_t<
03443                 typename Q::template
      val<typename I::one, typename I::template inject_constant_t<deg>»;
03444
03445          public:
03446             using type = typename PQ::template mul_t <
03447                 factor,
03448                 typename PQ::template sub_t<
03449                     typename PQ::template mul_t<
03450                         p,
03451                         lnm1
03452                     >,
03453                     typename PQ::template mul_t<
03454                         typename PQ::template inject_constant_t<deg-1>,
03455                         lnm2
03456                     >
03457                 >
03458             >;
03459         };
03460
03461         template<typename I>
03462         struct laguerre_helper<0, I> {
03463             using type = typename polynomial<FractionField<I>>::one;
03464         };
03465
03466         template<typename I>
03467         struct laguerre_helper<1, I> {
03468          private:
03469             using PQ = polynomial<FractionField<I>>;
03470          public:
03471             using type = typename PQ::template sub_t<typename PQ::one, typename PQ::X>;
03472         };
03473     }  // namespace internal
03474
03475     // Bernstein
03476     namespace internal {
03477         template<size_t i, size_t m, typename I, typename E = void>
03478         struct bernstein_helper {};
03479
03480         template<typename I>
03481         struct bernstein_helper<0, 0, I> {
03482             using type = typename polynomial<I>::one;
03483         };
03484
03485         template<size_t i, size_t m, typename I>
03486         struct bernstein_helper<i, m, I, std::enable_if_t<
03487                     (m > 0) && (i == 0)» {
03488          private:
03489             using P = polynomial<I>;
03490          public:
03491             using type = typename P::template mul_t<
03492                     typename P::template sub_t<typename P::one, typename P::X>,
03493                     typename bernstein_helper<i, m-1, I>::type>;
03494         };
03495
03496         template<size_t i, size_t m, typename I>
03497         struct bernstein_helper<i, m, I, std::enable_if_t<
03498                     (m > 0) && (i == m)» {
03499          private:
03500             using P = polynomial<I>;
03501          public:
03502             using type = typename P::template mul_t<
03503                     typename P::X,
03504                     typename bernstein_helper<i-1, m-1, I>::type>;
03505         };
03506
03507         template<size_t i, size_t m, typename I>
03508         struct bernstein_helper<i, m, I, std::enable_if_t<
03509                     (m > 0) && (i > 0) && (i < m)» {
03510          private:
03511             using P = polynomial<I>;
03512          public:
03513             using type = typename P::template add_t<
03514                     typename P::template mul_t<
03515                         typename P::template sub_t<typename P::one, typename P::X>,
03516                         typename bernstein_helper<i, m-1, I>::type>,
03517                     typename P::template mul_t<
03518                         typename P::X,
03519                         typename bernstein_helper<i-1, m-1, I>::type»;
03520         };
```

```
03521     }  // namespace internal
03522
03523     namespace known_polynomials {
03525         enum hermite_kind {
03527             probabilist,
03529             physicist
03530         };
03531     }
03532
03533     // hermite
03534     namespace internal {
03535         template<size_t deg, known_polynomials::hermite_kind kind, typename I>
03536         struct hermite_helper {};
03537
03538         template<size_t deg, typename I>
03539         struct hermite_helper<deg, known_polynomials::hermite_kind::probabilist, I> {
03540          private:
03541             using hnm1 = typename hermite_helper<deg - 1,
      known_polynomials::hermite_kind::probabilist, I>::type;
03542             using hnm2 = typename hermite_helper<deg - 2,
      known_polynomials::hermite_kind::probabilist, I>::type;
03543
03544          public:
03545             using type = typename polynomial<I>::template sub_t<
03546                 typename polynomial<I>::template mul_t<typename polynomial<I>::X, hnm1>,
03547                 typename polynomial<I>::template mul_t<
03548                     typename polynomial<I>::template inject_constant_t<deg - 1>,
03549                     hnm2
03550                 >
03551             >;
03552         };
03553
03554         template<size_t deg, typename I>
03555         struct hermite_helper<deg, known_polynomials::hermite_kind::physicist, I> {
03556          private:
03557             using hnm1 = typename hermite_helper<deg - 1, known_polynomials::hermite_kind::physicist,
      I>::type;
03558             using hnm2 = typename hermite_helper<deg - 2, known_polynomials::hermite_kind::physicist,
      I>::type;
03559
03560          public:
03561             using type = typename polynomial<I>::template sub_t<
03562                 // 2X Hn-1
03563                 typename polynomial<I>::template mul_t<
03564                     typename pi64::val<typename I::template inject_constant_t<2>,
03565                     typename I::zero>, hnm1>,
03566
03567                 typename polynomial<I>::template mul_t<
03568                     typename polynomial<I>::template inject_constant_t<2*(deg - 1)>,
03569                     hnm2
03570                 >
03571             >;
03572         };
03573
03574         template<typename I>
03575         struct hermite_helper<0, known_polynomials::hermite_kind::probabilist, I> {
03576             using type = typename polynomial<I>::one;
03577         };
03578
03579         template<typename I>
03580         struct hermite_helper<1, known_polynomials::hermite_kind::probabilist, I> {
03581             using type = typename polynomial<I>::X;
03582         };
03583
03584         template<typename I>
03585         struct hermite_helper<0, known_polynomials::hermite_kind::physicist, I> {
03586             using type = typename pi64::one;
03587         };
03588
03589         template<typename I>
03590         struct hermite_helper<1, known_polynomials::hermite_kind::physicist, I> {
03591             // 2X
03592             using type = typename polynomial<I>::template val<
03593                 typename I::template inject_constant_t<2>,
03594                 typename I::zero>;
03595         };
03596     }  // namespace internal
03597
03598     // legendre
03599     namespace internal {
03600         template<size_t n, typename I>
03601         struct legendre_helper {
03602          private:
03603             using Q = FractionField<I>;
03604             using PQ = polynomial<Q>;
03605             // 1/n constant
03606             // (2n-1)/n X
```

```
03607             using fact_left = typename PQ::template monomial_t<
03608                 makefraction_t<I,
03609                     typename I::template inject_constant_t<2*n-1>,
03610                     typename I::template inject_constant_t<n>
03611                 >,
03612             1>;
03613             // (n-1) / n
03614             using fact_right = typename PQ::template val<
03615                 makefraction_t<I,
03616                     typename I::template inject_constant_t<n-1>,
03617                     typename I::template inject_constant_t<n>»;
03618 
03619          public:
03620             using type = PQ::template sub_t<
03621                     typename PQ::template mul_t<
03622                         fact_left,
03623                         typename legendre_helper<n-1, I>::type
03624                     >,
03625                     typename PQ::template mul_t<
03626                         fact_right,
03627                         typename legendre_helper<n-2, I>::type
03628                     >
03629                 >;
03630         };
03631 
03632         template<typename I>
03633         struct legendre_helper<0, I> {
03634             using type = typename polynomial<FractionField<I>>::one;
03635         };
03636 
03637         template<typename I>
03638         struct legendre_helper<1, I> {
03639             using type = typename polynomial<FractionField<I>>::X;
03640         };
03641     }  // namespace internal
03642 
03643     // bernoulli polynomials
03644     namespace internal {
03645         template<size_t n>
03646         struct bernoulli_coeff {
03647             template<typename T, size_t i>
03648             struct inner {
03649              private:
03650                 using F = FractionField<T>;
03651              public:
03652                 using type = typename F::template mul_t<
03653                     typename F::template inject_ring_t<combination_t<T, i, n>>,
03654                     bernoulli_t<T, n-i>
03655                 >;
03656             };
03657         };
03658     }  // namespace internal
03659 
03661     namespace known_polynomials {
03669         template <size_t deg, typename I = aerobus::i64>
03670         using chebyshev_T = typename internal::chebyshev_helper<1, deg, I>::type;
03671 
03681         template <size_t deg, typename I = aerobus::i64>
03682         using chebyshev_U = typename internal::chebyshev_helper<2, deg, I>::type;
03683 
03693         template <size_t deg, typename I = aerobus::i64>
03694         using laguerre = typename internal::laguerre_helper<deg, I>::type;
03695 
03702         template <size_t deg, typename I = aerobus::i64>
03703         using hermite_prob = typename internal::hermite_helper<deg, hermite_kind::probabilist,
      I>::type;
03704 
03711         template <size_t deg, typename I = aerobus::i64>
03712         using hermite_phys = typename internal::hermite_helper<deg, hermite_kind::physicist, I>::type;
03713 
03724         template<size_t i, size_t m, typename I = aerobus::i64>
03725         using bernstein = typename internal::bernstein_helper<i, m, I>::type;
03726 
03736         template<size_t deg, typename I = aerobus::i64>
03737         using legendre = typename internal::legendre_helper<deg, I>::type;
03738 
03748         template<size_t deg, typename I = aerobus::i64>
03749         using bernoulli = taylor<I, internal::bernoulli_coeff<deg>::template inner, deg>;
03750     }  // namespace known_polynomials
03751 }  // namespace aerobus
03752 
03753 
03754 #ifdef AEROBUS_CONWAY_IMPORTS
03755 
03756 // conway polynomials
03757 namespace aerobus {
03761     template<int p, int n>
```

```
03762     struct ConwayPolynomial {};
03763
03764 #ifndef DO_NOT_DOCUMENT
03765     #define ZPZV ZPZ::template val
03766     #define POLYV aerobus::polynomial<ZPZ>::template val
03767     template<> struct ConwayPolynomial<2, 1> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<1>>; };  // NOLINT
03768     template<> struct ConwayPolynomial<2, 2> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<1>, ZPZV<1>>; }; // NOLINT
03769     template<> struct ConwayPolynomial<2, 3> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03770     template<> struct ConwayPolynomial<2, 4> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03771     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
03772     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
03773     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
03774     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
03775     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>>; };
      // NOLINT
03776     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
03777     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<1>,
      ZPZV<0>, ZPZV<1>>; };  // NOLINT
03778     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
03779     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<1>,
      ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03780     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
03781     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<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>>; };  // NOLINT
03782     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
03783     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<1>, ZPZV<0>, ZPZV<1>>; };  // NOLINT
03784     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<1>, ZPZV<1>>; };  // NOLINT
03785     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<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>>; };  //
      NOLINT
03786     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<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };
      // NOLINT
03787     template<> struct ConwayPolynomial<3, 1> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<1>>; };  // NOLINT
03788     template<> struct ConwayPolynomial<3, 2> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<2>, ZPZV<2>>; };  // NOLINT
03789     template<> struct ConwayPolynomial<3, 3> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<1>>; };  // NOLINT
03790     template<> struct ConwayPolynomial<3, 4> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<0>, ZPZV<2>>; };  // NOLINT
03791     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
03792     template<> struct ConwayPolynomial<3, 6> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<1>, ZPZV<2>, ZPZV<2>>; };  // NOLINT
03793     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
03794     template<> struct ConwayPolynomial<3, 8> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2>>; };  // NOLINT
03795     template<> struct ConwayPolynomial<3, 9> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<1>, ZPZV<1>>; };
      // NOLINT
03796     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
03797     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<2>,
      ZPZV<0>, ZPZV<1>>; };  // NOLINT
03798     template<> struct ConwayPolynomial<3, 12> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>,
      ZPZV<1>, ZPZV<0>, ZPZV<2>>; };  // NOLINT
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03799     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<2>, ZPZV<1>>; };  // NOLINT
03800     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
03801     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<0>, ZPZV<2>, ZPZV<0>, ZPZV<0>,
      ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03802     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<0>, ZPZV<2>,
      ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<2>, ZPZV<2>, ZPZV<1>, ZPZV<2>>; };  // NOLINT
03803     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<0>, ZPZV<2>, ZPZV<1>>; };  // NOLINT
03804     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<0>, ZPZV<1>, ZPZV<0>,
      ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<2>, ZPZV<0>, ZPZV<2>>; };  // NOLINT
03805     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
03806     template<> struct ConwayPolynomial<3, 20> { using ZPZ = aerobus::zpz<3>; using type =
      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
03807     template<> struct ConwayPolynomial<5, 1> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<3>>; };  // NOLINT
03808     template<> struct ConwayPolynomial<5, 2> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<4>, ZPZV<2>>; };  // NOLINT
03809     template<> struct ConwayPolynomial<5, 3> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<3>>; };  // NOLINT
03810     template<> struct ConwayPolynomial<5, 4> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<2>>; };  // NOLINT
03811     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
03812     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
03813     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
03814     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
03815     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
03816     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
03817     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<3>, ZPZV<3>>; };  // NOLINT
03818     template<> struct ConwayPolynomial<5, 12> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>,
      ZPZV<3>, ZPZV<2>, ZPZV<2>>; };  // NOLINT
03819     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
03820     template<> struct ConwayPolynomial<5, 14> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, 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
03821     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
03822     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<1>, ZPZV<4>,
      ZPZV<4>, ZPZV<4>, ZPZV<2>, ZPZV<4>, ZPZV<4>, ZPZV<1>, ZPZV<2>>; };  // NOLINT
03823     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<3>, ZPZV<2>, ZPZV<3>>; };  // NOLINT
03824     template<> struct ConwayPolynomial<5, 18> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, 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
03825     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<1>, ZPZV<0>, ZPZV<2>, ZPZV<3>>; };  //
      NOLINT
03826     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<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
03827     template<> struct ConwayPolynomial<7, 1> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<4>>; };  // NOLINT
03828     template<> struct ConwayPolynomial<7, 2> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<6>, ZPZV<3>>; };  // NOLINT
03829     template<> struct ConwayPolynomial<7, 3> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<6>, ZPZV<0>, ZPZV<4>>; };  // NOLINT
03830     template<> struct ConwayPolynomial<7, 4> { using ZPZ = aerobus::zpz<7>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<4>, ZPZV<3>>; };  // NOLINT
03831     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
03832     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
03833     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
03834     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
03835     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
03836     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
03837     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
03838     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
03839     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>,
    ZPZV<0>, ZPZV<6>, ZPZV<0>, ZPZV<4>>; };  // NOLINT
03840     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<5>, ZPZV<0>, ZPZV<6>,
    ZPZV<2>, ZPZV<0>, ZPZV<3>, ZPZV<6>, ZPZV<3>>; };  // NOLINT
03841     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<5>,
    ZPZV<6>, ZPZV<6>, ZPZV<4>, ZPZV<1>, ZPZV<2>, ZPZV<4>>; };  // NOLINT
03842     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<4>, ZPZV<5>,
    ZPZV<3>, ZPZV<4>, ZPZV<1>, ZPZV<6>, ZPZV<2>, ZPZV<4>, ZPZV<3>>; };  // NOLINT
03843     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<1>, ZPZV<4>>; };  // NOLINT
03844     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
03845     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<5>, ZPZV<0>, ZPZV<4>>; };  //
    NOLINT
03846     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
03847     template<> struct ConwayPolynomial<11, 1> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<9>>; };  // NOLINT
03848     template<> struct ConwayPolynomial<11, 2> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<7>, ZPZV<2>>; };  // NOLINT
03849     template<> struct ConwayPolynomial<11, 3> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<9>>; };  // NOLINT
03850     template<> struct ConwayPolynomial<11, 4> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
03851     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
03852     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
03853     template<> struct ConwayPolynomial<11, 7> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<9>>; };  // NOLINT
03854     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
03855     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<9>, ZPZV<8>, ZPZV<9>>; };
    // NOLINT
03856     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
03857     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<10>, ZPZV<9>>; };  // NOLINT
03858     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
03859     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<7>, ZPZV<9>>; };  // NOLINT
03860     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<2>, ZPZV<9>, ZPZV<6>,
    ZPZV<4>, ZPZV<8>, ZPZV<6>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
03861     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<10>,
    ZPZV<7>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<0>, ZPZV<9>>; };  // NOLINT
03862     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<1>, ZPZV<10>,
    ZPZV<1>, ZPZV<3>, ZPZV<5>, ZPZV<3>, ZPZV<10>, ZPZV<9>, ZPZV<2>>; };  // NOLINT
```

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03863     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<4>, ZPZV<9>>; };  // NOLINT
03864     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
03865     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<8>, ZPZV<2>, ZPZV<9>>; };  //
      NOLINT
03866     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
03867     template<> struct ConwayPolynomial<13, 1> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<11>>; };  // NOLINT
03868     template<> struct ConwayPolynomial<13, 2> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<12>, ZPZV<2>>; };  // NOLINT
03869     template<> struct ConwayPolynomial<13, 3> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11>>; };  // NOLINT
03870     template<> struct ConwayPolynomial<13, 4> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<12>, ZPZV<2>>; };  // NOLINT
03871     template<> struct ConwayPolynomial<13, 5> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<11>>; };  // NOLINT
03872     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
03873     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
03874     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
03875     template<> struct ConwayPolynomial<13, 9> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<8>, ZPZV<12>, ZPZV<12>, ZPZV<11>>;
      };  // NOLINT
03876     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
03877     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
03878     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
03879     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
03880     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
03881     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<2>, ZPZV<12>,
      ZPZV<2>, ZPZV<11>, ZPZV<10>, ZPZV<11>, ZPZV<8>, ZPZV<11>>; };  // NOLINT
03882     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<3>, ZPZV<12>,
      ZPZV<8>, ZPZV<2>, ZPZV<12>, ZPZV<9>, ZPZV<12>, ZPZV<6>, ZPZV<2>>; };  // NOLINT
03883     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<10>, ZPZV<6>, ZPZV<11>>; };  // NOLINT
03884     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<10>, ZPZV<4>, ZPZV<11>,
      ZPZV<11>, ZPZV<9>, ZPZV<5>, ZPZV<3>, ZPZV<5>, ZPZV<6>, ZPZV<0>, ZPZV<9>, ZPZV<2>>; };  // NOLINT
03885     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<9>, ZPZV<11>>; };  //
      NOLINT
03886     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<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
03887     template<> struct ConwayPolynomial<17, 1> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<14>>; };  // NOLINT
03888     template<> struct ConwayPolynomial<17, 2> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<16>, ZPZV<3>>; };  // NOLINT
03889     template<> struct ConwayPolynomial<17, 3> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<14>>; };  // NOLINT
03890     template<> struct ConwayPolynomial<17, 4> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<10>, ZPZV<3>>; };  // NOLINT
03891     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
03892     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
03893     template<> struct ConwayPolynomial<17, 7> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<14>>; };  // NOLINT
03894     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
03895     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<7>, ZPZV<8>, ZPZV<14>>; };
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    // NOLINT
03896     template<> struct ConwayPolynomial<17, 10> { using ZPZ = aerobus::zpz<17>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<6>, ZPZV<5>, ZPZV<9>, ZPZV<12>,
    ZPZV<3>>; };  // NOLINT
03897     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<5>, ZPZV<14>>; };  // NOLINT
03898     template<> struct ConwayPolynomial<17, 12> { using ZPZ = aerobus::zpz<17>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<4>, ZPZV<14>, ZPZV<14>, ZPZV<13>, ZPZV<6>,
    ZPZV<14>, ZPZV<9>, ZPZV<3>>; };  // NOLINT
03899     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<15>, ZPZV<14>>; };  // NOLINT
03900     template<> struct ConwayPolynomial<17, 14> { using ZPZ = aerobus::zpz<17>; using type =
    POLYV<ZPZV<1>, 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
03901     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
03902     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
03903     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>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<14>>; };  // NOLINT
03904     template<> struct ConwayPolynomial<17, 18> { using ZPZ = aerobus::zpz<17>; using type =
    POLYV<ZPZV<1>, 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
03905     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<11>, ZPZV<14>>; };  //
    NOLINT
03906     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<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
03907     template<> struct ConwayPolynomial<19, 1> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<17>>; };  // NOLINT
03908     template<> struct ConwayPolynomial<19, 2> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<18>, ZPZV<2>>; };  // NOLINT
03909     template<> struct ConwayPolynomial<19, 3> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<17>>; };  // NOLINT
03910     template<> struct ConwayPolynomial<19, 4> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11>, ZPZV<2>>; };  // NOLINT
03911     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
03912     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
03913     template<> struct ConwayPolynomial<19, 7> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<17>>; };  // NOLINT
03914     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
03915     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
03916     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
03917     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<8>, ZPZV<17>>; };  // NOLINT
03918     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
03919     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<11>, ZPZV<17>>; };  // NOLINT
03920     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<11>, ZPZV<11>, ZPZV<11>,
    ZPZV<1>, ZPZV<5>, ZPZV<16>, ZPZV<7>, ZPZV<2>>; };  // NOLINT
03921     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<1>, ZPZV<10>,
    ZPZV<11>, ZPZV<13>, ZPZV<15>, ZPZV<14>, ZPZV<0>, ZPZV<17>>; };  // NOLINT
03922     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<12>,
    ZPZV<13>, ZPZV<0>, ZPZV<15>, ZPZV<9>, ZPZV<6>, ZPZV<14>, ZPZV<2>>; };  // NOLINT
03923     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<2>, ZPZV<17>>; };  // NOLINT
03924     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<10>, ZPZV<9>, ZPZV<7>,
    ZPZV<17>, ZPZV<5>, ZPZV<0>, ZPZV<16>, ZPZV<5>, ZPZV<7>, ZPZV<3>, ZPZV<14>, ZPZV<2>>; };  // NOLINT
03925     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<18>, ZPZV<17>>; };  //
    NOLINT
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03926     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
03927     template<> struct ConwayPolynomial<23, 1> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<18>>; };  // NOLINT
03928     template<> struct ConwayPolynomial<23, 2> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<21>, ZPZV<5>>; };  // NOLINT
03929     template<> struct ConwayPolynomial<23, 3> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<18>>; };  // NOLINT
03930     template<> struct ConwayPolynomial<23, 4> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<19>, ZPZV<5>>; };  // NOLINT
03931     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
03932     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
03933     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
03934     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
03935     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
03936     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>,
      ZPZV<5>>; };  // NOLINT
03937     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<0>, ZPZV<22>,
      ZPZV<7>, ZPZV<18>>; };  // NOLINT
03938     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
03939     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<9>, ZPZV<18>>; };  // NOLINT
03940     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
03941     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<2>,
      ZPZV<8>, ZPZV<15>, ZPZV<9>, ZPZV<7>, ZPZV<18>, ZPZV<18>>; };  // NOLINT
03942     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<19>,
      ZPZV<19>, ZPZV<16>, ZPZV<13>, ZPZV<1>, ZPZV<14>, ZPZV<17>, ZPZV<5>>; };  // NOLINT
03943     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<20>, ZPZV<18>>; };  // NOLINT
03944     template<> struct ConwayPolynomial<23, 18> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, 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
03945     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<5>, ZPZV<18>>; };  //
      NOLINT
03946     template<> struct ConwayPolynomial<29, 1> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<27>>; };  // NOLINT
03947     template<> struct ConwayPolynomial<29, 2> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<24>, ZPZV<2>>; };  // NOLINT
03948     template<> struct ConwayPolynomial<29, 3> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<27>>; };  // NOLINT
03949     template<> struct ConwayPolynomial<29, 4> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<15>, ZPZV<2>>; };  // NOLINT
03950     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
03951     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
03952     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
03953     template<> struct ConwayPolynomial<29, 8> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<24>, ZPZV<26>, ZPZV<23>, ZPZV<2>>; };  //
      NOLINT
03954     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
03955     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
03956     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<28>,
      ZPZV<8>, ZPZV<27>>; };  // NOLINT
03957     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
03958     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<7>, ZPZV<27>>; };  // NOLINT
03959     template<> struct ConwayPolynomial<29, 14> { using ZPZ = aerobus::zpz<29>; using type =
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      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
03960     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
03961     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<0>, ZPZV<6>, ZPZV<27>,
      ZPZV<2>, ZPZV<18>, ZPZV<23>, ZPZV<1>, ZPZV<27>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
03962     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
03963     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<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
03964     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
03965     template<> struct ConwayPolynomial<31, 1> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<28>>; };  // NOLINT
03966     template<> struct ConwayPolynomial<31, 2> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<29>, ZPZV<3>>; };  // NOLINT
03967     template<> struct ConwayPolynomial<31, 3> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<28>>; };  // NOLINT
03968     template<> struct ConwayPolynomial<31, 4> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<16>, ZPZV<3>>; };  // NOLINT
03969     template<> struct ConwayPolynomial<31, 5> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<28>>; };  // NOLINT
03970     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
03971     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
03972     template<> struct ConwayPolynomial<31, 8> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<12>, ZPZV<24>, ZPZV<3>>; };  //
      NOLINT
03973     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
03974     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
03975     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
03976     template<> struct ConwayPolynomial<31, 12> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<14>, ZPZV<28>, ZPZV<2>, ZPZV<9>,
      ZPZV<25>, ZPZV<12>, ZPZV<3>>; };  // NOLINT
03977     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
03978     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<10>, ZPZV<5>, ZPZV<1>,
      ZPZV<1>, ZPZV<18>, ZPZV<18>, ZPZV<6>, ZPZV<3>>; };  // NOLINT
03979     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<30>,
      ZPZV<29>, ZPZV<12>, ZPZV<13>, ZPZV<23>, ZPZV<25>, ZPZV<28>>; };  // NOLINT
03980     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<28>,
      ZPZV<24>, ZPZV<26>, ZPZV<28>, ZPZV<11>, ZPZV<19>, ZPZV<27>, ZPZV<3>>; };  // NOLINT
03981     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<10>, ZPZV<28>>; };  // NOLINT
03982     template<> struct ConwayPolynomial<31, 18> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, 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
03983     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<7>, ZPZV<28>>; };  //
      NOLINT
03984     template<> struct ConwayPolynomial<37, 1> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<35>>; };  // NOLINT
03985     template<> struct ConwayPolynomial<37, 2> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<33>, ZPZV<2>>; };  // NOLINT
03986     template<> struct ConwayPolynomial<37, 3> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<35>>; };  // NOLINT
03987     template<> struct ConwayPolynomial<37, 4> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<24>, ZPZV<2>>; };  // NOLINT
03988     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
03989     template<> struct ConwayPolynomial<37, 6> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<4>, ZPZV<30>, ZPZV<2>>; };  // NOLINT
03990     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
03991     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
03992     template<> struct ConwayPolynomial<37, 9> { using ZPZ = aerobus::zpz<37>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<20>, ZPZV<32>, ZPZV<35>>; };
      // NOLINT
03993     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
03994     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
03995     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
03996     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<6>, ZPZV<35>>; };  // NOLINT
03997     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
03998     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
03999     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<3>, ZPZV<35>>; };  // NOLINT
04000     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
04001     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<36>, ZPZV<23>, ZPZV<35>>; };  //
      NOLINT
04002     template<> struct ConwayPolynomial<41, 1> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<35>>; };  // NOLINT
04003     template<> struct ConwayPolynomial<41, 2> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<38>, ZPZV<6>>; };  // NOLINT
04004     template<> struct ConwayPolynomial<41, 3> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<35>>; };  // NOLINT
04005     template<> struct ConwayPolynomial<41, 4> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<23>, ZPZV<6>>; };  // NOLINT
04006     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
04007     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
04008     template<> struct ConwayPolynomial<41, 7> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<35>>; };  // NOLINT
04009     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
04010     template<> struct ConwayPolynomial<41, 9> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<31>, ZPZV<5>, ZPZV<35>>; };
      // NOLINT
04011     template<> struct ConwayPolynomial<41, 10> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<31>, ZPZV<8>, ZPZV<20>, ZPZV<30>,
      ZPZV<6>>; };  // NOLINT
04012     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<20>, ZPZV<35>>; };  // NOLINT
04013     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
04014     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
04015     template<> struct ConwayPolynomial<41, 14> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, 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
04016     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
04017     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
04018     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<1>, ZPZV<7>, ZPZV<20>,
      ZPZV<23>, ZPZV<35>, ZPZV<38>, ZPZV<24>, ZPZV<12>, ZPZV<29>, ZPZV<10>, ZPZV<6>, ZPZV<6>>; };  // NOLINT
04019     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<10>, ZPZV<35>>; };  //
      NOLINT
04020     template<> struct ConwayPolynomial<43, 1> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<40>>; };  // NOLINT
04021     template<> struct ConwayPolynomial<43, 2> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<42>, ZPZV<3>>; };  // NOLINT
04022     template<> struct ConwayPolynomial<43, 3> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<40>>; };  // NOLINT
04023     template<> struct ConwayPolynomial<43, 4> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<42>, ZPZV<3>>; };  // NOLINT
04024     template<> struct ConwayPolynomial<43, 5> { using ZPZ = aerobus::zpz<43>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<40>>; };  // NOLINT
04025     template<> struct ConwayPolynomial<43, 6> { using ZPZ = aerobus::zpz<43>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<28>, ZPZV<21>, ZPZV<3>>; };  // NOLINT
04026     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
04027     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
04028     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
04029     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
04030     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
04031     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
04032     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
04033     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
04034     template<> struct ConwayPolynomial<43, 15> { using ZPZ = aerobus::zpz<43>; using type =
    POLYV<ZPZV<1>, 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
04035     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
04036     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
04037     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
04038     template<> struct ConwayPolynomial<47, 1> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<42>>; };  // NOLINT
04039     template<> struct ConwayPolynomial<47, 2> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<45>, ZPZV<5>>; };  // NOLINT
04040     template<> struct ConwayPolynomial<47, 3> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<42>>; };  // NOLINT
04041     template<> struct ConwayPolynomial<47, 4> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<40>, ZPZV<5>>; };  // NOLINT
04042     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
04043     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
04044     template<> struct ConwayPolynomial<47, 7> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<42>>; };  // NOLINT
04045     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
04046     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
04047     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
04048     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
04049     template<> struct ConwayPolynomial<47, 12> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<46>, ZPZV<40>, ZPZV<35>, ZPZV<12>, ZPZV<46>,
    ZPZV<14>, ZPZV<9>, ZPZV<5>>; };  // NOLINT
04050     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
04051     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<36>, ZPZV<20>, ZPZV<30>,
    ZPZV<17>, ZPZV<24>, ZPZV<9>, ZPZV<32>, ZPZV<5>>; };  // NOLINT
04052     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
04053     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<16>, ZPZV<42>>; };  // NOLINT
04054     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
04055     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
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04056     template<> struct ConwayPolynomial<53, 1> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<51>>; };  // NOLINT
04057     template<> struct ConwayPolynomial<53, 2> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<49>, ZPZV<2>>; };  // NOLINT
04058     template<> struct ConwayPolynomial<53, 3> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<51>>; };  // NOLINT
04059     template<> struct ConwayPolynomial<53, 4> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<38>, ZPZV<2>>; };  // NOLINT
04060     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
04061     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
04062     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
04063     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
04064     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
04065     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
04066     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
04067     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
04068     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
04069     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
04070     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<22>,
          ZPZV<31>, ZPZV<15>, ZPZV<11>, ZPZV<20>, ZPZV<4>, ZPZV<51>>; };  // NOLINT
04071     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<12>, ZPZV<51>>; };  // NOLINT
04072     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
04073     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<11>, ZPZV<51>>; };  //
          NOLINT
04074     template<> struct ConwayPolynomial<59, 1> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<57>>; };  // NOLINT
04075     template<> struct ConwayPolynomial<59, 2> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<58>, ZPZV<2>>; };  // NOLINT
04076     template<> struct ConwayPolynomial<59, 3> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<57>>; };  // NOLINT
04077     template<> struct ConwayPolynomial<59, 4> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<40>, ZPZV<2>>; };  // NOLINT
04078     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
04079     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
04080     template<> struct ConwayPolynomial<59, 7> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<57>>; };  // NOLINT
04081     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
04082     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
04083     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
04084     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
04085     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
04086     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
04087     template<> struct ConwayPolynomial<59, 14> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, 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
04088     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<57>,
          ZPZV<24>, ZPZV<23>, ZPZV<13>, ZPZV<39>, ZPZV<58>, ZPZV<57>>; };  // NOLINT
04089     template<> struct ConwayPolynomial<59, 17> { using ZPZ = aerobus::zpz<59>; 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<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<57>>; };  // NOLINT
04090     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
04091     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
04092     template<> struct ConwayPolynomial<61, 1> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<59>>; };  // NOLINT
04093     template<> struct ConwayPolynomial<61, 2> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<60>, ZPZV<2>>; };  // NOLINT
04094     template<> struct ConwayPolynomial<61, 3> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<59>>; };  // NOLINT
04095     template<> struct ConwayPolynomial<61, 4> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<40>, ZPZV<2>>; };  // NOLINT
04096     template<> struct ConwayPolynomial<61, 5> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59>>; };  // NOLINT
04097     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
04098     template<> struct ConwayPolynomial<61, 7> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<59>>; };  // NOLINT
04099     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
04100     template<> struct ConwayPolynomial<61, 9> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<50>, ZPZV<18>, ZPZV<59>>; };
      // NOLINT
04101     template<> struct ConwayPolynomial<61, 10> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<15>, ZPZV<44>, ZPZV<16>, ZPZV<6>,
      ZPZV<2>>; };  // NOLINT
04102     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
04103     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
04104     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
04105     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
04106     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
04107     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<10>, ZPZV<59>>; };  // NOLINT
04108     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
04109     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<2>, ZPZV<59>>; };  //
      NOLINT
04110     template<> struct ConwayPolynomial<67, 1> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<65>>; };  // NOLINT
04111     template<> struct ConwayPolynomial<67, 2> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<63>, ZPZV<2>>; };  // NOLINT
04112     template<> struct ConwayPolynomial<67, 3> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<65>>; };  // NOLINT
04113     template<> struct ConwayPolynomial<67, 4> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<54>, ZPZV<2>>; };  // NOLINT
04114     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
04115     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
04116     template<> struct ConwayPolynomial<67, 7> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<65>>; };  // NOLINT
04117     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
04118     template<> struct ConwayPolynomial<67, 9> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<49>, ZPZV<55>, ZPZV<65>>;
      };  // NOLINT
04119     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
04120     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<66>,
      ZPZV<9>, ZPZV<65>>; };  // NOLINT
04121     template<> struct ConwayPolynomial<67, 12> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<57>, ZPZV<27>, ZPZV<4>, ZPZV<55>, ZPZV<64>,
      ZPZV<21>, ZPZV<27>, ZPZV<2>>; };  // NOLINT
04122     template<> struct ConwayPolynomial<67, 13> { using ZPZ = aerobus::zpz<67>; 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<0>, ZPZV<0>, ZPZV<22>, ZPZV<65>>; };  // NOLINT
04123     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<0>, ZPZV<17>, ZPZV<22>, ZPZV<5>,
      ZPZV<56>, ZPZV<0>, ZPZV<1>, ZPZV<37>, ZPZV<2>>; };  // NOLINT
04124     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
04125     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<5>, ZPZV<65>>; };  // NOLINT
04126     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
04127     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
04128     template<> struct ConwayPolynomial<71, 1> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<64>>; };  // NOLINT
04129     template<> struct ConwayPolynomial<71, 2> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<69>, ZPZV<7>>; };  // NOLINT
04130     template<> struct ConwayPolynomial<71, 3> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<64>>; };  // NOLINT
04131     template<> struct ConwayPolynomial<71, 4> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<41>, ZPZV<7>>; };  // NOLINT
04132     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
04133     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
04134     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
04135     template<> struct ConwayPolynomial<71, 8> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<53>, ZPZV<22>, ZPZV<19>, ZPZV<7>>; };  //
      NOLINT
04136     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
04137     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
04138     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<0>,
      ZPZV<48>, ZPZV<64>>; };  // NOLINT
04139     template<> struct ConwayPolynomial<71, 12> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<28>, ZPZV<29>, ZPZV<55>, ZPZV<21>,
      ZPZV<58>, ZPZV<23>, ZPZV<7>>; };  // NOLINT
04140     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
04141     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
04142     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<0>, ZPZV<3>, ZPZV<64>>; };  // NOLINT
04143     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
04144     template<> struct ConwayPolynomial<73, 1> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<68>>; };  // NOLINT
04145     template<> struct ConwayPolynomial<73, 2> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<70>, ZPZV<5>>; };  // NOLINT
04146     template<> struct ConwayPolynomial<73, 3> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<68>>; };  // NOLINT
04147     template<> struct ConwayPolynomial<73, 4> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<56>, ZPZV<5>>; };  // NOLINT
04148     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
04149     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
04150     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
04151     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
04152     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
04153     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
04154     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<5>, ZPZV<68>>; };  // NOLINT
04155     template<> struct ConwayPolynomial<73, 12> { using ZPZ = aerobus::zpz<73>; using type =
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      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
04156     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<7>, ZPZV<68>>; };  // NOLINT
04157     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
04158     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<8>, ZPZV<68>>; };  // NOLINT
04159     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
04160     template<> struct ConwayPolynomial<79, 1> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<76>>; };  // NOLINT
04161     template<> struct ConwayPolynomial<79, 2> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<78>, ZPZV<3>>; };  // NOLINT
04162     template<> struct ConwayPolynomial<79, 3> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<76>>; };  // NOLINT
04163     template<> struct ConwayPolynomial<79, 4> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<66>, ZPZV<3>>; };  // NOLINT
04164     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
04165     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
04166     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
04167     template<> struct ConwayPolynomial<79, 8> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<60>, ZPZV<59>, ZPZV<48>, ZPZV<3>>; };  //
      NOLINT
04168     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<0>, ZPZV<57>, ZPZV<19>, ZPZV<76>>; };
      // NOLINT
04169     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
04170     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
04171     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
04172     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
04173     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
04174     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
04175     template<> struct ConwayPolynomial<83, 1> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<81>>; };  // NOLINT
04176     template<> struct ConwayPolynomial<83, 2> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<82>, ZPZV<2>>; };  // NOLINT
04177     template<> struct ConwayPolynomial<83, 3> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<81>>; };  // NOLINT
04178     template<> struct ConwayPolynomial<83, 4> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<42>, ZPZV<2>>; };  // NOLINT
04179     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
04180     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
04181     template<> struct ConwayPolynomial<83, 7> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<81>>; };  // NOLINT
04182     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
04183     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
04184     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
04185     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<17>, ZPZV<81>>; };  // NOLINT
04186     template<> struct ConwayPolynomial<83, 12> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<35>, ZPZV<12>, ZPZV<31>, ZPZV<19>, ZPZV<65>,
      ZPZV<55>, ZPZV<75>, ZPZV<2>>; };  // NOLINT
04187     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<15>, ZPZV<81>>; };  // NOLINT
04188     template<> struct ConwayPolynomial<83, 17> { using ZPZ = aerobus::zpz<83>; 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<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<81>>; };  // NOLINT
04189     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
04190     template<> struct ConwayPolynomial<89, 1> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<86>>; };  // NOLINT
04191     template<> struct ConwayPolynomial<89, 2> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<82>, ZPZV<3>>; };  // NOLINT
04192     template<> struct ConwayPolynomial<89, 3> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<86>>; };  // NOLINT
04193     template<> struct ConwayPolynomial<89, 4> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<72>, ZPZV<3>>; };  // NOLINT
04194     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
04195     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
04196     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
04197     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
04198     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
04199     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
04200     template<> struct ConwayPolynomial<89, 11> { 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<88>,
      ZPZV<26>, ZPZV<86>>; };  // NOLINT
04201     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
04202     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<17>, ZPZV<86>>; };  // NOLINT
04203     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<20>, ZPZV<86>>; };  // NOLINT
04204     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
04205     template<> struct ConwayPolynomial<97, 1> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<92>>; };  // NOLINT
04206     template<> struct ConwayPolynomial<97, 2> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<96>, ZPZV<5>>; };  // NOLINT
04207     template<> struct ConwayPolynomial<97, 3> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<92>>; };  // NOLINT
04208     template<> struct ConwayPolynomial<97, 4> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<80>, ZPZV<5>>; };  // NOLINT
04209     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
04210     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
04211     template<> struct ConwayPolynomial<97, 7> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<92>>; };  // NOLINT
04212     template<> struct ConwayPolynomial<97, 8> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<65>, ZPZV<1>, ZPZV<32>, ZPZV<5>>; };  //
      NOLINT
04213     template<> struct ConwayPolynomial<97, 9> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59>, ZPZV<7>, ZPZV<92>>; };
      // NOLINT
04214     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
04215     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<5>, ZPZV<92>>; };  // NOLINT
04216     template<> struct ConwayPolynomial<97, 12> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<59>, ZPZV<81>, ZPZV<0>, ZPZV<86>,
      ZPZV<78>, ZPZV<94>, ZPZV<5>>; };  // NOLINT
04217     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<3>, ZPZV<92>>; };  // NOLINT
04218     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<5>, ZPZV<92>>; };  // NOLINT
04219     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<15>, ZPZV<92>>; };  //
      NOLINT
04220     template<> struct ConwayPolynomial<101, 1> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<99>>; };  // NOLINT
04221     template<> struct ConwayPolynomial<101, 2> { using ZPZ = aerobus::zpz<101>; using type =
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      POLYV<ZPZV<1>, ZPZV<97>, ZPZV<2>>; };  // NOLINT
04222     template<> struct ConwayPolynomial<101, 3> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<99>>; };  // NOLINT
04223     template<> struct ConwayPolynomial<101, 4> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<78>, ZPZV<2>>; };  // NOLINT
04224     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
04225     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
04226     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
04227     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
04228     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
04229     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
04230     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<31>, ZPZV<99>>; };  // NOLINT
04231     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
04232     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<7>, ZPZV<99>>; };  // NOLINT
04233     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>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<31>, ZPZV<99>>; };  // NOLINT
04234     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
04235     template<> struct ConwayPolynomial<103, 1> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<98>>; };  // NOLINT
04236     template<> struct ConwayPolynomial<103, 2> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<102>, ZPZV<5>>; };  // NOLINT
04237     template<> struct ConwayPolynomial<103, 3> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<98>>; };  // NOLINT
04238     template<> struct ConwayPolynomial<103, 4> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<88>, ZPZV<5>>; };  // NOLINT
04239     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
04240     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
04241     template<> struct ConwayPolynomial<103, 7> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<98>>; };  // NOLINT
04242     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
04243     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<97>, ZPZV<51>, ZPZV<98>>; };
      // NOLINT
04244     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
04245     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<5>, ZPZV<98>>; };  // NOLINT
04246     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
04247     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<5>, ZPZV<98>>; };  // NOLINT
04248     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<102>, ZPZV<8>, ZPZV<98>>; };  // NOLINT
04249     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<2>, ZPZV<98>>; };  //
      NOLINT
04250     template<> struct ConwayPolynomial<107, 1> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<105>>; };  // NOLINT
04251     template<> struct ConwayPolynomial<107, 2> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<103>, ZPZV<2>>; };  // NOLINT
04252     template<> struct ConwayPolynomial<107, 3> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<105>>; };  // NOLINT
04253     template<> struct ConwayPolynomial<107, 4> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<79>, ZPZV<2>>; };  // NOLINT
04254     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
04255     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
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04256     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
04257     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
04258     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
04259     template<> struct ConwayPolynomial<107, 10> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<94>, ZPZV<61>, ZPZV<83>, ZPZV<83>, ZPZV<95>,
      ZPZV<2>>; };  // NOLINT
04260     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
04261     template<> struct ConwayPolynomial<107, 12> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<37>, ZPZV<48>, ZPZV<6>, ZPZV<0>, ZPZV<61>,
      ZPZV<42>, ZPZV<57>, ZPZV<2>>; };  // NOLINT
04262     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
04263     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<2>, ZPZV<105>>; };  // NOLINT
04264     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
04265     template<> struct ConwayPolynomial<109, 1> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<103>>; };  // NOLINT
04266     template<> struct ConwayPolynomial<109, 2> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<108>, ZPZV<6>>; };  // NOLINT
04267     template<> struct ConwayPolynomial<109, 3> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<103>>; };  // NOLINT
04268     template<> struct ConwayPolynomial<109, 4> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<98>, ZPZV<6>>; };  // NOLINT
04269     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
04270     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
04271     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
04272     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
04273     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
04274     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
04275     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<0>,
      ZPZV<11>, ZPZV<103>>; };  // NOLINT
04276     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
04277     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
04278     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
04279     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
04280     template<> struct ConwayPolynomial<113, 1> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<110>>; };  // NOLINT
04281     template<> struct ConwayPolynomial<113, 2> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<101>, ZPZV<3>>; };  // NOLINT
04282     template<> struct ConwayPolynomial<113, 3> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<110>>; };  // NOLINT
04283     template<> struct ConwayPolynomial<113, 4> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<62>, ZPZV<3>>; };  // NOLINT
04284     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
04285     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
04286     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
04287     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
04288     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<87>, ZPZV<71>, ZPZV<110>>;
      };  // NOLINT
04289     template<> struct ConwayPolynomial<113, 10> { using ZPZ = aerobus::zpz<113>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<108>, ZPZV<57>, ZPZV<45>, ZPZV<83>, ZPZV<56>,
      ZPZV<3>>; };  // NOLINT
04290     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<3>, ZPZV<110>>; };  // NOLINT
04291     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
04292     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<4>, ZPZV<110>>; };  // NOLINT
04293     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<4>, ZPZV<110>>; };  // NOLINT
04294     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<22>, ZPZV<110>>; };  //
      NOLINT
04295     template<> struct ConwayPolynomial<127, 1> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<124>>; };  // NOLINT
04296     template<> struct ConwayPolynomial<127, 2> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<126>, ZPZV<3>>; };  // NOLINT
04297     template<> struct ConwayPolynomial<127, 3> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<124>>; };  // NOLINT
04298     template<> struct ConwayPolynomial<127, 4> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<97>, ZPZV<3>>; };  // NOLINT
04299     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
04300     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
04301     template<> struct ConwayPolynomial<127, 7> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<124>>; };  // NOLINT
04302     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
04303     template<> struct ConwayPolynomial<127, 9> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<119>, ZPZV<126>,
      ZPZV<124>>; };  // NOLINT
04304     template<> struct ConwayPolynomial<127, 10> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<107>, ZPZV<64>, ZPZV<95>, ZPZV<60>, ZPZV<4>,
      ZPZV<3>>; };  // NOLINT
04305     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
04306     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
04307     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<8>, ZPZV<124>>; };  // NOLINT
04308     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<9>, ZPZV<124>>; };  // NOLINT
04309     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<30>, ZPZV<124>>; };  //
      NOLINT
04310     template<> struct ConwayPolynomial<131, 1> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<129>>; };  // NOLINT
04311     template<> struct ConwayPolynomial<131, 2> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<127>, ZPZV<2>>; };  // NOLINT
04312     template<> struct ConwayPolynomial<131, 3> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<129>>; };  // NOLINT
04313     template<> struct ConwayPolynomial<131, 4> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<109>, ZPZV<2>>; };  // NOLINT
04314     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
04315     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
04316     template<> struct ConwayPolynomial<131, 7> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<129>>; };  // NOLINT
04317     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
04318     template<> struct ConwayPolynomial<131, 9> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<6>, ZPZV<19>, ZPZV<129>>; };
      // NOLINT
04319     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
04320     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<6>, ZPZV<129>>; };  // NOLINT
04321     template<> struct ConwayPolynomial<131, 12> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<50>, ZPZV<122>, ZPZV<40>, ZPZV<83>, ZPZV<125>,
      ZPZV<28>, ZPZV<103>, ZPZV<2>>; };  // NOLINT
04322     template<> struct ConwayPolynomial<131, 13> { using ZPZ = aerobus::zpz<131>; 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<0>, ZPZV<9>, ZPZV<129>>; };  // NOLINT
04323     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<6>, ZPZV<129>>; };  // NOLINT
04324     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
04325     template<> struct ConwayPolynomial<137, 1> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<134>>; };  // NOLINT
04326     template<> struct ConwayPolynomial<137, 2> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<131>, ZPZV<3>>; };  // NOLINT
04327     template<> struct ConwayPolynomial<137, 3> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<134>>; };  // NOLINT
04328     template<> struct ConwayPolynomial<137, 4> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<95>, ZPZV<3>>; };  // NOLINT
04329     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
04330     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
04331     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
04332     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
04333     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
04334     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>,
      ZPZV<3>>; };  // NOLINT
04335     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
04336     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
04337     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
04338     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
04339     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<18>, ZPZV<134>>; };  //
      NOLINT
04340     template<> struct ConwayPolynomial<139, 1> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<137>>; };  // NOLINT
04341     template<> struct ConwayPolynomial<139, 2> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<138>, ZPZV<2>>; };  // NOLINT
04342     template<> struct ConwayPolynomial<139, 3> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<137>>; };  // NOLINT
04343     template<> struct ConwayPolynomial<139, 4> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<96>, ZPZV<2>>; };  // NOLINT
04344     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
04345     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
04346     template<> struct ConwayPolynomial<139, 7> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<137>>; };  // NOLINT
04347     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
04348     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
04349     template<> struct ConwayPolynomial<139, 10> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<110>, ZPZV<48>, ZPZV<130>, ZPZV<66>,
      ZPZV<106>, ZPZV<2>>; };  // NOLINT
04350     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<7>, ZPZV<137>>; };  // NOLINT
04351     template<> struct ConwayPolynomial<139, 12> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<120>, ZPZV<75>, ZPZV<41>, ZPZV<77>, ZPZV<106>,
      ZPZV<8>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
04352     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<22>, ZPZV<137>>; };  // NOLINT
04353     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<2>, ZPZV<137>>; };  // NOLINT
04354     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<23>, ZPZV<137>>; };  //
      NOLINT
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04355     template<> struct ConwayPolynomial<149, 1> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<147>>; };  // NOLINT
04356     template<> struct ConwayPolynomial<149, 2> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<145>, ZPZV<2>>; };  // NOLINT
04357     template<> struct ConwayPolynomial<149, 3> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<147>>; };  // NOLINT
04358     template<> struct ConwayPolynomial<149, 4> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<107>, ZPZV<2>>; };  // NOLINT
04359     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
04360     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
04361     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
04362     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
04363     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
04364     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
04365     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
04366     template<> struct ConwayPolynomial<149, 12> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<121>, ZPZV<91>, ZPZV<52>, ZPZV<9>,
      ZPZV<104>, ZPZV<110>, ZPZV<2>>; };  // NOLINT
04367     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>,
      ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<147>>; };  // NOLINT
04368     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<0>, ZPZV<29>, ZPZV<147>>; };  // NOLINT
04369     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
04370     template<> struct ConwayPolynomial<151, 1> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<145>>; };  // NOLINT
04371     template<> struct ConwayPolynomial<151, 2> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<149>, ZPZV<6>>; };  // NOLINT
04372     template<> struct ConwayPolynomial<151, 3> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<145>>; };  // NOLINT
04373     template<> struct ConwayPolynomial<151, 4> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<89>, ZPZV<6>>; };  // NOLINT
04374     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
04375     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
04376     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
04377     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
04378     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
04379     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
04380     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
04381     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
04382     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
04383     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
04384     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
04385     template<> struct ConwayPolynomial<157, 1> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<152>>; };  // NOLINT
04386     template<> struct ConwayPolynomial<157, 2> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<152>, ZPZV<5>>; };  // NOLINT
04387     template<> struct ConwayPolynomial<157, 3> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<152>>; };  // NOLINT
04388     template<> struct ConwayPolynomial<157, 4> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<136>, ZPZV<5>>; };  // NOLINT
04389     template<> struct ConwayPolynomial<157, 5> { using ZPZ = aerobus::zpz<157>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<152>>; };  // NOLINT
04390     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
04391     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
04392     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
04393     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
04394     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
04395     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
04396     template<> struct ConwayPolynomial<157, 12> { using ZPZ = aerobus::zpz<157>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<77>, ZPZV<110>, ZPZV<72>, ZPZV<137>, ZPZV<43>,
    ZPZV<152>, ZPZV<57>, ZPZV<5>>; };  // NOLINT
04397     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
04398     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<12>, ZPZV<152>>; };  // NOLINT
04399     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
04400     template<> struct ConwayPolynomial<163, 1> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<161>>; };  // NOLINT
04401     template<> struct ConwayPolynomial<163, 2> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<159>, ZPZV<2>>; };  // NOLINT
04402     template<> struct ConwayPolynomial<163, 3> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<161>>; };  // NOLINT
04403     template<> struct ConwayPolynomial<163, 4> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<91>, ZPZV<2>>; };  // NOLINT
04404     template<> struct ConwayPolynomial<163, 5> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<161>>; };  // NOLINT
04405     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
04406     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
04407     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
04408     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
04409     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
04410     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
04411     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
04412     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
04413     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
04414     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
04415     template<> struct ConwayPolynomial<167, 1> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<162>>; };  // NOLINT
04416     template<> struct ConwayPolynomial<167, 2> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<166>, ZPZV<5>>; };  // NOLINT
04417     template<> struct ConwayPolynomial<167, 3> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>>; };  // NOLINT
04418     template<> struct ConwayPolynomial<167, 4> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<120>, ZPZV<5>>; };  // NOLINT
04419     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
04420     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
04421     template<> struct ConwayPolynomial<167, 7> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<162>>; };  // NOLINT
04422     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
04423     template<> struct ConwayPolynomial<167, 9> { using ZPZ = aerobus::zpz<167>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<165>, ZPZV<122>, ZPZV<162>>;
      };  // NOLINT
04424     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
04425     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
04426     template<> struct ConwayPolynomial<167, 12> { using ZPZ = aerobus::zpz<167>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<142>, ZPZV<10>, ZPZV<142>, ZPZV<131>,
      ZPZV<140>, ZPZV<41>, ZPZV<57>, ZPZV<5>>; };  // NOLINT
04427     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<10>, ZPZV<162>>; };  // NOLINT
04428     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<32>, ZPZV<162>>; };  // NOLINT
04429     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<14>, ZPZV<162>>; };  //
      NOLINT
04430     template<> struct ConwayPolynomial<173, 1> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<171>>; };  // NOLINT
04431     template<> struct ConwayPolynomial<173, 2> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<169>, ZPZV<2>>; };  // NOLINT
04432     template<> struct ConwayPolynomial<173, 3> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<171>>; };  // NOLINT
04433     template<> struct ConwayPolynomial<173, 4> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<102>, ZPZV<2>>; };  // NOLINT
04434     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
04435     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
04436     template<> struct ConwayPolynomial<173, 7> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<171>>; };  // NOLINT
04437     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
04438     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
04439     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
04440     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<12>, ZPZV<171>>; };  // NOLINT
04441     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
04442     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<6>, ZPZV<171>>; };  // NOLINT
04443     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<7>, ZPZV<171>>; };  // NOLINT
04444     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<6>, ZPZV<171>>; };  //
      NOLINT
04445     template<> struct ConwayPolynomial<179, 1> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<177>>; };  // NOLINT
04446     template<> struct ConwayPolynomial<179, 2> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<172>, ZPZV<2>>; };  // NOLINT
04447     template<> struct ConwayPolynomial<179, 3> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<177>>; };  // NOLINT
04448     template<> struct ConwayPolynomial<179, 4> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<109>, ZPZV<2>>; };  // NOLINT
04449     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
04450     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
04451     template<> struct ConwayPolynomial<179, 7> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<177>>; };  // NOLINT
04452     template<> struct ConwayPolynomial<179, 8> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<163>, ZPZV<144>, ZPZV<73>, ZPZV<2>>; };  //
      NOLINT
04453     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<40>, ZPZV<64>, ZPZV<177>>;
      };  // NOLINT
04454     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
04455     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<28>, ZPZV<177>>; };  // NOLINT
04456     template<> struct ConwayPolynomial<179, 12> { using ZPZ = aerobus::zpz<179>; using type =
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      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
04457     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
04458     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
04459     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
04460     template<> struct ConwayPolynomial<181, 1> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<179>>; };  // NOLINT
04461     template<> struct ConwayPolynomial<181, 2> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<177>, ZPZV<2>>; };  // NOLINT
04462     template<> struct ConwayPolynomial<181, 3> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<179>>; };  // NOLINT
04463     template<> struct ConwayPolynomial<181, 4> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<105>, ZPZV<2>>; };  // NOLINT
04464     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
04465     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
04466     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
04467     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
04468     template<> struct ConwayPolynomial<181, 9> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<107>, ZPZV<168>,
      ZPZV<179>>; };  // NOLINT
04469     template<> struct ConwayPolynomial<181, 10> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<154>, ZPZV<104>, ZPZV<94>, ZPZV<57>, ZPZV<88>,
      ZPZV<2>>; };  // NOLINT
04470     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
04471     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
04472     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
04473     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
04474     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
04475     template<> struct ConwayPolynomial<191, 1> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<172>>; };  // NOLINT
04476     template<> struct ConwayPolynomial<191, 2> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<190>, ZPZV<19>>; };  // NOLINT
04477     template<> struct ConwayPolynomial<191, 3> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<172>>; };  // NOLINT
04478     template<> struct ConwayPolynomial<191, 4> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<100>, ZPZV<19>>; };  // NOLINT
04479     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
04480     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
04481     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
04482     template<> struct ConwayPolynomial<191, 8> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<164>, ZPZV<139>, ZPZV<171>, ZPZV<19>>; };  //
      NOLINT
04483     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<62>, ZPZV<124>, ZPZV<172>>;
      };  // NOLINT
04484     template<> struct ConwayPolynomial<191, 10> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<113>, ZPZV<47>, ZPZV<173>, ZPZV<74>,
      ZPZV<156>, ZPZV<19>>; };  // NOLINT
04485     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<6>, ZPZV<172>>; };  // NOLINT
04486     template<> struct ConwayPolynomial<191, 12> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<79>, ZPZV<168>, ZPZV<25>, ZPZV<49>, ZPZV<90>,
      ZPZV<7>, ZPZV<151>, ZPZV<19>>; };  // NOLINT
04487     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<12>, ZPZV<172>>; };  // NOLINT
04488     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<2>, ZPZV<172>>; };  // NOLINT
04489     template<> struct ConwayPolynomial<191, 19> { using ZPZ = aerobus::zpz<191>; 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<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<190>, ZPZV<2>, ZPZV<172>>; };  //
      NOLINT
04490     template<> struct ConwayPolynomial<193, 1> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<188>>; };  // NOLINT
04491     template<> struct ConwayPolynomial<193, 2> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<192>, ZPZV<5>>; };  // NOLINT
04492     template<> struct ConwayPolynomial<193, 3> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<188>>; };  // NOLINT
04493     template<> struct ConwayPolynomial<193, 4> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<148>, ZPZV<5>>; };  // NOLINT
04494     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
04495     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
04496     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
04497     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
04498     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
04499     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
04500     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
04501     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>,
      ZPZV<90>, ZPZV<46>, ZPZV<28>, ZPZV<5>>; };  // NOLINT
04502     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<0>, ZPZV<39>, ZPZV<188>>; };  // NOLINT
04503     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
04504     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
04505     template<> struct ConwayPolynomial<197, 1> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<195>>; };  // NOLINT
04506     template<> struct ConwayPolynomial<197, 2> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<192>, ZPZV<2>>; };  // NOLINT
04507     template<> struct ConwayPolynomial<197, 3> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<195>>; };  // NOLINT
04508     template<> struct ConwayPolynomial<197, 4> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<124>, ZPZV<2>>; };  // NOLINT
04509     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
04510     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
04511     template<> struct ConwayPolynomial<197, 7> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<195>>; };  // NOLINT
04512     template<> struct ConwayPolynomial<197, 8> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<176>, ZPZV<96>, ZPZV<29>, ZPZV<2>>; };  //
      NOLINT
04513     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
04514     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
04515     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
04516     template<> struct ConwayPolynomial<197, 12> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<168>, ZPZV<15>, ZPZV<130>, ZPZV<141>, ZPZV<9>,
      ZPZV<90>, ZPZV<163>, ZPZV<2>>; };  // NOLINT
04517     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
04518     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
04519     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
04520     template<> struct ConwayPolynomial<199, 1> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<196>>; };  // NOLINT
04521     template<> struct ConwayPolynomial<199, 2> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<193>, ZPZV<3>>; };  // NOLINT
04522     template<> struct ConwayPolynomial<199, 3> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<196>>; };  // NOLINT
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04523     template<> struct ConwayPolynomial<199, 4> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<3>>; };  // NOLINT
04524     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
04525     template<> struct ConwayPolynomial<199, 6> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<90>, ZPZV<58>, ZPZV<79>, ZPZV<3>>; };  // NOLINT
04526     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
04527     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
04528     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
04529     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
04530     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<1>, ZPZV<196>>; };  // NOLINT
04531     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
04532     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<10>, ZPZV<196>>; };  // NOLINT
04533     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<13>, ZPZV<196>>; };  // NOLINT
04534     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>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<196>>; };  //
      NOLINT
04535     template<> struct ConwayPolynomial<211, 1> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<209>>; };  // NOLINT
04536     template<> struct ConwayPolynomial<211, 2> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<207>, ZPZV<2>>; };  // NOLINT
04537     template<> struct ConwayPolynomial<211, 3> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<209>>; };  // NOLINT
04538     template<> struct ConwayPolynomial<211, 4> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<161>, ZPZV<2>>; };  // NOLINT
04539     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
04540     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
04541     template<> struct ConwayPolynomial<211, 7> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<209>>; };  // NOLINT
04542     template<> struct ConwayPolynomial<211, 8> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<200>, ZPZV<87>, ZPZV<29>, ZPZV<2>>; };  //
      NOLINT
04543     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
04544     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
04545     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<7>, ZPZV<209>>; };  // NOLINT
04546     template<> struct ConwayPolynomial<211, 12> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<50>, ZPZV<145>, ZPZV<126>, ZPZV<184>,
      ZPZV<84>, ZPZV<27>, ZPZV<2>>; };  // NOLINT
04547     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<12>, ZPZV<209>>; };  // NOLINT
04548     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<12>, ZPZV<209>>; };  // NOLINT
04549     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<17>, ZPZV<209>>; };  //
      NOLINT
04550     template<> struct ConwayPolynomial<223, 1> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<220>>; };  // NOLINT
04551     template<> struct ConwayPolynomial<223, 2> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<221>, ZPZV<3>>; };  // NOLINT
04552     template<> struct ConwayPolynomial<223, 3> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<220>>; };  // NOLINT
04553     template<> struct ConwayPolynomial<223, 4> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<163>, ZPZV<3>>; };  // NOLINT
04554     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
04555     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
04556     template<> struct ConwayPolynomial<223, 7> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<220>>; };  // NOLINT
04557     template<> struct ConwayPolynomial<223, 8> { using ZPZ = aerobus::zpz<223>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<139>, ZPZV<98>, ZPZV<138>, ZPZV<3>>; };  //
      NOLINT
04558     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
04559     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
04560     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<8>, ZPZV<220>>; };  // NOLINT
04561     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
04562     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<23>, ZPZV<220>>; };  // NOLINT
04563     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<1>, ZPZV<220>>; };  // NOLINT
04564     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
04565     template<> struct ConwayPolynomial<227, 1> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<225>>; };  // NOLINT
04566     template<> struct ConwayPolynomial<227, 2> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<220>, ZPZV<2>>; };  // NOLINT
04567     template<> struct ConwayPolynomial<227, 3> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<225>>; };  // NOLINT
04568     template<> struct ConwayPolynomial<227, 4> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<143>, ZPZV<2>>; };  // NOLINT
04569     template<> struct ConwayPolynomial<227, 5> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<225>>; };  // NOLINT
04570     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
04571     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
04572     template<> struct ConwayPolynomial<227, 8> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<151>, ZPZV<176>, ZPZV<106>, ZPZV<2>>; };  //
      NOLINT
04573     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
04574     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
04575     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<2>, ZPZV<225>>; };  // NOLINT
04576     template<> struct ConwayPolynomial<227, 12> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<123>, ZPZV<99>, ZPZV<160>, ZPZV<96>,
      ZPZV<127>, ZPZV<142>, ZPZV<94>, ZPZV<2>>; };  // NOLINT
04577     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<2>, ZPZV<225>>; };  // NOLINT
04578     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<8>, ZPZV<225>>; };  // NOLINT
04579     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<34>, ZPZV<225>>; };  //
      NOLINT
04580     template<> struct ConwayPolynomial<229, 1> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<223>>; };  // NOLINT
04581     template<> struct ConwayPolynomial<229, 2> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<228>, ZPZV<6>>; };  // NOLINT
04582     template<> struct ConwayPolynomial<229, 3> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<223>>; };  // NOLINT
04583     template<> struct ConwayPolynomial<229, 4> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<6>>; };  // NOLINT
04584     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
04585     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
04586     template<> struct ConwayPolynomial<229, 7> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<223>>; };  // NOLINT
04587     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
04588     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
04589     template<> struct ConwayPolynomial<229, 10> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<185>, ZPZV<135>, ZPZV<158>, ZPZV<167>,
      ZPZV<98>, ZPZV<6>>; };  // NOLINT
04590     template<> struct ConwayPolynomial<229, 11> { using ZPZ = aerobus::zpz<229>; 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<2>, ZPZV<223>>; };  // NOLINT
04591     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
04592     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
04593     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<2>, ZPZV<223>>; };  // NOLINT
04594     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<228>, ZPZV<15>, ZPZV<223>>; };  //
      NOLINT
04595     template<> struct ConwayPolynomial<233, 1> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<230>>; };  // NOLINT
04596     template<> struct ConwayPolynomial<233, 2> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<232>, ZPZV<3>>; };  // NOLINT
04597     template<> struct ConwayPolynomial<233, 3> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<230>>; };  // NOLINT
04598     template<> struct ConwayPolynomial<233, 4> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<158>, ZPZV<3>>; };  // NOLINT
04599     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
04600     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
04601     template<> struct ConwayPolynomial<233, 7> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<230>>; };  // NOLINT
04602     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>>; };  //
      NOLINT
04603     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
04604     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
04605     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<5>, ZPZV<230>>; };  // NOLINT
04606     template<> struct ConwayPolynomial<233, 12> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<96>, ZPZV<21>, ZPZV<114>, ZPZV<31>, ZPZV<19>,
      ZPZV<216>, ZPZV<20>, ZPZV<3>>; };  // NOLINT
04607     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<14>, ZPZV<230>>; };  // NOLINT
04608     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<4>, ZPZV<230>>; };  // NOLINT
04609     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<25>, ZPZV<230>>; };  //
      NOLINT
04610     template<> struct ConwayPolynomial<239, 1> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<232>>; };  // NOLINT
04611     template<> struct ConwayPolynomial<239, 2> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<237>, ZPZV<7>>; };  // NOLINT
04612     template<> struct ConwayPolynomial<239, 3> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<232>>; };  // NOLINT
04613     template<> struct ConwayPolynomial<239, 4> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<132>, ZPZV<7>>; };  // NOLINT
04614     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
04615     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
04616     template<> struct ConwayPolynomial<239, 7> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<232>>; };  // NOLINT
04617     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
04618     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
04619     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
04620     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<8>, ZPZV<232>>; };  // NOLINT
04621     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
04622     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<2>, ZPZV<232>>; };  // NOLINT
04623     template<> struct ConwayPolynomial<239, 17> { using ZPZ = aerobus::zpz<239>; 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<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<232>>; };  // NOLINT
04624     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
04625     template<> struct ConwayPolynomial<241, 1> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<234>>; };  // NOLINT
04626     template<> struct ConwayPolynomial<241, 2> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<238>, ZPZV<7>>; };  // NOLINT
04627     template<> struct ConwayPolynomial<241, 3> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<234>>; };  // NOLINT
04628     template<> struct ConwayPolynomial<241, 4> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<152>, ZPZV<7>>; };  // NOLINT
04629     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
04630     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
04631     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
04632     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
04633     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<236>, ZPZV<125>, ZPZV<234>>;
      };  // NOLINT
04634     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
04635     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<3>, ZPZV<234>>; };  // NOLINT
04636     template<> struct ConwayPolynomial<241, 12> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<42>, ZPZV<10>, ZPZV<109>, ZPZV<168>, ZPZV<22>,
      ZPZV<197>, ZPZV<17>, ZPZV<7>>; };  // NOLINT
04637     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
04638     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<14>, ZPZV<234>>; };  // NOLINT
04639     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
04640     template<> struct ConwayPolynomial<251, 1> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<245>>; };  // NOLINT
04641     template<> struct ConwayPolynomial<251, 2> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<242>, ZPZV<6>>; };  // NOLINT
04642     template<> struct ConwayPolynomial<251, 3> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<245>>; };  // NOLINT
04643     template<> struct ConwayPolynomial<251, 4> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<200>, ZPZV<6>>; };  // NOLINT
04644     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
04645     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
04646     template<> struct ConwayPolynomial<251, 7> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<245>>; };  // NOLINT
04647     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
04648     template<> struct ConwayPolynomial<251, 9> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<187>, ZPZV<106>, ZPZV<245>>;
      };  // NOLINT
04649     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
04650     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<26>, ZPZV<245>>; };  // NOLINT
04651     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
04652     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
04653     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<9>, ZPZV<245>>; };  // NOLINT
04654     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<8>, ZPZV<245>>; };  //
      NOLINT
04655     template<> struct ConwayPolynomial<257, 1> { using ZPZ = aerobus::zpz<257>; using type =
      POLYV<ZPZV<1>, ZPZV<254>>; };  // NOLINT
04656     template<> struct ConwayPolynomial<257, 2> { using ZPZ = aerobus::zpz<257>; using type =
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    POLYV<ZPZV<1>, ZPZV<251>, ZPZV<3>>; };  // NOLINT
04657     template<> struct ConwayPolynomial<257, 3> { using ZPZ = aerobus::zpz<257>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<254>>; };  // NOLINT
04658     template<> struct ConwayPolynomial<257, 4> { using ZPZ = aerobus::zpz<257>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<187>, ZPZV<3>>; };  // NOLINT
04659     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
04660     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
04661     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
04662     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
04663     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
04664     template<> struct ConwayPolynomial<257, 10> { using ZPZ = aerobus::zpz<257>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<97>, ZPZV<12>, ZPZV<225>, ZPZV<180>, ZPZV<20>,
    ZPZV<3>>; };  // NOLINT
04665     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<40>, ZPZV<254>>; };  // NOLINT
04666     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
04667     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<5>, ZPZV<254>>; };  // NOLINT
04668     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>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<254>>; };  // NOLINT
04669     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<10>, ZPZV<254>>; };  //
    NOLINT
04670     template<> struct ConwayPolynomial<263, 1> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<258>>; };  // NOLINT
04671     template<> struct ConwayPolynomial<263, 2> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<261>, ZPZV<5>>; };  // NOLINT
04672     template<> struct ConwayPolynomial<263, 3> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<258>>; };  // NOLINT
04673     template<> struct ConwayPolynomial<263, 4> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<171>, ZPZV<5>>; };  // NOLINT
04674     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
04675     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
04676     template<> struct ConwayPolynomial<263, 7> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<258>>; };  // NOLINT
04677     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
04678     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
04679     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
04680     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<2>, ZPZV<258>>; };  // NOLINT
04681     template<> struct ConwayPolynomial<263, 12> { using ZPZ = aerobus::zpz<263>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<172>, ZPZV<174>, ZPZV<162>, ZPZV<252>,
    ZPZV<47>, ZPZV<45>, ZPZV<180>, ZPZV<5>>; };  // NOLINT
04682     template<> struct ConwayPolynomial<269, 1> { using ZPZ = aerobus::zpz<269>; using type =
    POLYV<ZPZV<1>, ZPZV<267>>; };  // NOLINT
04683     template<> struct ConwayPolynomial<269, 2> { using ZPZ = aerobus::zpz<269>; using type =
    POLYV<ZPZV<1>, ZPZV<268>, ZPZV<2>>; };  // NOLINT
04684     template<> struct ConwayPolynomial<269, 3> { using ZPZ = aerobus::zpz<269>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<267>>; };  // NOLINT
04685     template<> struct ConwayPolynomial<269, 4> { using ZPZ = aerobus::zpz<269>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<262>, ZPZV<2>>; };  // NOLINT
04686     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
04687     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
04688     template<> struct ConwayPolynomial<269, 7> { using ZPZ = aerobus::zpz<269>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<267>>; };  // NOLINT
04689     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
04690     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
04691     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>,
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      ZPZV<10>, ZPZV<2>>; };  // NOLINT
04692     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<20>, ZPZV<267>>; };  // NOLINT
04693     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
04694     template<> struct ConwayPolynomial<271, 1> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<265>>; };  // NOLINT
04695     template<> struct ConwayPolynomial<271, 2> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<269>, ZPZV<6>>; };  // NOLINT
04696     template<> struct ConwayPolynomial<271, 3> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<265>>; };  // NOLINT
04697     template<> struct ConwayPolynomial<271, 4> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<205>, ZPZV<6>>; };  // NOLINT
04698     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
04699     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
04700     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
04701     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
04702     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
04703     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
04704     template<> struct ConwayPolynomial<271, 11> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<10>, ZPZV<265>>; };  // NOLINT
04705     template<> struct ConwayPolynomial<271, 12> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<162>, ZPZV<210>, ZPZV<116>, ZPZV<205>,
      ZPZV<237>, ZPZV<256>, ZPZV<130>, ZPZV<6>>; };  // NOLINT
04706     template<> struct ConwayPolynomial<277, 1> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<272>>; };  // NOLINT
04707     template<> struct ConwayPolynomial<277, 2> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<274>, ZPZV<5>>; };  // NOLINT
04708     template<> struct ConwayPolynomial<277, 3> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<272>>; };  // NOLINT
04709     template<> struct ConwayPolynomial<277, 4> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<222>, ZPZV<5>>; };  // NOLINT
04710     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
04711     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
04712     template<> struct ConwayPolynomial<277, 7> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<272>>; };  // NOLINT
04713     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
04714     template<> struct ConwayPolynomial<277, 9> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<177>, ZPZV<110>, ZPZV<272>>;
      };  // NOLINT
04715     template<> struct ConwayPolynomial<277, 10> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<206>, ZPZV<253>, ZPZV<237>, ZPZV<241>,
      ZPZV<260>, ZPZV<5>>; };  // NOLINT
04716     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
04717     template<> struct ConwayPolynomial<277, 12> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<183>, ZPZV<218>, ZPZV<240>, ZPZV<40>,
      ZPZV<180>, ZPZV<115>, ZPZV<202>, ZPZV<5>>; };  // NOLINT
04718     template<> struct ConwayPolynomial<281, 1> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<278>>; };  // NOLINT
04719     template<> struct ConwayPolynomial<281, 2> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<280>, ZPZV<3>>; };  // NOLINT
04720     template<> struct ConwayPolynomial<281, 3> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<278>>; };  // NOLINT
04721     template<> struct ConwayPolynomial<281, 4> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<176>, ZPZV<3>>; };  // NOLINT
04722     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
04723     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
04724     template<> struct ConwayPolynomial<281, 7> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<278>>; };  // NOLINT
04725     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
04726     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
04727     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>,
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      ZPZV<191>, ZPZV<3>>; };  // NOLINT
04728     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<36>, ZPZV<278>>; };  // NOLINT
04729     template<> struct ConwayPolynomial<281, 12> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<202>, ZPZV<68>, ZPZV<103>, ZPZV<116>,
      ZPZV<58>, ZPZV<28>, ZPZV<191>, ZPZV<3>>; };  // NOLINT
04730     template<> struct ConwayPolynomial<283, 1> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<280>>; };  // NOLINT
04731     template<> struct ConwayPolynomial<283, 2> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<282>, ZPZV<3>>; };  // NOLINT
04732     template<> struct ConwayPolynomial<283, 3> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<280>>; };  // NOLINT
04733     template<> struct ConwayPolynomial<283, 4> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<238>, ZPZV<3>>; };  // NOLINT
04734     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
04735     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
04736     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
04737     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
04738     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<136>, ZPZV<65>, ZPZV<280>>;
      };  // NOLINT
04739     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
04740     template<> struct ConwayPolynomial<283, 11> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<4>, ZPZV<280>>; };  // NOLINT
04741     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
04742     template<> struct ConwayPolynomial<293, 1> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<291>>; };  // NOLINT
04743     template<> struct ConwayPolynomial<293, 2> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<292>, ZPZV<2>>; };  // NOLINT
04744     template<> struct ConwayPolynomial<293, 3> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<291>>; };  // NOLINT
04745     template<> struct ConwayPolynomial<293, 4> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<166>, ZPZV<2>>; };  // NOLINT
04746     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
04747     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
04748     template<> struct ConwayPolynomial<293, 7> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<291>>; };  // NOLINT
04749     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
04750     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<208>, ZPZV<190>, ZPZV<291>>;
      };  // NOLINT
04751     template<> struct ConwayPolynomial<293, 10> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<186>, ZPZV<28>, ZPZV<46>, ZPZV<184>, ZPZV<24>,
      ZPZV<2>>; };  // NOLINT
04752     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<3>, ZPZV<291>>; };  // NOLINT
04753     template<> struct ConwayPolynomial<293, 12> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<159>, ZPZV<210>, ZPZV<125>, ZPZV<212>,
      ZPZV<167>, ZPZV<144>, ZPZV<157>, ZPZV<2>>; };  // NOLINT
04754     template<> struct ConwayPolynomial<307, 1> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<302>>; };  // NOLINT
04755     template<> struct ConwayPolynomial<307, 2> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<306>, ZPZV<5>>; };  // NOLINT
04756     template<> struct ConwayPolynomial<307, 3> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<302>>; };  // NOLINT
04757     template<> struct ConwayPolynomial<307, 4> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<239>, ZPZV<5>>; };  // NOLINT
04758     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
04759     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
04760     template<> struct ConwayPolynomial<307, 7> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<302>>; };  // NOLINT
04761     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
04762     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
04763     template<> struct ConwayPolynomial<311, 1> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<294>>; };  // NOLINT
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04764     template<> struct ConwayPolynomial<311, 2> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<310>, ZPZV<17>>; };  // NOLINT
04765     template<> struct ConwayPolynomial<311, 3> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<294>>; };  // NOLINT
04766     template<> struct ConwayPolynomial<311, 4> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<163>, ZPZV<17>>; };  // NOLINT
04767     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
04768     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
04769     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
04770     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
04771     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
04772     template<> struct ConwayPolynomial<313, 1> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<303>>; };  // NOLINT
04773     template<> struct ConwayPolynomial<313, 2> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<310>, ZPZV<10>>; };  // NOLINT
04774     template<> struct ConwayPolynomial<313, 3> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<303>>; };  // NOLINT
04775     template<> struct ConwayPolynomial<313, 4> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<239>, ZPZV<10>>; };  // NOLINT
04776     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
04777     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
04778     template<> struct ConwayPolynomial<313, 7> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<303>>; };  // NOLINT
04779     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
04780     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
04781     template<> struct ConwayPolynomial<317, 1> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<315>>; };  // NOLINT
04782     template<> struct ConwayPolynomial<317, 2> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<313>, ZPZV<2>>; };  // NOLINT
04783     template<> struct ConwayPolynomial<317, 3> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<315>>; };  // NOLINT
04784     template<> struct ConwayPolynomial<317, 4> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<178>, ZPZV<2>>; };  // NOLINT
04785     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
04786     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
04787     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
04788     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
04789     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
04790     template<> struct ConwayPolynomial<331, 1> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<328>>; };  // NOLINT
04791     template<> struct ConwayPolynomial<331, 2> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<326>, ZPZV<3>>; };  // NOLINT
04792     template<> struct ConwayPolynomial<331, 3> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<328>>; };  // NOLINT
04793     template<> struct ConwayPolynomial<331, 4> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<290>, ZPZV<3>>; };  // NOLINT
04794     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
04795     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
04796     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
04797     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
04798     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
04799     template<> struct ConwayPolynomial<337, 1> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<327>>; };  // NOLINT
04800     template<> struct ConwayPolynomial<337, 2> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<332>, ZPZV<10>>; };  // NOLINT
04801     template<> struct ConwayPolynomial<337, 3> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327>>; };  // NOLINT
04802     template<> struct ConwayPolynomial<337, 4> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<25>, ZPZV<224>, ZPZV<10>>; };  // NOLINT
04803     template<> struct ConwayPolynomial<337, 5> { using ZPZ = aerobus::zpz<337>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<327>>; };  // NOLINT
04804     template<> struct ConwayPolynomial<337, 6> { using ZPZ = aerobus::zpz<337>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<216>, ZPZV<127>, ZPZV<109>, ZPZV<10>>; };  // NOLINT
04805     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
04806     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
04807     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
04808     template<> struct ConwayPolynomial<347, 1> { using ZPZ = aerobus::zpz<347>; using type =
    POLYV<ZPZV<1>, ZPZV<345>>; };  // NOLINT
04809     template<> struct ConwayPolynomial<347, 2> { using ZPZ = aerobus::zpz<347>; using type =
    POLYV<ZPZV<1>, ZPZV<343>, ZPZV<2>>; };  // NOLINT
04810     template<> struct ConwayPolynomial<347, 3> { using ZPZ = aerobus::zpz<347>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<345>>; };  // NOLINT
04811     template<> struct ConwayPolynomial<347, 4> { using ZPZ = aerobus::zpz<347>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<295>, ZPZV<2>>; };  // NOLINT
04812     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
04813     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
04814     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
04815     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
04816     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
04817     template<> struct ConwayPolynomial<349, 1> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<347>>; };  // NOLINT
04818     template<> struct ConwayPolynomial<349, 2> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<348>, ZPZV<2>>; };  // NOLINT
04819     template<> struct ConwayPolynomial<349, 3> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<347>>; };  // NOLINT
04820     template<> struct ConwayPolynomial<349, 4> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<279>, ZPZV<2>>; };  // NOLINT
04821     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
04822     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
04823     template<> struct ConwayPolynomial<349, 7> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<347>>; };  // NOLINT
04824     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
04825     template<> struct ConwayPolynomial<349, 9> { using ZPZ = aerobus::zpz<349>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<290>, ZPZV<130>,
    ZPZV<347>>; };  // NOLINT
04826     template<> struct ConwayPolynomial<353, 1> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<350>>; };  // NOLINT
04827     template<> struct ConwayPolynomial<353, 2> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<348>, ZPZV<3>>; };  // NOLINT
04828     template<> struct ConwayPolynomial<353, 3> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<350>>; };  // NOLINT
04829     template<> struct ConwayPolynomial<353, 4> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<199>, ZPZV<3>>; };  // NOLINT
04830     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
04831     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
04832     template<> struct ConwayPolynomial<353, 7> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<350>>; };  // NOLINT
04833     template<> struct ConwayPolynomial<353, 8> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<182>, ZPZV<26>, ZPZV<37>, ZPZV<3>>; };  //
    NOLINT
04834     template<> struct ConwayPolynomial<353, 9> { using ZPZ = aerobus::zpz<353>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<319>, ZPZV<49>, ZPZV<350>>;
    };  // NOLINT
04835     template<> struct ConwayPolynomial<359, 1> { using ZPZ = aerobus::zpz<359>; using type =
    POLYV<ZPZV<1>, ZPZV<352>>; };  // NOLINT
04836     template<> struct ConwayPolynomial<359, 2> { using ZPZ = aerobus::zpz<359>; using type =
    POLYV<ZPZV<1>, ZPZV<358>, ZPZV<7>>; };  // NOLINT
04837     template<> struct ConwayPolynomial<359, 3> { using ZPZ = aerobus::zpz<359>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<352>>; };  // NOLINT
04838     template<> struct ConwayPolynomial<359, 4> { using ZPZ = aerobus::zpz<359>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<229>, ZPZV<7>>; };  // NOLINT
04839     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
04840     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
04841     template<> struct ConwayPolynomial<359, 7> { using ZPZ = aerobus::zpz<359>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<352>>; };  // NOLINT
04842     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>>; };  //
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    NOLINT
04843     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<356>, ZPZV<165>, ZPZV<352>>;
    };  // NOLINT
04844     template<> struct ConwayPolynomial<367, 1> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<361>>; };  // NOLINT
04845     template<> struct ConwayPolynomial<367, 2> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<366>, ZPZV<6>>; };  // NOLINT
04846     template<> struct ConwayPolynomial<367, 3> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<361>>; };  // NOLINT
04847     template<> struct ConwayPolynomial<367, 4> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<295>, ZPZV<6>>; };  // NOLINT
04848     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
04849     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
04850     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
04851     template<> struct ConwayPolynomial<367, 8> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<335>, ZPZV<282>, ZPZV<50>, ZPZV<6>>; };  //
    NOLINT
04852     template<> struct ConwayPolynomial<367, 9> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<213>, ZPZV<268>,
    ZPZV<361>>; };  // NOLINT
04853     template<> struct ConwayPolynomial<373, 1> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<371>>; };  // NOLINT
04854     template<> struct ConwayPolynomial<373, 2> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<369>, ZPZV<2>>; };  // NOLINT
04855     template<> struct ConwayPolynomial<373, 3> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<371>>; };  // NOLINT
04856     template<> struct ConwayPolynomial<373, 4> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<304>, ZPZV<2>>; };  // NOLINT
04857     template<> struct ConwayPolynomial<373, 5> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<371>>; };  // NOLINT
04858     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
04859     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
04860     template<> struct ConwayPolynomial<373, 8> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<203>, ZPZV<219>, ZPZV<66>, ZPZV<2>>; };  //
    NOLINT
04861     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
04862     template<> struct ConwayPolynomial<379, 1> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<377>>; };  // NOLINT
04863     template<> struct ConwayPolynomial<379, 2> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<374>, ZPZV<2>>; };  // NOLINT
04864     template<> struct ConwayPolynomial<379, 3> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<377>>; };  // NOLINT
04865     template<> struct ConwayPolynomial<379, 4> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327>, ZPZV<2>>; };  // NOLINT
04866     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
04867     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
04868     template<> struct ConwayPolynomial<379, 7> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<377>>; };  // NOLINT
04869     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
04870     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
04871     template<> struct ConwayPolynomial<383, 1> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<378>>; };  // NOLINT
04872     template<> struct ConwayPolynomial<383, 2> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<382>, ZPZV<5>>; };  // NOLINT
04873     template<> struct ConwayPolynomial<383, 3> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<378>>; };  // NOLINT
04874     template<> struct ConwayPolynomial<383, 4> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<309>, ZPZV<5>>; };  // NOLINT
04875     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
04876     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
04877     template<> struct ConwayPolynomial<383, 7> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<378>>; };  // NOLINT
04878     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
04879     template<> struct ConwayPolynomial<383, 9> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<137>, ZPZV<76>, ZPZV<378>>;
    };  // NOLINT
04880     template<> struct ConwayPolynomial<389, 1> { using ZPZ = aerobus::zpz<389>; using type =
    POLYV<ZPZV<1>, ZPZV<387>>; };  // NOLINT
04881     template<> struct ConwayPolynomial<389, 2> { using ZPZ = aerobus::zpz<389>; using type =
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      POLYV<ZPZV<1>, ZPZV<379>, ZPZV<2>>; };  // NOLINT
04882     template<> struct ConwayPolynomial<389, 3> { using ZPZ = aerobus::zpz<389>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<387>>; };  // NOLINT
04883     template<> struct ConwayPolynomial<389, 4> { using ZPZ = aerobus::zpz<389>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<266>, ZPZV<2>>; };  // NOLINT
04884     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
04885     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
04886     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
04887     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
04888     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
04889     template<> struct ConwayPolynomial<397, 1> { using ZPZ = aerobus::zpz<397>; using type =
      POLYV<ZPZV<1>, ZPZV<392>>; };  // NOLINT
04890     template<> struct ConwayPolynomial<397, 2> { using ZPZ = aerobus::zpz<397>; using type =
      POLYV<ZPZV<1>, ZPZV<392>, ZPZV<5>>; };  // NOLINT
04891     template<> struct ConwayPolynomial<397, 3> { using ZPZ = aerobus::zpz<397>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<392>>; };  // NOLINT
04892     template<> struct ConwayPolynomial<397, 4> { using ZPZ = aerobus::zpz<397>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<363>, ZPZV<5>>; };  // NOLINT
04893     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
04894     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
04895     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
04896     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
04897     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
04898     template<> struct ConwayPolynomial<401, 1> { using ZPZ = aerobus::zpz<401>; using type =
      POLYV<ZPZV<1>, ZPZV<398>>; };  // NOLINT
04899     template<> struct ConwayPolynomial<401, 2> { using ZPZ = aerobus::zpz<401>; using type =
      POLYV<ZPZV<1>, ZPZV<396>, ZPZV<3>>; };  // NOLINT
04900     template<> struct ConwayPolynomial<401, 3> { using ZPZ = aerobus::zpz<401>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<398>>; };  // NOLINT
04901     template<> struct ConwayPolynomial<401, 4> { using ZPZ = aerobus::zpz<401>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<372>, ZPZV<3>>; };  // NOLINT
04902     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
04903     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
04904     template<> struct ConwayPolynomial<401, 7> { using ZPZ = aerobus::zpz<401>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<398>>; };  // NOLINT
04905     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
04906     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
04907     template<> struct ConwayPolynomial<409, 1> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<388>>; };  // NOLINT
04908     template<> struct ConwayPolynomial<409, 2> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<404>, ZPZV<21>>; };  // NOLINT
04909     template<> struct ConwayPolynomial<409, 3> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<388>>; };  // NOLINT
04910     template<> struct ConwayPolynomial<409, 4> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<407>, ZPZV<21>>; };  // NOLINT
04911     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
04912     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
04913     template<> struct ConwayPolynomial<409, 7> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<388>>; };  // NOLINT
04914     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
04915     template<> struct ConwayPolynomial<409, 9> { using ZPZ = aerobus::zpz<409>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<318>, ZPZV<211>, ZPZV<388>>;
      };  // NOLINT
04916     template<> struct ConwayPolynomial<419, 1> { using ZPZ = aerobus::zpz<419>; using type =
      POLYV<ZPZV<1>, ZPZV<417>>; };  // NOLINT
04917     template<> struct ConwayPolynomial<419, 2> { using ZPZ = aerobus::zpz<419>; using type =
      POLYV<ZPZV<1>, ZPZV<418>, ZPZV<2>>; };  // NOLINT
04918     template<> struct ConwayPolynomial<419, 3> { using ZPZ = aerobus::zpz<419>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<417>>; };  // NOLINT
04919     template<> struct ConwayPolynomial<419, 4> { using ZPZ = aerobus::zpz<419>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<373>, ZPZV<2>>; };  // NOLINT
04920     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
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04921     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
04922     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
04923     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
04924     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
04925     template<> struct ConwayPolynomial<421, 1> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<419>>; };  // NOLINT
04926     template<> struct ConwayPolynomial<421, 2> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<417>, ZPZV<2>>; };  // NOLINT
04927     template<> struct ConwayPolynomial<421, 3> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<419>>; };  // NOLINT
04928     template<> struct ConwayPolynomial<421, 4> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<257>, ZPZV<2>>; };  // NOLINT
04929     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
04930     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
04931     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
04932     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
04933     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
04934     template<> struct ConwayPolynomial<431, 1> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<424>>; };  // NOLINT
04935     template<> struct ConwayPolynomial<431, 2> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<430>, ZPZV<7>>; };  // NOLINT
04936     template<> struct ConwayPolynomial<431, 3> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<424>>; };  // NOLINT
04937     template<> struct ConwayPolynomial<431, 4> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<323>, ZPZV<7>>; };  // NOLINT
04938     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
04939     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
04940     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
04941     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
04942     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
04943     template<> struct ConwayPolynomial<433, 1> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<428>>; };  // NOLINT
04944     template<> struct ConwayPolynomial<433, 2> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<432>, ZPZV<5>>; };  // NOLINT
04945     template<> struct ConwayPolynomial<433, 3> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<428>>; };  // NOLINT
04946     template<> struct ConwayPolynomial<433, 4> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<402>, ZPZV<5>>; };  // NOLINT
04947     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
04948     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
04949     template<> struct ConwayPolynomial<433, 7> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<428>>; };  // NOLINT
04950     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
04951     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
04952     template<> struct ConwayPolynomial<439, 1> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<424>>; };  // NOLINT
04953     template<> struct ConwayPolynomial<439, 2> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<436>, ZPZV<15>>; };  // NOLINT
04954     template<> struct ConwayPolynomial<439, 3> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<424>>; };  // NOLINT
04955     template<> struct ConwayPolynomial<439, 4> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<323>, ZPZV<15>>; };  // NOLINT
04956     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
04957     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
04958     template<> struct ConwayPolynomial<439, 7> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<424>>; };  // NOLINT
04959     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
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04960     template<> struct ConwayPolynomial<439, 9> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<342>, ZPZV<254>,
      ZPZV<424>>; };  // NOLINT
04961     template<> struct ConwayPolynomial<443, 1> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<441>>; };  // NOLINT
04962     template<> struct ConwayPolynomial<443, 2> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<437>, ZPZV<2>>; };  // NOLINT
04963     template<> struct ConwayPolynomial<443, 3> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<441>>; };  // NOLINT
04964     template<> struct ConwayPolynomial<443, 4> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<383>, ZPZV<2>>; };  // NOLINT
04965     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
04966     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
04967     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
04968     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
04969     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
04970     template<> struct ConwayPolynomial<449, 1> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<446>>; };  // NOLINT
04971     template<> struct ConwayPolynomial<449, 2> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<444>, ZPZV<3>>; };  // NOLINT
04972     template<> struct ConwayPolynomial<449, 3> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<446>>; };  // NOLINT
04973     template<> struct ConwayPolynomial<449, 4> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<249>, ZPZV<3>>; };  // NOLINT
04974     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
04975     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
04976     template<> struct ConwayPolynomial<449, 7> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<446>>; };  // NOLINT
04977     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
04978     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
04979     template<> struct ConwayPolynomial<457, 1> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<444>>; };  // NOLINT
04980     template<> struct ConwayPolynomial<457, 2> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<454>, ZPZV<13>>; };  // NOLINT
04981     template<> struct ConwayPolynomial<457, 3> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<444>>; };  // NOLINT
04982     template<> struct ConwayPolynomial<457, 4> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<407>, ZPZV<13>>; };  // NOLINT
04983     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
04984     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
04985     template<> struct ConwayPolynomial<457, 7> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<444>>; };  // NOLINT
04986     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
04987     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
04988     template<> struct ConwayPolynomial<461, 1> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<459>>; };  // NOLINT
04989     template<> struct ConwayPolynomial<461, 2> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<460>, ZPZV<2>>; };  // NOLINT
04990     template<> struct ConwayPolynomial<461, 3> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<459>>; };  // NOLINT
04991     template<> struct ConwayPolynomial<461, 4> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<393>, ZPZV<2>>; };  // NOLINT
04992     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
04993     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
04994     template<> struct ConwayPolynomial<461, 7> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<459>>; };  // NOLINT
04995     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
04996     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
04997     template<> struct ConwayPolynomial<463, 1> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<460>>; };  // NOLINT
04998     template<> struct ConwayPolynomial<463, 2> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<461>, ZPZV<3>>; };  // NOLINT
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04999     template<> struct ConwayPolynomial<463, 3> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<460>>; };  // NOLINT
05000     template<> struct ConwayPolynomial<463, 4> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<17>, ZPZV<262>, ZPZV<3>>; };  // NOLINT
05001     template<> struct ConwayPolynomial<463, 5> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<460>>; };  // NOLINT
05002     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
05003     template<> struct ConwayPolynomial<463, 7> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<13>, ZPZV<460>>; };  // NOLINT
05004     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
05005     template<> struct ConwayPolynomial<463, 9> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<433>, ZPZV<227>, ZPZV<460>>;
      };  // NOLINT
05006     template<> struct ConwayPolynomial<467, 1> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<465>>; };  // NOLINT
05007     template<> struct ConwayPolynomial<467, 2> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<463>, ZPZV<2>>; };  // NOLINT
05008     template<> struct ConwayPolynomial<467, 3> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<465>>; };  // NOLINT
05009     template<> struct ConwayPolynomial<467, 4> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<353>, ZPZV<2>>; };  // NOLINT
05010     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
05011     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
05012     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
05013     template<> struct ConwayPolynomial<467, 8> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<318>, ZPZV<413>, ZPZV<289>, ZPZV<2>>; };  //
      NOLINT
05014     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<0>, ZPZV<397>, ZPZV<447>, ZPZV<465>>;
      };  // NOLINT
05015     template<> struct ConwayPolynomial<479, 1> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<466>>; };  // NOLINT
05016     template<> struct ConwayPolynomial<479, 2> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<474>, ZPZV<13>>; };  // NOLINT
05017     template<> struct ConwayPolynomial<479, 3> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<466>>; };  // NOLINT
05018     template<> struct ConwayPolynomial<479, 4> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<386>, ZPZV<13>>; };  // NOLINT
05019     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
05020     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
05021     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
05022     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
05023     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
05024     template<> struct ConwayPolynomial<487, 1> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<484>>; };  // NOLINT
05025     template<> struct ConwayPolynomial<487, 2> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<485>, ZPZV<3>>; };  // NOLINT
05026     template<> struct ConwayPolynomial<487, 3> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<484>>; };  // NOLINT
05027     template<> struct ConwayPolynomial<487, 4> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<483>, ZPZV<3>>; };  // NOLINT
05028     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
05029     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
05030     template<> struct ConwayPolynomial<487, 7> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<484>>; };  // NOLINT
05031     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
05032     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
05033     template<> struct ConwayPolynomial<491, 1> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<489>>; };  // NOLINT
05034     template<> struct ConwayPolynomial<491, 2> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<487>, ZPZV<2>>; };  // NOLINT
05035     template<> struct ConwayPolynomial<491, 3> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<489>>; };  // NOLINT
05036     template<> struct ConwayPolynomial<491, 4> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<360>, ZPZV<2>>; };  // NOLINT
05037     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
05038     template<> struct ConwayPolynomial<491, 6> { using ZPZ = aerobus::zpz<491>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<369>, ZPZV<402>, ZPZV<125>, ZPZV<2>>; };  // NOLINT
05039     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
05040     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
05041     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
05042     template<> struct ConwayPolynomial<499, 1> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<492>>; };  // NOLINT
05043     template<> struct ConwayPolynomial<499, 2> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<493>, ZPZV<7>>; };  // NOLINT
05044     template<> struct ConwayPolynomial<499, 3> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<492>>; };  // NOLINT
05045     template<> struct ConwayPolynomial<499, 4> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<495>, ZPZV<7>>; };  // NOLINT
05046     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
05047     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
05048     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
05049     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
05050     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
05051     template<> struct ConwayPolynomial<503, 1> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<498>>; };  // NOLINT
05052     template<> struct ConwayPolynomial<503, 2> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<498>, ZPZV<5>>; };  // NOLINT
05053     template<> struct ConwayPolynomial<503, 3> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<498>>; };  // NOLINT
05054     template<> struct ConwayPolynomial<503, 4> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<325>, ZPZV<5>>; };  // NOLINT
05055     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
05056     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
05057     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
05058     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
05059     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
05060     template<> struct ConwayPolynomial<509, 1> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<507>>; };  // NOLINT
05061     template<> struct ConwayPolynomial<509, 2> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<508>, ZPZV<2>>; };  // NOLINT
05062     template<> struct ConwayPolynomial<509, 3> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<507>>; };  // NOLINT
05063     template<> struct ConwayPolynomial<509, 4> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<408>, ZPZV<2>>; };  // NOLINT
05064     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
05065     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
05066     template<> struct ConwayPolynomial<509, 7> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<507>>; };  // NOLINT
05067     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
05068     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<314>, ZPZV<28>, ZPZV<507>>;
      };  // NOLINT
05069     template<> struct ConwayPolynomial<521, 1> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<518>>; };  // NOLINT
05070     template<> struct ConwayPolynomial<521, 2> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<515>, ZPZV<3>>; };  // NOLINT
05071     template<> struct ConwayPolynomial<521, 3> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<518>>; };  // NOLINT
05072     template<> struct ConwayPolynomial<521, 4> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<509>, ZPZV<3>>; };  // NOLINT
05073     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
05074     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
05075     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
05076     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
05077     template<> struct ConwayPolynomial<521, 9> { using ZPZ = aerobus::zpz<521>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<181>, ZPZV<483>, ZPZV<518>>;
      };  // NOLINT
05078     template<> struct ConwayPolynomial<523, 1> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<521>>; };  // NOLINT
05079     template<> struct ConwayPolynomial<523, 2> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<522>, ZPZV<2>>; };  // NOLINT
05080     template<> struct ConwayPolynomial<523, 3> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<521>>; };  // NOLINT
05081     template<> struct ConwayPolynomial<523, 4> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<382>, ZPZV<2>>; };  // NOLINT
05082     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
05083     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
05084     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
05085     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
05086     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
05087     template<> struct ConwayPolynomial<541, 1> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<539>>; };  // NOLINT
05088     template<> struct ConwayPolynomial<541, 2> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<537>, ZPZV<2>>; };  // NOLINT
05089     template<> struct ConwayPolynomial<541, 3> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<539>>; };  // NOLINT
05090     template<> struct ConwayPolynomial<541, 4> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<333>, ZPZV<2>>; };  // NOLINT
05091     template<> struct ConwayPolynomial<541, 5> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<539>>; };  // NOLINT
05092     template<> struct ConwayPolynomial<541, 6> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<239>, ZPZV<320>, ZPZV<69>, ZPZV<2>>; };  // NOLINT
05093     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
05094     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
05095     template<> struct ConwayPolynomial<541, 9> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<340>, ZPZV<318>,
      ZPZV<539>>; };  // NOLINT
05096     template<> struct ConwayPolynomial<547, 1> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<545>>; };  // NOLINT
05097     template<> struct ConwayPolynomial<547, 2> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<543>, ZPZV<2>>; };  // NOLINT
05098     template<> struct ConwayPolynomial<547, 3> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<545>>; };  // NOLINT
05099     template<> struct ConwayPolynomial<547, 4> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<334>, ZPZV<2>>; };  // NOLINT
05100     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
05101     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
05102     template<> struct ConwayPolynomial<547, 7> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<545>>; };  // NOLINT
05103     template<> struct ConwayPolynomial<547, 8> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<368>, ZPZV<20>, ZPZV<180>, ZPZV<2>>; };  //
      NOLINT
05104     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
05105     template<> struct ConwayPolynomial<557, 1> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<555>>; };  // NOLINT
05106     template<> struct ConwayPolynomial<557, 2> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<553>, ZPZV<2>>; };  // NOLINT
05107     template<> struct ConwayPolynomial<557, 3> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<555>>; };  // NOLINT
05108     template<> struct ConwayPolynomial<557, 4> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<430>, ZPZV<2>>; };  // NOLINT
05109     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
05110     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
05111     template<> struct ConwayPolynomial<557, 7> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<555>>; };  // NOLINT
05112     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
05113     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
05114     template<> struct ConwayPolynomial<563, 1> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<561>>; };  // NOLINT
05115     template<> struct ConwayPolynomial<563, 2> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<559>, ZPZV<2>>; };  // NOLINT
05116     template<> struct ConwayPolynomial<563, 3> { using ZPZ = aerobus::zpz<563>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<561>>; };  // NOLINT
05117     template<> struct ConwayPolynomial<563, 4> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<20>, ZPZV<399>, ZPZV<2>>; };  // NOLINT
05118     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
05119     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
05120     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
05121     template<> struct ConwayPolynomial<563, 8> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<503>, ZPZV<176>, ZPZV<509>, ZPZV<2>>; };  //
      NOLINT
05122     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
05123     template<> struct ConwayPolynomial<569, 1> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<566>>; };  // NOLINT
05124     template<> struct ConwayPolynomial<569, 2> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<568>, ZPZV<3>>; };  // NOLINT
05125     template<> struct ConwayPolynomial<569, 3> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<566>>; };  // NOLINT
05126     template<> struct ConwayPolynomial<569, 4> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<381>, ZPZV<3>>; };  // NOLINT
05127     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
05128     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
05129     template<> struct ConwayPolynomial<569, 7> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<566>>; };  // NOLINT
05130     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>>; };  //
      NOLINT
05131     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
05132     template<> struct ConwayPolynomial<571, 1> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<568>>; };  // NOLINT
05133     template<> struct ConwayPolynomial<571, 2> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<570>, ZPZV<3>>; };  // NOLINT
05134     template<> struct ConwayPolynomial<571, 3> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<568>>; };  // NOLINT
05135     template<> struct ConwayPolynomial<571, 4> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<402>, ZPZV<3>>; };  // NOLINT
05136     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
05137     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
05138     template<> struct ConwayPolynomial<571, 7> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<568>>; };  // NOLINT
05139     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
05140     template<> struct ConwayPolynomial<571, 9> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<34>, ZPZV<545>, ZPZV<179>,
      ZPZV<568>>; };  // NOLINT
05141     template<> struct ConwayPolynomial<577, 1> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<572>>; };  // NOLINT
05142     template<> struct ConwayPolynomial<577, 2> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<572>, ZPZV<5>>; };  // NOLINT
05143     template<> struct ConwayPolynomial<577, 3> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<572>>; };  // NOLINT
05144     template<> struct ConwayPolynomial<577, 4> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<494>, ZPZV<5>>; };  // NOLINT
05145     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
05146     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
05147     template<> struct ConwayPolynomial<577, 7> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<572>>; };  // NOLINT
05148     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
05149     template<> struct ConwayPolynomial<577, 9> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<17>, ZPZV<576>, ZPZV<449>,
      ZPZV<572>>; };  // NOLINT
05150     template<> struct ConwayPolynomial<587, 1> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<585>>; };  // NOLINT
05151     template<> struct ConwayPolynomial<587, 2> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<583>, ZPZV<2>>; };  // NOLINT
05152     template<> struct ConwayPolynomial<587, 3> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<585>>; };  // NOLINT
05153     template<> struct ConwayPolynomial<587, 4> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<444>, ZPZV<2>>; };  // NOLINT
05154     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
05155     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
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05156     template<> struct ConwayPolynomial<587, 7> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<585>>; };  // NOLINT
05157     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
05158     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
05159     template<> struct ConwayPolynomial<593, 1> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<590>>; };  // NOLINT
05160     template<> struct ConwayPolynomial<593, 2> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<592>, ZPZV<3>>; };  // NOLINT
05161     template<> struct ConwayPolynomial<593, 3> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<590>>; };  // NOLINT
05162     template<> struct ConwayPolynomial<593, 4> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<419>, ZPZV<3>>; };  // NOLINT
05163     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
05164     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
05165     template<> struct ConwayPolynomial<593, 7> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<590>>; };  // NOLINT
05166     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
05167     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
05168     template<> struct ConwayPolynomial<599, 1> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<592>>; };  // NOLINT
05169     template<> struct ConwayPolynomial<599, 2> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7>>; };  // NOLINT
05170     template<> struct ConwayPolynomial<599, 3> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<592>>; };  // NOLINT
05171     template<> struct ConwayPolynomial<599, 4> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<419>, ZPZV<7>>; };  // NOLINT
05172     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
05173     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
05174     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
05175     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
05176     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
05177     template<> struct ConwayPolynomial<601, 1> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<594>>; };  // NOLINT
05178     template<> struct ConwayPolynomial<601, 2> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7>>; };  // NOLINT
05179     template<> struct ConwayPolynomial<601, 3> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<594>>; };  // NOLINT
05180     template<> struct ConwayPolynomial<601, 4> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<347>, ZPZV<7>>; };  // NOLINT
05181     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
05182     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
05183     template<> struct ConwayPolynomial<601, 7> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<594>>; };  // NOLINT
05184     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
05185     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
05186     template<> struct ConwayPolynomial<607, 1> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<604>>; };  // NOLINT
05187     template<> struct ConwayPolynomial<607, 2> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<606>, ZPZV<3>>; };  // NOLINT
05188     template<> struct ConwayPolynomial<607, 3> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<604>>; };  // NOLINT
05189     template<> struct ConwayPolynomial<607, 4> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<449>, ZPZV<3>>; };  // NOLINT
05190     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
05191     template<> struct ConwayPolynomial<607, 6> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<45>, ZPZV<478>, ZPZV<3>>; };  // NOLINT
05192     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
05193     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
05194     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>>;
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    };  // NOLINT
05195     template<> struct ConwayPolynomial<613, 1> { using ZPZ = aerobus::zpz<613>; using type =
    POLYV<ZPZV<1>, ZPZV<611>>; };  // NOLINT
05196     template<> struct ConwayPolynomial<613, 2> { using ZPZ = aerobus::zpz<613>; using type =
    POLYV<ZPZV<1>, ZPZV<609>, ZPZV<2>>; };  // NOLINT
05197     template<> struct ConwayPolynomial<613, 3> { using ZPZ = aerobus::zpz<613>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<611>>; };  // NOLINT
05198     template<> struct ConwayPolynomial<613, 4> { using ZPZ = aerobus::zpz<613>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<333>, ZPZV<2>>; };  // NOLINT
05199     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
05200     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
05201     template<> struct ConwayPolynomial<613, 7> { using ZPZ = aerobus::zpz<613>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<611>>; };  // NOLINT
05202     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
05203     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
05204     template<> struct ConwayPolynomial<617, 1> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<614>>; };  // NOLINT
05205     template<> struct ConwayPolynomial<617, 2> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<612>, ZPZV<3>>; };  // NOLINT
05206     template<> struct ConwayPolynomial<617, 3> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<614>>; };  // NOLINT
05207     template<> struct ConwayPolynomial<617, 4> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<503>, ZPZV<3>>; };  // NOLINT
05208     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
05209     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
05210     template<> struct ConwayPolynomial<617, 7> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<614>>; };  // NOLINT
05211     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
05212     template<> struct ConwayPolynomial<617, 9> { using ZPZ = aerobus::zpz<617>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<388>, ZPZV<543>,
    ZPZV<614>>; };  // NOLINT
05213     template<> struct ConwayPolynomial<619, 1> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<617>>; };  // NOLINT
05214     template<> struct ConwayPolynomial<619, 2> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<618>, ZPZV<2>>; };  // NOLINT
05215     template<> struct ConwayPolynomial<619, 3> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<617>>; };  // NOLINT
05216     template<> struct ConwayPolynomial<619, 4> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<492>, ZPZV<2>>; };  // NOLINT
05217     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
05218     template<> struct ConwayPolynomial<619, 6> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<238>, ZPZV<468>, ZPZV<347>, ZPZV<2>>; };  // NOLINT
05219     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
05220     template<> struct ConwayPolynomial<619, 8> { using ZPZ = aerobus::zpz<619>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<416>, ZPZV<383>, ZPZV<225>, ZPZV<2>>; };  //
    NOLINT
05221     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
05222     template<> struct ConwayPolynomial<631, 1> { using ZPZ = aerobus::zpz<631>; using type =
    POLYV<ZPZV<1>, ZPZV<628>>; };  // NOLINT
05223     template<> struct ConwayPolynomial<631, 2> { using ZPZ = aerobus::zpz<631>; using type =
    POLYV<ZPZV<1>, ZPZV<629>, ZPZV<3>>; };  // NOLINT
05224     template<> struct ConwayPolynomial<631, 3> { using ZPZ = aerobus::zpz<631>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<628>>; };  // NOLINT
05225     template<> struct ConwayPolynomial<631, 4> { using ZPZ = aerobus::zpz<631>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<376>, ZPZV<3>>; };  // NOLINT
05226     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
05227     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
05228     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
05229     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
05230     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
05231     template<> struct ConwayPolynomial<641, 1> { using ZPZ = aerobus::zpz<641>; using type =
    POLYV<ZPZV<1>, ZPZV<638>>; };  // NOLINT
05232     template<> struct ConwayPolynomial<641, 2> { using ZPZ = aerobus::zpz<641>; using type =
    POLYV<ZPZV<1>, ZPZV<635>, ZPZV<3>>; };  // NOLINT
05233     template<> struct ConwayPolynomial<641, 3> { using ZPZ = aerobus::zpz<641>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<638>>; };  // NOLINT
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05234     template<> struct ConwayPolynomial<641, 4> { using ZPZ = aerobus::zpz<641>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<629>, ZPZV<3>>; };  // NOLINT
05235     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
05236     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
05237     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
05238     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
05239     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
05240     template<> struct ConwayPolynomial<643, 1> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<632>>; };  // NOLINT
05241     template<> struct ConwayPolynomial<643, 2> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<641>, ZPZV<11>>; };  // NOLINT
05242     template<> struct ConwayPolynomial<643, 3> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<632>>; };  // NOLINT
05243     template<> struct ConwayPolynomial<643, 4> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<600>, ZPZV<11>>; };  // NOLINT
05244     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
05245     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
05246     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
05247     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
05248     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
05249     template<> struct ConwayPolynomial<647, 1> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<642>>; };  // NOLINT
05250     template<> struct ConwayPolynomial<647, 2> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<645>, ZPZV<5>>; };  // NOLINT
05251     template<> struct ConwayPolynomial<647, 3> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<642>>; };  // NOLINT
05252     template<> struct ConwayPolynomial<647, 4> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<643>, ZPZV<5>>; };  // NOLINT
05253     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
05254     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
05255     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
05256     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
05257     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
05258     template<> struct ConwayPolynomial<653, 1> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<651>>; };  // NOLINT
05259     template<> struct ConwayPolynomial<653, 2> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<649>, ZPZV<2>>; };  // NOLINT
05260     template<> struct ConwayPolynomial<653, 3> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<651>>; };  // NOLINT
05261     template<> struct ConwayPolynomial<653, 4> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<596>, ZPZV<2>>; };  // NOLINT
05262     template<> struct ConwayPolynomial<653, 5> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<651>>; };  // NOLINT
05263     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
05264     template<> struct ConwayPolynomial<653, 7> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<15>, ZPZV<651>>; };  // NOLINT
05265     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
05266     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<365>, ZPZV<60>, ZPZV<651>>;
      };  // NOLINT
05267     template<> struct ConwayPolynomial<659, 1> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<657>>; };  // NOLINT
05268     template<> struct ConwayPolynomial<659, 2> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<655>, ZPZV<2>>; };  // NOLINT
05269     template<> struct ConwayPolynomial<659, 3> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<657>>; };  // NOLINT
05270     template<> struct ConwayPolynomial<659, 4> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<351>, ZPZV<2>>; };  // NOLINT
05271     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
05272     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
05273     template<> struct ConwayPolynomial<659, 7> { using ZPZ = aerobus::zpz<659>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<657>>; };  // NOLINT
05274     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
05275     template<> struct ConwayPolynomial<659, 9> { using ZPZ = aerobus::zpz<659>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<592>, ZPZV<46>, ZPZV<657>>;
    };  // NOLINT
05276     template<> struct ConwayPolynomial<661, 1> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<659>>; };  // NOLINT
05277     template<> struct ConwayPolynomial<661, 2> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<660>, ZPZV<2>>; };  // NOLINT
05278     template<> struct ConwayPolynomial<661, 3> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<659>>; };  // NOLINT
05279     template<> struct ConwayPolynomial<661, 4> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<616>, ZPZV<2>>; };  // NOLINT
05280     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
05281     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
05282     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
05283     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
05284     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
05285     template<> struct ConwayPolynomial<673, 1> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<668>>; };  // NOLINT
05286     template<> struct ConwayPolynomial<673, 2> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<672>, ZPZV<5>>; };  // NOLINT
05287     template<> struct ConwayPolynomial<673, 3> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<668>>; };  // NOLINT
05288     template<> struct ConwayPolynomial<673, 4> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<416>, ZPZV<5>>; };  // NOLINT
05289     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
05290     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
05291     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
05292     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
05293     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
05294     template<> struct ConwayPolynomial<677, 1> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<675>>; };  // NOLINT
05295     template<> struct ConwayPolynomial<677, 2> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<672>, ZPZV<2>>; };  // NOLINT
05296     template<> struct ConwayPolynomial<677, 3> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<675>>; };  // NOLINT
05297     template<> struct ConwayPolynomial<677, 4> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<631>, ZPZV<2>>; };  // NOLINT
05298     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
05299     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
05300     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
05301     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
05302     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<504>, ZPZV<404>, ZPZV<675>>;
    };  // NOLINT
05303     template<> struct ConwayPolynomial<683, 1> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<678>>; };  // NOLINT
05304     template<> struct ConwayPolynomial<683, 2> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<682>, ZPZV<5>>; };  // NOLINT
05305     template<> struct ConwayPolynomial<683, 3> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<678>>; };  // NOLINT
05306     template<> struct ConwayPolynomial<683, 4> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<455>, ZPZV<5>>; };  // NOLINT
05307     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
05308     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
05309     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
05310     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
05311     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
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05312     template<> struct ConwayPolynomial<691, 1> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<688>>; };  // NOLINT
05313     template<> struct ConwayPolynomial<691, 2> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<686>, ZPZV<3>>; };  // NOLINT
05314     template<> struct ConwayPolynomial<691, 3> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<688>>; };  // NOLINT
05315     template<> struct ConwayPolynomial<691, 4> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<632>, ZPZV<3>>; };  // NOLINT
05316     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
05317     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
05318     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
05319     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
05320     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
05321     template<> struct ConwayPolynomial<701, 1> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<699>>; };  // NOLINT
05322     template<> struct ConwayPolynomial<701, 2> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<697>, ZPZV<2>>; };  // NOLINT
05323     template<> struct ConwayPolynomial<701, 3> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<699>>; };  // NOLINT
05324     template<> struct ConwayPolynomial<701, 4> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<379>, ZPZV<2>>; };  // NOLINT
05325     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
05326     template<> struct ConwayPolynomial<701, 6> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<571>, ZPZV<327>, ZPZV<285>, ZPZV<2>>; };  // NOLINT
05327     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
05328     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
05329     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
05330     template<> struct ConwayPolynomial<709, 1> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<707>>; };  // NOLINT
05331     template<> struct ConwayPolynomial<709, 2> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<705>, ZPZV<2>>; };  // NOLINT
05332     template<> struct ConwayPolynomial<709, 3> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<707>>; };  // NOLINT
05333     template<> struct ConwayPolynomial<709, 4> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<384>, ZPZV<2>>; };  // NOLINT
05334     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
05335     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
05336     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
05337     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
05338     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
05339     template<> struct ConwayPolynomial<719, 1> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<708>>; };  // NOLINT
05340     template<> struct ConwayPolynomial<719, 2> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<715>, ZPZV<11>>; };  // NOLINT
05341     template<> struct ConwayPolynomial<719, 3> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<708>>; };  // NOLINT
05342     template<> struct ConwayPolynomial<719, 4> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<602>, ZPZV<11>>; };  // NOLINT
05343     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
05344     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
05345     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
05346     template<> struct ConwayPolynomial<719, 8> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<714>, ZPZV<362>, ZPZV<244>, ZPZV<11>>; };  //
      NOLINT
05347     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
05348     template<> struct ConwayPolynomial<727, 1> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<722>>; };  // NOLINT
05349     template<> struct ConwayPolynomial<727, 2> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<725>, ZPZV<5>>; };  // NOLINT
05350     template<> struct ConwayPolynomial<727, 3> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<722>>; };  // NOLINT
05351     template<> struct ConwayPolynomial<727, 4> { using ZPZ = aerobus::zpz<727>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<723>, ZPZV<5>>; };  // NOLINT
05352     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
05353     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
05354     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
05355     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
05356     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
05357     template<> struct ConwayPolynomial<733, 1> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<727>>; };  // NOLINT
05358     template<> struct ConwayPolynomial<733, 2> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<732>, ZPZV<6>>; };  // NOLINT
05359     template<> struct ConwayPolynomial<733, 3> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<727>>; };  // NOLINT
05360     template<> struct ConwayPolynomial<733, 4> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<539>, ZPZV<6>>; };  // NOLINT
05361     template<> struct ConwayPolynomial<733, 5> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<727>>; };  // NOLINT
05362     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
05363     template<> struct ConwayPolynomial<733, 7> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<727>>; };  // NOLINT
05364     template<> struct ConwayPolynomial<733, 8> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<532>, ZPZV<610>, ZPZV<142>, ZPZV<6>>; };  //
    NOLINT
05365     template<> struct ConwayPolynomial<733, 9> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<337>, ZPZV<6>, ZPZV<727>>;
    };  // NOLINT
05366     template<> struct ConwayPolynomial<739, 1> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<736>>; };  // NOLINT
05367     template<> struct ConwayPolynomial<739, 2> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<734>, ZPZV<3>>; };  // NOLINT
05368     template<> struct ConwayPolynomial<739, 3> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<736>>; };  // NOLINT
05369     template<> struct ConwayPolynomial<739, 4> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<678>, ZPZV<3>>; };  // NOLINT
05370     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
05371     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
05372     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
05373     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
05374     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
05375     template<> struct ConwayPolynomial<743, 1> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<738>>; };  // NOLINT
05376     template<> struct ConwayPolynomial<743, 2> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<742>, ZPZV<5>>; };  // NOLINT
05377     template<> struct ConwayPolynomial<743, 3> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<738>>; };  // NOLINT
05378     template<> struct ConwayPolynomial<743, 4> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<425>, ZPZV<5>>; };  // NOLINT
05379     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
05380     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
05381     template<> struct ConwayPolynomial<743, 7> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<738>>; };  // NOLINT
05382     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
05383     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
05384     template<> struct ConwayPolynomial<751, 1> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<748>>; };  // NOLINT
05385     template<> struct ConwayPolynomial<751, 2> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<749>, ZPZV<3>>; };  // NOLINT
05386     template<> struct ConwayPolynomial<751, 3> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<748>>; };  // NOLINT
05387     template<> struct ConwayPolynomial<751, 4> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<525>, ZPZV<3>>; };  // NOLINT
05388     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
05389     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
05390     template<> struct ConwayPolynomial<751, 7> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<748>>; };  // NOLINT
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05391     template<> struct ConwayPolynomial<751, 8> { using ZPZ = aerobus::zpz<751>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<741>, ZPZV<243>, ZPZV<672>, ZPZV<3>>; };  //
      NOLINT
05392     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
05393     template<> struct ConwayPolynomial<757, 1> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<755>>; };  // NOLINT
05394     template<> struct ConwayPolynomial<757, 2> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<753>, ZPZV<2>>; };  // NOLINT
05395     template<> struct ConwayPolynomial<757, 3> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<755>>; };  // NOLINT
05396     template<> struct ConwayPolynomial<757, 4> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<537>, ZPZV<2>>; };  // NOLINT
05397     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
05398     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
05399     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
05400     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
05401     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
05402     template<> struct ConwayPolynomial<761, 1> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<755>>; };  // NOLINT
05403     template<> struct ConwayPolynomial<761, 2> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<758>, ZPZV<6>>; };  // NOLINT
05404     template<> struct ConwayPolynomial<761, 3> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<755>>; };  // NOLINT
05405     template<> struct ConwayPolynomial<761, 4> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<658>, ZPZV<6>>; };  // NOLINT
05406     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
05407     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
05408     template<> struct ConwayPolynomial<761, 7> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<755>>; };  // NOLINT
05409     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
05410     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
05411     template<> struct ConwayPolynomial<769, 1> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<758>>; };  // NOLINT
05412     template<> struct ConwayPolynomial<769, 2> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<765>, ZPZV<11>>; };  // NOLINT
05413     template<> struct ConwayPolynomial<769, 3> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<758>>; };  // NOLINT
05414     template<> struct ConwayPolynomial<769, 4> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<32>, ZPZV<741>, ZPZV<11>>; };  // NOLINT
05415     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
05416     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
05417     template<> struct ConwayPolynomial<769, 7> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<758>>; };  // NOLINT
05418     template<> struct ConwayPolynomial<769, 8> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<560>, ZPZV<574>, ZPZV<632>, ZPZV<11>>; };  //
      NOLINT
05419     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
05420     template<> struct ConwayPolynomial<773, 1> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<771>>; };  // NOLINT
05421     template<> struct ConwayPolynomial<773, 2> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<772>, ZPZV<2>>; };  // NOLINT
05422     template<> struct ConwayPolynomial<773, 3> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<771>>; };  // NOLINT
05423     template<> struct ConwayPolynomial<773, 4> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<444>, ZPZV<2>>; };  // NOLINT
05424     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
05425     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
05426     template<> struct ConwayPolynomial<773, 7> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<771>>; };  // NOLINT
05427     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
05428     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
05429     template<> struct ConwayPolynomial<787, 1> { using ZPZ = aerobus::zpz<787>; using type =
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      POLYV<ZPZV<1>, ZPZV<785>>; };  // NOLINT
05430     template<> struct ConwayPolynomial<787, 2> { using ZPZ = aerobus::zpz<787>; using type =
      POLYV<ZPZV<1>, ZPZV<786>, ZPZV<2>>; };  // NOLINT
05431     template<> struct ConwayPolynomial<787, 3> { using ZPZ = aerobus::zpz<787>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<785>>; };  // NOLINT
05432     template<> struct ConwayPolynomial<787, 4> { using ZPZ = aerobus::zpz<787>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<605>, ZPZV<2>>; };  // NOLINT
05433     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
05434     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
05435     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
05436     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
05437     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
05438     template<> struct ConwayPolynomial<797, 1> { using ZPZ = aerobus::zpz<797>; using type =
      POLYV<ZPZV<1>, ZPZV<795>>; };  // NOLINT
05439     template<> struct ConwayPolynomial<797, 2> { using ZPZ = aerobus::zpz<797>; using type =
      POLYV<ZPZV<1>, ZPZV<793>, ZPZV<2>>; };  // NOLINT
05440     template<> struct ConwayPolynomial<797, 3> { using ZPZ = aerobus::zpz<797>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<795>>; };  // NOLINT
05441     template<> struct ConwayPolynomial<797, 4> { using ZPZ = aerobus::zpz<797>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<717>, ZPZV<2>>; };  // NOLINT
05442     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
05443     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
05444     template<> struct ConwayPolynomial<797, 7> { using ZPZ = aerobus::zpz<797>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<11>, ZPZV<795>>; };  // NOLINT
05445     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
05446     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
05447     template<> struct ConwayPolynomial<809, 1> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<806>>; };  // NOLINT
05448     template<> struct ConwayPolynomial<809, 2> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<799>, ZPZV<3>>; };  // NOLINT
05449     template<> struct ConwayPolynomial<809, 3> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<806>>; };  // NOLINT
05450     template<> struct ConwayPolynomial<809, 4> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<644>, ZPZV<3>>; };  // NOLINT
05451     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
05452     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
05453     template<> struct ConwayPolynomial<809, 7> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<806>>; };  // NOLINT
05454     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
05455     template<> struct ConwayPolynomial<809, 9> { using ZPZ = aerobus::zpz<809>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<341>, ZPZV<727>, ZPZV<806>>;
      };  // NOLINT
05456     template<> struct ConwayPolynomial<811, 1> { using ZPZ = aerobus::zpz<811>; using type =
      POLYV<ZPZV<1>, ZPZV<808>>; };  // NOLINT
05457     template<> struct ConwayPolynomial<811, 2> { using ZPZ = aerobus::zpz<811>; using type =
      POLYV<ZPZV<1>, ZPZV<806>, ZPZV<3>>; };  // NOLINT
05458     template<> struct ConwayPolynomial<811, 3> { using ZPZ = aerobus::zpz<811>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<808>>; };  // NOLINT
05459     template<> struct ConwayPolynomial<811, 4> { using ZPZ = aerobus::zpz<811>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<453>, ZPZV<3>>; };  // NOLINT
05460     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
05461     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
05462     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
05463     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
05464     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
05465     template<> struct ConwayPolynomial<821, 1> { using ZPZ = aerobus::zpz<821>; using type =
      POLYV<ZPZV<1>, ZPZV<819>>; };  // NOLINT
05466     template<> struct ConwayPolynomial<821, 2> { using ZPZ = aerobus::zpz<821>; using type =
      POLYV<ZPZV<1>, ZPZV<816>, ZPZV<2>>; };  // NOLINT
05467     template<> struct ConwayPolynomial<821, 3> { using ZPZ = aerobus::zpz<821>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<819>>; };  // NOLINT
05468     template<> struct ConwayPolynomial<821, 4> { using ZPZ = aerobus::zpz<821>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<662>, ZPZV<2>>; };  // NOLINT
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05469     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
05470     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
05471     template<> struct ConwayPolynomial<821, 7> { using ZPZ = aerobus::zpz<821>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<819>>; };  // NOLINT
05472     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
05473     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
05474     template<> struct ConwayPolynomial<823, 1> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<820>>; };  // NOLINT
05475     template<> struct ConwayPolynomial<823, 2> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<821>, ZPZV<3>>; };  // NOLINT
05476     template<> struct ConwayPolynomial<823, 3> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<820>>; };  // NOLINT
05477     template<> struct ConwayPolynomial<823, 4> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<819>, ZPZV<3>>; };  // NOLINT
05478     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
05479     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
05480     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
05481     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
05482     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>>;
      };  // NOLINT
05483     template<> struct ConwayPolynomial<827, 1> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<825>>; };  // NOLINT
05484     template<> struct ConwayPolynomial<827, 2> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<821>, ZPZV<2>>; };  // NOLINT
05485     template<> struct ConwayPolynomial<827, 3> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<825>>; };  // NOLINT
05486     template<> struct ConwayPolynomial<827, 4> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<18>, ZPZV<605>, ZPZV<2>>; };  // NOLINT
05487     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
05488     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
05489     template<> struct ConwayPolynomial<827, 7> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<825>>; };  // NOLINT
05490     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
05491     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<177>, ZPZV<372>, ZPZV<825>>;
      };  // NOLINT
05492     template<> struct ConwayPolynomial<829, 1> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<827>>; };  // NOLINT
05493     template<> struct ConwayPolynomial<829, 2> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<828>, ZPZV<2>>; };  // NOLINT
05494     template<> struct ConwayPolynomial<829, 3> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<827>>; };  // NOLINT
05495     template<> struct ConwayPolynomial<829, 4> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<604>, ZPZV<2>>; };  // NOLINT
05496     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
05497     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
05498     template<> struct ConwayPolynomial<829, 7> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<827>>; };  // NOLINT
05499     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
05500     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
05501     template<> struct ConwayPolynomial<839, 1> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<828>>; };  // NOLINT
05502     template<> struct ConwayPolynomial<839, 2> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<838>, ZPZV<11>>; };  // NOLINT
05503     template<> struct ConwayPolynomial<839, 3> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<828>>; };  // NOLINT
05504     template<> struct ConwayPolynomial<839, 4> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<609>, ZPZV<11>>; };  // NOLINT
05505     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
05506     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
05507     template<> struct ConwayPolynomial<839, 7> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<828>>; };  // NOLINT
05508     template<> struct ConwayPolynomial<839, 8> { using ZPZ = aerobus::zpz<839>; using type =
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      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<553>, ZPZV<779>, ZPZV<329>, ZPZV<11>>; };  //
      NOLINT
05509     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
05510     template<> struct ConwayPolynomial<853, 1> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<851>>; };  // NOLINT
05511     template<> struct ConwayPolynomial<853, 2> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<852>, ZPZV<2>>; };  // NOLINT
05512     template<> struct ConwayPolynomial<853, 3> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<851>>; };  // NOLINT
05513     template<> struct ConwayPolynomial<853, 4> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<623>, ZPZV<2>>; };  // NOLINT
05514     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
05515     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
05516     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
05517     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
05518     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
05519     template<> struct ConwayPolynomial<857, 1> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<854>>; };  // NOLINT
05520     template<> struct ConwayPolynomial<857, 2> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<850>, ZPZV<3>>; };  // NOLINT
05521     template<> struct ConwayPolynomial<857, 3> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<854>>; };  // NOLINT
05522     template<> struct ConwayPolynomial<857, 4> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<528>, ZPZV<3>>; };  // NOLINT
05523     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
05524     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
05525     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
05526     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
05527     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<0>, ZPZV<308>, ZPZV<719>, ZPZV<854>>;
      };  // NOLINT
05528     template<> struct ConwayPolynomial<859, 1> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<857>>; };  // NOLINT
05529     template<> struct ConwayPolynomial<859, 2> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<858>, ZPZV<2>>; };  // NOLINT
05530     template<> struct ConwayPolynomial<859, 3> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<857>>; };  // NOLINT
05531     template<> struct ConwayPolynomial<859, 4> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<530>, ZPZV<2>>; };  // NOLINT
05532     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
05533     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
05534     template<> struct ConwayPolynomial<859, 7> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<857>>; };  // NOLINT
05535     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
05536     template<> struct ConwayPolynomial<859, 9> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<648>, ZPZV<845>, ZPZV<857>>;
      };  // NOLINT
05537     template<> struct ConwayPolynomial<863, 1> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<858>>; };  // NOLINT
05538     template<> struct ConwayPolynomial<863, 2> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<862>, ZPZV<5>>; };  // NOLINT
05539     template<> struct ConwayPolynomial<863, 3> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<858>>; };  // NOLINT
05540     template<> struct ConwayPolynomial<863, 4> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<770>, ZPZV<5>>; };  // NOLINT
05541     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
05542     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
05543     template<> struct ConwayPolynomial<863, 7> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<858>>; };  // NOLINT
05544     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
05545     template<> struct ConwayPolynomial<863, 9> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<381>, ZPZV<1>, ZPZV<858>>;
      };  // NOLINT
05546     template<> struct ConwayPolynomial<877, 1> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<875>>; };  // NOLINT
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05547     template<> struct ConwayPolynomial<877, 2> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<873>, ZPZV<2>>; };  // NOLINT
05548     template<> struct ConwayPolynomial<877, 3> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<875>>; };  // NOLINT
05549     template<> struct ConwayPolynomial<877, 4> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<604>, ZPZV<2>>; };  // NOLINT
05550     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
05551     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
05552     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
05553     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
05554     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
05555     template<> struct ConwayPolynomial<881, 1> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<878>>; };  // NOLINT
05556     template<> struct ConwayPolynomial<881, 2> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<869>, ZPZV<3>>; };  // NOLINT
05557     template<> struct ConwayPolynomial<881, 3> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<878>>; };  // NOLINT
05558     template<> struct ConwayPolynomial<881, 4> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<447>, ZPZV<3>>; };  // NOLINT
05559     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
05560     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
05561     template<> struct ConwayPolynomial<881, 7> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<878>>; };  // NOLINT
05562     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
05563     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
05564     template<> struct ConwayPolynomial<883, 1> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<881>>; };  // NOLINT
05565     template<> struct ConwayPolynomial<883, 2> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<879>, ZPZV<2>>; };  // NOLINT
05566     template<> struct ConwayPolynomial<883, 3> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<881>>; };  // NOLINT
05567     template<> struct ConwayPolynomial<883, 4> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<715>, ZPZV<2>>; };  // NOLINT
05568     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
05569     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
05570     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
05571     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
05572     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
05573     template<> struct ConwayPolynomial<887, 1> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<882>>; };  // NOLINT
05574     template<> struct ConwayPolynomial<887, 2> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<885>, ZPZV<5>>; };  // NOLINT
05575     template<> struct ConwayPolynomial<887, 3> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<882>>; };  // NOLINT
05576     template<> struct ConwayPolynomial<887, 4> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<883>, ZPZV<5>>; };  // NOLINT
05577     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
05578     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
05579     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
05580     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
05581     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
05582     template<> struct ConwayPolynomial<907, 1> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<905>>; };  // NOLINT
05583     template<> struct ConwayPolynomial<907, 2> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<903>, ZPZV<2>>; };  // NOLINT
05584     template<> struct ConwayPolynomial<907, 3> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<905>>; };  // NOLINT
05585     template<> struct ConwayPolynomial<907, 4> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<478>, ZPZV<2>>; };  // NOLINT
05586     template<> struct ConwayPolynomial<907, 5> { using ZPZ = aerobus::zpz<907>; using type =
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    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<905>>; };  // NOLINT
05587     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
05588     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
05589     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
05590     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
05591     template<> struct ConwayPolynomial<911, 1> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<894>>; };  // NOLINT
05592     template<> struct ConwayPolynomial<911, 2> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<909>, ZPZV<17>>; };  // NOLINT
05593     template<> struct ConwayPolynomial<911, 3> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<894>>; };  // NOLINT
05594     template<> struct ConwayPolynomial<911, 4> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<887>, ZPZV<17>>; };  // NOLINT
05595     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
05596     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
05597     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
05598     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
05599     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<679>, ZPZV<116>, ZPZV<894>>;
    };  // NOLINT
05600     template<> struct ConwayPolynomial<919, 1> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<912>>; };  // NOLINT
05601     template<> struct ConwayPolynomial<919, 2> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<910>, ZPZV<7>>; };  // NOLINT
05602     template<> struct ConwayPolynomial<919, 3> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<912>>; };  // NOLINT
05603     template<> struct ConwayPolynomial<919, 4> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<602>, ZPZV<7>>; };  // NOLINT
05604     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
05605     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
05606     template<> struct ConwayPolynomial<919, 7> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<912>>; };  // NOLINT
05607     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
05608     template<> struct ConwayPolynomial<919, 9> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<410>, ZPZV<623>, ZPZV<912>>;
    };  // NOLINT
05609     template<> struct ConwayPolynomial<929, 1> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<926>>; };  // NOLINT
05610     template<> struct ConwayPolynomial<929, 2> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<917>, ZPZV<3>>; };  // NOLINT
05611     template<> struct ConwayPolynomial<929, 3> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<926>>; };  // NOLINT
05612     template<> struct ConwayPolynomial<929, 4> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<787>, ZPZV<3>>; };  // NOLINT
05613     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
05614     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
05615     template<> struct ConwayPolynomial<929, 7> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<926>>; };  // NOLINT
05616     template<> struct ConwayPolynomial<929, 8> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<699>, ZPZV<292>, ZPZV<586>, ZPZV<3>>; };  //
    NOLINT
05617     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<481>, ZPZV<199>, ZPZV<926>>;
    };  // NOLINT
05618     template<> struct ConwayPolynomial<937, 1> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<932>>; };  // NOLINT
05619     template<> struct ConwayPolynomial<937, 2> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<934>, ZPZV<5>>; };  // NOLINT
05620     template<> struct ConwayPolynomial<937, 3> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<932>>; };  // NOLINT
05621     template<> struct ConwayPolynomial<937, 4> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<23>, ZPZV<585>, ZPZV<5>>; };  // NOLINT
05622     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
05623     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
05624     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
05625     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>>; };  //
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    NOLINT
05626     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
05627     template<> struct ConwayPolynomial<941, 1> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<939>>; };  // NOLINT
05628     template<> struct ConwayPolynomial<941, 2> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<940>, ZPZV<2>>; };  // NOLINT
05629     template<> struct ConwayPolynomial<941, 3> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<939>>; };  // NOLINT
05630     template<> struct ConwayPolynomial<941, 4> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<505>, ZPZV<2>>; };  // NOLINT
05631     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
05632     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
05633     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
05634     template<> struct ConwayPolynomial<941, 8> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<805>, ZPZV<675>, ZPZV<590>, ZPZV<2>>; };  //
    NOLINT
05635     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
05636     template<> struct ConwayPolynomial<947, 1> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<945>>; };  // NOLINT
05637     template<> struct ConwayPolynomial<947, 2> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<943>, ZPZV<2>>; };  // NOLINT
05638     template<> struct ConwayPolynomial<947, 3> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<945>>; };  // NOLINT
05639     template<> struct ConwayPolynomial<947, 4> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<894>, ZPZV<2>>; };  // NOLINT
05640     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
05641     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
05642     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
05643     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
05644     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
05645     template<> struct ConwayPolynomial<953, 1> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<950>>; };  // NOLINT
05646     template<> struct ConwayPolynomial<953, 2> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<947>, ZPZV<3>>; };  // NOLINT
05647     template<> struct ConwayPolynomial<953, 3> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<950>>; };  // NOLINT
05648     template<> struct ConwayPolynomial<953, 4> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<865>, ZPZV<3>>; };  // NOLINT
05649     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
05650     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
05651     template<> struct ConwayPolynomial<953, 7> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<950>>; };  // NOLINT
05652     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
05653     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
05654     template<> struct ConwayPolynomial<967, 1> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<962>>; };  // NOLINT
05655     template<> struct ConwayPolynomial<967, 2> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<965>, ZPZV<5>>; };  // NOLINT
05656     template<> struct ConwayPolynomial<967, 3> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<962>>; };  // NOLINT
05657     template<> struct ConwayPolynomial<967, 4> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<963>, ZPZV<5>>; };  // NOLINT
05658     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
05659     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
05660     template<> struct ConwayPolynomial<967, 7> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<962>>; };  // NOLINT
05661     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
05662     template<> struct ConwayPolynomial<967, 9> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<512>, ZPZV<783>, ZPZV<962>>;
    };  // NOLINT
05663     template<> struct ConwayPolynomial<971, 1> { using ZPZ = aerobus::zpz<971>; using type =
    POLYV<ZPZV<1>, ZPZV<965>>; };  // NOLINT
05664     template<> struct ConwayPolynomial<971, 2> { using ZPZ = aerobus::zpz<971>; using type =
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      POLYV<ZPZV<1>, ZPZV<970>, ZPZV<6>>; };  // NOLINT
05665     template<> struct ConwayPolynomial<971, 3> { using ZPZ = aerobus::zpz<971>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<965>>; };  // NOLINT
05666     template<> struct ConwayPolynomial<971, 4> { using ZPZ = aerobus::zpz<971>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<527>, ZPZV<6>>; };  // NOLINT
05667     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
05668     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
05669     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
05670     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
05671     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
05672     template<> struct ConwayPolynomial<977, 1> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<974>>; };  // NOLINT
05673     template<> struct ConwayPolynomial<977, 2> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<972>, ZPZV<3>>; };  // NOLINT
05674     template<> struct ConwayPolynomial<977, 3> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<974>>; };  // NOLINT
05675     template<> struct ConwayPolynomial<977, 4> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<800>, ZPZV<3>>; };  // NOLINT
05676     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
05677     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
05678     template<> struct ConwayPolynomial<977, 7> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<974>>; };  // NOLINT
05679     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
05680     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<450>, ZPZV<740>, ZPZV<974>>;
      };  // NOLINT
05681     template<> struct ConwayPolynomial<983, 1> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<978>>; };  // NOLINT
05682     template<> struct ConwayPolynomial<983, 2> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<981>, ZPZV<5>>; };  // NOLINT
05683     template<> struct ConwayPolynomial<983, 3> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<978>>; };  // NOLINT
05684     template<> struct ConwayPolynomial<983, 4> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<567>, ZPZV<5>>; };  // NOLINT
05685     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
05686     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
05687     template<> struct ConwayPolynomial<983, 7> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<978>>; };  // NOLINT
05688     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
05689     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<858>, ZPZV<87>, ZPZV<978>>;
      };  // NOLINT
05690     template<> struct ConwayPolynomial<991, 1> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<985>>; };  // NOLINT
05691     template<> struct ConwayPolynomial<991, 2> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<989>, ZPZV<6>>; };  // NOLINT
05692     template<> struct ConwayPolynomial<991, 3> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<985>>; };  // NOLINT
05693     template<> struct ConwayPolynomial<991, 4> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<794>, ZPZV<6>>; };  // NOLINT
05694     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
05695     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
05696     template<> struct ConwayPolynomial<991, 7> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<985>>; };  // NOLINT
05697     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
05698     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
05699     template<> struct ConwayPolynomial<997, 1> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<990>>; };  // NOLINT
05700     template<> struct ConwayPolynomial<997, 2> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<995>, ZPZV<7>>; };  // NOLINT
05701     template<> struct ConwayPolynomial<997, 3> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<990>>; };  // NOLINT
05702     template<> struct ConwayPolynomial<997, 4> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<622>, ZPZV<7>>; };  // NOLINT
05703     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
```

```
05704     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
05705     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
05706     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
05707     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
05708 #endif  // DO_NOT_DOCUMENT
05709 }  // namespace aerobus
05710 #endif  // AEROBUS_CONWAY_IMPORTS
05711
05712 #endif // __INC_AEROBUS__ // NOLINT
```

Chapter 10

Examples

10.1 QuotientRing

inject a 'constant' in quotient ring

inject a 'constant' in quotient ring<i32, i32::val<2>>::inject_constant_t<1>

Template Parameters

x	a 'constant' from Ring point of view

10.2 type_list

A list of types <int, double, float>

A list of types <int, double, float>

Template Parameters

...Ts	types to store and manipulate at compile time

10.3 i32::template

inject a native constant

inject a native constant

Template Parameters

x	inject_constant_2<2> -> i32::template val<2>

10.4 i32::add_t

addition operator yields v1 + v2 <i32::val<2>, i32::val<3>>

addition operator yields v1 + v2 <i32::val<2>, i32::val<3>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.5 i32::sub_t

substraction operator yields v1 - v2 <i32::val<3>, i32::val<2>>

substraction operator yields v1 - v2 <i32::val<3>, i32::val<2>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.6 i32::mul_t

multiplication operator yields v1 ∗ v2 <i32::val<3>, i32::val<2>>

multiplication operator yields v1 ∗ v2 <i32::val<3>, i32::val<2>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.7 i32::div_t

division operator yields v1 / v2 <i32::val<7>, i32::val<2>> -> i32::val<3>

division operator yields v1 / v2 <i32::val<7>, i32::val<2>> -> i32::val<3>

Template Parameters

v1	a value in i32
v2	a value in i32

10.8 i32::gt_t

strictly greater operator (v1 > v2) yields v1 > v2 <i32::val<7>, i32::val<2>>

strictly greater operator (v1 > v2) yields v1 > v2 <i32::val<7>, i32::val<2>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.9 i32::eq_t

equality operator (type) yields v1 == v2 as std::integral_constant<bool> <i32::val<2>, i32::val<2>>

equality operator (type) yields v1 == v2 as std::integral_constant<bool> <i32::val<2>, i32::val<2>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.10 i32::eq_v

equality operator (boolean value)

equality operator (boolean value)

Template Parameters

v1	
v2	<i32::val<1>, i32::val<1>>

10.11 i32::gcd_t

greatest common divisor yields GCD(v1, v2) <i32::val<6>, i32::val<15>>

greatest common divisor yields GCD(v1, v2) <i32::val<6>, i32::val<15>>

Template Parameters

v1	a value in i32
v2	a value in i32

10.12 i32::pos_t

positivity operator yields v > 0 as std::true_type or std::false_type <i32::val<1

positivity operator yields v > 0 as std::true_type or std::false_type <i32::val<1

Template Parameters

v	a value in i32

10.13 i32::pos_v

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

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

Template Parameters

v	a value in i32 <i32::val<1>>

10.14 i64::template

injects constant as an i64 value

injects constant as an i64 value

Template Parameters

x	inject_constant_t<2>

10.15 i64::add_t

addition operator

addition operator

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<1>, i64::val<2>>

10.16 i64::sub_t

substraction operator

substraction operator

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<1>, i64::val<2>>

10.17 i64::mul_t

multiplication operator

multiplication operator

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<1>, i64::val<2>>

10.18 i64::div_t

division operator integer division

division operator integer division

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<1>, i64::val<2>>

10.19 i64::mod_t

modulus operator

modulus operator

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<6>, i64::val<15>>

10.20 i64::gt_t

strictly greater operator yields v1 > v2 as std::true_type or std::false_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 <i64::val<2>, i64::val<1>>

10.21 i64::lt_t

strict less operator yields v1 < v2 as std::true_type or std::false_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 <i64::val<1>, i64::val<2>>

10.22 i64::lt_v

strictly smaller operator yields v1 < v2 as boolean value

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 <i64::val<1>, i64::val<2>>

10.23 i64::eq_t

equality operator yields v1 == v2 as std::true_type or std::false_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 <i64::val<2>, i64::val<2>>

10.24 i64::eq_v

equality operator yields v1 == v2 as boolean value

equality operator yields v1 == v2 as boolean value

Template Parameters

v1	: an element of aerobus::i64::val
v2	: an element of aerobus::i64::val <i64::val<2>, i64::val<2>>

10.25 i64::gcd_t

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

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 <i64::val<6>, i64::val<15>>

10.26 i64::pos_t

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

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

Template Parameters

v1	: an element of aerobus::i64::val <i64::val<1>>

10.27 i64::pos_v

positivity yields v > 0 as boolean value

positivity yields v > 0 as boolean value

Template Parameters

v	: an element of aerobus::i64::val <i64::val<1>>

10.28 polynomial

makes the constant (native type) polynomial a_0

makes the constant (native type) polynomial a_0

Template Parameters

x	<i32>::template inject_constant_t<2>

10.29 q32::add_t

addition operator

addition operator

Template Parameters

v1	a value
v2	a value <q32::val<i32::val<1>, i32::val<2>>, q32::val<i32::val<1>, i32::val<3>>>

10.30 FractionField

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

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

Template Parameters

Ring	<i64> is q64 (rationals with 64 bits numerator and denominator)

10.31 PI_fraction::val

representation of π as a continued fraction -> 3.14...

10.32 E_fraction::val

approximation of e -> 2.718...

approximation of e -> 2.718...

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