Aerobus

v1.2

Generated by Doxygen 1.9.8

1 Introduction 1
1.1 HOW TO . . . 1
1.1.1 Unit Test . . . 2
1.1.2 Benchmarks . . . 2
1.2 Structures . . . 3
1.2.1 Predefined discrete euclidean domains . . . 3
1.2.2 Polynomials . . . 3
1.2.3 Known polynomials . . . 4
1.2.4 Conway polynomials . . . 4
1.2.5 Taylor series . . . 4
1.3 Operations . . . 6
1.3.1 Field of fractions . . . 6
1.3.2 Quotient . . . 6
1.4 Misc . . . 7
1.4.1 Continued Fractions . . . 7

2 Namespace Index 9
2.1 Namespace List . . . 9

3 Concept Index 11
3.1 Concepts . . . 11

4 Class Index 13
4.1 Class List . . . 13

5 File Index 15
5.1 File List . . . 15

6 Namespace Documentation 17
6.1 aerobus Namespace Reference . . . 17
6.1.1 Detailed Description . . . 21
6.1.2 Typedef Documentation . . . 21
6.1.2.1 abs_t . . . 21
6.1.2.2 add_t . . . 22
6.1.2.3 addfractions_t . . . 22
6.1.2.4 alternate_t . . . 22
6.1.2.5 asin . . . 22
6.1.2.6 asinh . . . 24
6.1.2.7 atan . . . 24
6.1.2.8 atanh . . . 24
6.1.2.9 bell_t . . . 24
6.1.2.10 bernoulli_t . . . 25
6.1.2.11 combination_t . . . 25
6.1.2.12 cos . . . 25

6.1.2.13 cosh . . . 25
6.1.2.14 div_t . . . 26
6.1.2.15 E_fraction . . . 26
6.1.2.16 embed_int_poly_in_fractions_t . . . 26
6.1.2.17 exp . . . 26
6.1.2.18 expm1 . . . 27
6.1.2.19 factorial_t . . . 27
6.1.2.20 fpq32 . . . 27
6.1.2.21 fpq64 . . . 27
6.1.2.22 FractionField . . . 27
6.1.2.23 gcd_t . . . 28
6.1.2.24 geometric_sum . . . 28
6.1.2.25 lnp1 . . . 28
6.1.2.26 make_frac_polynomial_t . . . 28
6.1.2.27 make_int_polynomial_t . . . 29
6.1.2.28 make_q32_t . . . 29
6.1.2.29 make_q64_t . . . 29
6.1.2.30 makefraction_t . . . 29
6.1.2.31 mul_t . . . 30
6.1.2.32 mulfractions_t . . . 30
6.1.2.33 pi64 . . . 30
6.1.2.34 PI_fraction . . . 30
6.1.2.35 pow_t . . . 30
6.1.2.36 pq64 . . . 31
6.1.2.37 q32 . . . 31
6.1.2.38 q64 . . . 31
6.1.2.39 sin . . . 31
6.1.2.40 sinh . . . 31
6.1.2.41 SQRT2_fraction . . . 32
6.1.2.42 SQRT3_fraction . . . 32
6.1.2.43 stirling_signed_t . . . 32
6.1.2.44 stirling_unsigned_t . . . 32
6.1.2.45 sub_t . . . 33
6.1.2.46 tan . . . 33
6.1.2.47 tanh . . . 33
6.1.2.48 taylor . . . 33
6.1.2.49 vadd_t . . . 34
6.1.2.50 vmul_t . . . 34
6.1.3 Function Documentation . . . 34
6.1.3.1 aligned_malloc() . . . 34
6.1.3.2 field() . . . 34
6.1.4 Variable Documentation . . . 35

6.1.4.1 alternate_v . . . 35
6.1.4.2 bernoulli_v . . . 35
6.1.4.3 combination_v . . . 35
6.1.4.4 factorial_v . . . 36
6.2 aerobus::internal Namespace Reference . . . 36
6.2.1 Detailed Description . . . 39
6.2.2 Typedef Documentation . . . 39
6.2.2.1 make_index_sequence_reverse . . . 39
6.2.2.2 type_at_t . . . 39
6.2.3 Function Documentation . . . 39
6.2.3.1 index_sequence_reverse() . . . 39
6.2.4 Variable Documentation . . . 40
6.2.4.1 is_instantiation_of_v . . . 40
6.3 aerobus::known_polynomials Namespace Reference . . . 40
6.3.1 Detailed Description . . . 40
6.3.2 Typedef Documentation . . . 41
6.3.2.1 bernoulli . . . 41
6.3.2.2 bernstein . . . 41
6.3.2.3 chebyshev_T . . . 41
6.3.2.4 chebyshev_U . . . 42
6.3.2.5 hermite_phys . . . 42
6.3.2.6 hermite_prob . . . 42
6.3.2.7 laguerre . . . 43
6.3.2.8 legendre . . . 43
6.3.3 Enumeration Type Documentation . . . 44
6.3.3.1 hermite_kind . . . 44

7 Concept Documentation **45**

7.1 aerobus::IsEuclideanDomain Concept Reference . . . 45
7.1.1 Concept definition . . . 45
7.1.2 Detailed Description . . . 45
7.2 aerobus::IsField Concept Reference . . . 45
7.2.1 Concept definition . . . 45
7.2.2 Detailed Description . . . 46
7.3 aerobus::IsRing Concept Reference . . . 46
7.3.1 Concept definition . . . 46
7.3.2 Detailed Description . . . 46

8 Class Documentation **47**

8.1 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, E > Struct Template Reference . . . 47
8.2 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index< 0||index > 0)> > Struct Template Reference . . . 47
8.2.1 Member Typedef Documentation . . . 47

8.2.1.1 type . . . 47
8.3 aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)> > Struct Template Reference . . . 48
8.3.1 Member Typedef Documentation . . . 48
8.3.1.1 type . . . 48
8.4 aerobus::ContinuedFraction< values > Struct Template Reference . . . 48
8.4.1 Detailed Description . . . 48
8.5 aerobus::ContinuedFraction< a0 > Struct Template Reference . . . 49
8.5.1 Detailed Description . . . 49
8.5.2 Member Typedef Documentation . . . 49
8.5.2.1 type . . . 49
8.5.3 Member Data Documentation . . . 49
8.5.3.1 val . . . 49
8.6 aerobus::ContinuedFraction< a0, rest... > Struct Template Reference . . . 50
8.6.1 Detailed Description . . . 50
8.6.2 Member Typedef Documentation . . . 50
8.6.2.1 type . . . 50
8.6.3 Member Data Documentation . . . 51
8.6.3.1 val . . . 51
8.7 aerobus::ConwayPolynomial Struct Reference . . . 51
8.8 aerobus::Embed< Small, Large, E > Struct Template Reference . . . 51
8.8.1 Detailed Description . . . 51
8.9 aerobus::Embed< i32, i64 > Struct Reference . . . 52
8.9.1 Detailed Description . . . 52
8.9.2 Member Typedef Documentation . . . 52
8.9.2.1 type . . . 52
8.10 aerobus::Embed< polynomial< Small >, polynomial< Large > > Struct Template Reference . . . 52
8.10.1 Detailed Description . . . 53
8.10.2 Member Typedef Documentation . . . 53
8.10.2.1 type . . . 53
8.11 aerobus::Embed< q32, q64 > Struct Reference . . . 53
8.11.1 Detailed Description . . . 53
8.11.2 Member Typedef Documentation . . . 54
8.11.2.1 type . . . 54
8.12 aerobus::Embed< Quotient< Ring, X >, Ring > Struct Template Reference . . . 54
8.12.1 Detailed Description . . . 54
8.12.2 Member Typedef Documentation . . . 55
8.12.2.1 type . . . 55
8.13 aerobus::Embed< Ring, FractionField< Ring > > Struct Template Reference . . . 55
8.13.1 Detailed Description . . . 55
8.13.2 Member Typedef Documentation . . . 56
8.13.2.1 type . . . 56

8.14 aerobus::Embed< zpz< x >, i32 > Struct Template Reference . . . 56
8.14.1 Detailed Description . . . 56
8.14.2 Member Typedef Documentation . . . 57
8.14.2.1 type . . . 57
8.15 aerobus::i32 Struct Reference . . . 57
8.15.1 Detailed Description . . . 58
8.15.2 Member Typedef Documentation . . . 58
8.15.2.1 add_t . . . 58
8.15.2.2 div_t . . . 58
8.15.2.3 eq_t . . . 58
8.15.2.4 gcd_t . . . 59
8.15.2.5 gt_t . . . 59
8.15.2.6 inject_constant_t . . . 59
8.15.2.7 inject_ring_t . . . 59
8.15.2.8 inner_type . . . 59
8.15.2.9 lt_t . . . 59
8.15.2.10 mod_t . . . 59
8.15.2.11 mul_t . . . 59
8.15.2.12 one . . . 60
8.15.2.13 pos_t . . . 60
8.15.2.14 sub_t . . . 60
8.15.2.15 zero . . . 60
8.15.3 Member Data Documentation . . . 60
8.15.3.1 eq_v . . . 60
8.15.3.2 is_euclidean_domain . . . 60
8.15.3.3 is_field . . . 60
8.15.3.4 pos_v . . . 61
8.16 aerobus::i64 Struct Reference . . . 61
8.16.1 Detailed Description . . . 62
8.16.2 Member Typedef Documentation . . . 62
8.16.2.1 add_t . . . 62
8.16.2.2 div_t . . . 62
8.16.2.3 eq_t . . . 62
8.16.2.4 gcd_t . . . 62
8.16.2.5 gt_t . . . 62
8.16.2.6 inject_constant_t . . . 63
8.16.2.7 inject_ring_t . . . 63
8.16.2.8 inner_type . . . 63
8.16.2.9 lt_t . . . 63
8.16.2.10 mod_t . . . 63
8.16.2.11 mul_t . . . 63
8.16.2.12 one . . . 63

8.16.2.13 pos_t . . . 64
8.16.2.14 sub_t . . . 64
8.16.2.15 zero . . . 64
8.16.3 Member Data Documentation . . . 64
8.16.3.1 eq_v . . . 64
8.16.3.2 gt_v . . . 64
8.16.3.3 is_euclidean_domain . . . 64
8.16.3.4 is_field . . . 64
8.16.3.5 lt_v . . . 65
8.16.3.6 pos_v . . . 65
8.17 aerobus::is_prime< n > Struct Template Reference . . . 65
8.17.1 Detailed Description . . . 65
8.17.2 Member Data Documentation . . . 65
8.17.2.1 value . . . 65
8.18 aerobus::polynomial< Ring > Struct Template Reference . . . 66
8.18.1 Detailed Description . . . 67
8.18.2 Member Typedef Documentation . . . 67
8.18.2.1 add_t . . . 67
8.18.2.2 derive_t . . . 68
8.18.2.3 div_t . . . 68
8.18.2.4 eq_t . . . 68
8.18.2.5 gcd_t . . . 68
8.18.2.6 gt_t . . . 69
8.18.2.7 inject_constant_t . . . 69
8.18.2.8 inject_ring_t . . . 69
8.18.2.9 lt_t . . . 69
8.18.2.10 mod_t . . . 70
8.18.2.11 monomial_t . . . 70
8.18.2.12 mul_t . . . 70
8.18.2.13 one . . . 70
8.18.2.14 pos_t . . . 71
8.18.2.15 simplify_t . . . 71
8.18.2.16 sub_t . . . 71
8.18.2.17 X . . . 71
8.18.2.18 zero . . . 71
8.18.3 Member Data Documentation . . . 72
8.18.3.1 is_euclidean_domain . . . 72
8.18.3.2 is_field . . . 72
8.18.3.3 pos_v . . . 72
8.19 aerobus::type_list< Ts >::pop_front Struct Reference . . . 72
8.19.1 Detailed Description . . . 72
8.19.2 Member Typedef Documentation . . . 73

8.19.2.1 tail . . . 73
8.19.2.2 type . . . 73
8.20 aerobus::Quotient< Ring, X > Struct Template Reference . . . 73
8.20.1 Detailed Description . . . 74
8.20.2 Member Typedef Documentation . . . 74
8.20.2.1 add_t . . . 74
8.20.2.2 div_t . . . 75
8.20.2.3 eq_t . . . 75
8.20.2.4 inject_constant_t . . . 75
8.20.2.5 inject_ring_t . . . 75
8.20.2.6 mod_t . . . 76
8.20.2.7 mul_t . . . 76
8.20.2.8 one . . . 76
8.20.2.9 pos_t . . . 76
8.20.2.10 zero . . . 77
8.20.3 Member Data Documentation . . . 77
8.20.3.1 eq_v . . . 77
8.20.3.2 is_euclidean_domain . . . 77
8.20.3.3 pos_v . . . 77
8.21 aerobus::type_list< Ts >::split< index > Struct Template Reference . . . 78
8.21.1 Detailed Description . . . 78
8.21.2 Member Typedef Documentation . . . 78
8.21.2.1 head . . . 78
8.21.2.2 tail . . . 78
8.22 aerobus::type_list< Ts > Struct Template Reference . . . 78
8.22.1 Detailed Description . . . 79
8.22.2 Member Typedef Documentation . . . 79
8.22.2.1 at . . . 79
8.22.2.2 concat . . . 80
8.22.2.3 insert . . . 80
8.22.2.4 push_back . . . 80
8.22.2.5 push_front . . . 80
8.22.2.6 remove . . . 81
8.22.3 Member Data Documentation . . . 81
8.22.3.1 length . . . 81
8.23 aerobus::type_list<> Struct Reference . . . 81
8.23.1 Detailed Description . . . 82
8.23.2 Member Typedef Documentation . . . 82
8.23.2.1 concat . . . 82
8.23.2.2 insert . . . 82
8.23.2.3 push_back . . . 82
8.23.2.4 push_front . . . 82

8.23.3 Member Data Documentation . . . 82
8.23.3.1 length . . . 82
8.24 aerobus::i32::val< x > Struct Template Reference . . . 82
8.24.1 Detailed Description . . . 83
8.24.2 Member Typedef Documentation . . . 83
8.24.2.1 enclosing_type . . . 83
8.24.2.2 is_zero_t . . . 83
8.24.3 Member Function Documentation . . . 84
8.24.3.1 eval() . . . 84
8.24.3.2 get() . . . 84
8.24.3.3 to_string() . . . 84
8.24.4 Member Data Documentation . . . 84
8.24.4.1 v . . . 84
8.25 aerobus::i64::val< x > Struct Template Reference . . . 85
8.25.1 Detailed Description . . . 85
8.25.2 Member Typedef Documentation . . . 86
8.25.2.1 enclosing_type . . . 86
8.25.2.2 inner_type . . . 86
8.25.2.3 is_zero_t . . . 86
8.25.3 Member Function Documentation . . . 86
8.25.3.1 eval() . . . 86
8.25.3.2 get() . . . 86
8.25.3.3 to_string() . . . 87
8.25.4 Member Data Documentation . . . 87
8.25.4.1 v . . . 87
8.26 aerobus::polynomial< Ring >::val< coeffN, coeffs > Struct Template Reference . . . 87
8.26.1 Detailed Description . . . 88
8.26.2 Member Typedef Documentation . . . 88
8.26.2.1 aN . . . 88
8.26.2.2 coeff_at_t . . . 88
8.26.2.3 enclosing_type . . . 89
8.26.2.4 is_zero_t . . . 89
8.26.2.5 ring_type . . . 89
8.26.2.6 strip . . . 89
8.26.3 Member Function Documentation . . . 89
8.26.3.1 eval() . . . 89
8.26.3.2 to_string() . . . 90
8.26.4 Member Data Documentation . . . 90
8.26.4.1 degree . . . 90
8.26.4.2 is_zero_v . . . 90
8.27 aerobus::Quotient< Ring, X >::val< V > Struct Template Reference . . . 91
8.27.1 Detailed Description . . . 91

8.27.2 Member Typedef Documentation . . . 91
8.27.2.1 raw_t . . . 91
8.27.2.2 type . . . 91
8.28 aerobus::zpz< p >::val< x > Struct Template Reference . . . 91
8.28.1 Detailed Description . . . 92
8.28.2 Member Typedef Documentation . . . 92
8.28.2.1 enclosing_type . . . 92
8.28.2.2 is_zero_t . . . 93
8.28.3 Member Function Documentation . . . 93
8.28.3.1 eval() . . . 93
8.28.3.2 get() . . . 93
8.28.3.3 to_string() . . . 93
8.28.4 Member Data Documentation . . . 93
8.28.4.1 is_zero_v . . . 93
8.28.4.2 v . . . 94
8.29 aerobus::polynomial< Ring >::val< coeffN > Struct Template Reference . . . 94
8.29.1 Detailed Description . . . 94
8.29.2 Member Typedef Documentation . . . 95
8.29.2.1 aN . . . 95
8.29.2.2 coeff_at_t . . . 95
8.29.2.3 enclosing_type . . . 95
8.29.2.4 is_zero_t . . . 95
8.29.2.5 ring_type . . . 95
8.29.2.6 strip . . . 95
8.29.3 Member Function Documentation . . . 96
8.29.3.1 eval() . . . 96
8.29.3.2 to_string() . . . 96
8.29.4 Member Data Documentation . . . 96
8.29.4.1 degree . . . 96
8.29.4.2 is_zero_v . . . 96
8.30 aerobus::zpz< p > Struct Template Reference . . . 96
8.30.1 Detailed Description . . . 98
8.30.2 Member Typedef Documentation . . . 98
8.30.2.1 add_t . . . 98
8.30.2.2 div_t . . . 98
8.30.2.3 eq_t . . . 99
8.30.2.4 gcd_t . . . 99
8.30.2.5 gt_t . . . 99
8.30.2.6 inject_constant_t . . . 100
8.30.2.7 inner_type . . . 100
8.30.2.8 lt_t . . . 100
8.30.2.9 mod_t . . . 100

8.30.2.10 mul_t . . . 101
8.30.2.11 one . . . 101
8.30.2.12 pos_t . . . 101
8.30.2.13 sub_t . . . 101
8.30.2.14 zero . . . 102
8.30.3 Member Data Documentation . . . 102
8.30.3.1 eq_v . . . 102
8.30.3.2 gt_v . . . 102
8.30.3.3 is_euclidean_domain . . . 102
8.30.3.4 is_field . . . 102
8.30.3.5 lt_v . . . 103
8.30.3.6 pos_v . . . 103

9 File Documentation **105**
9.1 README.md File Reference . . . 105
9.2 src/aerobus.h File Reference . . . 105
9.3 aerobus.h . . . 105

10 Examples **193**
10.1 QuotientRing . . . 193
10.2 type_list . . . 193
10.3 i32::template . . . 193
10.4 i32::add_t . . . 194
10.5 i32::sub_t . . . 194
10.6 i32::mul_t . . . 194
10.7 i32::div_t . . . 194
10.8 i32::gt_t . . . 195
10.9 i32::eq_t . . . 195
10.10 i32::eq_v . . . 195
10.11 i32::gcd_t . . . 195
10.12 i32::pos_t . . . 196
10.13 i32::pos_v . . . 196
10.14 i64::template . . . 196
10.15 i64::add_t . . . 196
10.16 i64::sub_t . . . 197
10.17 i64::mul_t . . . 197
10.18 i64::div_t . . . 197
10.19 i64::mod_t . . . 197
10.20 i64::gt_t . . . 198
10.21 i64::lt_t . . . 198
10.22 i64::lt_v . . . 198
10.23 i64::eq_t . . . 198
10.24 i64::eq_v . . . 199

10.25 i64::gcd_t 199
10.26 i64::pos_t 199
10.27 i64::pos_v 199
10.28 polynomial 200
10.29 q32::add_t 200
10.30 FractionField 200
10.31 PI_fraction::val 200
10.32 E_fraction::val 200

Index **201**

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 the 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
```

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

aerobus
Main namespace for all publicly exposed types or functions 17
aerobus::internal
Internal implementations, subject to breaking changes without notice 36
aerobus::known_polynomials
Families of well known polynomials such as Hermite or Bernstein 40

Chapter 3

Concept Index

3.1 Concepts

Here is a list of all concepts with brief descriptions:

aerobus::IsEuclideanDomain
Concept to express R is an euclidean domain 45
aerobus::IsField
Concept to express R is a field 45
aerobus::IsRing
Concept to express R is a Ring 46

Chapter 4

Class Index

4.1 Class List

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

aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, E > 47
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index< 0||index > 0)> > 47
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)> > 48
aerobus::ContinuedFraction< values >
Continued fraction a0 + $\frac{1}{a_1+\frac{1}{a_2+\dots}}$ 48
aerobus::ContinuedFraction< a0 >
Specialization for only one coefficient, technically just 'a0' 49
aerobus::ContinuedFraction< a0, rest... >
Specialization for multiple coefficients (strictly more than one) 50
aerobus::ConwayPolynomial 51
aerobus::Embed< Small, Large, E >
Embedding - struct forward declaration 51
aerobus::Embed< i32, i64 >
Embeds i32 into i64 52
aerobus::Embed< polynomial< Small >, polynomial< Large > >
Embeds polynomial<Small> into polynomial<Large> 52
aerobus::Embed< q32, q64 >
Embeds q32 into q64 53
aerobus::Embed< Quotient< Ring, X >, Ring >
Embeds Quotient<Ring, X> into Ring 54
aerobus::Embed< Ring, FractionField< Ring > >
Embeds values from Ring to its field of fractions 55
aerobus::Embed< zpz< x >, i32 >
Embeds zpz values into i32 56
aerobus::i32
32 bits signed integers, seen as a algebraic ring with related operations 57
aerobus::i64
64 bits signed integers, seen as a algebraic ring with related operations 61
aerobus::is_prime< n >
Checks if n is prime 65
aerobus::polynomial< Ring > 66
aerobus::type_list< Ts >::pop_front
Removes types from head of the list 72

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 . . . 73
aerobus::type_list< Ts >::split< index >
Splits list at index . . . 78
aerobus::type_list< Ts >
Empty pure template struct to handle type list . . . 78
aerobus::type_list<>
Specialization for empty type list . . . 81
aerobus::i32::val< x >
Values in i32, again represented as types . . . 82
aerobus::i64::val< x >
Values in i64 . . . 85
aerobus::polynomial< Ring >::val< coeffN, coeffs >
Values (seen as types) in polynomial ring . . . 87
aerobus::Quotient< Ring, X >::val< V >
Projection values in the quotient ring . . . 91
aerobus::zpz< p >::val< x >
Values in zpz . . . 91
aerobus::polynomial< Ring >::val< coeffN >
Specialization for constants . . . 94
aerobus::zpz< p >
Congruence classes of integers modulo p (32 bits) . . . 96

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

src/aerobus.h 105

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 ring providing div_t operator
Y	a value in same ring

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 **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, I** >
- struct **hermite_helper**< **deg, known_polynomials::hermite_kind::probabilist, I** >
- struct **insert_h**
- struct **is_instantiation_of**
- struct **is_instantiation_of**< **TT, TT**< **Ts...** > >
- struct **laguerre_helper**
- struct **laguerre_helper**< **0, I** >
- struct **laguerre_helper**< **1, I** >
- struct **legendre_helper**
- struct **legendre_helper**< **0, I** >
- struct **legendre_helper**< **1, I** >
- struct **lnp1_coeff**
- struct **lnp1_coeff**< **T, 0** >
- struct **make_taylor_impl**
- struct **make_taylor_impl**< **T, coeff_at, std::integer_sequence**< **size_t, Is...** > >
- struct **pop_front_h**
- struct **pow**
- struct **pow**< **T, p, n, std::enable_if_t**< **n==0** > >
- struct **pow**< **T, p, n, std::enable_if_t**<**(n % 2==1)**> >
- struct **pow**< **T, p, n, std::enable_if_t**<**(n > 0 &&n % 2==0)**> >
- struct **pow_scalar**
- struct **remove_h**
- struct **sh_coeff**
- struct **sh_coeff_helper**
- struct **sh_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==0** > >
- struct **sh_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==1** > >
- struct **sin_coeff**
- struct **sin_coeff_helper**
- struct **sin_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==0** > >
- struct **sin_coeff_helper**< **T, i, std::enable_if_t**<**(i &1)==1** > >
- struct **split_h**
- struct **split_h**< **0, L1, L2** >
- struct **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

- template<typename valueType >
  static constexpr INLINED DEVICE valueType get ()
  cast x into valueType
- static std::string to_string ()
  string representation of value
- template<typename valueRing >
  static constexpr DEVICE INLINED valueRing eval (const valueRing &v)
  cast x into valueRing

Static Public Attributes

- static constexpr int32_t v = x
  actual value stored in val type

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 eval()

```
template<int32_t x>
template<typename valueRing >
static constexpr DEVICE INLINED valueRing aerobus::i32::val< x >::eval (
            const valueRing & v )  [inline], [static], [constexpr]
```

cast x into valueRing

Template Parameters

valueRing	double for example

8.24.3.2 get()

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

cast x into valueType

Template Parameters

valueType	double for example

8.24.3.3 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 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

- template<typename valueType >
  static constexpr DEVICE INLINED valueType get ()
  cast value in valueType
- static std::string to_string ()
  string representation
- template<typename valueRing >
  static constexpr DEVICE INLINED valueRing eval (const valueRing &v)
  cast value in valueRing

Static Public Attributes

- static constexpr int64_t v = x
  actual value

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 eval()

```
template<int64_t x>
template<typename valueRing >
static constexpr DEVICE INLINED valueRing aerobus::i64::val< x >::eval (
            const valueRing & v )  [inline], [static], [constexpr]
```

cast value in valueRing

Template Parameters

valueRing	(double for example)

8.25.3.2 get()

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

cast value in valueType

Template Parameters

valueType	(double for example)

8.25.3.3 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 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

- template<typename valueType >
  static constexpr DEVICE INLINED valueType get ()
  get value as valueType
- static std::string to_string ()
  string representation
- template<typename valueRing >
  static constexpr DEVICE INLINED valueRing eval (const valueRing &v)

Static Public Attributes

- static constexpr int32_t v = x % p
  actual value
- 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 eval()

```
template<int32_t p>
template<int32_t x>
template<typename valueRing >
static constexpr DEVICE INLINED valueRing aerobus::zpz< p >::val< x >::eval (
            const valueRing & v )  [inline], [static], [constexpr]
```

8.28.3.2 get()

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

get value as valueType

Template Parameters

valueType	an arithmetic type, such as float

8.28.3.3 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 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

8.28.4.2 v

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

actual value

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

- src/aerobus.h

8.29 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 ()
- template<typename valueRing >
  static constexpr DEVICE INLINED valueRing eval (const valueRing &x)

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 eval()

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

8.29.3.2 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
00019 #ifdef _MSC_VER
00020 #define ALIGNED(x) __declspec(align(x))
00021 #define INLINED __forceinline
00022 #else
00023 #define ALIGNED(x) __attribute__((aligned(x)))
00024 #define INLINED __attribute__((always_inline)) inline
00025 #endif
00026
00027 #ifdef __CUDACC__
00028 #define DEVICE __host__ __device__
```

```
00029 #else
00030 #define DEVICE
00031 #endif
00032
00034
00036
00038
00039 // aligned allocation
00040 namespace aerobus {
00047     template<typename T>
00048     T* aligned_malloc(size_t count, size_t alignment) {
00049         #ifdef _MSC_VER
00050         return static_cast<T*>(_aligned_malloc(count * sizeof(T), alignment));
00051         #else
00052         return static_cast<T*>(aligned_alloc(alignment, count * sizeof(T)));
00053         #endif
00054     }
00055 }  // namespace aerobus
00056
00057 // concepts
00058 namespace aerobus {
00060     template <typename R>
00061     concept IsRing = requires {
00062         typename R::one;
00063         typename R::zero;
00064         typename R::template add_t<typename R::one, typename R::one>;
00065         typename R::template sub_t<typename R::one, typename R::one>;
00066         typename R::template mul_t<typename R::one, typename R::one>;
00067     };
00068
00070     template <typename R>
00071     concept IsEuclideanDomain = IsRing<R> && requires {
00072         typename R::template div_t<typename R::one, typename R::one>;
00073         typename R::template mod_t<typename R::one, typename R::one>;
00074         typename R::template gcd_t<typename R::one, typename R::one>;
00075         typename R::template eq_t<typename R::one, typename R::one>;
00076         typename R::template pos_t<typename R::one>;
00077
00078         R::template pos_v<typename R::one> == true;
00079         // typename R::template gt_t<typename R::one, typename R::zero>;
00080         R::is_euclidean_domain == true;
00081     };
00082
00084     template<typename R>
00085     concept IsField = IsEuclideanDomain<R> && requires {
00086         R::is_field == true;
00087     };
00088 }  // namespace aerobus
00089
00090 // utilities
00091 namespace aerobus {
00092     namespace internal {
00093         template<template<typename...> typename TT, typename T>
00094         struct is_instantiation_of : std::false_type { };
00095
00096         template<template<typename...> typename TT, typename... Ts>
00097         struct is_instantiation_of<TT, TT<Ts...>> : std::true_type { };
00098
00099         template<template<typename...> typename TT, typename T>
00100         inline constexpr bool is_instantiation_of_v = is_instantiation_of<TT, T>::value;
00101
00102         template <int64_t i, typename T, typename... Ts>
00103         struct type_at {
00104             static_assert(i < sizeof...(Ts) + 1, "index out of range");
00105             using type = typename type_at<i - 1, Ts...>::type;
00106         };
00107
00108         template <typename T, typename... Ts> struct type_at<0, T, Ts...> {
00109             using type = T;
00110         };
00111
00112         template <size_t i, typename... Ts>
00113         using type_at_t = typename type_at<i, Ts...>::type;
00114
00115
00116         template<size_t n, size_t i, typename E = void>
00117         struct _is_prime {};
00118
00119         template<size_t i>
00120         struct _is_prime<0, i> {
00121             static constexpr bool value = false;
00122         };
00123
00124         template<size_t i>
00125         struct _is_prime<1, i> {
00126             static constexpr bool value = false;
00127         };
```

```
00128
00129         template<size_t i>
00130         struct _is_prime<2, i> {
00131             static constexpr bool value = true;
00132         };
00133
00134         template<size_t i>
00135         struct _is_prime<3, i> {
00136             static constexpr bool value = true;
00137         };
00138
00139         template<size_t i>
00140         struct _is_prime<5, i> {
00141             static constexpr bool value = true;
00142         };
00143
00144         template<size_t i>
00145         struct _is_prime<7, i> {
00146             static constexpr bool value = true;
00147         };
00148
00149         template<size_t n, size_t i>
00150         struct _is_prime<n, i, std::enable_if_t<(n != 2 && n % 2 == 0)>> {
00151             static constexpr bool value = false;
00152         };
00153
00154         template<size_t n, size_t i>
00155         struct _is_prime<n, i, std::enable_if_t<(n != 2 && n != 3 && n % 2 != 0 && n % 3 == 0)>> {
00156             static constexpr bool value = false;
00157         };
00158
00159         template<size_t n, size_t i>
00160         struct _is_prime<n, i, std::enable_if_t<(n >= 9 && i * i > n)>> {
00161             static constexpr bool value = true;
00162         };
00163
00164         template<size_t n, size_t i>
00165         struct _is_prime<n, i, std::enable_if_t<(
00166             n % i == 0 &&
00167             n >= 9 &&
00168             n % 3 != 0 &&
00169             n % 2 != 0 &&
00170             i * i > n)>> {
00171             static constexpr bool value = true;
00172         };
00173
00174         template<size_t n, size_t i>
00175         struct _is_prime<n, i, std::enable_if_t<(
00176             n % (i+2) == 0 &&
00177             n >= 9 &&
00178             n % 3 != 0 &&
00179             n % 2 != 0 &&
00180             i * i <= n)>> {
00181             static constexpr bool value = true;
00182         };
00183
00184         template<size_t n, size_t i>
00185         struct _is_prime<n, i, std::enable_if_t<(
00186                 n % (i+2) != 0 &&
00187                 n % i != 0 &&
00188                 n >= 9 &&
00189                 n % 3 != 0 &&
00190                 n % 2 != 0 &&
00191                 (i * i <= n))>> {
00192             static constexpr bool value = _is_prime<n, i+6>::value;
00193         };
00194
00195     }  // namespace internal
00196
00199     template<size_t n>
00200     struct is_prime {
00202         static constexpr bool value = internal::_is_prime<n, 5>::value;
00203     };
00204
00208     template<size_t n>
00209     static constexpr bool is_prime_v = is_prime<n>::value;
00210
00211     // gcd
00212     namespace internal {
00213         template <std::size_t... Is>
00214         constexpr auto index_sequence_reverse(std::index_sequence<Is...> const&)
00215             -> decltype(std::index_sequence<sizeof...(Is) - 1U - Is...>{});
00216
00217         template <std::size_t N>
00218         using make_index_sequence_reverse
00219             = decltype(index_sequence_reverse(std::make_index_sequence<N>{}));
00220
```

```
00226         template<typename Ring, typename E = void>
00227         struct gcd;
00228
00229         template<typename Ring>
00230         struct gcd<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
00231             template<typename A, typename B, typename E = void>
00232             struct gcd_helper {};
00233
00234             // B = 0, A > 0
00235             template<typename A, typename B>
00236             struct gcd_helper<A, B, std::enable_if_t<
00237                 ((B::is_zero_t::value) &&
00238                     (Ring::template gt_t<A, typename Ring::zero>::value))» {
00239                 using type = A;
00240             };
00241
00242             // B = 0, A < 0
00243             template<typename A, typename B>
00244             struct gcd_helper<A, B, std::enable_if_t<
00245                 ((B::is_zero_t::value) &&
00246                     !(Ring::template gt_t<A, typename Ring::zero>::value))» {
00247                 using type = typename Ring::template sub_t<typename Ring::zero, A>;
00248             };
00249
00250             // B != 0
00251             template<typename A, typename B>
00252             struct gcd_helper<A, B, std::enable_if_t<
00253                 (!B::is_zero_t::value)
00254                 » {
00255             private: // NOLINT
00256                 // A / B
00257                 using k = typename Ring::template div_t<A, B>;
00258                 // A - (A/B)*B = A % B
00259                 using m = typename Ring::template sub_t<A, typename Ring::template mul_t<k, B»;
00260
00261             public:
00262                 using type = typename gcd_helper<B, m>::type;
00263             };
00264
00265             template<typename A, typename B>
00266             using type = typename gcd_helper<A, B>::type;
00267         };
00268     }  // namespace internal
00269
00270     // vadd and vmul
00271     namespace internal {
00272         template<typename... vals>
00273         struct vmul {};
00274
00275         template<typename v1, typename... vals>
00276         struct vmul<v1, vals...> {
00277             using type = typename v1::enclosing_type::template mul_t<v1, typename
      vmul<vals...>::type>;
00278         };
00279
00280         template<typename v1>
00281         struct vmul<v1> {
00282             using type = v1;
00283         };
00284
00285         template<typename... vals>
00286         struct vadd {};
00287
00288         template<typename v1, typename... vals>
00289         struct vadd<v1, vals...> {
00290             using type = typename v1::enclosing_type::template add_t<v1, typename
      vadd<vals...>::type>;
00291         };
00292
00293         template<typename v1>
00294         struct vadd<v1> {
00295             using type = v1;
00296         };
00297     }  // namespace internal
00298
00301     template<typename T, typename A, typename B>
00302     using gcd_t = typename internal::gcd<T>::template type<A, B>;
00303
00307     template<typename... vals>
00308     using vadd_t = typename internal::vadd<vals...>::type;
00309
00313     template<typename... vals>
00314     using vmul_t = typename internal::vmul<vals...>::type;
00315
00319     template<typename val>
00320     requires IsEuclideanDomain<typename val::enclosing_type>
00321     using abs_t = std::conditional_t<
```

```
00322                     val::enclosing_type::template pos_v<val>,
00323                     val, typename val::enclosing_type::template
    sub_t<typename val::enclosing_type::zero, val>>;
00324 }  // namespace aerobus
00325
00326 // embedding
00327 namespace aerobus {
00332     template<typename Small, typename Large, typename E = void>
00333     struct Embed;
00334 }  // namespace aerobus
00335
00336 namespace aerobus {
00341     template<typename Ring, typename X>
00342     requires IsRing<Ring>
00343     struct Quotient {
00346         template <typename V>
00347         struct val {
00348          public:
00349             using raw_t = V;
00350             using type = abs_t<typename Ring::template mod_t<V, X>>;
00351         };
00352
00354         using zero = val<typename Ring::zero>;
00355
00357         using one = val<typename Ring::one>;
00358
00362         template<typename v1, typename v2>
00363         using add_t = val<typename Ring::template add_t<typename v1::type, typename v2::type>>;
00364
00368         template<typename v1, typename v2>
00369         using mul_t = val<typename Ring::template mul_t<typename v1::type, typename v2::type>>;
00370
00374         template<typename v1, typename v2>
00375         using div_t = val<typename Ring::template div_t<typename v1::type, typename v2::type>>;
00376
00380         template<typename v1, typename v2>
00381         using mod_t = val<typename Ring::template mod_t<typename v1::type, typename v2::type>>;
00382
00386         template<typename v1, typename v2>
00387         using eq_t = typename Ring::template eq_t<typename v1::type, typename v2::type>;
00388
00392         template<typename v1, typename v2>
00393         static constexpr bool eq_v = Ring::template eq_t<typename v1::type, typename v2::type>::value;
00394
00398         template<typename v1>
00399         using pos_t = std::true_type;
00400
00404         template<typename v>
00405         static constexpr bool pos_v = pos_t<v>::value;
00406
00408         static constexpr bool is_euclidean_domain = true;
00409
00415         template<auto x>
00416         using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;
00417
00423         template<typename v>
00424         using inject_ring_t = val<v>;
00425     };
00426
00430     template<typename Ring, typename X>
00431     struct Embed<Quotient<Ring, X>, Ring> {
00434         template<typename val>
00435         using type = typename val::raw_t;
00436     };
00437 }  // namespace aerobus
00438
00439 // type_list
00440 namespace aerobus {
00442     template <typename... Ts>
00443     struct type_list;
00444
00445     namespace internal {
00446         template <typename T, typename... Us>
00447         struct pop_front_h {
00448             using tail = type_list<Us...>;
00449             using head = T;
00450         };
00451
00452         template <size_t index, typename L1, typename L2>
00453         struct split_h {
00454          private:
00455             static_assert(index <= L2::length, "index ouf of bounds");
00456             using a = typename L2::pop_front::type;
00457             using b = typename L2::pop_front::tail;
00458             using c = typename L1::template push_back<a>;
00459
00460          public:
```

```
00461             using head = typename split_h<index - 1, c, b>::head;
00462             using tail = typename split_h<index - 1, c, b>::tail;
00463         };
00464 
00465         template <typename L1, typename L2>
00466         struct split_h<0, L1, L2> {
00467             using head = L1;
00468             using tail = L2;
00469         };
00470 
00471         template <size_t index, typename L, typename T>
00472         struct insert_h {
00473             static_assert(index <= L::length, "index ouf of bounds");
00474             using s = typename L::template split<index>;
00475             using left = typename s::head;
00476             using right = typename s::tail;
00477             using ll = typename left::template push_back<T>;
00478             using type = typename ll::template concat<right>;
00479         };
00480 
00481         template <size_t index, typename L>
00482         struct remove_h {
00483             using s = typename L::template split<index>;
00484             using left = typename s::head;
00485             using right = typename s::tail;
00486             using rr = typename right::pop_front::tail;
00487             using type = typename left::template concat<rr>;
00488         };
00489     }  // namespace internal
00490 
00494     template <typename... Ts>
00495     struct type_list {
00496      private:
00497         template <typename T>
00498         struct concat_h;
00499 
00500         template <typename... Us>
00501         struct concat_h<type_list<Us...>> {
00502             using type = type_list<Ts..., Us...>;
00503         };
00504 
00505      public:
00507         static constexpr size_t length = sizeof...(Ts);
00508 
00511         template <typename T>
00512         using push_front = type_list<T, Ts...>;
00513 
00516         template <size_t index>
00517         using at = internal::type_at_t<index, Ts...>;
00518 
00520         struct pop_front {
00522             using type = typename internal::pop_front_h<Ts...>::head;
00524             using tail = typename internal::pop_front_h<Ts...>::tail;
00525         };
00526 
00529         template <typename T>
00530         using push_back = type_list<Ts..., T>;
00531 
00534         template <typename U>
00535         using concat = typename concat_h<U>::type;
00536 
00539         template <size_t index>
00540         struct split {
00541          private:
00542             using inner = internal::split_h<index, type_list<>, type_list<Ts...>>;
00543 
00544          public:
00545             using head = typename inner::head;
00546             using tail = typename inner::tail;
00547         };
00548 
00552         template <typename T, size_t index>
00553         using insert = typename internal::insert_h<index, type_list<Ts...>, T>::type;
00554 
00557         template <size_t index>
00558         using remove = typename internal::remove_h<index, type_list<Ts...>>::type;
00559     };
00560 
00562     template <>
00563     struct type_list<> {
00564         static constexpr size_t length = 0;
00565 
00566         template <typename T>
00567         using push_front = type_list<T>;
00568 
00569         template <typename T>
00570         using push_back = type_list<T>;
```

```
00571
00572         template <typename U>
00573         using concat = U;
00574
00575         // TODO(jewave): assert index == 0
00576         template <typename T, size_t index>
00577         using insert = type_list<T>;
00578     };
00579 }  // namespace aerobus
00580
00581 // i32
00582 namespace aerobus {
00584     struct i32 {
00585         using inner_type = int32_t;
00588         template<int32_t x>
00589         struct val {
00591             using enclosing_type = i32;
00593             static constexpr int32_t v = x;
00594
00597             template<typename valueType>
00598             static constexpr INLINED DEVICE valueType get() { return static_cast<valueType>(x); }
00599
00601             using is_zero_t = std::bool_constant<x == 0>;
00602
00604             static std::string to_string() {
00605                 return std::to_string(x);
00606             }
00607
00610             template<typename valueRing>
00611             static constexpr DEVICE INLINED valueRing eval(const valueRing& v) {
00612                 return static_cast<valueRing>(x);
00613             }
00614         };
00615
00617         using zero = val<0>;
00619         using one = val<1>;
00621         static constexpr bool is_field = false;
00623         static constexpr bool is_euclidean_domain = true;
00627         template<auto x>
00628         using inject_constant_t = val<static_cast<int32_t>(x)>;
00629
00630         template<typename v>
00631         using inject_ring_t = v;
00632
00633     private:
00634         template<typename v1, typename v2>
00635         struct add {
00636             using type = val<v1::v + v2::v>;
00637         };
00638
00639         template<typename v1, typename v2>
00640         struct sub {
00641             using type = val<v1::v - v2::v>;
00642         };
00643
00644         template<typename v1, typename v2>
00645         struct mul {
00646             using type = val<v1::v* v2::v>;
00647         };
00648
00649         template<typename v1, typename v2>
00650         struct div {
00651             using type = val<v1::v / v2::v>;
00652         };
00653
00654         template<typename v1, typename v2>
00655         struct remainder {
00656             using type = val<v1::v % v2::v>;
00657         };
00658
00659         template<typename v1, typename v2>
00660         struct gt {
00661             using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
00662         };
00663
00664         template<typename v1, typename v2>
00665         struct lt {
00666             using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
00667         };
00668
00669         template<typename v1, typename v2>
00670         struct eq {
00671             using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
00672         };
00673
00674         template<typename v1>
00675         struct pos {
```

```
00676             using type = std::bool_constant<(v1::v > 0)>;
00677         };
00678
00679     public:
00685         template<typename v1, typename v2>
00686         using add_t = typename add<v1, v2>::type;
00687
00693         template<typename v1, typename v2>
00694         using sub_t = typename sub<v1, v2>::type;
00695
00701         template<typename v1, typename v2>
00702         using mul_t = typename mul<v1, v2>::type;
00703
00709         template<typename v1, typename v2>
00710         using div_t = typename div<v1, v2>::type;
00711
00717         template<typename v1, typename v2>
00718         using mod_t = typename remainder<v1, v2>::type;
00719
00725         template<typename v1, typename v2>
00726         using gt_t = typename gt<v1, v2>::type;
00727
00733         template<typename v1, typename v2>
00734         using lt_t = typename lt<v1, v2>::type;
00735
00741         template<typename v1, typename v2>
00742         using eq_t = typename eq<v1, v2>::type;
00743
00748         template<typename v1, typename v2>
00749         static constexpr bool eq_v = eq_t<v1, v2>::value;
00750
00756         template<typename v1, typename v2>
00757         using gcd_t = gcd_t<i32, v1, v2>;
00758
00763         template<typename v>
00764         using pos_t = typename pos<v>::type;
00765
00770         template<typename v>
00771         static constexpr bool pos_v = pos_t<v>::value;
00772     };
00773 }  // namespace aerobus
00774
00775 // i64
00776 namespace aerobus {
00778     struct i64 {
00780         using inner_type = int64_t;
00783         template<int64_t x>
00784         struct val {
00786             using inner_type = int32_t;
00788             using enclosing_type = i64;
00790             static constexpr int64_t v = x;
00791
00794             template<typename valueType>
00795             static constexpr DEVICE INLINED valueType get() {
00796                 return static_cast<valueType>(x);
00797             }
00798
00800             using is_zero_t = std::bool_constant<x == 0>;
00801
00803             static std::string to_string() {
00804                 return std::to_string(x);
00805             }
00806
00809             template<typename valueRing>
00810             static constexpr DEVICE INLINED valueRing eval(const valueRing& v) {
00811                 return static_cast<valueRing>(x);
00812             }
00813         };
00814
00818         template<auto x>
00819         using inject_constant_t = val<static_cast<int64_t>(x)>;
00820
00825         template<typename v>
00826         using inject_ring_t = v;
00827
00829         using zero = val<0>;
00831         using one = val<1>;
00833         static constexpr bool is_field = false;
00835         static constexpr bool is_euclidean_domain = true;
00836
00837     private:
00838         template<typename v1, typename v2>
00839         struct add {
00840             using type = val<v1::v + v2::v>;
00841         };
00842
00843         template<typename v1, typename v2>
```

```
00844         struct sub {
00845             using type = val<v1::v - v2::v>;
00846         };
00847 
00848         template<typename v1, typename v2>
00849         struct mul {
00850             using type = val<v1::v* v2::v>;
00851         };
00852 
00853         template<typename v1, typename v2>
00854         struct div {
00855             using type = val<v1::v / v2::v>;
00856         };
00857 
00858         template<typename v1, typename v2>
00859         struct remainder {
00860             using type = val<v1::v% v2::v>;
00861         };
00862 
00863         template<typename v1, typename v2>
00864         struct gt {
00865             using type = std::conditional_t<(v1::v > v2::v), std::true_type, std::false_type>;
00866         };
00867 
00868         template<typename v1, typename v2>
00869         struct lt {
00870             using type = std::conditional_t<(v1::v < v2::v), std::true_type, std::false_type>;
00871         };
00872 
00873         template<typename v1, typename v2>
00874         struct eq {
00875             using type = std::conditional_t<(v1::v == v2::v), std::true_type, std::false_type>;
00876         };
00877 
00878         template<typename v>
00879         struct pos {
00880             using type = std::bool_constant<(v::v > 0)>;
00881         };
00882 
00883      public:
00888         template<typename v1, typename v2>
00889         using add_t = typename add<v1, v2>::type;
00890 
00895         template<typename v1, typename v2>
00896         using sub_t = typename sub<v1, v2>::type;
00897 
00902         template<typename v1, typename v2>
00903         using mul_t = typename mul<v1, v2>::type;
00904 
00910         template<typename v1, typename v2>
00911         using div_t = typename div<v1, v2>::type;
00912 
00917         template<typename v1, typename v2>
00918         using mod_t = typename remainder<v1, v2>::type;
00919 
00925         template<typename v1, typename v2>
00926         using gt_t = typename gt<v1, v2>::type;
00927 
00932         template<typename v1, typename v2>
00933         static constexpr bool gt_v = gt_t<v1, v2>::value;
00934 
00940         template<typename v1, typename v2>
00941         using lt_t = typename lt<v1, v2>::type;
00942 
00948         template<typename v1, typename v2>
00949         static constexpr bool lt_v = lt_t<v1, v2>::value;
00950 
00956         template<typename v1, typename v2>
00957         using eq_t = typename eq<v1, v2>::type;
00958 
00964         template<typename v1, typename v2>
00965         static constexpr bool eq_v = eq_t<v1, v2>::value;
00966 
00972         template<typename v1, typename v2>
00973         using gcd_t = gcd_t<i64, v1, v2>;
00974 
00979         template<typename v>
00980         using pos_t = typename pos<v>::type;
00981 
00986         template<typename v>
00987         static constexpr bool pos_v = pos_t<v>::value;
00988     };
00989 
00991     template<>
00992     struct Embed<i32, i64> {
00995         template<typename val>
00996         using type = i64::val<static_cast<int64_t>(val::v)>;
```

```
00997     };
00998 }  // namespace aerobus
00999
01000 // z/pz
01001 namespace aerobus {
01007     template<int32_t p>
01008     struct zpz {
01010         using inner_type = int32_t;
01011
01014         template<int32_t x>
01015         struct val {
01017             using enclosing_type = zpz<p>;
01019             static constexpr int32_t v = x % p;
01020
01023             template<typename valueType>
01024             static constexpr DEVICE INLINED valueType get() { return static_cast<valueType>(x % p); }
01025
01027             using is_zero_t = std::bool_constant<v == 0>;
01028
01030             static constexpr bool is_zero_v = v == 0;
01031
01034             static std::string to_string() {
01035                 return std::to_string(x % p);
01036             }
01037
01038             template<typename valueRing>
01039             static constexpr DEVICE INLINED valueRing eval(const valueRing& v) {
01040                 return static_cast<valueRing>(x % p);
01041             }
01042         };
01043
01046         template<auto x>
01047         using inject_constant_t = val<static_cast<int32_t>(x)>;
01048
01050         using zero = val<0>;
01051
01053         using one = val<1>;
01054
01056         static constexpr bool is_field = is_prime<p>::value;
01057
01059         static constexpr bool is_euclidean_domain = true;
01060
01061      private:
01062         template<typename v1, typename v2>
01063         struct add {
01064             using type = val<(v1::v + v2::v) % p>;
01065         };
01066
01067         template<typename v1, typename v2>
01068         struct sub {
01069             using type = val<(v1::v - v2::v) % p>;
01070         };
01071
01072         template<typename v1, typename v2>
01073         struct mul {
01074             using type = val<(v1::v* v2::v) % p>;
01075         };
01076
01077         template<typename v1, typename v2>
01078         struct div {
01079             using type = val<(v1::v% p) / (v2::v % p)>;
01080         };
01081
01082         template<typename v1, typename v2>
01083         struct remainder {
01084             using type = val<(v1::v% v2::v) % p>;
01085         };
01086
01087         template<typename v1, typename v2>
01088         struct gt {
01089             using type = std::conditional_t<(v1::v% p > v2::v% p), std::true_type, std::false_type>;
01090         };
01091
01092         template<typename v1, typename v2>
01093         struct lt {
01094             using type = std::conditional_t<(v1::v% p < v2::v% p), std::true_type, std::false_type>;
01095         };
01096
01097         template<typename v1, typename v2>
01098         struct eq {
01099             using type = std::conditional_t<(v1::v% p == v2::v % p), std::true_type, std::false_type>;
01100         };
01101
01102         template<typename v1>
01103         struct pos {
01104             using type = std::bool_constant<(v1::v > 0)>;
01105         };
```

```
01106
01107      public:
01111          template<typename v1, typename v2>
01112          using add_t = typename add<v1, v2>::type;
01113
01117          template<typename v1, typename v2>
01118          using sub_t = typename sub<v1, v2>::type;
01119
01123          template<typename v1, typename v2>
01124          using mul_t = typename mul<v1, v2>::type;
01125
01129          template<typename v1, typename v2>
01130          using div_t = typename div<v1, v2>::type;
01131
01135          template<typename v1, typename v2>
01136          using mod_t = typename remainder<v1, v2>::type;
01137
01141          template<typename v1, typename v2>
01142          using gt_t = typename gt<v1, v2>::type;
01143
01147          template<typename v1, typename v2>
01148          static constexpr bool gt_v = gt_t<v1, v2>::value;
01149
01153          template<typename v1, typename v2>
01154          using lt_t = typename lt<v1, v2>::type;
01155
01159          template<typename v1, typename v2>
01160          static constexpr bool lt_v = lt_t<v1, v2>::value;
01161
01165          template<typename v1, typename v2>
01166          using eq_t = typename eq<v1, v2>::type;
01167
01171          template<typename v1, typename v2>
01172          static constexpr bool eq_v = eq_t<v1, v2>::value;
01173
01177          template<typename v1, typename v2>
01178          using gcd_t = gcd_t<i32, v1, v2>;
01179
01182          template<typename v1>
01183          using pos_t = typename pos<v1>::type;
01184
01187          template<typename v>
01188          static constexpr bool pos_v = pos_t<v>::value;
01189      };
01190
01193      template<int32_t x>
01194      struct Embed<zpz<x>, i32> {
01197          template <typename val>
01198          using type = i32::val<val::v>;
01199      };
01200  }  // namespace aerobus
01201
01202  // polynomial
01203  namespace aerobus {
01204      // coeffN x^N + ...
01209      template<typename Ring>
01210      requires IsEuclideanDomain<Ring>
01211      struct polynomial {
01212          static constexpr bool is_field = false;
01213          static constexpr bool is_euclidean_domain = Ring::is_euclidean_domain;
01214
01218          template<typename coeffN, typename... coeffs>
01219          struct val {
01221              using ring_type = Ring;
01223              using enclosing_type = polynomial<Ring>;
01225              static constexpr size_t degree = sizeof...(coeffs);
01227              using aN = coeffN;
01229              using strip = val<coeffs...>;
01231              using is_zero_t = std::bool_constant<(degree == 0) && (aN::is_zero_t::value)>;
01233              static constexpr bool is_zero_v = is_zero_t::value;
01234
01235           private:
01236              template<size_t index, typename E = void>
01237              struct coeff_at {};
01238
01239              template<size_t index>
01240              struct coeff_at<index, std::enable_if_t<(index >= 0 && index <= sizeof...(coeffs))>> {
01241                  using type = internal::type_at_t<sizeof...(coeffs) - index, coeffN, coeffs...>;
01242              };
01243
01244              template<size_t index>
01245              struct coeff_at<index, std::enable_if_t<(index < 0 || index > sizeof...(coeffs))>> {
01246                  using type = typename Ring::zero;
01247              };
01248
01249           public:
01252              template<size_t index>
```

```
01253             using coeff_at_t = typename coeff_at<index>::type;
01254
01257             static std::string to_string() {
01258                 return string_helper<coeffN, coeffs...>::func();
01259             }
01260
01265             template<typename valueRing>
01266             static constexpr DEVICE INLINED valueRing eval(const valueRing& x) {
01267                 return horner_evaluation<valueRing, val>
01268                         ::template inner<0, degree + 1>
01269                         ::func(static_cast<valueRing>(0), x);
01270             }
01271         };
01272
01275         template<typename coeffN>
01276         struct val<coeffN> {
01278             using ring_type = Ring;
01280             using enclosing_type = polynomial<Ring>;
01282             static constexpr size_t degree = 0;
01283             using aN = coeffN;
01284             using strip = val<coeffN>;
01285             using is_zero_t = std::bool_constant<aN::is_zero_t::value>;
01286
01287             static constexpr bool is_zero_v = is_zero_t::value;
01288
01289             template<size_t index, typename E = void>
01290             struct coeff_at {};
01291
01292             template<size_t index>
01293             struct coeff_at<index, std::enable_if_t<(index == 0)>> {
01294                 using type = aN;
01295             };
01296
01297             template<size_t index>
01298             struct coeff_at<index, std::enable_if_t<(index < 0 || index > 0)>> {
01299                 using type = typename Ring::zero;
01300             };
01301
01302             template<size_t index>
01303             using coeff_at_t = typename coeff_at<index>::type;
01304
01305             static std::string to_string() {
01306                 return string_helper<coeffN>::func();
01307             }
01308
01309             template<typename valueRing>
01310             static constexpr DEVICE INLINED valueRing eval(const valueRing& x) {
01311                 return static_cast<valueRing>(aN::template get<valueRing>());
01312             }
01313         };
01314
01316         using zero = val<typename Ring::zero>;
01318         using one = val<typename Ring::one>;
01320         using X = val<typename Ring::one, typename Ring::zero>;
01321
01322     private:
01323         template<typename P, typename E = void>
01324         struct simplify;
01325
01326         template <typename P1, typename P2, typename I>
01327         struct add_low;
01328
01329         template<typename P1, typename P2>
01330         struct add {
01331             using type = typename simplify<typename add_low<
01332             P1,
01333             P2,
01334             internal::make_index_sequence_reverse<
01335             std::max(P1::degree, P2::degree) + 1
01336             >::type>::type;
01337         };
01338
01339         template <typename P1, typename P2, typename I>
01340         struct sub_low;
01341
01342         template <typename P1, typename P2, typename I>
01343         struct mul_low;
01344
01345         template<typename v1, typename v2>
01346         struct mul {
01347                 using type = typename mul_low<
01348                     v1,
01349                     v2,
01350                     internal::make_index_sequence_reverse<
01351                     v1::degree + v2::degree + 1
01352                     >::type;
01353         };
```

```
01354
01355         template<typename coeff, size_t deg>
01356         struct monomial;
01357
01358         template<typename v, typename E = void>
01359         struct derive_helper {};
01360
01361         template<typename v>
01362         struct derive_helper<v, std::enable_if_t<v::degree == 0» {
01363             using type = zero;
01364         };
01365
01366         template<typename v>
01367         struct derive_helper<v, std::enable_if_t<v::degree != 0» {
01368             using type = typename add<
01369                 typename derive_helper<typename simplify<typename v::strip>::type>::type,
01370                 typename monomial<
01371                     typename Ring::template mul_t<
01372                         typename v::aN,
01373                         typename Ring::template inject_constant_t<(v::degree)>
01374                     >,
01375                     v::degree - 1
01376                 >::type
01377             >::type;
01378         };
01379
01380         template<typename v1, typename v2, typename E = void>
01381         struct eq_helper {};
01382
01383         template<typename v1, typename v2>
01384         struct eq_helper<v1, v2, std::enable_if_t<v1::degree != v2::degree» {
01385             using type = std::false_type;
01386         };
01387
01388
01389         template<typename v1, typename v2>
01390         struct eq_helper<v1, v2, std::enable_if_t<
01391             v1::degree == v2::degree &&
01392             (v1::degree != 0 || v2::degree != 0) &&
01393             std::is_same<
01394             typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
01395             std::false_type
01396             >::value
01397         >
01398         > {
01399             using type = std::false_type;
01400         };
01401
01402         template<typename v1, typename v2>
01403         struct eq_helper<v1, v2, std::enable_if_t<
01404             v1::degree == v2::degree &&
01405             (v1::degree != 0 || v2::degree != 0) &&
01406             std::is_same<
01407             typename Ring::template eq_t<typename v1::aN, typename v2::aN>,
01408             std::true_type
01409             >::value
01410         » {
01411             using type = typename eq_helper<typename v1::strip, typename v2::strip>::type;
01412         };
01413
01414         template<typename v1, typename v2>
01415         struct eq_helper<v1, v2, std::enable_if_t<
01416             v1::degree == v2::degree &&
01417             (v1::degree == 0)
01418         » {
01419             using type = typename Ring::template eq_t<typename v1::aN, typename v2::aN>;
01420         };
01421
01422         template<typename v1, typename v2, typename E = void>
01423         struct lt_helper {};
01424
01425         template<typename v1, typename v2>
01426         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
01427             using type = std::true_type;
01428         };
01429
01430         template<typename v1, typename v2>
01431         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
01432             using type = typename Ring::template lt_t<typename v1::aN, typename v2::aN>;
01433         };
01434
01435         template<typename v1, typename v2>
01436         struct lt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
01437             using type = std::false_type;
01438         };
01439
01440         template<typename v1, typename v2, typename E = void>
```

```
01441         struct gt_helper {};
01442
01443         template<typename v1, typename v2>
01444         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree > v2::degree)» {
01445             using type = std::true_type;
01446         };
01447
01448         template<typename v1, typename v2>
01449         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree == v2::degree)» {
01450             using type = std::false_type;
01451         };
01452
01453         template<typename v1, typename v2>
01454         struct gt_helper<v1, v2, std::enable_if_t<(v1::degree < v2::degree)» {
01455             using type = std::false_type;
01456         };
01457
01458         // when high power is zero : strip
01459         template<typename P>
01460         struct simplify<P, std::enable_if_t<
01461             std::is_same<
01462             typename Ring::zero,
01463             typename P::aN
01464             >::value && (P::degree > 0)
01465         » {
01466             using type = typename simplify<typename P::strip>::type;
01467         };
01468
01469         // otherwise : do nothing
01470         template<typename P>
01471         struct simplify<P, std::enable_if_t<
01472             !std::is_same<
01473             typename Ring::zero,
01474             typename P::aN
01475             >::value && (P::degree > 0)
01476         » {
01477             using type = P;
01478         };
01479
01480         // do not simplify constants
01481         template<typename P>
01482         struct simplify<P, std::enable_if_t<P::degree == 0» {
01483             using type = P;
01484         };
01485
01486         // addition at
01487         template<typename P1, typename P2, size_t index>
01488         struct add_at {
01489             using type =
01490                 typename Ring::template add_t<
01491                     typename P1::template coeff_at_t<index>,
01492                     typename P2::template coeff_at_t<index>>;
01493         };
01494
01495         template<typename P1, typename P2, size_t index>
01496         using add_at_t = typename add_at<P1, P2, index>::type;
01497
01498         template<typename P1, typename P2, std::size_t... I>
01499         struct add_low<P1, P2, std::index_sequence<I...» {
01500             using type = val<add_at_t<P1, P2, I>...>;
01501         };
01502
01503         // substraction at
01504         template<typename P1, typename P2, size_t index>
01505         struct sub_at {
01506             using type =
01507                 typename Ring::template sub_t<
01508                     typename P1::template coeff_at_t<index>,
01509                     typename P2::template coeff_at_t<index>>;
01510         };
01511
01512         template<typename P1, typename P2, size_t index>
01513         using sub_at_t = typename sub_at<P1, P2, index>::type;
01514
01515         template<typename P1, typename P2, std::size_t... I>
01516         struct sub_low<P1, P2, std::index_sequence<I...» {
01517             using type = val<sub_at_t<P1, P2, I>...>;
01518         };
01519
01520         template<typename P1, typename P2>
01521         struct sub {
01522             using type = typename simplify<typename sub_low<
01523             P1,
01524             P2,
01525             internal::make_index_sequence_reverse<
01526             std::max(P1::degree, P2::degree) + 1
01527             »::type>::type;
```

```
01528         };
01529
01530         // multiplication at
01531         template<typename v1, typename v2, size_t k, size_t index, size_t stop>
01532         struct mul_at_loop_helper {
01533             using type = typename Ring::template add_t<
01534                 typename Ring::template mul_t<
01535                 typename v1::template coeff_at_t<index>,
01536                 typename v2::template coeff_at_t<k - index>
01537                 >,
01538                 typename mul_at_loop_helper<v1, v2, k, index + 1, stop>::type
01539             >;
01540         };
01541
01542         template<typename v1, typename v2, size_t k, size_t stop>
01543         struct mul_at_loop_helper<v1, v2, k, stop, stop> {
01544             using type = typename Ring::template mul_t<
01545                 typename v1::template coeff_at_t<stop>,
01546                 typename v2::template coeff_at_t<0>>;
01547         };
01548
01549         template <typename v1, typename v2, size_t k, typename E = void>
01550         struct mul_at {};
01551
01552         template<typename v1, typename v2, size_t k>
01553         struct mul_at<v1, v2, k, std::enable_if_t<(k < 0) || (k > v1::degree + v2::degree)» {
01554             using type = typename Ring::zero;
01555         };
01556
01557         template<typename v1, typename v2, size_t k>
01558         struct mul_at<v1, v2, k, std::enable_if_t<(k >= 0) && (k <= v1::degree + v2::degree)» {
01559             using type = typename mul_at_loop_helper<v1, v2, k, 0, k>::type;
01560         };
01561
01562         template<typename P1, typename P2, size_t index>
01563         using mul_at_t = typename mul_at<P1, P2, index>::type;
01564
01565         template<typename P1, typename P2, std::size_t... I>
01566         struct mul_low<P1, P2, std::index_sequence<I...» {
01567             using type = val<mul_at_t<P1, P2, I>...>;
01568         };
01569
01570         // division helper
01571         template< typename A, typename B, typename Q, typename R, typename E = void>
01572         struct div_helper {};
01573
01574         template<typename A, typename B, typename Q, typename R>
01575         struct div_helper<A, B, Q, R, std::enable_if_t<
01576             (R::degree < B::degree) ||
01577             (R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
01578             using q_type = Q;
01579             using mod_type = R;
01580             using gcd_type = B;
01581         };
01582
01583         template<typename A, typename B, typename Q, typename R>
01584         struct div_helper<A, B, Q, R, std::enable_if_t<
01585             (R::degree >= B::degree) &&
01586             !(R::degree == 0 && std::is_same<typename R::aN, typename Ring::zero>::value)» {
01587          private: // NOLINT
01588             using rN = typename R::aN;
01589             using bN = typename B::aN;
01590             using pT = typename monomial<typename Ring::template div_t<rN, bN>, R::degree -
      B::degree>::type;
01591             using rr = typename sub<R, typename mul<pT, B>::type>::type;
01592             using qq = typename add<Q, pT>::type;
01593
01594          public:
01595             using q_type = typename div_helper<A, B, qq, rr>::q_type;
01596             using mod_type = typename div_helper<A, B, qq, rr>::mod_type;
01597             using gcd_type = rr;
01598         };
01599
01600         template<typename A, typename B>
01601         struct div {
01602             static_assert(Ring::is_euclidean_domain, "cannot divide in that type of Ring");
01603             using q_type = typename div_helper<A, B, zero, A>::q_type;
01604             using m_type = typename div_helper<A, B, zero, A>::mod_type;
01605         };
01606
01607         template<typename P>
01608         struct make_unit {
01609             using type = typename div<P, val<typename P::aN>>::q_type;
01610         };
01611
01612         template<typename coeff, size_t deg>
01613         struct monomial {
```

```
01614             using type = typename mul<X, typename monomial<coeff, deg - 1>::type>::type;
01615         };
01616 
01617         template<typename coeff>
01618         struct monomial<coeff, 0> {
01619             using type = val<coeff>;
01620         };
01621 
01622         template<typename valueRing, typename P>
01623         struct horner_evaluation {
01624             template<size_t index, size_t stop>
01625             struct inner {
01626                 static constexpr DEVICE INLINED valueRing func(const valueRing& accum, const
      valueRing& x) {
01627                     constexpr valueRing coeff =
01628                         static_cast<valueRing>(P::template coeff_at_t<P::degree - index>::template
      get<valueRing>());
01629                     return horner_evaluation<valueRing, P>::template inner<index + 1, stop>::func(x *
      accum + coeff, x);
01630                 }
01631             };
01632 
01633             template<size_t stop>
01634             struct inner<stop, stop> {
01635                 static constexpr DEVICE INLINED valueRing func(const valueRing& accum, const
      valueRing& x) {
01636                     return accum;
01637                 }
01638             };
01639         };
01640 
01641         template<typename coeff, typename... coeffs>
01642         struct string_helper {
01643             static std::string func() {
01644                 std::string tail = string_helper<coeffs...>::func();
01645                 std::string result = "";
01646                 if (Ring::template eq_t<coeff, typename Ring::zero>::value) {
01647                     return tail;
01648                 } else if (Ring::template eq_t<coeff, typename Ring::one>::value) {
01649                     if (sizeof...(coeffs) == 1) {
01650                         result += "x";
01651                     } else {
01652                         result += "x^" + std::to_string(sizeof...(coeffs));
01653                     }
01654                 } else {
01655                     if (sizeof...(coeffs) == 1) {
01656                         result += coeff::to_string() + " x";
01657                     } else {
01658                         result += coeff::to_string()
01659                                 + " x^" + std::to_string(sizeof...(coeffs));
01660                     }
01661                 }
01662 
01663                 if (!tail.empty()) {
01664                     result += " + " + tail;
01665                 }
01666 
01667                 return result;
01668             }
01669         };
01670 
01671         template<typename coeff>
01672         struct string_helper<coeff> {
01673             static std::string func() {
01674                 if (!std::is_same<coeff, typename Ring::zero>::value) {
01675                     return coeff::to_string();
01676                 } else {
01677                     return "";
01678                 }
01679             }
01680         };
01681 
01682     public:
01685         template<typename P>
01686         using simplify_t = typename simplify<P>::type;
01687 
01691         template<typename v1, typename v2>
01692         using add_t = typename add<v1, v2>::type;
01693 
01697         template<typename v1, typename v2>
01698         using sub_t = typename sub<v1, v2>::type;
01699 
01703         template<typename v1, typename v2>
01704         using mul_t = typename mul<v1, v2>::type;
01705 
01709         template<typename v1, typename v2>
01710         using eq_t = typename eq_helper<v1, v2>::type;
```

```
01711
01715         template<typename v1, typename v2>
01716         using lt_t = typename lt_helper<v1, v2>::type;
01717
01721         template<typename v1, typename v2>
01722         using gt_t = typename gt_helper<v1, v2>::type;
01723
01727         template<typename v1, typename v2>
01728         using div_t = typename div<v1, v2>::q_type;
01729
01733         template<typename v1, typename v2>
01734         using mod_t = typename div_helper<v1, v2, zero, v1>::mod_type;
01735
01739         template<typename coeff, size_t deg>
01740         using monomial_t = typename monomial<coeff, deg>::type;
01741
01744         template<typename v>
01745         using derive_t = typename derive_helper<v>::type;
01746
01749         template<typename v>
01750         using pos_t = typename Ring::template pos_t<typename v::aN>;
01751
01754         template<typename v>
01755         static constexpr bool pos_v = pos_t<v>::value;
01756
01760         template<typename v1, typename v2>
01761         using gcd_t = std::conditional_t<
01762             Ring::is_euclidean_domain,
01763             typename make_unit<gcd_t<polynomial<Ring>, v1, v2»::type,
01764             void>;
01765
01769         template<auto x>
01770         using inject_constant_t = val<typename Ring::template inject_constant_t<x>>;
01771
01775         template<typename v>
01776         using inject_ring_t = val<v>;
01777     };
01778 }  // namespace aerobus
01779
01780 // fraction field
01781 namespace aerobus {
01782     namespace internal {
01783         template<typename Ring, typename E = void>
01784         requires IsEuclideanDomain<Ring>
01785         struct _FractionField {};
01786
01787         template<typename Ring>
01788         requires IsEuclideanDomain<Ring>
01789         struct _FractionField<Ring, std::enable_if_t<Ring::is_euclidean_domain» {
01791             static constexpr bool is_field = true;
01792             static constexpr bool is_euclidean_domain = true;
01793
01794          private:
01795             template<typename val1, typename val2, typename E = void>
01796             struct to_string_helper {};
01797
01798             template<typename val1, typename val2>
01799             struct to_string_helper <val1, val2,
01800                 std::enable_if_t<
01801                 Ring::template eq_t<
01802                 val2, typename Ring::one
01803                 >::value
01804                 >
01805             > {
01806                 static std::string func() {
01807                     return val1::to_string();
01808                 }
01809             };
01810
01811             template<typename val1, typename val2>
01812             struct to_string_helper<val1, val2,
01813                 std::enable_if_t<
01814                 !Ring::template eq_t<
01815                 val2,
01816                 typename Ring::one
01817                 >::value
01818                 >
01819             > {
01820                 static std::string func() {
01821                     return "(" + val1::to_string() + ") / (" + val2::to_string() + ")";
01822                 }
01823             };
01824
01825          public:
01829             template<typename val1, typename val2>
01830             struct val {
01832                 using x = val1;
```

```
01834                using y = val2;
01836                using is_zero_t = typename val1::is_zero_t;
01838                static constexpr bool is_zero_v = val1::is_zero_t::value;
01839
01841                using ring_type = Ring;
01842                using enclosing_type = _FractionField<Ring>;
01843
01846                 static constexpr bool is_integer = std::is_same_v<val2, typename Ring::one>;
01847
01851                template<typename valueType>
01852                static constexpr DEVICE INLINED valueType get() {
01853                    return static_cast<valueType>(x::v) / static_cast<valueType>(y::v);
01854                }
01855
01858                static std::string to_string() {
01859                    return to_string_helper<val1, val2>::func();
01860                }
01861
01866                template<typename valueRing>
01867                static constexpr DEVICE INLINED valueRing eval(const valueRing& v) {
01868                    return x::eval(v) / y::eval(v);
01869                }
01870            };
01871
01873            using zero = val<typename Ring::zero, typename Ring::one>;
01875            using one = val<typename Ring::one, typename Ring::one>;
01876
01879            template<typename v>
01880            using inject_t = val<v, typename Ring::one>;
01881
01884            template<auto x>
01885            using inject_constant_t = val<typename Ring::template inject_constant_t<x>, typename
     Ring::one>;
01886
01889            template<typename v>
01890            using inject_ring_t = val<typename Ring::template inject_ring_t<v>, typename Ring::one>;
01891
01893            using ring_type = Ring;
01894
01895        private:
01896            template<typename v, typename E = void>
01897            struct simplify {};
01898
01899            // x = 0
01900            template<typename v>
01901            struct simplify<v, std::enable_if_t<v::x::is_zero_t::value» {
01902                using type = typename _FractionField<Ring>::zero;
01903            };
01904
01905            // x != 0
01906            template<typename v>
01907            struct simplify<v, std::enable_if_t<!v::x::is_zero_t::value» {
01908             private:
01909                using _gcd = typename Ring::template gcd_t<typename v::x, typename v::y>;
01910                using newx = typename Ring::template div_t<typename v::x, _gcd>;
01911                using newy = typename Ring::template div_t<typename v::y, _gcd>;
01912
01913                using posx = std::conditional_t<
01914                                !Ring::template pos_v<newy>,
01915                                typename Ring::template sub_t<typename Ring::zero, newx>,
01916                                newx>;
01917                using posy = std::conditional_t<
01918                                !Ring::template pos_v<newy>,
01919                                typename Ring::template sub_t<typename Ring::zero, newy>,
01920                                newy>;
01921             public:
01922                using type = typename _FractionField<Ring>::template val<posx, posy>;
01923            };
01924
01925        public:
01928            template<typename v>
01929            using simplify_t = typename simplify<v>::type;
01930
01931        private:
01932            template<typename v1, typename v2>
01933            struct add {
01934             private:
01935                using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
01936                using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
01937                using dividend = typename Ring::template add_t<a, b>;
01938                using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
01939                using g = typename Ring::template gcd_t<dividend, diviser>;
01940
01941             public:
01942                using type = typename _FractionField<Ring>::template simplify_t<val<dividend,
     diviser»;
01943            };
```

```
01944
01945             template<typename v>
01946             struct pos {
01947                 using type = std::conditional_t<
01948                     (Ring::template pos_v<typename v::x> && Ring::template pos_v<typename v::y>) ||
01949                     (!Ring::template pos_v<typename v::x> && !Ring::template pos_v<typename v::y>),
01950                     std::true_type,
01951                     std::false_type>;
01952             };
01953
01954             template<typename v1, typename v2>
01955             struct sub {
01956              private:
01957                 using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
01958                 using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
01959                 using dividend = typename Ring::template sub_t<a, b>;
01960                 using diviser = typename Ring::template mul_t<typename v1::y, typename v2::y>;
01961                 using g = typename Ring::template gcd_t<dividend, diviser>;
01962
01963              public:
01964                 using type = typename _FractionField<Ring>::template simplify_t<val<dividend,
      diviser»;
01965             };
01966
01967             template<typename v1, typename v2>
01968             struct mul {
01969              private:
01970                 using a = typename Ring::template mul_t<typename v1::x, typename v2::x>;
01971                 using b = typename Ring::template mul_t<typename v1::y, typename v2::y>;
01972
01973              public:
01974                 using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
01975             };
01976
01977             template<typename v1, typename v2, typename E = void>
01978             struct div {};
01979
01980             template<typename v1, typename v2>
01981             struct div<v1, v2, std::enable_if_t<!std::is_same<v2, typename
      _FractionField<Ring>::zero>::value»  {
01982              private:
01983                 using a = typename Ring::template mul_t<typename v1::x, typename v2::y>;
01984                 using b = typename Ring::template mul_t<typename v1::y, typename v2::x>;
01985
01986              public:
01987                 using type = typename _FractionField<Ring>::template simplify_t<val<a, b»;
01988             };
01989
01990             template<typename v1, typename v2>
01991             struct div<v1, v2, std::enable_if_t<
01992                 std::is_same<zero, v1>::value && std::is_same<v2, zero>::value»  {
01993                 using type = one;
01994             };
01995
01996             template<typename v1, typename v2>
01997             struct eq {
01998                 using type = std::conditional_t<
01999                         std::is_same<typename simplify_t<v1>::x, typename simplify_t<v2>::x>::value &&
02000                         std::is_same<typename simplify_t<v1>::y, typename simplify_t<v2>::y>::value,
02001                     std::true_type,
02002                     std::false_type>;
02003             };
02004
02005             template<typename v1, typename v2, typename E = void>
02006             struct gt;
02007
02008             template<typename v1, typename v2>
02009             struct gt<v1, v2, std::enable_if_t<
02010                 (eq<v1, v2>::type::value)
02011                 » {
02012                 using type = std::false_type;
02013             };
02014
02015             template<typename v1, typename v2>
02016             struct gt<v1, v2, std::enable_if_t<
02017                 (!eq<v1, v2>::type::value) &&
02018                 (!pos<v1>::type::value) && (!pos<v2>::type::value)
02019                 » {
02020                 using type = typename gt<
02021                     typename sub<zero, v1>::type, typename sub<zero, v2>::type
02022                 >::type;
02023             };
02024
02025             template<typename v1, typename v2>
02026             struct gt<v1, v2, std::enable_if_t<
02027                 (!eq<v1, v2>::type::value) &&
02028                 (pos<v1>::type::value) && (!pos<v2>::type::value)
```

```
02029                » {
02030                using type = std::true_type;
02031            };
02032
02033            template<typename v1, typename v2>
02034            struct gt<v1, v2, std::enable_if_t<
02035                (!eq<v1, v2>::type::value) &&
02036                (!pos<v1>::type::value) && (pos<v2>::type::value)
02037                » {
02038                using type = std::false_type;
02039            };
02040
02041            template<typename v1, typename v2>
02042            struct gt<v1, v2, std::enable_if_t<
02043                (!eq<v1, v2>::type::value) &&
02044                (pos<v1>::type::value) && (pos<v2>::type::value)
02045                » {
02046                using type = typename Ring::template gt_t<
02047                    typename Ring::template mul_t<v1::x, v2::y>,
02048                    typename Ring::template mul_t<v2::y, v2::x>
02049                >;
02050            };
02051
02052         public:
02057            template<typename v1, typename v2>
02058            using add_t = typename add<v1, v2>::type;
02059
02064            template<typename v1, typename v2>
02065            using mod_t = zero;
02066
02071            template<typename v1, typename v2>
02072            using gcd_t = v1;
02073
02077            template<typename v1, typename v2>
02078            using sub_t = typename sub<v1, v2>::type;
02079
02083            template<typename v1, typename v2>
02084            using mul_t = typename mul<v1, v2>::type;
02085
02089            template<typename v1, typename v2>
02090            using div_t = typename div<v1, v2>::type;
02091
02095            template<typename v1, typename v2>
02096            using eq_t = typename eq<v1, v2>::type;
02097
02101            template<typename v1, typename v2>
02102            static constexpr bool eq_v = eq<v1, v2>::type::value;
02103
02107            template<typename v1, typename v2>
02108            using gt_t = typename gt<v1, v2>::type;
02109
02113            template<typename v1, typename v2>
02114            static constexpr bool gt_v = gt<v1, v2>::type::value;
02115
02118            template<typename v1>
02119            using pos_t = typename pos<v1>::type;
02120
02123            template<typename v>
02124            static constexpr bool pos_v = pos_t<v>::value;
02125        };
02126
02127        template<typename Ring, typename E = void>
02128        requires IsEuclideanDomain<Ring>
02129        struct FractionFieldImpl {};
02130
02131        // fraction field of a field is the field itself
02132        template<typename Field>
02133        requires IsEuclideanDomain<Field>
02134        struct FractionFieldImpl<Field, std::enable_if_t<Field::is_field» {
02135            using type = Field;
02136            template<typename v>
02137            using inject_t = v;
02138        };
02139
02140        // fraction field of a ring is the actual fraction field
02141        template<typename Ring>
02142        requires IsEuclideanDomain<Ring>
02143        struct FractionFieldImpl<Ring, std::enable_if_t<!Ring::is_field» {
02144            using type = _FractionField<Ring>;
02145        };
02146    }  // namespace internal
02147
02151    template<typename Ring>
02152    requires IsEuclideanDomain<Ring>
02153    using FractionField = typename internal::FractionFieldImpl<Ring>::type;
02154
02157    template<typename Ring>
```

```
02158     struct Embed<Ring, FractionField<Ring>> {
02161         template<typename v>
02162         using type = typename FractionField<Ring>::template val<v, typename Ring::one>;
02163     };
02164 }  // namespace aerobus
02165
02166
02167 // short names for common types
02168 namespace aerobus {
02172     template<typename X, typename Y>
02173     requires(std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02174     using add_t = typename X::enclosing_type::template add_t<X, Y>;
02175
02179     template<typename X, typename Y>
02180     requires(std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02181     using sub_t = typename X::enclosing_type::template sub_t<X, Y>;
02182
02186     template<typename X, typename Y>
02187     requires(std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02188     using mul_t = typename X::enclosing_type::template mul_t<X, Y>;
02189
02193     template<typename X, typename Y>
02194     requires(std::is_same_v<typename X::enclosing_type, typename Y::enclosing_type>)
02195     using div_t = typename X::enclosing_type::template div_t<X, Y>;
02196
02199     using q32 = FractionField<i32>;
02200
02203     using fpq32 = FractionField<polynomial<q32>>;
02204
02207     using q64 = FractionField<i64>;
02208
02210     using pi64 = polynomial<i64>;
02211
02213     using pq64 = polynomial<q64>;
02214
02216     using fpq64 = FractionField<polynomial<q64>>;
02217
02222     template<typename Ring, typename v1, typename v2>
02223     using makefraction_t = typename FractionField<Ring>::template val<v1, v2>;
02224
02231     template<typename v>
02232     using embed_int_poly_in_fractions_t =
02233             typename Embed<
02234                 polynomial<typename v::ring_type>,
02235                 polynomial<FractionField<typename v::ring_type>>::template type<v>;
02236
02240     template<int64_t p, int64_t q>
02241     using make_q64_t = typename q64::template simplify_t<
02242                 typename q64::val<i64::inject_constant_t<p>, i64::inject_constant_t<q>>;
02243
02247     template<int32_t p, int32_t q>
02248     using make_q32_t = typename q32::template simplify_t<
02249                 typename q32::val<i32::inject_constant_t<p>, i32::inject_constant_t<q>>;
02250
02255     template<typename Ring, typename v1, typename v2>
02256     using addfractions_t = typename FractionField<Ring>::template add_t<v1, v2>;
02261     template<typename Ring, typename v1, typename v2>
02262     using mulfractions_t = typename FractionField<Ring>::template mul_t<v1, v2>;
02263
02265     template<>
02266     struct Embed<q32, q64> {
02269         template<typename v>
02270         using type = make_q64_t<static_cast<int64_t>(v::x::v), static_cast<int64_t>(v::y::v)>;
02271     };
02272
02276     template<typename Small, typename Large>
02277     struct Embed<polynomial<Small>, polynomial<Large>> {
02278      private:
02279         template<typename v, typename i>
02280         struct at_low;
02281
02282         template<typename v, size_t i>
02283         struct at_index {
02284             using type = typename Embed<Small, Large>::template
      type<typename v::template coeff_at_t<i>>;
02285         };
02286
02287         template<typename v, size_t... Is>
02288         struct at_low<v, std::index_sequence<Is...>> {
02289             using type = typename polynomial<Large>::template val<typename at_index<v, Is>::type...>;
02290         };
02291
02292      public:
02295         template<typename v>
02296         using type = typename
      at_low<v, typename internal::make_index_sequence_reverse<v::degree + 1>>::type;
02297     };
```

```
02298
02302     template<typename Ring, auto... xs>
02303     using make_int_polynomial_t = typename polynomial<Ring>::template val<
02304             typename Ring::template inject_constant_t<xs>...>;
02305
02309     template<typename Ring, auto... xs>
02310     using make_frac_polynomial_t = typename polynomial<FractionField<Ring>>::template val<
02311             typename FractionField<Ring>::template inject_constant_t<xs>...>;
02312 }  // namespace aerobus
02313
02314 // taylor series and common integers (factorial, bernoulli...) appearing in taylor coefficients
02315 namespace aerobus {
02316     namespace internal {
02317         template<typename T, size_t x, typename E = void>
02318         struct factorial {};
02319
02320         template<typename T, size_t x>
02321         struct factorial<T, x, std::enable_if_t<(x > 0)>> {
02322         private:
02323             template<typename, size_t, typename>
02324             friend struct factorial;
02325         public:
02326             using type = typename T::template mul_t<typename T::template val<x>, typename factorial<T,
      x - 1>::type>;
02327             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>();
02328         };
02329
02330         template<typename T>
02331         struct factorial<T, 0> {
02332          public:
02333             using type = typename T::one;
02334             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>();
02335         };
02336     }  // namespace internal
02337
02341     template<typename T, size_t i>
02342     using factorial_t = typename internal::factorial<T, i>::type;
02343
02347     template<typename T, size_t i>
02348     inline constexpr typename T::inner_type factorial_v = internal::factorial<T, i>::value;
02349
02350     namespace internal {
02351         template<typename T, size_t k, size_t n, typename E = void>
02352         struct combination_helper {};
02353
02354         template<typename T, size_t k, size_t n>
02355         struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k <= (n / 2) && k > 0)>> {
02356             using type = typename FractionField<T>::template mul_t<
02357                 typename combination_helper<T, k - 1, n - 1>::type,
02358                 makefraction_t<T, typename T::template val<n>, typename T::template val<k>>;
02359         };
02360
02361         template<typename T, size_t k, size_t n>
02362         struct combination_helper<T, k, n, std::enable_if_t<(n >= 0 && k > (n / 2) && k > 0)>> {
02363             using type = typename combination_helper<T, n - k, n>::type;
02364         };
02365
02366         template<typename T, size_t n>
02367         struct combination_helper<T, 0, n> {
02368             using type = typename FractionField<T>::one;
02369         };
02370
02371         template<typename T, size_t k, size_t n>
02372         struct combination {
02373             using type = typename internal::combination_helper<T, k, n>::type::x;
02374             static constexpr typename T::inner_type value =
02375                         internal::combination_helper<T, k, n>::type::template
      get<typename T::inner_type>();
02376         };
02377     }  // namespace internal
02378
02381     template<typename T, size_t k, size_t n>
02382     using combination_t = typename internal::combination<T, k, n>::type;
02383
02388     template<typename T, size_t k, size_t n>
02389     inline constexpr typename T::inner_type combination_v = internal::combination<T, k, n>::value;
02390
02391     namespace internal {
02392         template<typename T, size_t m>
02393         struct bernoulli;
02394
02395         template<typename T, typename accum, size_t k, size_t m>
02396         struct bernoulli_helper {
02397             using type = typename bernoulli_helper<
02398                 T,
```

```
02399                 addfractions_t<T,
02400                     accum,
02401                     mulfractions_t<T,
02402                         makefraction_t<T,
02403                             combination_t<T, k, m + 1>,
02404                             typename T::one>,
02405                         typename bernoulli<T, k>::type
02406                     >
02407                 >,
02408                 k + 1,
02409                 m>::type;
02410         };
02411
02412         template<typename T, typename accum, size_t m>
02413         struct bernoulli_helper<T, accum, m, m> {
02414             using type = accum;
02415         };
02416
02417
02418
02419         template<typename T, size_t m>
02420         struct bernoulli {
02421             using type = typename FractionField<T>::template mul_t<
02422                 typename internal::bernoulli_helper<T, typename FractionField<T>::zero, 0, m>::type,
02423                 makefraction_t<T,
02424                 typename T::template val<static_cast<typename T::inner_type>(-1)>,
02425                 typename T::template val<static_cast<typename T::inner_type>(m + 1)>
02426                 >
02427             >;
02428
02429             template<typename floatType>
02430             static constexpr floatType value = type::template get<floatType>();
02431         };
02432
02433         template<typename T>
02434         struct bernoulli<T, 0> {
02435             using type = typename FractionField<T>::one;
02436
02437             template<typename floatType>
02438             static constexpr floatType value = type::template get<floatType>();
02439         };
02440     }  // namespace internal
02441
02445     template<typename T, size_t n>
02446     using bernoulli_t = typename internal::bernoulli<T, n>::type;
02447
02452     template<typename FloatType, typename T, size_t n >
02453     inline constexpr FloatType bernoulli_v = internal::bernoulli<T, n>::template value<FloatType>;
02454
02455     // bell numbers
02456     namespace internal {
02457         template<typename T, size_t n, typename E = void>
02458         struct bell_helper;
02459
02460         template <typename T, size_t n>
02461         struct bell_helper<T, n, std::enable_if_t<(n > 1)» {
02462             template<typename accum, size_t i, size_t stop>
02463             struct sum_helper {
02464              private:
02465                 using left = typename T::template mul_t<
02466                             combination_t<T, i, n-1>,
02467                             typename bell_helper<T, i>::type>;
02468                 using new_accum = typename T::template add_t<accum, left>;
02469              public:
02470                 using type = typename sum_helper<new_accum, i+1, stop>::type;
02471             };
02472
02473             template<typename accum, size_t stop>
02474             struct sum_helper<accum, stop, stop> {
02475                 using type = accum;
02476             };
02477
02478             using type = typename sum_helper<typename T::zero, 0, n>::type;
02479         };
02480
02481         template<typename T>
02482         struct bell_helper<T, 0> {
02483             using type = typename T::one;
02484         };
02485
02486         template<typename T>
02487         struct bell_helper<T, 1> {
02488             using type = typename T::one;
02489         };
02490     }  // namespace internal
02491
02495     template<typename T, size_t n>
```

```
02496     using bell_t = typename internal::bell_helper<T, n>::type;
02497
02501     template<typename T, size_t n>
02502     static constexpr typename T::inner_type bell_v = bell_t<T, n>::v;
02503
02504     namespace internal {
02505         template<typename T, int k, typename E = void>
02506         struct alternate {};
02507
02508         template<typename T, int k>
02509         struct alternate<T, k, std::enable_if_t<k % 2 == 0>> {
02510             using type = typename T::one;
02511             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>();
02512         };
02513
02514         template<typename T, int k>
02515         struct alternate<T, k, std::enable_if_t<k % 2 != 0>> {
02516             using type = typename T::template sub_t<typename T::zero, typename T::one>;
02517             static constexpr typename T::inner_type value = type::template
      get<typename T::inner_type>();
02518         };
02519     }  // namespace internal
02520
02523     template<typename T, int k>
02524     using alternate_t = typename internal::alternate<T, k>::type;
02525
02526     namespace internal {
02527         template<typename T, int n, int k, typename E = void>
02528         struct stirling_helper {};
02529
02530         template<typename T>
02531         struct stirling_helper<T, 0, 0> {
02532             using type = typename T::one;
02533         };
02534
02535         template<typename T, int n>
02536         struct stirling_helper<T, n, 0, std::enable_if_t<(n > 0)>> {
02537             using type = typename T::zero;
02538         };
02539
02540         template<typename T, int n>
02541         struct stirling_helper<T, 0, n, std::enable_if_t<(n > 0)>> {
02542             using type = typename T::zero;
02543         };
02544
02545         template<typename T, int n, int k>
02546         struct stirling_helper<T, n, k, std::enable_if_t<(k > 0) && (n > 0)>> {
02547             using type = typename T::template sub_t<
02548                             typename stirling_helper<T, n-1, k-1>::type,
02549                             typename T::template mul_t<
02550                                 typename T::template inject_constant_t<n-1>,
02551                                 typename stirling_helper<T, n-1, k>::type
02552                             >;
02553         };
02554     }  // namespace internal
02555
02560     template<typename T, int n, int k>
02561     using stirling_signed_t = typename internal::stirling_helper<T, n, k>::type;
02562
02567     template<typename T, int n, int k>
02568     using stirling_unsigned_t = abs_t<typename internal::stirling_helper<T, n, k>::type>;
02569
02574     template<typename T, int n, int k>
02575     static constexpr typename T::inner_type stirling_signed_v = stirling_signed_t<T, n, k>::v;
02576
02577
02582     template<typename T, int n, int k>
02583     static constexpr typename T::inner_type stirling_unsigned_v = stirling_unsigned_t<T, n, k>::v;
02584
02587     template<typename T, size_t k>
02588     inline constexpr typename T::inner_type alternate_v = internal::alternate<T, k>::value;
02589
02590     namespace internal {
02591         template<typename T>
02592         struct pow_scalar {
02593             template<size_t p>
02594             static constexpr DEVICE INLINED T func(const T& x) { return p == 0 ? static_cast<T>(1) :
02595                 p % 2 == 0 ? func<p/2>(x) * func<p/2>(x) :
02596                 x * func<p/2>(x) * func<p/2>(x);
02597             }
02598         };
02599
02600         template<typename T, typename p, size_t n, typename E = void>
02601         requires IsEuclideanDomain<T>
02602         struct pow;
02603
```

```
02604         template<typename T, typename p, size_t n>
02605         struct pow<T, p, n, std::enable_if_t<(n > 0 && n % 2 == 0)» {
02606             using type = typename T::template mul_t<
02607                 typename pow<T, p, n/2>::type,
02608                 typename pow<T, p, n/2>::type
02609             >;
02610         };
02611 
02612         template<typename T, typename p, size_t n>
02613         struct pow<T, p, n, std::enable_if_t<(n % 2 == 1)» {
02614             using type = typename T::template mul_t<
02615                 p,
02616                 typename T::template mul_t<
02617                     typename pow<T, p, n/2>::type,
02618                     typename pow<T, p, n/2>::type
02619                 >
02620             >;
02621         };
02622 
02623         template<typename T, typename p, size_t n>
02624         struct pow<T, p, n, std::enable_if_t<n == 0» { using type = typename T::one; };
02625     }  // namespace internal
02626 
02631     template<typename T, typename p, size_t n>
02632     using pow_t = typename internal::pow<T, p, n>::type;
02633 
02638     template<typename T, typename p, size_t n>
02639     static constexpr typename T::inner_type pow_v = internal::pow<T, p, n>::type::v;
02640 
02641     template<typename T, size_t p>
02642     static constexpr DEVICE INLINED T pow_scalar(const T& x) { return
      internal::pow_scalar<T>::template func<p>(x); }
02643 
02644     namespace internal {
02645         template<typename, template<typename, size_t> typename, class>
02646         struct make_taylor_impl;
02647 
02648         template<typename T, template<typename, size_t> typename coeff_at, size_t... Is>
02649         struct make_taylor_impl<T, coeff_at, std::integer_sequence<size_t, Is...» {
02650             using type = typename polynomial<FractionField<T>>::template
      val<typename coeff_at<T, Is>::type...>;
02651         };
02652     }
02653 
02658     template<typename T, template<typename, size_t index> typename coeff_at, size_t deg>
02659     using taylor = typename internal::make_taylor_impl<
02660         T,
02661         coeff_at,
02662         internal::make_index_sequence_reverse<deg + 1>>::type;
02663 
02664     namespace internal {
02665         template<typename T, size_t i>
02666         struct exp_coeff {
02667             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
02668         };
02669 
02670         template<typename T, size_t i, typename E = void>
02671         struct sin_coeff_helper {};
02672 
02673         template<typename T, size_t i>
02674         struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
02675             using type = typename FractionField<T>::zero;
02676         };
02677 
02678         template<typename T, size_t i>
02679         struct sin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
02680             using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
02681         };
02682 
02683         template<typename T, size_t i>
02684         struct sin_coeff {
02685             using type = typename sin_coeff_helper<T, i>::type;
02686         };
02687 
02688         template<typename T, size_t i, typename E = void>
02689         struct sh_coeff_helper {};
02690 
02691         template<typename T, size_t i>
02692         struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0» {
02693             using type = typename FractionField<T>::zero;
02694         };
02695 
02696         template<typename T, size_t i>
02697         struct sh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1» {
02698             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
02699         };
02700 
```

```
02701         template<typename T, size_t i>
02702         struct sh_coeff {
02703             using type = typename sh_coeff_helper<T, i>::type;
02704         };
02705
02706         template<typename T, size_t i, typename E = void>
02707         struct cos_coeff_helper {};
02708
02709         template<typename T, size_t i>
02710         struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02711             using type = typename FractionField<T>::zero;
02712         };
02713
02714         template<typename T, size_t i>
02715         struct cos_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02716             using type = makefraction_t<T, alternate_t<T, i / 2>, factorial_t<T, i>>;
02717         };
02718
02719         template<typename T, size_t i>
02720         struct cos_coeff {
02721             using type = typename cos_coeff_helper<T, i>::type;
02722         };
02723
02724         template<typename T, size_t i, typename E = void>
02725         struct cosh_coeff_helper {};
02726
02727         template<typename T, size_t i>
02728         struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02729             using type = typename FractionField<T>::zero;
02730         };
02731
02732         template<typename T, size_t i>
02733         struct cosh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02734             using type = makefraction_t<T, typename T::one, factorial_t<T, i>>;
02735         };
02736
02737         template<typename T, size_t i>
02738         struct cosh_coeff {
02739             using type = typename cosh_coeff_helper<T, i>::type;
02740         };
02741
02742         template<typename T, size_t i>
02743         struct geom_coeff { using type = typename FractionField<T>::one; };
02744
02745
02746         template<typename T, size_t i, typename E = void>
02747         struct atan_coeff_helper;
02748
02749         template<typename T, size_t i>
02750         struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02751             using type = makefraction_t<T, alternate_t<T, i / 2>, typename T::template val<i>>;
02752         };
02753
02754         template<typename T, size_t i>
02755         struct atan_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02756             using type = typename FractionField<T>::zero;
02757         };
02758
02759         template<typename T, size_t i>
02760         struct atan_coeff { using type = typename atan_coeff_helper<T, i>::type; };
02761
02762         template<typename T, size_t i, typename E = void>
02763         struct asin_coeff_helper;
02764
02765         template<typename T, size_t i>
02766         struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02767             using type = makefraction_t<T,
02768                 factorial_t<T, i - 1>,
02769                 typename T::template mul_t<
02770                     typename T::template val<i>,
02771                     T::template mul_t<
02772                         pow_t<T, typename T::template inject_constant_t<4>, i / 2>,
02773                         pow<T, factorial_t<T, i / 2>, 2
02774                     >
02775                 >
02776                 »;
02777         };
02778
02779         template<typename T, size_t i>
02780         struct asin_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02781             using type = typename FractionField<T>::zero;
02782         };
02783
02784         template<typename T, size_t i>
02785         struct asin_coeff {
02786             using type = typename asin_coeff_helper<T, i>::type;
02787         };
```

```
02788
02789         template<typename T, size_t i>
02790         struct lnp1_coeff {
02791             using type = makefraction_t<T,
02792                 alternate_t<T, i + 1>,
02793                 typename T::template val<i>>;
02794         };
02795
02796         template<typename T>
02797         struct lnp1_coeff<T, 0> { using type = typename FractionField<T>::zero; };
02798
02799         template<typename T, size_t i, typename E = void>
02800         struct asinh_coeff_helper;
02801
02802         template<typename T, size_t i>
02803         struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02804             using type = makefraction_t<T,
02805                 typename T::template mul_t<
02806                     alternate_t<T, i / 2>,
02807                     factorial_t<T, i - 1>
02808                 >,
02809                 typename T::template mul_t<
02810                     typename T::template mul_t<
02811                         typename T::template val<i>,
02812                         pow_t<T, factorial_t<T, i / 2>, 2>
02813                     >,
02814                     pow_t<T, typename T::template inject_constant_t<4>, i / 2>
02815                 >
02816             >;
02817         };
02818
02819         template<typename T, size_t i>
02820         struct asinh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02821             using type = typename FractionField<T>::zero;
02822         };
02823
02824         template<typename T, size_t i>
02825         struct asinh_coeff {
02826             using type = typename asinh_coeff_helper<T, i>::type;
02827         };
02828
02829         template<typename T, size_t i, typename E = void>
02830         struct atanh_coeff_helper;
02831
02832         template<typename T, size_t i>
02833         struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 1>> {
02834             // 1/i
02835             using type = typename FractionField<T>:: template val<
02836                 typename T::one,
02837                 typename T::template inject_constant_t<i>>;
02838         };
02839
02840         template<typename T, size_t i>
02841         struct atanh_coeff_helper<T, i, std::enable_if_t<(i & 1) == 0>> {
02842             using type = typename FractionField<T>::zero;
02843         };
02844
02845         template<typename T, size_t i>
02846         struct atanh_coeff {
02847             using type = typename atanh_coeff_helper<T, i>::type;
02848         };
02849
02850         template<typename T, size_t i, typename E = void>
02851         struct tan_coeff_helper;
02852
02853         template<typename T, size_t i>
02854         struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0>> {
02855             using type = typename FractionField<T>::zero;
02856         };
02857
02858         template<typename T, size_t i>
02859         struct tan_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0>> {
02860         private:
02861             // 4^((i+1)/2)
02862             using _4p = typename FractionField<T>::template inject_t<
02863                 pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2>>;
02864             // 4^((i+1)/2) - 1
02865             using _4pm1 = typename FractionField<T>::template
      sub_t<_4p, typename FractionField<T>::one>;
02866             // (-1)^((i-1)/2)
02867             using altp = typename FractionField<T>::template inject_t<alternate_t<T, (i - 1) / 2>>;
02868             using dividend = typename FractionField<T>::template mul_t<
02869                 altp,
02870                 FractionField<T>::template mul_t<
02871                 _4p,
02872                 FractionField<T>::template mul_t<
02873                 _4pm1,
```

```
02874                 bernoulli_t<T, (i + 1)>
02875                 >
02876                 >
02877             >;
02878         public:
02879             using type = typename FractionField<T>::template div_t<dividend,
02880                 typename FractionField<T>::template inject_t<factorial_t<T, i + 1>»;
02881         };
02882 
02883         template<typename T, size_t i>
02884         struct tan_coeff {
02885             using type = typename tan_coeff_helper<T, i>::type;
02886         };
02887 
02888         template<typename T, size_t i, typename E = void>
02889         struct tanh_coeff_helper;
02890 
02891         template<typename T, size_t i>
02892         struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) == 0» {
02893             using type = typename FractionField<T>::zero;
02894         };
02895 
02896         template<typename T, size_t i>
02897         struct tanh_coeff_helper<T, i, std::enable_if_t<(i % 2) != 0» {
02898         private:
02899             using _4p = typename FractionField<T>::template inject_t<
02900                 pow_t<T, typename T::template inject_constant_t<4>, (i + 1) / 2»;
02901             using _4pm1 = typename FractionField<T>::template
      sub_t<_4p, typename FractionField<T>::one>;
02902             using dividend =
02903                 typename FractionField<T>::template mul_t<
02904                     _4p,
02905                     typename FractionField<T>::template mul_t<
02906                         _4pm1,
02907                         bernoulli_t<T, (i + 1)»>::type;
02908         public:
02909             using type = typename FractionField<T>::template div_t<dividend,
02910                 FractionField<T>::template inject_t<factorial_t<T, i + 1>»;
02911         };
02912 
02913         template<typename T, size_t i>
02914         struct tanh_coeff {
02915             using type = typename tanh_coeff_helper<T, i>::type;
02916         };
02917     }  // namespace internal
02918 
02922     template<typename Integers, size_t deg>
02923     using exp = taylor<Integers, internal::exp_coeff, deg>;
02924 
02928     template<typename Integers, size_t deg>
02929     using expm1 = typename polynomial<FractionField<Integers>>::template sub_t<
02930         exp<Integers, deg>,
02931         typename polynomial<FractionField<Integers>>::one>;
02932 
02936     template<typename Integers, size_t deg>
02937     using lnp1 = taylor<Integers, internal::lnp1_coeff, deg>;
02938 
02942     template<typename Integers, size_t deg>
02943     using atan = taylor<Integers, internal::atan_coeff, deg>;
02944 
02948     template<typename Integers, size_t deg>
02949     using sin = taylor<Integers, internal::sin_coeff, deg>;
02950 
02954     template<typename Integers, size_t deg>
02955     using sinh = taylor<Integers, internal::sh_coeff, deg>;
02956 
02961     template<typename Integers, size_t deg>
02962     using cosh = taylor<Integers, internal::cosh_coeff, deg>;
02963 
02968     template<typename Integers, size_t deg>
02969     using cos = taylor<Integers, internal::cos_coeff, deg>;
02970 
02975     template<typename Integers, size_t deg>
02976     using geometric_sum = taylor<Integers, internal::geom_coeff, deg>;
02977 
02982     template<typename Integers, size_t deg>
02983     using asin = taylor<Integers, internal::asin_coeff, deg>;
02984 
02989     template<typename Integers, size_t deg>
02990     using asinh = taylor<Integers, internal::asinh_coeff, deg>;
02991 
02996     template<typename Integers, size_t deg>
02997     using atanh = taylor<Integers, internal::atanh_coeff, deg>;
02998 
03003     template<typename Integers, size_t deg>
03004     using tan = taylor<Integers, internal::tan_coeff, deg>;
03005 
```

```
03010     template<typename Integers, size_t deg>
03011     using tanh = taylor<Integers, internal::tanh_coeff, deg>;
03012 }  // namespace aerobus
03013
03014 // continued fractions
03015 namespace aerobus {
03018     template<int64_t... values>
03019     struct ContinuedFraction {};
03020
03023     template<int64_t a0>
03024     struct ContinuedFraction<a0> {
03026         using type = typename q64::template inject_constant_t<a0>;
03028         static constexpr double val = static_cast<double>(a0);
03029     };
03030
03034     template<int64_t a0, int64_t... rest>
03035     struct ContinuedFraction<a0, rest...> {
03037         using type = q64::template add_t<
03038                 typename q64::template inject_constant_t<a0>,
03039                 typename q64::template div_t<
03040                     typename q64::one,
03041                     typename ContinuedFraction<rest...>::type
03042                 »;
03043
03045         static constexpr double val = type::template get<double>();
03046     };
03047
03052     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>;
03055     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>;
03057     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>;
03059     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
03060 }  // namespace aerobus
03061
03062 // known polynomials
03063 namespace aerobus {
03064     // CChebyshev
03065     namespace internal {
03066         template<int kind, size_t deg, typename I>
03067         struct chebyshev_helper {
03068             using type = typename polynomial<I>::template sub_t<
03069                 typename polynomial<I>::template mul_t<
03070                     typename polynomial<I>::template mul_t<
03071                         typename polynomial<I>::template inject_constant_t<2>,
03072                         typename polynomial<I>::X>,
03073                     typename chebyshev_helper<kind, deg - 1, I>::type
03074                 >,
03075                 typename chebyshev_helper<kind, deg - 2, I>::type
03076             >;
03077         };
03078
03079         template<typename I>
03080         struct chebyshev_helper<1, 0, I> {
03081             using type = typename polynomial<I>::one;
03082         };
03083
03084         template<typename I>
03085         struct chebyshev_helper<1, 1, I> {
03086             using type = typename polynomial<I>::X;
03087         };
03088
03089         template<typename I>
03090         struct chebyshev_helper<2, 0, I> {
03091             using type = typename polynomial<I>::one;
03092         };
03093
03094         template<typename I>
03095         struct chebyshev_helper<2, 1, I> {
03096             using type = typename polynomial<I>::template mul_t<
03097                 typename polynomial<I>::template inject_constant_t<2>,
03098                 typename polynomial<I>::X>;
03099         };
03100     }  // namespace internal
03101
03102     // Laguerre
03103     namespace internal {
03104         template<size_t deg, typename I>
03105         struct laguerre_helper {
03106             using Q = FractionField<I>;
03107             using PQ = polynomial<Q>;
03108
03109          private:
03110             // Lk = (1 / k) * ((2 * k - 1 - x) * lkm1 - (k - 2)Lkm2)
```

```
03111             using lnm2 = typename laguerre_helper<deg - 2, I>::type;
03112             using lnm1 = typename laguerre_helper<deg - 1, I>::type;
03113             // -x + 2k-1
03114             using p = typename PQ::template val<
03115                 typename Q::template inject_constant_t<-1>,
03116                 typename Q::template inject_constant_t<2 * deg - 1»;
03117             // 1/n
03118             using factor = typename PQ::template inject_ring_t<
03119                 typename Q::template
      val<typename I::one, typename I::template inject_constant_t<deg>»;
03120
03121          public:
03122             using type = typename PQ::template mul_t <
03123                 factor,
03124                 typename PQ::template sub_t<
03125                     typename PQ::template mul_t<
03126                         p,
03127                         lnm1
03128                     >,
03129                     typename PQ::template mul_t<
03130                         typename PQ::template inject_constant_t<deg-1>,
03131                         lnm2
03132                     >
03133                 >
03134             >;
03135         };
03136
03137         template<typename I>
03138         struct laguerre_helper<0, I> {
03139             using type = typename polynomial<FractionField<I>>::one;
03140         };
03141
03142         template<typename I>
03143         struct laguerre_helper<1, I> {
03144          private:
03145             using PQ = polynomial<FractionField<I>>;
03146          public:
03147             using type = typename PQ::template sub_t<typename PQ::one, typename PQ::X>;
03148         };
03149     }  // namespace internal
03150
03151     // Bernstein
03152     namespace internal {
03153         template<size_t i, size_t m, typename I, typename E = void>
03154         struct bernstein_helper {};
03155
03156         template<typename I>
03157         struct bernstein_helper<0, 0, I> {
03158             using type = typename polynomial<I>::one;
03159         };
03160
03161         template<size_t i, size_t m, typename I>
03162         struct bernstein_helper<i, m, I, std::enable_if_t<
03163                     (m > 0) && (i == 0)» {
03164          private:
03165             using P = polynomial<I>;
03166          public:
03167             using type = typename P::template mul_t<
03168                     typename P::template sub_t<typename P::one, typename P::X>,
03169                     typename bernstein_helper<i, m-1, I>::type>;
03170         };
03171
03172         template<size_t i, size_t m, typename I>
03173         struct bernstein_helper<i, m, I, std::enable_if_t<
03174                     (m > 0) && (i == m)» {
03175          private:
03176             using P = polynomial<I>;
03177          public:
03178             using type = typename P::template mul_t<
03179                     typename P::X,
03180                     typename bernstein_helper<i-1, m-1, I>::type>;
03181         };
03182
03183         template<size_t i, size_t m, typename I>
03184         struct bernstein_helper<i, m, I, std::enable_if_t<
03185                     (m > 0) && (i > 0) && (i < m)» {
03186          private:
03187             using P = polynomial<I>;
03188          public:
03189             using type = typename P::template add_t<
03190                     typename P::template mul_t<
03191                         typename P::template sub_t<typename P::one, typename P::X>,
03192                         typename bernstein_helper<i, m-1, I>::type>,
03193                     typename P::template mul_t<
03194                         typename P::X,
03195                         typename bernstein_helper<i-1, m-1, I>::type»;
03196         };
```

```
03197     }  // namespace internal
03198
03199     namespace known_polynomials {
03201         enum hermite_kind {
03203             probabilist,
03205             physicist
03206         };
03207     }
03208
03209     // hermite
03210     namespace internal {
03211         template<size_t deg, known_polynomials::hermite_kind kind, typename I>
03212         struct hermite_helper {};
03213
03214         template<size_t deg, typename I>
03215         struct hermite_helper<deg, known_polynomials::hermite_kind::probabilist, I> {
03216          private:
03217             using hnm1 = typename hermite_helper<deg - 1,
      known_polynomials::hermite_kind::probabilist, I>::type;
03218             using hnm2 = typename hermite_helper<deg - 2,
      known_polynomials::hermite_kind::probabilist, I>::type;
03219
03220          public:
03221             using type = typename polynomial<I>::template sub_t<
03222                 typename polynomial<I>::template mul_t<typename polynomial<I>::X, hnm1>,
03223                 typename polynomial<I>::template mul_t<
03224                     typename polynomial<I>::template inject_constant_t<deg - 1>,
03225                     hnm2
03226                 >
03227             >;
03228         };
03229
03230         template<size_t deg, typename I>
03231         struct hermite_helper<deg, known_polynomials::hermite_kind::physicist, I> {
03232          private:
03233             using hnm1 = typename hermite_helper<deg - 1, known_polynomials::hermite_kind::physicist,
      I>::type;
03234             using hnm2 = typename hermite_helper<deg - 2, known_polynomials::hermite_kind::physicist,
      I>::type;
03235
03236          public:
03237             using type = typename polynomial<I>::template sub_t<
03238                 // 2X Hn-1
03239                 typename polynomial<I>::template mul_t<
03240                     typename pi64::val<typename I::template inject_constant_t<2>,
03241                     typename I::zero>, hnm1>,
03242
03243                 typename polynomial<I>::template mul_t<
03244                     typename polynomial<I>::template inject_constant_t<2*(deg - 1)>,
03245                     hnm2
03246                 >
03247             >;
03248         };
03249
03250         template<typename I>
03251         struct hermite_helper<0, known_polynomials::hermite_kind::probabilist, I> {
03252             using type = typename polynomial<I>::one;
03253         };
03254
03255         template<typename I>
03256         struct hermite_helper<1, known_polynomials::hermite_kind::probabilist, I> {
03257             using type = typename polynomial<I>::X;
03258         };
03259
03260         template<typename I>
03261         struct hermite_helper<0, known_polynomials::hermite_kind::physicist, I> {
03262             using type = typename pi64::one;
03263         };
03264
03265         template<typename I>
03266         struct hermite_helper<1, known_polynomials::hermite_kind::physicist, I> {
03267             // 2X
03268             using type = typename polynomial<I>::template val<
03269                 typename I::template inject_constant_t<2>,
03270                 typename I::zero>;
03271         };
03272     }  // namespace internal
03273
03274     // legendre
03275     namespace internal {
03276         template<size_t n, typename I>
03277         struct legendre_helper {
03278          private:
03279             using Q = FractionField<I>;
03280             using PQ = polynomial<Q>;
03281             // 1/n constant
03282             // (2n-1)/n X
```

```
03283             using fact_left = typename PQ::template monomial_t<
03284                 makefraction_t<I,
03285                     typename I::template inject_constant_t<2*n-1>,
03286                     typename I::template inject_constant_t<n>
03287                 >,
03288             1>;
03289             // (n-1) / n
03290             using fact_right = typename PQ::template val<
03291                 makefraction_t<I,
03292                     typename I::template inject_constant_t<n-1>,
03293                     typename I::template inject_constant_t<n>»;
03294
03295          public:
03296             using type = PQ::template sub_t<
03297                     typename PQ::template mul_t<
03298                         fact_left,
03299                         typename legendre_helper<n-1, I>::type
03300                     >,
03301                     typename PQ::template mul_t<
03302                         fact_right,
03303                         typename legendre_helper<n-2, I>::type
03304                     >
03305                 >;
03306         };
03307
03308         template<typename I>
03309         struct legendre_helper<0, I> {
03310             using type = typename polynomial<FractionField<I>>::one;
03311         };
03312
03313         template<typename I>
03314         struct legendre_helper<1, I> {
03315             using type = typename polynomial<FractionField<I>>::X;
03316         };
03317     }  // namespace internal
03318
03319     // bernoulli polynomials
03320     namespace internal {
03321         template<size_t n>
03322         struct bernoulli_coeff {
03323             template<typename T, size_t i>
03324             struct inner {
03325              private:
03326                 using F = FractionField<T>;
03327              public:
03328                 using type = typename F::template mul_t<
03329                     typename F::template inject_ring_t<combination_t<T, i, n>>,
03330                     bernoulli_t<T, n-i>
03331                 >;
03332             };
03333         };
03334     }  // namespace internal
03335
03337     namespace known_polynomials {
03345         template <size_t deg, typename I = aerobus::i64>
03346         using chebyshev_T = typename internal::chebyshev_helper<1, deg, I>::type;
03347
03357         template <size_t deg, typename I = aerobus::i64>
03358         using chebyshev_U = typename internal::chebyshev_helper<2, deg, I>::type;
03359
03369         template <size_t deg, typename I = aerobus::i64>
03370         using laguerre = typename internal::laguerre_helper<deg, I>::type;
03371
03378         template <size_t deg, typename I = aerobus::i64>
03379         using hermite_prob = typename internal::hermite_helper<deg, hermite_kind::probabilist,
      I>::type;
03380
03387         template <size_t deg, typename I = aerobus::i64>
03388         using hermite_phys = typename internal::hermite_helper<deg, hermite_kind::physicist, I>::type;
03389
03400         template<size_t i, size_t m, typename I = aerobus::i64>
03401         using bernstein = typename internal::bernstein_helper<i, m, I>::type;
03402
03412         template<size_t deg, typename I = aerobus::i64>
03413         using legendre = typename internal::legendre_helper<deg, I>::type;
03414
03424         template<size_t deg, typename I = aerobus::i64>
03425         using bernoulli = taylor<I, internal::bernoulli_coeff<deg>::template inner, deg>;
03426     }  // namespace known_polynomials
03427 }  // namespace aerobus
03428
03429
03430 #ifdef AEROBUS_CONWAY_IMPORTS
03431
03432 // conway polynomials
03433 namespace aerobus {
03437     template<int p, int n>
```

```
03438     struct ConwayPolynomial {};
03439
03440 #ifndef DO_NOT_DOCUMENT
03441     #define ZPZV ZPZ::template val
03442     #define POLYV aerobus::polynomial<ZPZ>::template val
03443     template<> struct ConwayPolynomial<2, 1> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<1>>; };  // NOLINT
03444     template<> struct ConwayPolynomial<2, 2> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<1>, ZPZV<1>>; }; // NOLINT
03445     template<> struct ConwayPolynomial<2, 3> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03446     template<> struct ConwayPolynomial<2, 4> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03447     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
03448     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
03449     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
03450     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
03451     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
03452     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
03453     template<> struct ConwayPolynomial<2, 11> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>,
      ZPZV<0>, ZPZV<1>>; };  // NOLINT
03454     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
03455     template<> struct ConwayPolynomial<2, 13> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>,
      ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03456     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
03457     template<> struct ConwayPolynomial<2, 15> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>>; };  // NOLINT
03458     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<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>>; };  // NOLINT
03459     template<> struct ConwayPolynomial<2, 17> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>>; };  // NOLINT
03460     template<> struct ConwayPolynomial<2, 18> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };  // NOLINT
03461     template<> struct ConwayPolynomial<2, 19> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>>; };  //
      NOLINT
03462     template<> struct ConwayPolynomial<2, 20> { using ZPZ = aerobus::zpz<2>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>>; };
      // NOLINT
03463     template<> struct ConwayPolynomial<3, 1> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<1>>; };  // NOLINT
03464     template<> struct ConwayPolynomial<3, 2> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<2>, ZPZV<2>>; };  // NOLINT
03465     template<> struct ConwayPolynomial<3, 3> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<1>>; };  // NOLINT
03466     template<> struct ConwayPolynomial<3, 4> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<2>, ZPZV<0>, ZPZV<0>, ZPZV<2>>; };  // NOLINT
03467     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
03468     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
03469     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
03470     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
03471     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
03472     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
03473     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
03474     template<> struct ConwayPolynomial<3, 12> { using ZPZ = aerobus::zpz<3>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<1>, ZPZV<1>, ZPZV<0>,
      ZPZV<1>, ZPZV<0>, ZPZV<2>>; };  // NOLINT
```

```
03475     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
03476     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
03477     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
03478     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
03479     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
03480     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
03481     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
03482     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
03483     template<> struct ConwayPolynomial<5, 1> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<3>>; };  // NOLINT
03484     template<> struct ConwayPolynomial<5, 2> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<4>, ZPZV<2>>; };  // NOLINT
03485     template<> struct ConwayPolynomial<5, 3> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<3>>; };  // NOLINT
03486     template<> struct ConwayPolynomial<5, 4> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<4>, ZPZV<2>>; };  // NOLINT
03487     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
03488     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
03489     template<> struct ConwayPolynomial<5, 7> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<3>>; };  // NOLINT
03490     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
03491     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
03492     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
03493     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
03494     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
03495     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
03496     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
03497     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
03498     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
03499     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
03500     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
03501     template<> struct ConwayPolynomial<5, 19> { using ZPZ = aerobus::zpz<5>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<3>>; };  //
      NOLINT
03502     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
03503     template<> struct ConwayPolynomial<7, 1> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<4>>; };  // NOLINT
03504     template<> struct ConwayPolynomial<7, 2> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<6>, ZPZV<3>>; };  // NOLINT
03505     template<> struct ConwayPolynomial<7, 3> { using ZPZ = aerobus::zpz<7>; using type =
      POLYV<ZPZV<1>, ZPZV<6>, ZPZV<0>, ZPZV<4>>; };  // NOLINT
03506     template<> struct ConwayPolynomial<7, 4> { using ZPZ = aerobus::zpz<7>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<4>, ZPZV<3>>; };  // NOLINT
03507     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
03508     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
03509     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
03510     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
03511     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
03512     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
03513     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
03514     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
03515     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
03516     template<> struct ConwayPolynomial<7, 14> { using ZPZ = aerobus::zpz<7>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<0>, ZPZV<6>,
    ZPZV<2>, ZPZV<0>, ZPZV<3>, ZPZV<6>, ZPZV<3>>; };  // NOLINT
03517     template<> struct ConwayPolynomial<7, 15> { using ZPZ = aerobus::zpz<7>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>,
    ZPZV<6>, ZPZV<6>, ZPZV<4>, ZPZV<1>, ZPZV<2>, ZPZV<4>>; };  // NOLINT
03518     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
03519     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
03520     template<> struct ConwayPolynomial<7, 18> { using ZPZ = aerobus::zpz<7>; using type =
    POLYV<ZPZV<1>, 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
03521     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
03522     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
03523     template<> struct ConwayPolynomial<11, 1> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<9>>; };  // NOLINT
03524     template<> struct ConwayPolynomial<11, 2> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<7>, ZPZV<2>>; };  // NOLINT
03525     template<> struct ConwayPolynomial<11, 3> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<9>>; };  // NOLINT
03526     template<> struct ConwayPolynomial<11, 4> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
03527     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
03528     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
03529     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
03530     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
03531     template<> struct ConwayPolynomial<11, 9> { using ZPZ = aerobus::zpz<11>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<8>, ZPZV<9>>; };
    // NOLINT
03532     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
03533     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
03534     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
03535     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
03536     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
03537     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
03538     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
```

```
03539     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
03540     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
03541     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
03542     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
03543     template<> struct ConwayPolynomial<13, 1> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<11>>; };  // NOLINT
03544     template<> struct ConwayPolynomial<13, 2> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<12>, ZPZV<2>>; };  // NOLINT
03545     template<> struct ConwayPolynomial<13, 3> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11>>; };  // NOLINT
03546     template<> struct ConwayPolynomial<13, 4> { using ZPZ = aerobus::zpz<13>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<12>, ZPZV<2>>; };  // NOLINT
03547     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
03548     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
03549     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
03550     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
03551     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
03552     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
03553     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
03554     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
03555     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
03556     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
03557     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
03558     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
03559     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
03560     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
03561     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
03562     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
03563     template<> struct ConwayPolynomial<17, 1> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<14>>; };  // NOLINT
03564     template<> struct ConwayPolynomial<17, 2> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<16>, ZPZV<3>>; };  // NOLINT
03565     template<> struct ConwayPolynomial<17, 3> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<14>>; };  // NOLINT
03566     template<> struct ConwayPolynomial<17, 4> { using ZPZ = aerobus::zpz<17>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<10>, ZPZV<3>>; };  // NOLINT
03567     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
03568     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
03569     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
03570     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
03571     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>>; };
```

```
    // NOLINT
03572     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
03573     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<5>, ZPZV<14>>; };  // NOLINT
03574     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
03575     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
03576     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
03577     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
03578     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
03579     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
03580     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
03581     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
03582     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
03583     template<> struct ConwayPolynomial<19, 1> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<17>>; };  // NOLINT
03584     template<> struct ConwayPolynomial<19, 2> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<18>, ZPZV<2>>; };  // NOLINT
03585     template<> struct ConwayPolynomial<19, 3> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<17>>; };  // NOLINT
03586     template<> struct ConwayPolynomial<19, 4> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<11>, ZPZV<2>>; };  // NOLINT
03587     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
03588     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
03589     template<> struct ConwayPolynomial<19, 7> { using ZPZ = aerobus::zpz<19>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<17>>; };  // NOLINT
03590     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
03591     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
03592     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
03593     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
03594     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
03595     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
03596     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
03597     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
03598     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
03599     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
03600     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
03601     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
```

```
03602     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<16>,
      ZPZV<13>, ZPZV<0>, ZPZV<4>, ZPZV<7>, ZPZV<8>, ZPZV<6>, ZPZV<0>, ZPZV<3>, ZPZV<6>, ZPZV<11>, ZPZV<2>>;
      };  // NOLINT
03603     template<> struct ConwayPolynomial<23, 1> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<18>>; };  // NOLINT
03604     template<> struct ConwayPolynomial<23, 2> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<21>, ZPZV<5>>; };  // NOLINT
03605     template<> struct ConwayPolynomial<23, 3> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<18>>; };  // NOLINT
03606     template<> struct ConwayPolynomial<23, 4> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<19>, ZPZV<5>>; };  // NOLINT
03607     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
03608     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
03609     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
03610     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
03611     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
03612     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
03613     template<> struct ConwayPolynomial<23, 11> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<22>,
      ZPZV<7>, ZPZV<18>>; };  // NOLINT
03614     template<> struct ConwayPolynomial<23, 12> { using ZPZ = aerobus::zpz<23>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<21>, ZPZV<21>, ZPZV<15>, ZPZV<14>, ZPZV<12>,
      ZPZV<18>, ZPZV<12>, ZPZV<5>>; };  // NOLINT
03615     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
03616     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
03617     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<2>,
      ZPZV<8>, ZPZV<15>, ZPZV<9>, ZPZV<7>, ZPZV<18>, ZPZV<18>>; };  // NOLINT
03618     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
03619     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
03620     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
03621     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
03622     template<> struct ConwayPolynomial<29, 1> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<27>>; };  // NOLINT
03623     template<> struct ConwayPolynomial<29, 2> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<24>, ZPZV<2>>; };  // NOLINT
03624     template<> struct ConwayPolynomial<29, 3> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<27>>; };  // NOLINT
03625     template<> struct ConwayPolynomial<29, 4> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<15>, ZPZV<2>>; };  // NOLINT
03626     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
03627     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
03628     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
03629     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
03630     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
03631     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
03632     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
03633     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
03634     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<7>, ZPZV<27>>; };  // NOLINT
03635     template<> struct ConwayPolynomial<29, 14> { using ZPZ = aerobus::zpz<29>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<3>, ZPZV<14>, ZPZV<10>,
      ZPZV<21>, ZPZV<18>, ZPZV<27>, ZPZV<5>, ZPZV<2>>; };  // NOLINT
03636     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
03637     template<> struct ConwayPolynomial<29, 16> { using ZPZ = aerobus::zpz<29>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<27>,
      ZPZV<2>, ZPZV<18>, ZPZV<23>, ZPZV<1>, ZPZV<27>, ZPZV<10>, ZPZV<2>>; };  // NOLINT
03638     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
03639     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
03640     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
03641     template<> struct ConwayPolynomial<31, 1> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<28>>; };  // NOLINT
03642     template<> struct ConwayPolynomial<31, 2> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<29>, ZPZV<3>>; };  // NOLINT
03643     template<> struct ConwayPolynomial<31, 3> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<28>>; };  // NOLINT
03644     template<> struct ConwayPolynomial<31, 4> { using ZPZ = aerobus::zpz<31>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<16>, ZPZV<3>>; };  // NOLINT
03645     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
03646     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
03647     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
03648     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
03649     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
03650     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
03651     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
03652     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
03653     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
03654     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
03655     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
03656     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
03657     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
03658     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
03659     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
03660     template<> struct ConwayPolynomial<37, 1> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<35>>; };  // NOLINT
03661     template<> struct ConwayPolynomial<37, 2> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<33>, ZPZV<2>>; };  // NOLINT
03662     template<> struct ConwayPolynomial<37, 3> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<35>>; };  // NOLINT
03663     template<> struct ConwayPolynomial<37, 4> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<24>, ZPZV<2>>; };  // NOLINT
03664     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
03665     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
03666     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
03667     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
03668     template<> struct ConwayPolynomial<37, 9> { using ZPZ = aerobus::zpz<37>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<20>, ZPZV<32>, ZPZV<35>>; };
      // NOLINT
03669     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
03670     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
03671     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
03672     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
03673     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
03674     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
03675     template<> struct ConwayPolynomial<37, 17> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<35>>; };  // NOLINT
03676     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
03677     template<> struct ConwayPolynomial<37, 19> { using ZPZ = aerobus::zpz<37>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<23>, ZPZV<35>>; };  //
      NOLINT
03678     template<> struct ConwayPolynomial<41, 1> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<35>>; };  // NOLINT
03679     template<> struct ConwayPolynomial<41, 2> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<38>, ZPZV<6>>; };  // NOLINT
03680     template<> struct ConwayPolynomial<41, 3> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<35>>; };  // NOLINT
03681     template<> struct ConwayPolynomial<41, 4> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<23>, ZPZV<6>>; };  // NOLINT
03682     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
03683     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
03684     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
03685     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
03686     template<> struct ConwayPolynomial<41, 9> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<31>, ZPZV<5>, ZPZV<35>>; };
      // NOLINT
03687     template<> struct ConwayPolynomial<41, 10> { using ZPZ = aerobus::zpz<41>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<31>, ZPZV<8>, ZPZV<20>, ZPZV<30>,
      ZPZV<6>>; };  // NOLINT
03688     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
03689     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
03690     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
03691     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
03692     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
03693     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
03694     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
03695     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
03696     template<> struct ConwayPolynomial<43, 1> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<40>>; };  // NOLINT
03697     template<> struct ConwayPolynomial<43, 2> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<42>, ZPZV<3>>; };  // NOLINT
03698     template<> struct ConwayPolynomial<43, 3> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<40>>; };  // NOLINT
03699     template<> struct ConwayPolynomial<43, 4> { using ZPZ = aerobus::zpz<43>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<42>, ZPZV<3>>; };  // NOLINT
03700     template<> struct ConwayPolynomial<43, 5> { using ZPZ = aerobus::zpz<43>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<40>>; };  // NOLINT
03701     template<> struct ConwayPolynomial<43, 6> { using ZPZ = aerobus::zpz<43>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<19>, ZPZV<28>, ZPZV<21>, ZPZV<3>>; };  // NOLINT
03702     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
03703     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
03704     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
03705     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
03706     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
03707     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
03708     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
03709     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
03710     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<0>, ZPZV<2>, ZPZV<37>,
    ZPZV<22>, ZPZV<42>, ZPZV<4>, ZPZV<15>, ZPZV<37>, ZPZV<40>>; };  // NOLINT
03711     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
03712     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
03713     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
03714     template<> struct ConwayPolynomial<47, 1> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<42>>; };  // NOLINT
03715     template<> struct ConwayPolynomial<47, 2> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<45>, ZPZV<5>>; };  // NOLINT
03716     template<> struct ConwayPolynomial<47, 3> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<42>>; };  // NOLINT
03717     template<> struct ConwayPolynomial<47, 4> { using ZPZ = aerobus::zpz<47>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<40>, ZPZV<5>>; };  // NOLINT
03718     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
03719     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
03720     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
03721     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
03722     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
03723     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
03724     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
03725     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
03726     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
03727     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
03728     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
03729     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
03730     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
03731     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
```

```
03732     template<> struct ConwayPolynomial<53, 1> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<51>>; };  // NOLINT
03733     template<> struct ConwayPolynomial<53, 2> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<49>, ZPZV<2>>; };  // NOLINT
03734     template<> struct ConwayPolynomial<53, 3> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<51>>; };  // NOLINT
03735     template<> struct ConwayPolynomial<53, 4> { using ZPZ = aerobus::zpz<53>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<38>, ZPZV<2>>; };  // NOLINT
03736     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
03737     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
03738     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
03739     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
03740     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
03741     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
03742     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
03743     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
03744     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
03745     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
03746     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
03747     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<12>, ZPZV<51>>; };  // NOLINT
03748     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
03749     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
03750     template<> struct ConwayPolynomial<59, 1> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<57>>; };  // NOLINT
03751     template<> struct ConwayPolynomial<59, 2> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<58>, ZPZV<2>>; };  // NOLINT
03752     template<> struct ConwayPolynomial<59, 3> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<57>>; };  // NOLINT
03753     template<> struct ConwayPolynomial<59, 4> { using ZPZ = aerobus::zpz<59>; using type =
          POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<40>, ZPZV<2>>; };  // NOLINT
03754     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
03755     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
03756     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
03757     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
03758     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
03759     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
03760     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
03761     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
03762     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
03763     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
03764     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<57>,
          ZPZV<24>, ZPZV<23>, ZPZV<13>, ZPZV<39>, ZPZV<58>, ZPZV<57>>; };  // NOLINT
03765     template<> struct ConwayPolynomial<59, 17> { using ZPZ = aerobus::zpz<59>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<57>>; };  // NOLINT
03766     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
03767     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
03768     template<> struct ConwayPolynomial<61, 1> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<59>>; };  // NOLINT
03769     template<> struct ConwayPolynomial<61, 2> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<60>, ZPZV<2>>; };  // NOLINT
03770     template<> struct ConwayPolynomial<61, 3> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<59>>; };  // NOLINT
03771     template<> struct ConwayPolynomial<61, 4> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<40>, ZPZV<2>>; };  // NOLINT
03772     template<> struct ConwayPolynomial<61, 5> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59>>; };  // NOLINT
03773     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
03774     template<> struct ConwayPolynomial<61, 7> { using ZPZ = aerobus::zpz<61>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<59>>; };  // NOLINT
03775     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
03776     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
03777     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
03778     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
03779     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
03780     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
03781     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
03782     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
03783     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
03784     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
03785     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
03786     template<> struct ConwayPolynomial<67, 1> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<65>>; };  // NOLINT
03787     template<> struct ConwayPolynomial<67, 2> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<63>, ZPZV<2>>; };  // NOLINT
03788     template<> struct ConwayPolynomial<67, 3> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<65>>; };  // NOLINT
03789     template<> struct ConwayPolynomial<67, 4> { using ZPZ = aerobus::zpz<67>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<54>, ZPZV<2>>; };  // NOLINT
03790     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
03791     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
03792     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
03793     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
03794     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
03795     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
03796     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
03797     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
03798     template<> struct ConwayPolynomial<67, 13> { using ZPZ = aerobus::zpz<67>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<22>, ZPZV<65>>; };  // NOLINT
03799     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
03800     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
03801     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
03802     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
03803     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
03804     template<> struct ConwayPolynomial<71, 1> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<64>>; };  // NOLINT
03805     template<> struct ConwayPolynomial<71, 2> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<69>, ZPZV<7>>; };  // NOLINT
03806     template<> struct ConwayPolynomial<71, 3> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<64>>; };  // NOLINT
03807     template<> struct ConwayPolynomial<71, 4> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<41>, ZPZV<7>>; };  // NOLINT
03808     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
03809     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
03810     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
03811     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
03812     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
03813     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
03814     template<> struct ConwayPolynomial<71, 11> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<48>, ZPZV<64>>; };  // NOLINT
03815     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
03816     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<27>, ZPZV<64>>; };  // NOLINT
03817     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
03818     template<> struct ConwayPolynomial<71, 17> { using ZPZ = aerobus::zpz<71>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<64>>; };  // NOLINT
03819     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<4>, ZPZV<64>>; };  //
      NOLINT
03820     template<> struct ConwayPolynomial<73, 1> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<68>>; };  // NOLINT
03821     template<> struct ConwayPolynomial<73, 2> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<70>, ZPZV<5>>; };  // NOLINT
03822     template<> struct ConwayPolynomial<73, 3> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<68>>; };  // NOLINT
03823     template<> struct ConwayPolynomial<73, 4> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<56>, ZPZV<5>>; };  // NOLINT
03824     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
03825     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
03826     template<> struct ConwayPolynomial<73, 7> { using ZPZ = aerobus::zpz<73>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<68>>; };  // NOLINT
03827     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
03828     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
03829     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
03830     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
03831     template<> struct ConwayPolynomial<73, 12> { using ZPZ = aerobus::zpz<73>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<69>, ZPZV<52>, ZPZV<26>, ZPZV<20>, ZPZV<46>,
      ZPZV<29>, ZPZV<25>, ZPZV<5>>; };  // NOLINT
03832     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
03833     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
03834     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
03835     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<25>, ZPZV<68>>; };  //
      NOLINT
03836     template<> struct ConwayPolynomial<79, 1> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<76>>; };  // NOLINT
03837     template<> struct ConwayPolynomial<79, 2> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<78>, ZPZV<3>>; };  // NOLINT
03838     template<> struct ConwayPolynomial<79, 3> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<76>>; };  // NOLINT
03839     template<> struct ConwayPolynomial<79, 4> { using ZPZ = aerobus::zpz<79>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<66>, ZPZV<3>>; };  // NOLINT
03840     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
03841     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
03842     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
03843     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
03844     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
03845     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
03846     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
03847     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
03848     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<78>, ZPZV<4>, ZPZV<76>>; };  // NOLINT
03849     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<25>, ZPZV<76>>; };  // NOLINT
03850     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<25>, ZPZV<76>>; };  //
      NOLINT
03851     template<> struct ConwayPolynomial<83, 1> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<81>>; };  // NOLINT
03852     template<> struct ConwayPolynomial<83, 2> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<82>, ZPZV<2>>; };  // NOLINT
03853     template<> struct ConwayPolynomial<83, 3> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<81>>; };  // NOLINT
03854     template<> struct ConwayPolynomial<83, 4> { using ZPZ = aerobus::zpz<83>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<42>, ZPZV<2>>; };  // NOLINT
03855     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
03856     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
03857     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
03858     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
03859     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
03860     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
03861     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
03862     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
03863     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
03864     template<> struct ConwayPolynomial<83, 17> { using ZPZ = aerobus::zpz<83>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<81>>; };  // NOLINT
03865     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
03866     template<> struct ConwayPolynomial<89, 1> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<86>>; };  // NOLINT
03867     template<> struct ConwayPolynomial<89, 2> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<82>, ZPZV<3>>; };  // NOLINT
03868     template<> struct ConwayPolynomial<89, 3> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<86>>; };  // NOLINT
03869     template<> struct ConwayPolynomial<89, 4> { using ZPZ = aerobus::zpz<89>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<72>, ZPZV<3>>; };  // NOLINT
03870     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
03871     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
03872     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
03873     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
03874     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
03875     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
03876     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
03877     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
03878     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
03879     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
03880     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
03881     template<> struct ConwayPolynomial<97, 1> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<92>>; };  // NOLINT
03882     template<> struct ConwayPolynomial<97, 2> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<96>, ZPZV<5>>; };  // NOLINT
03883     template<> struct ConwayPolynomial<97, 3> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<92>>; };  // NOLINT
03884     template<> struct ConwayPolynomial<97, 4> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<80>, ZPZV<5>>; };  // NOLINT
03885     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
03886     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
03887     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
03888     template<> struct ConwayPolynomial<97, 8> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<65>, ZPZV<1>, ZPZV<32>, ZPZV<5>>; };  //
      NOLINT
03889     template<> struct ConwayPolynomial<97, 9> { using ZPZ = aerobus::zpz<97>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<12>, ZPZV<59>, ZPZV<7>, ZPZV<92>>; };
      // NOLINT
03890     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
03891     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
03892     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
03893     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
03894     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
03895     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
03896     template<> struct ConwayPolynomial<101, 1> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<99>>; };  // NOLINT
03897     template<> struct ConwayPolynomial<101, 2> { using ZPZ = aerobus::zpz<101>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<97>, ZPZV<2>>; };  // NOLINT
03898     template<> struct ConwayPolynomial<101, 3> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<99>>; };  // NOLINT
03899     template<> struct ConwayPolynomial<101, 4> { using ZPZ = aerobus::zpz<101>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<78>, ZPZV<2>>; };  // NOLINT
03900     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
03901     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
03902     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
03903     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
03904     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
03905     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
03906     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
03907     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
03908     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
03909     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
03910     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
03911     template<> struct ConwayPolynomial<103, 1> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<98>>; };  // NOLINT
03912     template<> struct ConwayPolynomial<103, 2> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<102>, ZPZV<5>>; };  // NOLINT
03913     template<> struct ConwayPolynomial<103, 3> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<98>>; };  // NOLINT
03914     template<> struct ConwayPolynomial<103, 4> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<88>, ZPZV<5>>; };  // NOLINT
03915     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
03916     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
03917     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
03918     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
03919     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
03920     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
03921     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
03922     template<> struct ConwayPolynomial<103, 12> { using ZPZ = aerobus::zpz<103>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<74>, ZPZV<23>, ZPZV<94>, ZPZV<20>, ZPZV<81>,
      ZPZV<29>, ZPZV<88>, ZPZV<5>>; };  // NOLINT
03923     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
03924     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
03925     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
03926     template<> struct ConwayPolynomial<107, 1> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<105>>; };  // NOLINT
03927     template<> struct ConwayPolynomial<107, 2> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<103>, ZPZV<2>>; };  // NOLINT
03928     template<> struct ConwayPolynomial<107, 3> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<105>>; };  // NOLINT
03929     template<> struct ConwayPolynomial<107, 4> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<79>, ZPZV<2>>; };  // NOLINT
03930     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
03931     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
```

```
03932     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
03933     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
03934     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
03935     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
03936     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
03937     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
03938     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
03939     template<> struct ConwayPolynomial<107, 17> { using ZPZ = aerobus::zpz<107>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<105>>; };  // NOLINT
03940     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
03941     template<> struct ConwayPolynomial<109, 1> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<103>>; };  // NOLINT
03942     template<> struct ConwayPolynomial<109, 2> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<108>, ZPZV<6>>; };  // NOLINT
03943     template<> struct ConwayPolynomial<109, 3> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<103>>; };  // NOLINT
03944     template<> struct ConwayPolynomial<109, 4> { using ZPZ = aerobus::zpz<109>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<98>, ZPZV<6>>; };  // NOLINT
03945     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
03946     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
03947     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
03948     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
03949     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
03950     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
03951     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
03952     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
03953     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
03954     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
03955     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
03956     template<> struct ConwayPolynomial<113, 1> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<110>>; };  // NOLINT
03957     template<> struct ConwayPolynomial<113, 2> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<101>, ZPZV<3>>; };  // NOLINT
03958     template<> struct ConwayPolynomial<113, 3> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<110>>; };  // NOLINT
03959     template<> struct ConwayPolynomial<113, 4> { using ZPZ = aerobus::zpz<113>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<62>, ZPZV<3>>; };  // NOLINT
03960     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
03961     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
03962     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
03963     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
03964     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
03965     template<> struct ConwayPolynomial<113, 10> { using ZPZ = aerobus::zpz<113>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<108>, ZPZV<57>, ZPZV<45>, ZPZV<83>, ZPZV<56>,
      ZPZV<3>>; };  // NOLINT
03966     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
03967     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
03968     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
03969     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
03970     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
03971     template<> struct ConwayPolynomial<127, 1> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<124>>; };  // NOLINT
03972     template<> struct ConwayPolynomial<127, 2> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<126>, ZPZV<3>>; };  // NOLINT
03973     template<> struct ConwayPolynomial<127, 3> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<124>>; };  // NOLINT
03974     template<> struct ConwayPolynomial<127, 4> { using ZPZ = aerobus::zpz<127>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<97>, ZPZV<3>>; };  // NOLINT
03975     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
03976     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
03977     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
03978     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
03979     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
03980     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
03981     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
03982     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
03983     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
03984     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
03985     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
03986     template<> struct ConwayPolynomial<131, 1> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<129>>; };  // NOLINT
03987     template<> struct ConwayPolynomial<131, 2> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<127>, ZPZV<2>>; };  // NOLINT
03988     template<> struct ConwayPolynomial<131, 3> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<129>>; };  // NOLINT
03989     template<> struct ConwayPolynomial<131, 4> { using ZPZ = aerobus::zpz<131>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<109>, ZPZV<2>>; };  // NOLINT
03990     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
03991     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
03992     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
03993     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
03994     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
03995     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
03996     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
03997     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
03998     template<> struct ConwayPolynomial<131, 13> { using ZPZ = aerobus::zpz<131>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<129>>; };  // NOLINT
03999     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
04000     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
04001     template<> struct ConwayPolynomial<137, 1> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<134>>; };  // NOLINT
04002     template<> struct ConwayPolynomial<137, 2> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<131>, ZPZV<3>>; };  // NOLINT
04003     template<> struct ConwayPolynomial<137, 3> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<134>>; };  // NOLINT
04004     template<> struct ConwayPolynomial<137, 4> { using ZPZ = aerobus::zpz<137>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<95>, ZPZV<3>>; };  // NOLINT
04005     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
04006     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
04007     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
04008     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
04009     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
04010     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
04011     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
04012     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
04013     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
04014     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
04015     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
04016     template<> struct ConwayPolynomial<139, 1> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<137>>; };  // NOLINT
04017     template<> struct ConwayPolynomial<139, 2> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<138>, ZPZV<2>>; };  // NOLINT
04018     template<> struct ConwayPolynomial<139, 3> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<137>>; };  // NOLINT
04019     template<> struct ConwayPolynomial<139, 4> { using ZPZ = aerobus::zpz<139>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<96>, ZPZV<2>>; };  // NOLINT
04020     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
04021     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
04022     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
04023     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
04024     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
04025     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
04026     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
04027     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
04028     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
04029     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
04030     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
```

```
04031     template<> struct ConwayPolynomial<149, 1> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<147>>; };  // NOLINT
04032     template<> struct ConwayPolynomial<149, 2> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<145>, ZPZV<2>>; };  // NOLINT
04033     template<> struct ConwayPolynomial<149, 3> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<147>>; };  // NOLINT
04034     template<> struct ConwayPolynomial<149, 4> { using ZPZ = aerobus::zpz<149>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<107>, ZPZV<2>>; };  // NOLINT
04035     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
04036     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
04037     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
04038     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
04039     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
04040     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
04041     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
04042     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
04043     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
04044     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
04045     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
04046     template<> struct ConwayPolynomial<151, 1> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<145>>; };  // NOLINT
04047     template<> struct ConwayPolynomial<151, 2> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<149>, ZPZV<6>>; };  // NOLINT
04048     template<> struct ConwayPolynomial<151, 3> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<145>>; };  // NOLINT
04049     template<> struct ConwayPolynomial<151, 4> { using ZPZ = aerobus::zpz<151>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<89>, ZPZV<6>>; };  // NOLINT
04050     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
04051     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
04052     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
04053     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
04054     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
04055     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
04056     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
04057     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
04058     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
04059     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
04060     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
04061     template<> struct ConwayPolynomial<157, 1> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<152>>; };  // NOLINT
04062     template<> struct ConwayPolynomial<157, 2> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<152>, ZPZV<5>>; };  // NOLINT
04063     template<> struct ConwayPolynomial<157, 3> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<152>>; };  // NOLINT
04064     template<> struct ConwayPolynomial<157, 4> { using ZPZ = aerobus::zpz<157>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<136>, ZPZV<5>>; };  // NOLINT
04065     template<> struct ConwayPolynomial<157, 5> { using ZPZ = aerobus::zpz<157>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<152>>; };  // NOLINT
04066     template<> struct ConwayPolynomial<157, 6> { using ZPZ = aerobus::zpz<157>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<130>, ZPZV<43>, ZPZV<144>, ZPZV<5>>; };  // NOLINT
04067     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
04068     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
04069     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
04070     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
04071     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
04072     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
04073     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
04074     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
04075     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
04076     template<> struct ConwayPolynomial<163, 1> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<161>>; };  // NOLINT
04077     template<> struct ConwayPolynomial<163, 2> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<159>, ZPZV<2>>; };  // NOLINT
04078     template<> struct ConwayPolynomial<163, 3> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<161>>; };  // NOLINT
04079     template<> struct ConwayPolynomial<163, 4> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<91>, ZPZV<2>>; };  // NOLINT
04080     template<> struct ConwayPolynomial<163, 5> { using ZPZ = aerobus::zpz<163>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<161>>; };  // NOLINT
04081     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
04082     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
04083     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
04084     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
04085     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
04086     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
04087     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
04088     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
04089     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
04090     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
04091     template<> struct ConwayPolynomial<167, 1> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<162>>; };  // NOLINT
04092     template<> struct ConwayPolynomial<167, 2> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<166>, ZPZV<5>>; };  // NOLINT
04093     template<> struct ConwayPolynomial<167, 3> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>>; };  // NOLINT
04094     template<> struct ConwayPolynomial<167, 4> { using ZPZ = aerobus::zpz<167>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<120>, ZPZV<5>>; };  // NOLINT
04095     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
04096     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
04097     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
04098     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
04099     template<> struct ConwayPolynomial<167, 9> { using ZPZ = aerobus::zpz<167>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<165>, ZPZV<122>, ZPZV<162>>;
      };  // NOLINT
04100     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
04101     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
04102     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
04103     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
04104     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
04105     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
04106     template<> struct ConwayPolynomial<173, 1> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<171>>; };  // NOLINT
04107     template<> struct ConwayPolynomial<173, 2> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<169>, ZPZV<2>>; };  // NOLINT
04108     template<> struct ConwayPolynomial<173, 3> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<171>>; };  // NOLINT
04109     template<> struct ConwayPolynomial<173, 4> { using ZPZ = aerobus::zpz<173>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<102>, ZPZV<2>>; };  // NOLINT
04110     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
04111     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
04112     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
04113     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
04114     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
04115     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
04116     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
04117     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
04118     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
04119     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
04120     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
04121     template<> struct ConwayPolynomial<179, 1> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<177>>; };  // NOLINT
04122     template<> struct ConwayPolynomial<179, 2> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<172>, ZPZV<2>>; };  // NOLINT
04123     template<> struct ConwayPolynomial<179, 3> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<177>>; };  // NOLINT
04124     template<> struct ConwayPolynomial<179, 4> { using ZPZ = aerobus::zpz<179>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<109>, ZPZV<2>>; };  // NOLINT
04125     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
04126     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
04127     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
04128     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
04129     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
04130     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
04131     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
04132     template<> struct ConwayPolynomial<179, 12> { using ZPZ = aerobus::zpz<179>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<103>, ZPZV<83>, ZPZV<43>, ZPZV<76>, ZPZV<8>,
      ZPZV<177>, ZPZV<1>, ZPZV<2>>; };  // NOLINT
04133     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
04134     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
04135     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
04136     template<> struct ConwayPolynomial<181, 1> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<179>>; };  // NOLINT
04137     template<> struct ConwayPolynomial<181, 2> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<177>, ZPZV<2>>; };  // NOLINT
04138     template<> struct ConwayPolynomial<181, 3> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<179>>; };  // NOLINT
04139     template<> struct ConwayPolynomial<181, 4> { using ZPZ = aerobus::zpz<181>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<105>, ZPZV<2>>; };  // NOLINT
04140     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
04141     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
04142     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
04143     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
04144     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
04145     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
04146     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<24>, ZPZV<179>>; };  // NOLINT
04147     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
04148     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<8>, ZPZV<179>>; };  // NOLINT
04149     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<9>, ZPZV<179>>; };  // NOLINT
04150     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<36>, ZPZV<179>>; };  //
      NOLINT
04151     template<> struct ConwayPolynomial<191, 1> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<172>>; };  // NOLINT
04152     template<> struct ConwayPolynomial<191, 2> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<190>, ZPZV<19>>; };  // NOLINT
04153     template<> struct ConwayPolynomial<191, 3> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<172>>; };  // NOLINT
04154     template<> struct ConwayPolynomial<191, 4> { using ZPZ = aerobus::zpz<191>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<100>, ZPZV<19>>; };  // NOLINT
04155     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
04156     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
04157     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
04158     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
04159     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
04160     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
04161     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
04162     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
04163     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
04164     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
04165     template<> struct ConwayPolynomial<191, 19> { using ZPZ = aerobus::zpz<191>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<190>, ZPZV<2>, ZPZV<172>>; };  //
      NOLINT
04166     template<> struct ConwayPolynomial<193, 1> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<188>>; };  // NOLINT
04167     template<> struct ConwayPolynomial<193, 2> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<192>, ZPZV<5>>; };  // NOLINT
04168     template<> struct ConwayPolynomial<193, 3> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<188>>; };  // NOLINT
04169     template<> struct ConwayPolynomial<193, 4> { using ZPZ = aerobus::zpz<193>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<148>, ZPZV<5>>; };  // NOLINT
04170     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
04171     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
04172     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
04173     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
04174     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
04175     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
04176     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
04177     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
04178     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
04179     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
04180     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
04181     template<> struct ConwayPolynomial<197, 1> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<195>>; };  // NOLINT
04182     template<> struct ConwayPolynomial<197, 2> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<192>, ZPZV<2>>; };  // NOLINT
04183     template<> struct ConwayPolynomial<197, 3> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<195>>; };  // NOLINT
04184     template<> struct ConwayPolynomial<197, 4> { using ZPZ = aerobus::zpz<197>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<124>, ZPZV<2>>; };  // NOLINT
04185     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
04186     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
04187     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
04188     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
04189     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
04190     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
04191     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
04192     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
04193     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
04194     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
04195     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
04196     template<> struct ConwayPolynomial<199, 1> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<196>>; };  // NOLINT
04197     template<> struct ConwayPolynomial<199, 2> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<193>, ZPZV<3>>; };  // NOLINT
04198     template<> struct ConwayPolynomial<199, 3> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<196>>; };  // NOLINT
```

```
04199     template<> struct ConwayPolynomial<199, 4> { using ZPZ = aerobus::zpz<199>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<3>>; };  // NOLINT
04200     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
04201     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
04202     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
04203     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
04204     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
04205     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
04206     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
04207     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
04208     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
04209     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
04210     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<0>, ZPZV<19>, ZPZV<196>>; };  //
      NOLINT
04211     template<> struct ConwayPolynomial<211, 1> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<209>>; };  // NOLINT
04212     template<> struct ConwayPolynomial<211, 2> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<207>, ZPZV<2>>; };  // NOLINT
04213     template<> struct ConwayPolynomial<211, 3> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<209>>; };  // NOLINT
04214     template<> struct ConwayPolynomial<211, 4> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<161>, ZPZV<2>>; };  // NOLINT
04215     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
04216     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
04217     template<> struct ConwayPolynomial<211, 7> { using ZPZ = aerobus::zpz<211>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<209>>; };  // NOLINT
04218     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
04219     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
04220     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
04221     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
04222     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
04223     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
04224     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
04225     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
04226     template<> struct ConwayPolynomial<223, 1> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<220>>; };  // NOLINT
04227     template<> struct ConwayPolynomial<223, 2> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<221>, ZPZV<3>>; };  // NOLINT
04228     template<> struct ConwayPolynomial<223, 3> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<220>>; };  // NOLINT
04229     template<> struct ConwayPolynomial<223, 4> { using ZPZ = aerobus::zpz<223>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<163>, ZPZV<3>>; };  // NOLINT
04230     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
04231     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
04232     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
04233     template<> struct ConwayPolynomial<223, 8> { using ZPZ = aerobus::zpz<223>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<139>, ZPZV<98>, ZPZV<138>, ZPZV<3>>; };  //
      NOLINT
04234     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
04235     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
04236     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
04237     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
04238     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
04239     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
04240     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<7>, ZPZV<220>>; };  //
      NOLINT
04241     template<> struct ConwayPolynomial<227, 1> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<225>>; };  // NOLINT
04242     template<> struct ConwayPolynomial<227, 2> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<220>, ZPZV<2>>; };  // NOLINT
04243     template<> struct ConwayPolynomial<227, 3> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<225>>; };  // NOLINT
04244     template<> struct ConwayPolynomial<227, 4> { using ZPZ = aerobus::zpz<227>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<143>, ZPZV<2>>; };  // NOLINT
04245     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
04246     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
04247     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
04248     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
04249     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
04250     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
04251     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
04252     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
04253     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
04254     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
04255     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
04256     template<> struct ConwayPolynomial<229, 1> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<223>>; };  // NOLINT
04257     template<> struct ConwayPolynomial<229, 2> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<228>, ZPZV<6>>; };  // NOLINT
04258     template<> struct ConwayPolynomial<229, 3> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<223>>; };  // NOLINT
04259     template<> struct ConwayPolynomial<229, 4> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<162>, ZPZV<6>>; };  // NOLINT
04260     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
04261     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
04262     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
04263     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
04264     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
04265     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
04266     template<> struct ConwayPolynomial<229, 11> { using ZPZ = aerobus::zpz<229>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<2>, ZPZV<223>>; };  // NOLINT
04267     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
04268     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
04269     template<> struct ConwayPolynomial<229, 17> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<223>>; };  // NOLINT
04270     template<> struct ConwayPolynomial<229, 19> { using ZPZ = aerobus::zpz<229>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<228>, ZPZV<15>, ZPZV<223>>; };  //
      NOLINT
04271     template<> struct ConwayPolynomial<233, 1> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<230>>; };  // NOLINT
04272     template<> struct ConwayPolynomial<233, 2> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<232>, ZPZV<3>>; };  // NOLINT
04273     template<> struct ConwayPolynomial<233, 3> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<230>>; };  // NOLINT
04274     template<> struct ConwayPolynomial<233, 4> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<158>, ZPZV<3>>; };  // NOLINT
04275     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
04276     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
04277     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
04278     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
04279     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
04280     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
04281     template<> struct ConwayPolynomial<233, 11> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<5>, ZPZV<230>>; };  // NOLINT
04282     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
04283     template<> struct ConwayPolynomial<233, 13> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<14>, ZPZV<230>>; };  // NOLINT
04284     template<> struct ConwayPolynomial<233, 17> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<230>>; };  // NOLINT
04285     template<> struct ConwayPolynomial<233, 19> { using ZPZ = aerobus::zpz<233>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<25>, ZPZV<230>>; };  //
      NOLINT
04286     template<> struct ConwayPolynomial<239, 1> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<232>>; };  // NOLINT
04287     template<> struct ConwayPolynomial<239, 2> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<237>, ZPZV<7>>; };  // NOLINT
04288     template<> struct ConwayPolynomial<239, 3> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<232>>; };  // NOLINT
04289     template<> struct ConwayPolynomial<239, 4> { using ZPZ = aerobus::zpz<239>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<132>, ZPZV<7>>; };  // NOLINT
04290     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
04291     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
04292     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
04293     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
04294     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
04295     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
04296     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
04297     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
04298     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
04299     template<> struct ConwayPolynomial<239, 17> { using ZPZ = aerobus::zpz<239>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<9>, ZPZV<232>>; };  // NOLINT
04300     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
04301     template<> struct ConwayPolynomial<241, 1> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<234>>; };  // NOLINT
04302     template<> struct ConwayPolynomial<241, 2> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<238>, ZPZV<7>>; };  // NOLINT
04303     template<> struct ConwayPolynomial<241, 3> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<234>>; };  // NOLINT
04304     template<> struct ConwayPolynomial<241, 4> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<152>, ZPZV<7>>; };  // NOLINT
04305     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
04306     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
04307     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
04308     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
04309     template<> struct ConwayPolynomial<241, 9> { using ZPZ = aerobus::zpz<241>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<236>, ZPZV<125>, ZPZV<234>>;
      };  // NOLINT
04310     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
04311     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
04312     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
04313     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
04314     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
04315     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
04316     template<> struct ConwayPolynomial<251, 1> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<245>>; };  // NOLINT
04317     template<> struct ConwayPolynomial<251, 2> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<242>, ZPZV<6>>; };  // NOLINT
04318     template<> struct ConwayPolynomial<251, 3> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<245>>; };  // NOLINT
04319     template<> struct ConwayPolynomial<251, 4> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<200>, ZPZV<6>>; };  // NOLINT
04320     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
04321     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
04322     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
04323     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
04324     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
04325     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
04326     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
04327     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
04328     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
04329     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
04330     template<> struct ConwayPolynomial<251, 19> { using ZPZ = aerobus::zpz<251>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<245>>; };  //
      NOLINT
04331     template<> struct ConwayPolynomial<257, 1> { using ZPZ = aerobus::zpz<257>; using type =
      POLYV<ZPZV<1>, ZPZV<254>>; };  // NOLINT
04332     template<> struct ConwayPolynomial<257, 2> { using ZPZ = aerobus::zpz<257>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<251>, ZPZV<3>>; };  // NOLINT
04333     template<> struct ConwayPolynomial<257, 3> { using ZPZ = aerobus::zpz<257>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<254>>; };  // NOLINT
04334     template<> struct ConwayPolynomial<257, 4> { using ZPZ = aerobus::zpz<257>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<187>, ZPZV<3>>; };  // NOLINT
04335     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
04336     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
04337     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
04338     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
04339     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
04340     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
04341     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
04342     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
04343     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
04344     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
04345     template<> struct ConwayPolynomial<257, 19> { using ZPZ = aerobus::zpz<257>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>,
      ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<254>>; };  //
      NOLINT
04346     template<> struct ConwayPolynomial<263, 1> { using ZPZ = aerobus::zpz<263>; using type =
      POLYV<ZPZV<1>, ZPZV<258>>; };  // NOLINT
04347     template<> struct ConwayPolynomial<263, 2> { using ZPZ = aerobus::zpz<263>; using type =
      POLYV<ZPZV<1>, ZPZV<261>, ZPZV<5>>; };  // NOLINT
04348     template<> struct ConwayPolynomial<263, 3> { using ZPZ = aerobus::zpz<263>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<258>>; };  // NOLINT
04349     template<> struct ConwayPolynomial<263, 4> { using ZPZ = aerobus::zpz<263>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<171>, ZPZV<5>>; };  // NOLINT
04350     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
04351     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
04352     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
04353     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
04354     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
04355     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
04356     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
04357     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
04358     template<> struct ConwayPolynomial<269, 1> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<267>>; };  // NOLINT
04359     template<> struct ConwayPolynomial<269, 2> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<268>, ZPZV<2>>; };  // NOLINT
04360     template<> struct ConwayPolynomial<269, 3> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<267>>; };  // NOLINT
04361     template<> struct ConwayPolynomial<269, 4> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<262>, ZPZV<2>>; };  // NOLINT
04362     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
04363     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
04364     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
04365     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
04366     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
04367     template<> struct ConwayPolynomial<269, 10> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<264>, ZPZV<243>, ZPZV<186>, ZPZV<61>,
```

```
      ZPZV<10>, ZPZV<2>>; };  // NOLINT
04368     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
04369     template<> struct ConwayPolynomial<269, 12> { using ZPZ = aerobus::zpz<269>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<126>, ZPZV<165>, ZPZV<63>, ZPZV<215>,
      ZPZV<132>, ZPZV<180>, ZPZV<150>, ZPZV<2>>; };  // NOLINT
04370     template<> struct ConwayPolynomial<271, 1> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<265>>; };  // NOLINT
04371     template<> struct ConwayPolynomial<271, 2> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<269>, ZPZV<6>>; };  // NOLINT
04372     template<> struct ConwayPolynomial<271, 3> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<265>>; };  // NOLINT
04373     template<> struct ConwayPolynomial<271, 4> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<205>, ZPZV<6>>; };  // NOLINT
04374     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
04375     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
04376     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
04377     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
04378     template<> struct ConwayPolynomial<271, 9> { using ZPZ = aerobus::zpz<271>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<266>, ZPZV<186>,
      ZPZV<265>>; };  // NOLINT
04379     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
04380     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
04381     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
04382     template<> struct ConwayPolynomial<277, 1> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<272>>; };  // NOLINT
04383     template<> struct ConwayPolynomial<277, 2> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<274>, ZPZV<5>>; };  // NOLINT
04384     template<> struct ConwayPolynomial<277, 3> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<272>>; };  // NOLINT
04385     template<> struct ConwayPolynomial<277, 4> { using ZPZ = aerobus::zpz<277>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<222>, ZPZV<5>>; };  // NOLINT
04386     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
04387     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
04388     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
04389     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
04390     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
04391     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
04392     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
04393     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
04394     template<> struct ConwayPolynomial<281, 1> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<278>>; };  // NOLINT
04395     template<> struct ConwayPolynomial<281, 2> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<280>, ZPZV<3>>; };  // NOLINT
04396     template<> struct ConwayPolynomial<281, 3> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<278>>; };  // NOLINT
04397     template<> struct ConwayPolynomial<281, 4> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<176>, ZPZV<3>>; };  // NOLINT
04398     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
04399     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
04400     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
04401     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
04402     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
04403     template<> struct ConwayPolynomial<281, 10> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<258>, ZPZV<145>, ZPZV<13>, ZPZV<138>,
```

```
      ZPZV<191>, ZPZV<3>>; };  // NOLINT
04404     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
04405     template<> struct ConwayPolynomial<281, 12> { using ZPZ = aerobus::zpz<281>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<202>, ZPZV<68>, ZPZV<103>, ZPZV<116>,
      ZPZV<58>, ZPZV<28>, ZPZV<191>, ZPZV<3>>; };  // NOLINT
04406     template<> struct ConwayPolynomial<283, 1> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<280>>; };  // NOLINT
04407     template<> struct ConwayPolynomial<283, 2> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<282>, ZPZV<3>>; };  // NOLINT
04408     template<> struct ConwayPolynomial<283, 3> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<280>>; };  // NOLINT
04409     template<> struct ConwayPolynomial<283, 4> { using ZPZ = aerobus::zpz<283>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<238>, ZPZV<3>>; };  // NOLINT
04410     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
04411     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
04412     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
04413     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
04414     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
04415     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
04416     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
04417     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
04418     template<> struct ConwayPolynomial<293, 1> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<291>>; };  // NOLINT
04419     template<> struct ConwayPolynomial<293, 2> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<292>, ZPZV<2>>; };  // NOLINT
04420     template<> struct ConwayPolynomial<293, 3> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<291>>; };  // NOLINT
04421     template<> struct ConwayPolynomial<293, 4> { using ZPZ = aerobus::zpz<293>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<166>, ZPZV<2>>; };  // NOLINT
04422     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
04423     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
04424     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
04425     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
04426     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
04427     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
04428     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
04429     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
04430     template<> struct ConwayPolynomial<307, 1> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<302>>; };  // NOLINT
04431     template<> struct ConwayPolynomial<307, 2> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<306>, ZPZV<5>>; };  // NOLINT
04432     template<> struct ConwayPolynomial<307, 3> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<302>>; };  // NOLINT
04433     template<> struct ConwayPolynomial<307, 4> { using ZPZ = aerobus::zpz<307>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<239>, ZPZV<5>>; };  // NOLINT
04434     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
04435     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
04436     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
04437     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
04438     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
04439     template<> struct ConwayPolynomial<311, 1> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<294>>; };  // NOLINT
```

```
04440     template<> struct ConwayPolynomial<311, 2> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<310>, ZPZV<17>>; };  // NOLINT
04441     template<> struct ConwayPolynomial<311, 3> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<294>>; };  // NOLINT
04442     template<> struct ConwayPolynomial<311, 4> { using ZPZ = aerobus::zpz<311>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<163>, ZPZV<17>>; };  // NOLINT
04443     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
04444     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
04445     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
04446     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
04447     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
04448     template<> struct ConwayPolynomial<313, 1> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<303>>; };  // NOLINT
04449     template<> struct ConwayPolynomial<313, 2> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<310>, ZPZV<10>>; };  // NOLINT
04450     template<> struct ConwayPolynomial<313, 3> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<303>>; };  // NOLINT
04451     template<> struct ConwayPolynomial<313, 4> { using ZPZ = aerobus::zpz<313>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<239>, ZPZV<10>>; };  // NOLINT
04452     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
04453     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
04454     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
04455     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
04456     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
04457     template<> struct ConwayPolynomial<317, 1> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<315>>; };  // NOLINT
04458     template<> struct ConwayPolynomial<317, 2> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<313>, ZPZV<2>>; };  // NOLINT
04459     template<> struct ConwayPolynomial<317, 3> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<315>>; };  // NOLINT
04460     template<> struct ConwayPolynomial<317, 4> { using ZPZ = aerobus::zpz<317>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<178>, ZPZV<2>>; };  // NOLINT
04461     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
04462     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
04463     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
04464     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
04465     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
04466     template<> struct ConwayPolynomial<331, 1> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<328>>; };  // NOLINT
04467     template<> struct ConwayPolynomial<331, 2> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<326>, ZPZV<3>>; };  // NOLINT
04468     template<> struct ConwayPolynomial<331, 3> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<328>>; };  // NOLINT
04469     template<> struct ConwayPolynomial<331, 4> { using ZPZ = aerobus::zpz<331>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<290>, ZPZV<3>>; };  // NOLINT
04470     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
04471     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
04472     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
04473     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
04474     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<194>, ZPZV<210>, ZPZV<328>>;
      };  // NOLINT
04475     template<> struct ConwayPolynomial<337, 1> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<327>>; };  // NOLINT
04476     template<> struct ConwayPolynomial<337, 2> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<332>, ZPZV<10>>; };  // NOLINT
04477     template<> struct ConwayPolynomial<337, 3> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327>>; };  // NOLINT
04478     template<> struct ConwayPolynomial<337, 4> { using ZPZ = aerobus::zpz<337>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<25>, ZPZV<224>, ZPZV<10>>; };  // NOLINT
04479     template<> struct ConwayPolynomial<337, 5> { using ZPZ = aerobus::zpz<337>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<327>>; };  // NOLINT
04480     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
04481     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
04482     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
04483     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
04484     template<> struct ConwayPolynomial<347, 1> { using ZPZ = aerobus::zpz<347>; using type =
      POLYV<ZPZV<1>, ZPZV<345>>; };  // NOLINT
04485     template<> struct ConwayPolynomial<347, 2> { using ZPZ = aerobus::zpz<347>; using type =
      POLYV<ZPZV<1>, ZPZV<343>, ZPZV<2>>; };  // NOLINT
04486     template<> struct ConwayPolynomial<347, 3> { using ZPZ = aerobus::zpz<347>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<345>>; };  // NOLINT
04487     template<> struct ConwayPolynomial<347, 4> { using ZPZ = aerobus::zpz<347>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<13>, ZPZV<295>, ZPZV<2>>; };  // NOLINT
04488     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
04489     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
04490     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
04491     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
04492     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
04493     template<> struct ConwayPolynomial<349, 1> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<347>>; };  // NOLINT
04494     template<> struct ConwayPolynomial<349, 2> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<348>, ZPZV<2>>; };  // NOLINT
04495     template<> struct ConwayPolynomial<349, 3> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<347>>; };  // NOLINT
04496     template<> struct ConwayPolynomial<349, 4> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<279>, ZPZV<2>>; };  // NOLINT
04497     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
04498     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
04499     template<> struct ConwayPolynomial<349, 7> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<347>>; };  // NOLINT
04500     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
04501     template<> struct ConwayPolynomial<349, 9> { using ZPZ = aerobus::zpz<349>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<36>, ZPZV<290>, ZPZV<130>,
      ZPZV<347>>; };  // NOLINT
04502     template<> struct ConwayPolynomial<353, 1> { using ZPZ = aerobus::zpz<353>; using type =
      POLYV<ZPZV<1>, ZPZV<350>>; };  // NOLINT
04503     template<> struct ConwayPolynomial<353, 2> { using ZPZ = aerobus::zpz<353>; using type =
      POLYV<ZPZV<1>, ZPZV<348>, ZPZV<3>>; };  // NOLINT
04504     template<> struct ConwayPolynomial<353, 3> { using ZPZ = aerobus::zpz<353>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<350>>; };  // NOLINT
04505     template<> struct ConwayPolynomial<353, 4> { using ZPZ = aerobus::zpz<353>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<199>, ZPZV<3>>; };  // NOLINT
04506     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
04507     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
04508     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
04509     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
04510     template<> struct ConwayPolynomial<353, 9> { using ZPZ = aerobus::zpz<353>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<319>, ZPZV<49>, ZPZV<350>>;
      };  // NOLINT
04511     template<> struct ConwayPolynomial<359, 1> { using ZPZ = aerobus::zpz<359>; using type =
      POLYV<ZPZV<1>, ZPZV<352>>; };  // NOLINT
04512     template<> struct ConwayPolynomial<359, 2> { using ZPZ = aerobus::zpz<359>; using type =
      POLYV<ZPZV<1>, ZPZV<358>, ZPZV<7>>; };  // NOLINT
04513     template<> struct ConwayPolynomial<359, 3> { using ZPZ = aerobus::zpz<359>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<352>>; };  // NOLINT
04514     template<> struct ConwayPolynomial<359, 4> { using ZPZ = aerobus::zpz<359>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<229>, ZPZV<7>>; };  // NOLINT
04515     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
04516     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
04517     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
04518     template<> struct ConwayPolynomial<359, 8> { using ZPZ = aerobus::zpz<359>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<301>, ZPZV<143>, ZPZV<271>, ZPZV<7>>; };  //
```

```
    NOLINT
04519     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
04520     template<> struct ConwayPolynomial<367, 1> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<361>>; };  // NOLINT
04521     template<> struct ConwayPolynomial<367, 2> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<366>, ZPZV<6>>; };  // NOLINT
04522     template<> struct ConwayPolynomial<367, 3> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<361>>; };  // NOLINT
04523     template<> struct ConwayPolynomial<367, 4> { using ZPZ = aerobus::zpz<367>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<295>, ZPZV<6>>; };  // NOLINT
04524     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
04525     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
04526     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
04527     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
04528     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
04529     template<> struct ConwayPolynomial<373, 1> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<371>>; };  // NOLINT
04530     template<> struct ConwayPolynomial<373, 2> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<369>, ZPZV<2>>; };  // NOLINT
04531     template<> struct ConwayPolynomial<373, 3> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<371>>; };  // NOLINT
04532     template<> struct ConwayPolynomial<373, 4> { using ZPZ = aerobus::zpz<373>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<304>, ZPZV<2>>; };  // NOLINT
04533     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
04534     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
04535     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
04536     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
04537     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
04538     template<> struct ConwayPolynomial<379, 1> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<377>>; };  // NOLINT
04539     template<> struct ConwayPolynomial<379, 2> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<374>, ZPZV<2>>; };  // NOLINT
04540     template<> struct ConwayPolynomial<379, 3> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<377>>; };  // NOLINT
04541     template<> struct ConwayPolynomial<379, 4> { using ZPZ = aerobus::zpz<379>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<327>, ZPZV<2>>; };  // NOLINT
04542     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
04543     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
04544     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
04545     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
04546     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
04547     template<> struct ConwayPolynomial<383, 1> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<378>>; };  // NOLINT
04548     template<> struct ConwayPolynomial<383, 2> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<382>, ZPZV<5>>; };  // NOLINT
04549     template<> struct ConwayPolynomial<383, 3> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<378>>; };  // NOLINT
04550     template<> struct ConwayPolynomial<383, 4> { using ZPZ = aerobus::zpz<383>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<309>, ZPZV<5>>; };  // NOLINT
04551     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
04552     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
04553     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
04554     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
04555     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
04556     template<> struct ConwayPolynomial<389, 1> { using ZPZ = aerobus::zpz<389>; using type =
    POLYV<ZPZV<1>, ZPZV<387>>; };  // NOLINT
04557     template<> struct ConwayPolynomial<389, 2> { using ZPZ = aerobus::zpz<389>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<379>, ZPZV<2>>; };  // NOLINT
04558     template<> struct ConwayPolynomial<389, 3> { using ZPZ = aerobus::zpz<389>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<387>>; };  // NOLINT
04559     template<> struct ConwayPolynomial<389, 4> { using ZPZ = aerobus::zpz<389>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<266>, ZPZV<2>>; };  // NOLINT
04560     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
04561     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
04562     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
04563     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
04564     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
04565     template<> struct ConwayPolynomial<397, 1> { using ZPZ = aerobus::zpz<397>; using type =
    POLYV<ZPZV<1>, ZPZV<392>>; };  // NOLINT
04566     template<> struct ConwayPolynomial<397, 2> { using ZPZ = aerobus::zpz<397>; using type =
    POLYV<ZPZV<1>, ZPZV<392>, ZPZV<5>>; };  // NOLINT
04567     template<> struct ConwayPolynomial<397, 3> { using ZPZ = aerobus::zpz<397>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<392>>; };  // NOLINT
04568     template<> struct ConwayPolynomial<397, 4> { using ZPZ = aerobus::zpz<397>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<363>, ZPZV<5>>; };  // NOLINT
04569     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
04570     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
04571     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
04572     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
04573     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
04574     template<> struct ConwayPolynomial<401, 1> { using ZPZ = aerobus::zpz<401>; using type =
    POLYV<ZPZV<1>, ZPZV<398>>; };  // NOLINT
04575     template<> struct ConwayPolynomial<401, 2> { using ZPZ = aerobus::zpz<401>; using type =
    POLYV<ZPZV<1>, ZPZV<396>, ZPZV<3>>; };  // NOLINT
04576     template<> struct ConwayPolynomial<401, 3> { using ZPZ = aerobus::zpz<401>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<398>>; };  // NOLINT
04577     template<> struct ConwayPolynomial<401, 4> { using ZPZ = aerobus::zpz<401>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<372>, ZPZV<3>>; };  // NOLINT
04578     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
04579     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
04580     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
04581     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
04582     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
04583     template<> struct ConwayPolynomial<409, 1> { using ZPZ = aerobus::zpz<409>; using type =
    POLYV<ZPZV<1>, ZPZV<388>>; };  // NOLINT
04584     template<> struct ConwayPolynomial<409, 2> { using ZPZ = aerobus::zpz<409>; using type =
    POLYV<ZPZV<1>, ZPZV<404>, ZPZV<21>>; };  // NOLINT
04585     template<> struct ConwayPolynomial<409, 3> { using ZPZ = aerobus::zpz<409>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<388>>; };  // NOLINT
04586     template<> struct ConwayPolynomial<409, 4> { using ZPZ = aerobus::zpz<409>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<407>, ZPZV<21>>; };  // NOLINT
04587     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
04588     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
04589     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
04590     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
04591     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
04592     template<> struct ConwayPolynomial<419, 1> { using ZPZ = aerobus::zpz<419>; using type =
    POLYV<ZPZV<1>, ZPZV<417>>; };  // NOLINT
04593     template<> struct ConwayPolynomial<419, 2> { using ZPZ = aerobus::zpz<419>; using type =
    POLYV<ZPZV<1>, ZPZV<418>, ZPZV<2>>; };  // NOLINT
04594     template<> struct ConwayPolynomial<419, 3> { using ZPZ = aerobus::zpz<419>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<417>>; };  // NOLINT
04595     template<> struct ConwayPolynomial<419, 4> { using ZPZ = aerobus::zpz<419>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<373>, ZPZV<2>>; };  // NOLINT
04596     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
```

```
04597     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
04598     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
04599     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
04600     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
04601     template<> struct ConwayPolynomial<421, 1> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<419>>; };  // NOLINT
04602     template<> struct ConwayPolynomial<421, 2> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<417>, ZPZV<2>>; };  // NOLINT
04603     template<> struct ConwayPolynomial<421, 3> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<419>>; };  // NOLINT
04604     template<> struct ConwayPolynomial<421, 4> { using ZPZ = aerobus::zpz<421>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<257>, ZPZV<2>>; };  // NOLINT
04605     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
04606     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
04607     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
04608     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
04609     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
04610     template<> struct ConwayPolynomial<431, 1> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<424>>; };  // NOLINT
04611     template<> struct ConwayPolynomial<431, 2> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<430>, ZPZV<7>>; };  // NOLINT
04612     template<> struct ConwayPolynomial<431, 3> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<424>>; };  // NOLINT
04613     template<> struct ConwayPolynomial<431, 4> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<323>, ZPZV<7>>; };  // NOLINT
04614     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
04615     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
04616     template<> struct ConwayPolynomial<431, 7> { using ZPZ = aerobus::zpz<431>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<424>>; };  // NOLINT
04617     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
04618     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
04619     template<> struct ConwayPolynomial<433, 1> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<428>>; };  // NOLINT
04620     template<> struct ConwayPolynomial<433, 2> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<432>, ZPZV<5>>; };  // NOLINT
04621     template<> struct ConwayPolynomial<433, 3> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<428>>; };  // NOLINT
04622     template<> struct ConwayPolynomial<433, 4> { using ZPZ = aerobus::zpz<433>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<402>, ZPZV<5>>; };  // NOLINT
04623     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
04624     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
04625     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
04626     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
04627     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
04628     template<> struct ConwayPolynomial<439, 1> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<424>>; };  // NOLINT
04629     template<> struct ConwayPolynomial<439, 2> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<436>, ZPZV<15>>; };  // NOLINT
04630     template<> struct ConwayPolynomial<439, 3> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<424>>; };  // NOLINT
04631     template<> struct ConwayPolynomial<439, 4> { using ZPZ = aerobus::zpz<439>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<323>, ZPZV<15>>; };  // NOLINT
04632     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
04633     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
04634     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
04635     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
```

```
04636     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
04637     template<> struct ConwayPolynomial<443, 1> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<441>>; };  // NOLINT
04638     template<> struct ConwayPolynomial<443, 2> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<437>, ZPZV<2>>; };  // NOLINT
04639     template<> struct ConwayPolynomial<443, 3> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<441>>; };  // NOLINT
04640     template<> struct ConwayPolynomial<443, 4> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<383>, ZPZV<2>>; };  // NOLINT
04641     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
04642     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
04643     template<> struct ConwayPolynomial<443, 7> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<441>>; };  // NOLINT
04644     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
04645     template<> struct ConwayPolynomial<443, 9> { using ZPZ = aerobus::zpz<443>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<125>, ZPZV<109>, ZPZV<441>>;
      };  // NOLINT
04646     template<> struct ConwayPolynomial<449, 1> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<446>>; };  // NOLINT
04647     template<> struct ConwayPolynomial<449, 2> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<444>, ZPZV<3>>; };  // NOLINT
04648     template<> struct ConwayPolynomial<449, 3> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<446>>; };  // NOLINT
04649     template<> struct ConwayPolynomial<449, 4> { using ZPZ = aerobus::zpz<449>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<249>, ZPZV<3>>; };  // NOLINT
04650     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
04651     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
04652     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
04653     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
04654     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
04655     template<> struct ConwayPolynomial<457, 1> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<444>>; };  // NOLINT
04656     template<> struct ConwayPolynomial<457, 2> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<454>, ZPZV<13>>; };  // NOLINT
04657     template<> struct ConwayPolynomial<457, 3> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<444>>; };  // NOLINT
04658     template<> struct ConwayPolynomial<457, 4> { using ZPZ = aerobus::zpz<457>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<407>, ZPZV<13>>; };  // NOLINT
04659     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
04660     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
04661     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
04662     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
04663     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
04664     template<> struct ConwayPolynomial<461, 1> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<459>>; };  // NOLINT
04665     template<> struct ConwayPolynomial<461, 2> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<460>, ZPZV<2>>; };  // NOLINT
04666     template<> struct ConwayPolynomial<461, 3> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<459>>; };  // NOLINT
04667     template<> struct ConwayPolynomial<461, 4> { using ZPZ = aerobus::zpz<461>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<393>, ZPZV<2>>; };  // NOLINT
04668     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
04669     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
04670     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
04671     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
04672     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
04673     template<> struct ConwayPolynomial<463, 1> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<460>>; };  // NOLINT
04674     template<> struct ConwayPolynomial<463, 2> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<461>, ZPZV<3>>; };  // NOLINT
```

```
04675     template<> struct ConwayPolynomial<463, 3> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<460>>; };  // NOLINT
04676     template<> struct ConwayPolynomial<463, 4> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<17>, ZPZV<262>, ZPZV<3>>; };  // NOLINT
04677     template<> struct ConwayPolynomial<463, 5> { using ZPZ = aerobus::zpz<463>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<460>>; };  // NOLINT
04678     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
04679     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
04680     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
04681     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
04682     template<> struct ConwayPolynomial<467, 1> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<465>>; };  // NOLINT
04683     template<> struct ConwayPolynomial<467, 2> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<463>, ZPZV<2>>; };  // NOLINT
04684     template<> struct ConwayPolynomial<467, 3> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<465>>; };  // NOLINT
04685     template<> struct ConwayPolynomial<467, 4> { using ZPZ = aerobus::zpz<467>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<353>, ZPZV<2>>; };  // NOLINT
04686     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
04687     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
04688     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
04689     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
04690     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
04691     template<> struct ConwayPolynomial<479, 1> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<466>>; };  // NOLINT
04692     template<> struct ConwayPolynomial<479, 2> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<474>, ZPZV<13>>; };  // NOLINT
04693     template<> struct ConwayPolynomial<479, 3> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<466>>; };  // NOLINT
04694     template<> struct ConwayPolynomial<479, 4> { using ZPZ = aerobus::zpz<479>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<386>, ZPZV<13>>; };  // NOLINT
04695     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
04696     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
04697     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
04698     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
04699     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
04700     template<> struct ConwayPolynomial<487, 1> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<484>>; };  // NOLINT
04701     template<> struct ConwayPolynomial<487, 2> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<485>, ZPZV<3>>; };  // NOLINT
04702     template<> struct ConwayPolynomial<487, 3> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<484>>; };  // NOLINT
04703     template<> struct ConwayPolynomial<487, 4> { using ZPZ = aerobus::zpz<487>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<483>, ZPZV<3>>; };  // NOLINT
04704     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
04705     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
04706     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
04707     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
04708     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
04709     template<> struct ConwayPolynomial<491, 1> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<489>>; };  // NOLINT
04710     template<> struct ConwayPolynomial<491, 2> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<487>, ZPZV<2>>; };  // NOLINT
04711     template<> struct ConwayPolynomial<491, 3> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<489>>; };  // NOLINT
04712     template<> struct ConwayPolynomial<491, 4> { using ZPZ = aerobus::zpz<491>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<360>, ZPZV<2>>; };  // NOLINT
04713     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
04714     template<> struct ConwayPolynomial<491, 6> { using ZPZ = aerobus::zpz<491>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<369>, ZPZV<402>, ZPZV<125>, ZPZV<2>>; };  // NOLINT
04715     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
04716     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
04717     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
04718     template<> struct ConwayPolynomial<499, 1> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<492>>; };  // NOLINT
04719     template<> struct ConwayPolynomial<499, 2> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<493>, ZPZV<7>>; };  // NOLINT
04720     template<> struct ConwayPolynomial<499, 3> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<492>>; };  // NOLINT
04721     template<> struct ConwayPolynomial<499, 4> { using ZPZ = aerobus::zpz<499>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<495>, ZPZV<7>>; };  // NOLINT
04722     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
04723     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
04724     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
04725     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
04726     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
04727     template<> struct ConwayPolynomial<503, 1> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<498>>; };  // NOLINT
04728     template<> struct ConwayPolynomial<503, 2> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<498>, ZPZV<5>>; };  // NOLINT
04729     template<> struct ConwayPolynomial<503, 3> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<498>>; };  // NOLINT
04730     template<> struct ConwayPolynomial<503, 4> { using ZPZ = aerobus::zpz<503>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<325>, ZPZV<5>>; };  // NOLINT
04731     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
04732     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
04733     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
04734     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
04735     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
04736     template<> struct ConwayPolynomial<509, 1> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<507>>; };  // NOLINT
04737     template<> struct ConwayPolynomial<509, 2> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<508>, ZPZV<2>>; };  // NOLINT
04738     template<> struct ConwayPolynomial<509, 3> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<507>>; };  // NOLINT
04739     template<> struct ConwayPolynomial<509, 4> { using ZPZ = aerobus::zpz<509>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<408>, ZPZV<2>>; };  // NOLINT
04740     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
04741     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
04742     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
04743     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
04744     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
04745     template<> struct ConwayPolynomial<521, 1> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<518>>; };  // NOLINT
04746     template<> struct ConwayPolynomial<521, 2> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<515>, ZPZV<3>>; };  // NOLINT
04747     template<> struct ConwayPolynomial<521, 3> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<518>>; };  // NOLINT
04748     template<> struct ConwayPolynomial<521, 4> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<509>, ZPZV<3>>; };  // NOLINT
04749     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
04750     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
04751     template<> struct ConwayPolynomial<521, 7> { using ZPZ = aerobus::zpz<521>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<518>>; };  // NOLINT
04752     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
04753     template<> struct ConwayPolynomial<521, 9> { using ZPZ = aerobus::zpz<521>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<181>, ZPZV<483>, ZPZV<518>>;
      };  // NOLINT
04754     template<> struct ConwayPolynomial<523, 1> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<521>>; };  // NOLINT
04755     template<> struct ConwayPolynomial<523, 2> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<522>, ZPZV<2>>; };  // NOLINT
04756     template<> struct ConwayPolynomial<523, 3> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<521>>; };  // NOLINT
04757     template<> struct ConwayPolynomial<523, 4> { using ZPZ = aerobus::zpz<523>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<382>, ZPZV<2>>; };  // NOLINT
04758     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
04759     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
04760     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
04761     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
04762     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
04763     template<> struct ConwayPolynomial<541, 1> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<539>>; };  // NOLINT
04764     template<> struct ConwayPolynomial<541, 2> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<537>, ZPZV<2>>; };  // NOLINT
04765     template<> struct ConwayPolynomial<541, 3> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<539>>; };  // NOLINT
04766     template<> struct ConwayPolynomial<541, 4> { using ZPZ = aerobus::zpz<541>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<333>, ZPZV<2>>; };  // NOLINT
04767     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
04768     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
04769     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
04770     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
04771     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
04772     template<> struct ConwayPolynomial<547, 1> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<545>>; };  // NOLINT
04773     template<> struct ConwayPolynomial<547, 2> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<543>, ZPZV<2>>; };  // NOLINT
04774     template<> struct ConwayPolynomial<547, 3> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<545>>; };  // NOLINT
04775     template<> struct ConwayPolynomial<547, 4> { using ZPZ = aerobus::zpz<547>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<334>, ZPZV<2>>; };  // NOLINT
04776     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
04777     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
04778     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
04779     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
04780     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
04781     template<> struct ConwayPolynomial<557, 1> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<555>>; };  // NOLINT
04782     template<> struct ConwayPolynomial<557, 2> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<553>, ZPZV<2>>; };  // NOLINT
04783     template<> struct ConwayPolynomial<557, 3> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<555>>; };  // NOLINT
04784     template<> struct ConwayPolynomial<557, 4> { using ZPZ = aerobus::zpz<557>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<430>, ZPZV<2>>; };  // NOLINT
04785     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
04786     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
04787     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
04788     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
04789     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
04790     template<> struct ConwayPolynomial<563, 1> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<561>>; };  // NOLINT
04791     template<> struct ConwayPolynomial<563, 2> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<559>, ZPZV<2>>; };  // NOLINT
04792     template<> struct ConwayPolynomial<563, 3> { using ZPZ = aerobus::zpz<563>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<561>>; };  // NOLINT
04793     template<> struct ConwayPolynomial<563, 4> { using ZPZ = aerobus::zpz<563>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<20>, ZPZV<399>, ZPZV<2>>; };  // NOLINT
04794     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
04795     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
04796     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
04797     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
04798     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
04799     template<> struct ConwayPolynomial<569, 1> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<566>>; };  // NOLINT
04800     template<> struct ConwayPolynomial<569, 2> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<568>, ZPZV<3>>; };  // NOLINT
04801     template<> struct ConwayPolynomial<569, 3> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<566>>; };  // NOLINT
04802     template<> struct ConwayPolynomial<569, 4> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<381>, ZPZV<3>>; };  // NOLINT
04803     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
04804     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
04805     template<> struct ConwayPolynomial<569, 7> { using ZPZ = aerobus::zpz<569>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<566>>; };  // NOLINT
04806     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
04807     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
04808     template<> struct ConwayPolynomial<571, 1> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<568>>; };  // NOLINT
04809     template<> struct ConwayPolynomial<571, 2> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<570>, ZPZV<3>>; };  // NOLINT
04810     template<> struct ConwayPolynomial<571, 3> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<568>>; };  // NOLINT
04811     template<> struct ConwayPolynomial<571, 4> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<402>, ZPZV<3>>; };  // NOLINT
04812     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
04813     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
04814     template<> struct ConwayPolynomial<571, 7> { using ZPZ = aerobus::zpz<571>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<568>>; };  // NOLINT
04815     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
04816     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
04817     template<> struct ConwayPolynomial<577, 1> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<572>>; };  // NOLINT
04818     template<> struct ConwayPolynomial<577, 2> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<572>, ZPZV<5>>; };  // NOLINT
04819     template<> struct ConwayPolynomial<577, 3> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<572>>; };  // NOLINT
04820     template<> struct ConwayPolynomial<577, 4> { using ZPZ = aerobus::zpz<577>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<494>, ZPZV<5>>; };  // NOLINT
04821     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
04822     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
04823     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
04824     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
04825     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
04826     template<> struct ConwayPolynomial<587, 1> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<585>>; };  // NOLINT
04827     template<> struct ConwayPolynomial<587, 2> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<583>, ZPZV<2>>; };  // NOLINT
04828     template<> struct ConwayPolynomial<587, 3> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<585>>; };  // NOLINT
04829     template<> struct ConwayPolynomial<587, 4> { using ZPZ = aerobus::zpz<587>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<16>, ZPZV<444>, ZPZV<2>>; };  // NOLINT
04830     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
04831     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
```

```
04832     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
04833     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
04834     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
04835     template<> struct ConwayPolynomial<593, 1> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<590>>; };  // NOLINT
04836     template<> struct ConwayPolynomial<593, 2> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<592>, ZPZV<3>>; };  // NOLINT
04837     template<> struct ConwayPolynomial<593, 3> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<590>>; };  // NOLINT
04838     template<> struct ConwayPolynomial<593, 4> { using ZPZ = aerobus::zpz<593>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<419>, ZPZV<3>>; };  // NOLINT
04839     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
04840     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
04841     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
04842     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
04843     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
04844     template<> struct ConwayPolynomial<599, 1> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<592>>; };  // NOLINT
04845     template<> struct ConwayPolynomial<599, 2> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7>>; };  // NOLINT
04846     template<> struct ConwayPolynomial<599, 3> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<592>>; };  // NOLINT
04847     template<> struct ConwayPolynomial<599, 4> { using ZPZ = aerobus::zpz<599>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<419>, ZPZV<7>>; };  // NOLINT
04848     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
04849     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
04850     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
04851     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
04852     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
04853     template<> struct ConwayPolynomial<601, 1> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<594>>; };  // NOLINT
04854     template<> struct ConwayPolynomial<601, 2> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<598>, ZPZV<7>>; };  // NOLINT
04855     template<> struct ConwayPolynomial<601, 3> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<594>>; };  // NOLINT
04856     template<> struct ConwayPolynomial<601, 4> { using ZPZ = aerobus::zpz<601>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<347>, ZPZV<7>>; };  // NOLINT
04857     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
04858     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
04859     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
04860     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
04861     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
04862     template<> struct ConwayPolynomial<607, 1> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<604>>; };  // NOLINT
04863     template<> struct ConwayPolynomial<607, 2> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<606>, ZPZV<3>>; };  // NOLINT
04864     template<> struct ConwayPolynomial<607, 3> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<604>>; };  // NOLINT
04865     template<> struct ConwayPolynomial<607, 4> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<449>, ZPZV<3>>; };  // NOLINT
04866     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
04867     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
04868     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
04869     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
04870     template<> struct ConwayPolynomial<607, 9> { using ZPZ = aerobus::zpz<607>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<444>, ZPZV<129>, ZPZV<604>>;
```

```
};  // NOLINT
04871     template<> struct ConwayPolynomial<613, 1> { using ZPZ = aerobus::zpz<613>; using type =
      POLYV<ZPZV<1>, ZPZV<611>>; };  // NOLINT
04872     template<> struct ConwayPolynomial<613, 2> { using ZPZ = aerobus::zpz<613>; using type =
      POLYV<ZPZV<1>, ZPZV<609>, ZPZV<2>>; };  // NOLINT
04873     template<> struct ConwayPolynomial<613, 3> { using ZPZ = aerobus::zpz<613>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<611>>; };  // NOLINT
04874     template<> struct ConwayPolynomial<613, 4> { using ZPZ = aerobus::zpz<613>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<333>, ZPZV<2>>; };  // NOLINT
04875     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
04876     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
04877     template<> struct ConwayPolynomial<613, 7> { using ZPZ = aerobus::zpz<613>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<611>>; };  // NOLINT
04878     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
04879     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
04880     template<> struct ConwayPolynomial<617, 1> { using ZPZ = aerobus::zpz<617>; using type =
      POLYV<ZPZV<1>, ZPZV<614>>; };  // NOLINT
04881     template<> struct ConwayPolynomial<617, 2> { using ZPZ = aerobus::zpz<617>; using type =
      POLYV<ZPZV<1>, ZPZV<612>, ZPZV<3>>; };  // NOLINT
04882     template<> struct ConwayPolynomial<617, 3> { using ZPZ = aerobus::zpz<617>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<614>>; };  // NOLINT
04883     template<> struct ConwayPolynomial<617, 4> { using ZPZ = aerobus::zpz<617>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<503>, ZPZV<3>>; };  // NOLINT
04884     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
04885     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
04886     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
04887     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
04888     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
04889     template<> struct ConwayPolynomial<619, 1> { using ZPZ = aerobus::zpz<619>; using type =
      POLYV<ZPZV<1>, ZPZV<617>>; };  // NOLINT
04890     template<> struct ConwayPolynomial<619, 2> { using ZPZ = aerobus::zpz<619>; using type =
      POLYV<ZPZV<1>, ZPZV<618>, ZPZV<2>>; };  // NOLINT
04891     template<> struct ConwayPolynomial<619, 3> { using ZPZ = aerobus::zpz<619>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<617>>; };  // NOLINT
04892     template<> struct ConwayPolynomial<619, 4> { using ZPZ = aerobus::zpz<619>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<492>, ZPZV<2>>; };  // NOLINT
04893     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
04894     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
04895     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
04896     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
04897     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
04898     template<> struct ConwayPolynomial<631, 1> { using ZPZ = aerobus::zpz<631>; using type =
      POLYV<ZPZV<1>, ZPZV<628>>; };  // NOLINT
04899     template<> struct ConwayPolynomial<631, 2> { using ZPZ = aerobus::zpz<631>; using type =
      POLYV<ZPZV<1>, ZPZV<629>, ZPZV<3>>; };  // NOLINT
04900     template<> struct ConwayPolynomial<631, 3> { using ZPZ = aerobus::zpz<631>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<628>>; };  // NOLINT
04901     template<> struct ConwayPolynomial<631, 4> { using ZPZ = aerobus::zpz<631>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<376>, ZPZV<3>>; };  // NOLINT
04902     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
04903     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
04904     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
04905     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
04906     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
04907     template<> struct ConwayPolynomial<641, 1> { using ZPZ = aerobus::zpz<641>; using type =
      POLYV<ZPZV<1>, ZPZV<638>>; };  // NOLINT
04908     template<> struct ConwayPolynomial<641, 2> { using ZPZ = aerobus::zpz<641>; using type =
      POLYV<ZPZV<1>, ZPZV<635>, ZPZV<3>>; };  // NOLINT
04909     template<> struct ConwayPolynomial<641, 3> { using ZPZ = aerobus::zpz<641>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<638>>; };  // NOLINT
```

```
04910     template<> struct ConwayPolynomial<641, 4> { using ZPZ = aerobus::zpz<641>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<629>, ZPZV<3>>; };  // NOLINT
04911     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
04912     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
04913     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
04914     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
04915     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
04916     template<> struct ConwayPolynomial<643, 1> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<632>>; };  // NOLINT
04917     template<> struct ConwayPolynomial<643, 2> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<641>, ZPZV<11>>; };  // NOLINT
04918     template<> struct ConwayPolynomial<643, 3> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<632>>; };  // NOLINT
04919     template<> struct ConwayPolynomial<643, 4> { using ZPZ = aerobus::zpz<643>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<600>, ZPZV<11>>; };  // NOLINT
04920     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
04921     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
04922     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
04923     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
04924     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
04925     template<> struct ConwayPolynomial<647, 1> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<642>>; };  // NOLINT
04926     template<> struct ConwayPolynomial<647, 2> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<645>, ZPZV<5>>; };  // NOLINT
04927     template<> struct ConwayPolynomial<647, 3> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<642>>; };  // NOLINT
04928     template<> struct ConwayPolynomial<647, 4> { using ZPZ = aerobus::zpz<647>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<643>, ZPZV<5>>; };  // NOLINT
04929     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
04930     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
04931     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
04932     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
04933     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
04934     template<> struct ConwayPolynomial<653, 1> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<651>>; };  // NOLINT
04935     template<> struct ConwayPolynomial<653, 2> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<649>, ZPZV<2>>; };  // NOLINT
04936     template<> struct ConwayPolynomial<653, 3> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<651>>; };  // NOLINT
04937     template<> struct ConwayPolynomial<653, 4> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<596>, ZPZV<2>>; };  // NOLINT
04938     template<> struct ConwayPolynomial<653, 5> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<651>>; };  // NOLINT
04939     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
04940     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
04941     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
04942     template<> struct ConwayPolynomial<653, 9> { using ZPZ = aerobus::zpz<653>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<365>, ZPZV<60>, ZPZV<651>>;
      };  // NOLINT
04943     template<> struct ConwayPolynomial<659, 1> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<657>>; };  // NOLINT
04944     template<> struct ConwayPolynomial<659, 2> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<655>, ZPZV<2>>; };  // NOLINT
04945     template<> struct ConwayPolynomial<659, 3> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<657>>; };  // NOLINT
04946     template<> struct ConwayPolynomial<659, 4> { using ZPZ = aerobus::zpz<659>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<351>, ZPZV<2>>; };  // NOLINT
04947     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
04948     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
04949     template<> struct ConwayPolynomial<659, 7> { using ZPZ = aerobus::zpz<659>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<5>, ZPZV<657>>; };  // NOLINT
04950     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
04951     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
04952     template<> struct ConwayPolynomial<661, 1> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<659>>; };  // NOLINT
04953     template<> struct ConwayPolynomial<661, 2> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<660>, ZPZV<2>>; };  // NOLINT
04954     template<> struct ConwayPolynomial<661, 3> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<659>>; };  // NOLINT
04955     template<> struct ConwayPolynomial<661, 4> { using ZPZ = aerobus::zpz<661>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<616>, ZPZV<2>>; };  // NOLINT
04956     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
04957     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
04958     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
04959     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
04960     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
04961     template<> struct ConwayPolynomial<673, 1> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<668>>; };  // NOLINT
04962     template<> struct ConwayPolynomial<673, 2> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<672>, ZPZV<5>>; };  // NOLINT
04963     template<> struct ConwayPolynomial<673, 3> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<668>>; };  // NOLINT
04964     template<> struct ConwayPolynomial<673, 4> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<416>, ZPZV<5>>; };  // NOLINT
04965     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
04966     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
04967     template<> struct ConwayPolynomial<673, 7> { using ZPZ = aerobus::zpz<673>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<668>>; };  // NOLINT
04968     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
04969     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
04970     template<> struct ConwayPolynomial<677, 1> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<675>>; };  // NOLINT
04971     template<> struct ConwayPolynomial<677, 2> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<672>, ZPZV<2>>; };  // NOLINT
04972     template<> struct ConwayPolynomial<677, 3> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<675>>; };  // NOLINT
04973     template<> struct ConwayPolynomial<677, 4> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<631>, ZPZV<2>>; };  // NOLINT
04974     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
04975     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
04976     template<> struct ConwayPolynomial<677, 7> { using ZPZ = aerobus::zpz<677>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<675>>; };  // NOLINT
04977     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
04978     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
04979     template<> struct ConwayPolynomial<683, 1> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<678>>; };  // NOLINT
04980     template<> struct ConwayPolynomial<683, 2> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<682>, ZPZV<5>>; };  // NOLINT
04981     template<> struct ConwayPolynomial<683, 3> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<678>>; };  // NOLINT
04982     template<> struct ConwayPolynomial<683, 4> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<455>, ZPZV<5>>; };  // NOLINT
04983     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
04984     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
04985     template<> struct ConwayPolynomial<683, 7> { using ZPZ = aerobus::zpz<683>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<30>, ZPZV<678>>; };  // NOLINT
04986     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
04987     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
```

```
04988     template<> struct ConwayPolynomial<691, 1> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<688>>; };  // NOLINT
04989     template<> struct ConwayPolynomial<691, 2> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<686>, ZPZV<3>>; };  // NOLINT
04990     template<> struct ConwayPolynomial<691, 3> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<688>>; };  // NOLINT
04991     template<> struct ConwayPolynomial<691, 4> { using ZPZ = aerobus::zpz<691>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<632>, ZPZV<3>>; };  // NOLINT
04992     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
04993     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
04994     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
04995     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
04996     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
04997     template<> struct ConwayPolynomial<701, 1> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<699>>; };  // NOLINT
04998     template<> struct ConwayPolynomial<701, 2> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<697>, ZPZV<2>>; };  // NOLINT
04999     template<> struct ConwayPolynomial<701, 3> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<699>>; };  // NOLINT
05000     template<> struct ConwayPolynomial<701, 4> { using ZPZ = aerobus::zpz<701>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<379>, ZPZV<2>>; };  // NOLINT
05001     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
05002     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
05003     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
05004     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
05005     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
05006     template<> struct ConwayPolynomial<709, 1> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<707>>; };  // NOLINT
05007     template<> struct ConwayPolynomial<709, 2> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<705>, ZPZV<2>>; };  // NOLINT
05008     template<> struct ConwayPolynomial<709, 3> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<707>>; };  // NOLINT
05009     template<> struct ConwayPolynomial<709, 4> { using ZPZ = aerobus::zpz<709>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<384>, ZPZV<2>>; };  // NOLINT
05010     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
05011     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
05012     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
05013     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
05014     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
05015     template<> struct ConwayPolynomial<719, 1> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<708>>; };  // NOLINT
05016     template<> struct ConwayPolynomial<719, 2> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<715>, ZPZV<11>>; };  // NOLINT
05017     template<> struct ConwayPolynomial<719, 3> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<708>>; };  // NOLINT
05018     template<> struct ConwayPolynomial<719, 4> { using ZPZ = aerobus::zpz<719>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<602>, ZPZV<11>>; };  // NOLINT
05019     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
05020     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
05021     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
05022     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
05023     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
05024     template<> struct ConwayPolynomial<727, 1> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<722>>; };  // NOLINT
05025     template<> struct ConwayPolynomial<727, 2> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<725>, ZPZV<5>>; };  // NOLINT
05026     template<> struct ConwayPolynomial<727, 3> { using ZPZ = aerobus::zpz<727>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<722>>; };  // NOLINT
05027     template<> struct ConwayPolynomial<727, 4> { using ZPZ = aerobus::zpz<727>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<723>, ZPZV<5>>; };  // NOLINT
05028     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
05029     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
05030     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
05031     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
05032     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
05033     template<> struct ConwayPolynomial<733, 1> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<727>>; };  // NOLINT
05034     template<> struct ConwayPolynomial<733, 2> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<732>, ZPZV<6>>; };  // NOLINT
05035     template<> struct ConwayPolynomial<733, 3> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<727>>; };  // NOLINT
05036     template<> struct ConwayPolynomial<733, 4> { using ZPZ = aerobus::zpz<733>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<539>, ZPZV<6>>; };  // NOLINT
05037     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
05038     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
05039     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
05040     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
05041     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
05042     template<> struct ConwayPolynomial<739, 1> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<736>>; };  // NOLINT
05043     template<> struct ConwayPolynomial<739, 2> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<734>, ZPZV<3>>; };  // NOLINT
05044     template<> struct ConwayPolynomial<739, 3> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<736>>; };  // NOLINT
05045     template<> struct ConwayPolynomial<739, 4> { using ZPZ = aerobus::zpz<739>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<678>, ZPZV<3>>; };  // NOLINT
05046     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
05047     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
05048     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
05049     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
05050     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
05051     template<> struct ConwayPolynomial<743, 1> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<738>>; };  // NOLINT
05052     template<> struct ConwayPolynomial<743, 2> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<742>, ZPZV<5>>; };  // NOLINT
05053     template<> struct ConwayPolynomial<743, 3> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<738>>; };  // NOLINT
05054     template<> struct ConwayPolynomial<743, 4> { using ZPZ = aerobus::zpz<743>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<425>, ZPZV<5>>; };  // NOLINT
05055     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
05056     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
05057     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
05058     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
05059     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
05060     template<> struct ConwayPolynomial<751, 1> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<748>>; };  // NOLINT
05061     template<> struct ConwayPolynomial<751, 2> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<749>, ZPZV<3>>; };  // NOLINT
05062     template<> struct ConwayPolynomial<751, 3> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<748>>; };  // NOLINT
05063     template<> struct ConwayPolynomial<751, 4> { using ZPZ = aerobus::zpz<751>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<525>, ZPZV<3>>; };  // NOLINT
05064     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
05065     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
05066     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
```

```
05067     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
05068     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
05069     template<> struct ConwayPolynomial<757, 1> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<755>>; };  // NOLINT
05070     template<> struct ConwayPolynomial<757, 2> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<753>, ZPZV<2>>; };  // NOLINT
05071     template<> struct ConwayPolynomial<757, 3> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<755>>; };  // NOLINT
05072     template<> struct ConwayPolynomial<757, 4> { using ZPZ = aerobus::zpz<757>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<537>, ZPZV<2>>; };  // NOLINT
05073     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
05074     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
05075     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
05076     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
05077     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
05078     template<> struct ConwayPolynomial<761, 1> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<755>>; };  // NOLINT
05079     template<> struct ConwayPolynomial<761, 2> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<758>, ZPZV<6>>; };  // NOLINT
05080     template<> struct ConwayPolynomial<761, 3> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<12>, ZPZV<755>>; };  // NOLINT
05081     template<> struct ConwayPolynomial<761, 4> { using ZPZ = aerobus::zpz<761>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<658>, ZPZV<6>>; };  // NOLINT
05082     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
05083     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
05084     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
05085     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
05086     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
05087     template<> struct ConwayPolynomial<769, 1> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<758>>; };  // NOLINT
05088     template<> struct ConwayPolynomial<769, 2> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<765>, ZPZV<11>>; };  // NOLINT
05089     template<> struct ConwayPolynomial<769, 3> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<758>>; };  // NOLINT
05090     template<> struct ConwayPolynomial<769, 4> { using ZPZ = aerobus::zpz<769>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<32>, ZPZV<741>, ZPZV<11>>; };  // NOLINT
05091     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
05092     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
05093     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
05094     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
05095     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
05096     template<> struct ConwayPolynomial<773, 1> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<771>>; };  // NOLINT
05097     template<> struct ConwayPolynomial<773, 2> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<772>, ZPZV<2>>; };  // NOLINT
05098     template<> struct ConwayPolynomial<773, 3> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<771>>; };  // NOLINT
05099     template<> struct ConwayPolynomial<773, 4> { using ZPZ = aerobus::zpz<773>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<444>, ZPZV<2>>; };  // NOLINT
05100     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
05101     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
05102     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
05103     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
05104     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
05105     template<> struct ConwayPolynomial<787, 1> { using ZPZ = aerobus::zpz<787>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<785>>; };  // NOLINT
05106     template<> struct ConwayPolynomial<787, 2> { using ZPZ = aerobus::zpz<787>; using type =
    POLYV<ZPZV<1>, ZPZV<786>, ZPZV<2>>; };  // NOLINT
05107     template<> struct ConwayPolynomial<787, 3> { using ZPZ = aerobus::zpz<787>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<785>>; };  // NOLINT
05108     template<> struct ConwayPolynomial<787, 4> { using ZPZ = aerobus::zpz<787>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<605>, ZPZV<2>>; };  // NOLINT
05109     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
05110     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
05111     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
05112     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
05113     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
05114     template<> struct ConwayPolynomial<797, 1> { using ZPZ = aerobus::zpz<797>; using type =
    POLYV<ZPZV<1>, ZPZV<795>>; };  // NOLINT
05115     template<> struct ConwayPolynomial<797, 2> { using ZPZ = aerobus::zpz<797>; using type =
    POLYV<ZPZV<1>, ZPZV<793>, ZPZV<2>>; };  // NOLINT
05116     template<> struct ConwayPolynomial<797, 3> { using ZPZ = aerobus::zpz<797>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<795>>; };  // NOLINT
05117     template<> struct ConwayPolynomial<797, 4> { using ZPZ = aerobus::zpz<797>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<717>, ZPZV<2>>; };  // NOLINT
05118     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
05119     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
05120     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
05121     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
05122     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
05123     template<> struct ConwayPolynomial<809, 1> { using ZPZ = aerobus::zpz<809>; using type =
    POLYV<ZPZV<1>, ZPZV<806>>; };  // NOLINT
05124     template<> struct ConwayPolynomial<809, 2> { using ZPZ = aerobus::zpz<809>; using type =
    POLYV<ZPZV<1>, ZPZV<799>, ZPZV<3>>; };  // NOLINT
05125     template<> struct ConwayPolynomial<809, 3> { using ZPZ = aerobus::zpz<809>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<806>>; };  // NOLINT
05126     template<> struct ConwayPolynomial<809, 4> { using ZPZ = aerobus::zpz<809>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<644>, ZPZV<3>>; };  // NOLINT
05127     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
05128     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
05129     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
05130     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
05131     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
05132     template<> struct ConwayPolynomial<811, 1> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<808>>; };  // NOLINT
05133     template<> struct ConwayPolynomial<811, 2> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<806>, ZPZV<3>>; };  // NOLINT
05134     template<> struct ConwayPolynomial<811, 3> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<808>>; };  // NOLINT
05135     template<> struct ConwayPolynomial<811, 4> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<453>, ZPZV<3>>; };  // NOLINT
05136     template<> struct ConwayPolynomial<811, 5> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<3>, ZPZV<808>>; };  // NOLINT
05137     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
05138     template<> struct ConwayPolynomial<811, 7> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<1>, ZPZV<808>>; };  // NOLINT
05139     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
05140     template<> struct ConwayPolynomial<811, 9> { using ZPZ = aerobus::zpz<811>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<382>, ZPZV<200>,
    ZPZV<808>>; };  // NOLINT
05141     template<> struct ConwayPolynomial<821, 1> { using ZPZ = aerobus::zpz<821>; using type =
    POLYV<ZPZV<1>, ZPZV<819>>; };  // NOLINT
05142     template<> struct ConwayPolynomial<821, 2> { using ZPZ = aerobus::zpz<821>; using type =
    POLYV<ZPZV<1>, ZPZV<816>, ZPZV<2>>; };  // NOLINT
05143     template<> struct ConwayPolynomial<821, 3> { using ZPZ = aerobus::zpz<821>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<819>>; };  // NOLINT
05144     template<> struct ConwayPolynomial<821, 4> { using ZPZ = aerobus::zpz<821>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<15>, ZPZV<662>, ZPZV<2>>; };  // NOLINT
```

```
05145     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
05146     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
05147     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
05148     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
05149     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
05150     template<> struct ConwayPolynomial<823, 1> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<820>>; };  // NOLINT
05151     template<> struct ConwayPolynomial<823, 2> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<821>, ZPZV<3>>; };  // NOLINT
05152     template<> struct ConwayPolynomial<823, 3> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<820>>; };  // NOLINT
05153     template<> struct ConwayPolynomial<823, 4> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<819>, ZPZV<3>>; };  // NOLINT
05154     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
05155     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
05156     template<> struct ConwayPolynomial<823, 7> { using ZPZ = aerobus::zpz<823>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<10>, ZPZV<820>>; };  // NOLINT
05157     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
05158     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
05159     template<> struct ConwayPolynomial<827, 1> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<825>>; };  // NOLINT
05160     template<> struct ConwayPolynomial<827, 2> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<821>, ZPZV<2>>; };  // NOLINT
05161     template<> struct ConwayPolynomial<827, 3> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<825>>; };  // NOLINT
05162     template<> struct ConwayPolynomial<827, 4> { using ZPZ = aerobus::zpz<827>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<18>, ZPZV<605>, ZPZV<2>>; };  // NOLINT
05163     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
05164     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
05165     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
05166     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
05167     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
05168     template<> struct ConwayPolynomial<829, 1> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<827>>; };  // NOLINT
05169     template<> struct ConwayPolynomial<829, 2> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<828>, ZPZV<2>>; };  // NOLINT
05170     template<> struct ConwayPolynomial<829, 3> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<827>>; };  // NOLINT
05171     template<> struct ConwayPolynomial<829, 4> { using ZPZ = aerobus::zpz<829>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<9>, ZPZV<604>, ZPZV<2>>; };  // NOLINT
05172     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
05173     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
05174     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
05175     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
05176     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
05177     template<> struct ConwayPolynomial<839, 1> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<828>>; };  // NOLINT
05178     template<> struct ConwayPolynomial<839, 2> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<838>, ZPZV<11>>; };  // NOLINT
05179     template<> struct ConwayPolynomial<839, 3> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<828>>; };  // NOLINT
05180     template<> struct ConwayPolynomial<839, 4> { using ZPZ = aerobus::zpz<839>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<609>, ZPZV<11>>; };  // NOLINT
05181     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
05182     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
05183     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
05184     template<> struct ConwayPolynomial<839, 8> { using ZPZ = aerobus::zpz<839>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<16>, ZPZV<553>, ZPZV<779>, ZPZV<329>, ZPZV<11>>; };  //
      NOLINT
05185     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
05186     template<> struct ConwayPolynomial<853, 1> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<851>>; };  // NOLINT
05187     template<> struct ConwayPolynomial<853, 2> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<852>, ZPZV<2>>; };  // NOLINT
05188     template<> struct ConwayPolynomial<853, 3> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<851>>; };  // NOLINT
05189     template<> struct ConwayPolynomial<853, 4> { using ZPZ = aerobus::zpz<853>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<623>, ZPZV<2>>; };  // NOLINT
05190     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
05191     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
05192     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
05193     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
05194     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
05195     template<> struct ConwayPolynomial<857, 1> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<854>>; };  // NOLINT
05196     template<> struct ConwayPolynomial<857, 2> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<850>, ZPZV<3>>; };  // NOLINT
05197     template<> struct ConwayPolynomial<857, 3> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<854>>; };  // NOLINT
05198     template<> struct ConwayPolynomial<857, 4> { using ZPZ = aerobus::zpz<857>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<528>, ZPZV<3>>; };  // NOLINT
05199     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
05200     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
05201     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
05202     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
05203     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
05204     template<> struct ConwayPolynomial<859, 1> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<857>>; };  // NOLINT
05205     template<> struct ConwayPolynomial<859, 2> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<858>, ZPZV<2>>; };  // NOLINT
05206     template<> struct ConwayPolynomial<859, 3> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<857>>; };  // NOLINT
05207     template<> struct ConwayPolynomial<859, 4> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<530>, ZPZV<2>>; };  // NOLINT
05208     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
05209     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
05210     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
05211     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
05212     template<> struct ConwayPolynomial<859, 9> { using ZPZ = aerobus::zpz<859>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<648>, ZPZV<845>, ZPZV<857>>;
      };  // NOLINT
05213     template<> struct ConwayPolynomial<863, 1> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<858>>; };  // NOLINT
05214     template<> struct ConwayPolynomial<863, 2> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<862>, ZPZV<5>>; };  // NOLINT
05215     template<> struct ConwayPolynomial<863, 3> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<858>>; };  // NOLINT
05216     template<> struct ConwayPolynomial<863, 4> { using ZPZ = aerobus::zpz<863>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<770>, ZPZV<5>>; };  // NOLINT
05217     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
05218     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
05219     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
05220     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
05221     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
05222     template<> struct ConwayPolynomial<877, 1> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<875>>; };  // NOLINT
```

```
05223     template<> struct ConwayPolynomial<877, 2> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<873>, ZPZV<2>>; };  // NOLINT
05224     template<> struct ConwayPolynomial<877, 3> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<875>>; };  // NOLINT
05225     template<> struct ConwayPolynomial<877, 4> { using ZPZ = aerobus::zpz<877>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<604>, ZPZV<2>>; };  // NOLINT
05226     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
05227     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
05228     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
05229     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
05230     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
05231     template<> struct ConwayPolynomial<881, 1> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<878>>; };  // NOLINT
05232     template<> struct ConwayPolynomial<881, 2> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<869>, ZPZV<3>>; };  // NOLINT
05233     template<> struct ConwayPolynomial<881, 3> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<878>>; };  // NOLINT
05234     template<> struct ConwayPolynomial<881, 4> { using ZPZ = aerobus::zpz<881>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<447>, ZPZV<3>>; };  // NOLINT
05235     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
05236     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
05237     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
05238     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
05239     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
05240     template<> struct ConwayPolynomial<883, 1> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<881>>; };  // NOLINT
05241     template<> struct ConwayPolynomial<883, 2> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<879>, ZPZV<2>>; };  // NOLINT
05242     template<> struct ConwayPolynomial<883, 3> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<6>, ZPZV<881>>; };  // NOLINT
05243     template<> struct ConwayPolynomial<883, 4> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<715>, ZPZV<2>>; };  // NOLINT
05244     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
05245     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
05246     template<> struct ConwayPolynomial<883, 7> { using ZPZ = aerobus::zpz<883>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<6>, ZPZV<881>>; };  // NOLINT
05247     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
05248     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
05249     template<> struct ConwayPolynomial<887, 1> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<882>>; };  // NOLINT
05250     template<> struct ConwayPolynomial<887, 2> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<885>, ZPZV<5>>; };  // NOLINT
05251     template<> struct ConwayPolynomial<887, 3> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<882>>; };  // NOLINT
05252     template<> struct ConwayPolynomial<887, 4> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<883>, ZPZV<5>>; };  // NOLINT
05253     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
05254     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
05255     template<> struct ConwayPolynomial<887, 7> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<8>, ZPZV<882>>; };  // NOLINT
05256     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
05257     template<> struct ConwayPolynomial<887, 9> { using ZPZ = aerobus::zpz<887>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<4>, ZPZV<727>, ZPZV<345>, ZPZV<882>>;
      };  // NOLINT
05258     template<> struct ConwayPolynomial<907, 1> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<905>>; };  // NOLINT
05259     template<> struct ConwayPolynomial<907, 2> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<903>, ZPZV<2>>; };  // NOLINT
05260     template<> struct ConwayPolynomial<907, 3> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<905>>; };  // NOLINT
05261     template<> struct ConwayPolynomial<907, 4> { using ZPZ = aerobus::zpz<907>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<14>, ZPZV<478>, ZPZV<2>>; };  // NOLINT
05262     template<> struct ConwayPolynomial<907, 5> { using ZPZ = aerobus::zpz<907>; using type =
```

```
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<2>, ZPZV<905>>; };  // NOLINT
05263     template<> struct ConwayPolynomial<907, 6> { using ZPZ = aerobus::zpz<907>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<626>, ZPZV<752>, ZPZV<266>, ZPZV<2>>; };  // NOLINT
05264     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
05265     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
05266     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
05267     template<> struct ConwayPolynomial<911, 1> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<894>>; };  // NOLINT
05268     template<> struct ConwayPolynomial<911, 2> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<909>, ZPZV<17>>; };  // NOLINT
05269     template<> struct ConwayPolynomial<911, 3> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<894>>; };  // NOLINT
05270     template<> struct ConwayPolynomial<911, 4> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<11>, ZPZV<887>, ZPZV<17>>; };  // NOLINT
05271     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
05272     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
05273     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
05274     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
05275     template<> struct ConwayPolynomial<911, 9> { using ZPZ = aerobus::zpz<911>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<679>, ZPZV<116>, ZPZV<894>>;
    };  // NOLINT
05276     template<> struct ConwayPolynomial<919, 1> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<912>>; };  // NOLINT
05277     template<> struct ConwayPolynomial<919, 2> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<910>, ZPZV<7>>; };  // NOLINT
05278     template<> struct ConwayPolynomial<919, 3> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<912>>; };  // NOLINT
05279     template<> struct ConwayPolynomial<919, 4> { using ZPZ = aerobus::zpz<919>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<602>, ZPZV<7>>; };  // NOLINT
05280     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
05281     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
05282     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
05283     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
05284     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
05285     template<> struct ConwayPolynomial<929, 1> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<926>>; };  // NOLINT
05286     template<> struct ConwayPolynomial<929, 2> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<917>, ZPZV<3>>; };  // NOLINT
05287     template<> struct ConwayPolynomial<929, 3> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<926>>; };  // NOLINT
05288     template<> struct ConwayPolynomial<929, 4> { using ZPZ = aerobus::zpz<929>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<787>, ZPZV<3>>; };  // NOLINT
05289     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
05290     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
05291     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
05292     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
05293     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
05294     template<> struct ConwayPolynomial<937, 1> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<932>>; };  // NOLINT
05295     template<> struct ConwayPolynomial<937, 2> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<934>, ZPZV<5>>; };  // NOLINT
05296     template<> struct ConwayPolynomial<937, 3> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<932>>; };  // NOLINT
05297     template<> struct ConwayPolynomial<937, 4> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<23>, ZPZV<585>, ZPZV<5>>; };  // NOLINT
05298     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
05299     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
05300     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
05301     template<> struct ConwayPolynomial<937, 8> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<658>, ZPZV<26>, ZPZV<53>, ZPZV<5>>; };  //
```

```
    NOLINT
05302     template<> struct ConwayPolynomial<937, 9> { using ZPZ = aerobus::zpz<937>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<28>, ZPZV<533>, ZPZV<483>,
    ZPZV<932>>; };  // NOLINT
05303     template<> struct ConwayPolynomial<941, 1> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<939>>; };  // NOLINT
05304     template<> struct ConwayPolynomial<941, 2> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<940>, ZPZV<2>>; };  // NOLINT
05305     template<> struct ConwayPolynomial<941, 3> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<939>>; };  // NOLINT
05306     template<> struct ConwayPolynomial<941, 4> { using ZPZ = aerobus::zpz<941>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<505>, ZPZV<2>>; };  // NOLINT
05307     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
05308     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
05309     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
05310     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
05311     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
05312     template<> struct ConwayPolynomial<947, 1> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<945>>; };  // NOLINT
05313     template<> struct ConwayPolynomial<947, 2> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<943>, ZPZV<2>>; };  // NOLINT
05314     template<> struct ConwayPolynomial<947, 3> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<945>>; };  // NOLINT
05315     template<> struct ConwayPolynomial<947, 4> { using ZPZ = aerobus::zpz<947>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<8>, ZPZV<894>, ZPZV<2>>; };  // NOLINT
05316     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
05317     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
05318     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
05319     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
05320     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
05321     template<> struct ConwayPolynomial<953, 1> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<950>>; };  // NOLINT
05322     template<> struct ConwayPolynomial<953, 2> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<947>, ZPZV<3>>; };  // NOLINT
05323     template<> struct ConwayPolynomial<953, 3> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<7>, ZPZV<950>>; };  // NOLINT
05324     template<> struct ConwayPolynomial<953, 4> { using ZPZ = aerobus::zpz<953>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<865>, ZPZV<3>>; };  // NOLINT
05325     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
05326     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
05327     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
05328     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
05329     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
05330     template<> struct ConwayPolynomial<967, 1> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<962>>; };  // NOLINT
05331     template<> struct ConwayPolynomial<967, 2> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<965>, ZPZV<5>>; };  // NOLINT
05332     template<> struct ConwayPolynomial<967, 3> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<962>>; };  // NOLINT
05333     template<> struct ConwayPolynomial<967, 4> { using ZPZ = aerobus::zpz<967>; using type =
    POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<963>, ZPZV<5>>; };  // NOLINT
05334     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
05335     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
05336     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
05337     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
05338     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
05339     template<> struct ConwayPolynomial<971, 1> { using ZPZ = aerobus::zpz<971>; using type =
    POLYV<ZPZV<1>, ZPZV<965>>; };  // NOLINT
05340     template<> struct ConwayPolynomial<971, 2> { using ZPZ = aerobus::zpz<971>; using type =
```

```
      POLYV<ZPZV<1>, ZPZV<970>, ZPZV<6>>; };  // NOLINT
05341     template<> struct ConwayPolynomial<971, 3> { using ZPZ = aerobus::zpz<971>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<3>, ZPZV<965>>; };  // NOLINT
05342     template<> struct ConwayPolynomial<971, 4> { using ZPZ = aerobus::zpz<971>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<527>, ZPZV<6>>; };  // NOLINT
05343     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
05344     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
05345     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
05346     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
05347     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
05348     template<> struct ConwayPolynomial<977, 1> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<974>>; };  // NOLINT
05349     template<> struct ConwayPolynomial<977, 2> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<972>, ZPZV<3>>; };  // NOLINT
05350     template<> struct ConwayPolynomial<977, 3> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<974>>; };  // NOLINT
05351     template<> struct ConwayPolynomial<977, 4> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<800>, ZPZV<3>>; };  // NOLINT
05352     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
05353     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
05354     template<> struct ConwayPolynomial<977, 7> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<7>, ZPZV<974>>; };  // NOLINT
05355     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
05356     template<> struct ConwayPolynomial<977, 9> { using ZPZ = aerobus::zpz<977>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<0>, ZPZV<450>, ZPZV<740>, ZPZV<974>>;
      };  // NOLINT
05357     template<> struct ConwayPolynomial<983, 1> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<978>>; };  // NOLINT
05358     template<> struct ConwayPolynomial<983, 2> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<981>, ZPZV<5>>; };  // NOLINT
05359     template<> struct ConwayPolynomial<983, 3> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<1>, ZPZV<978>>; };  // NOLINT
05360     template<> struct ConwayPolynomial<983, 4> { using ZPZ = aerobus::zpz<983>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<5>, ZPZV<567>, ZPZV<5>>; };  // NOLINT
05361     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
05362     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
05363     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
05364     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
05365     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
05366     template<> struct ConwayPolynomial<991, 1> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<985>>; };  // NOLINT
05367     template<> struct ConwayPolynomial<991, 2> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<989>, ZPZV<6>>; };  // NOLINT
05368     template<> struct ConwayPolynomial<991, 3> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<985>>; };  // NOLINT
05369     template<> struct ConwayPolynomial<991, 4> { using ZPZ = aerobus::zpz<991>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<10>, ZPZV<794>, ZPZV<6>>; };  // NOLINT
05370     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
05371     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
05372     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
05373     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
05374     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
05375     template<> struct ConwayPolynomial<997, 1> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<990>>; };  // NOLINT
05376     template<> struct ConwayPolynomial<997, 2> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<995>, ZPZV<7>>; };  // NOLINT
05377     template<> struct ConwayPolynomial<997, 3> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<2>, ZPZV<990>>; };  // NOLINT
05378     template<> struct ConwayPolynomial<997, 4> { using ZPZ = aerobus::zpz<997>; using type =
      POLYV<ZPZV<1>, ZPZV<0>, ZPZV<4>, ZPZV<622>, ZPZV<7>>; };  // NOLINT
05379     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
```

```
05380     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
05381     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
05382     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
05383     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
05384 #endif  // DO_NOT_DOCUMENT
05385 }  // namespace aerobus
05386 #endif  // AEROBUS_CONWAY_IMPORTS
05387
05388 #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...

Index

abs_t
  aerobus, 21
add_t
  aerobus, 22
  aerobus::i32, 58
  aerobus::i64, 62
  aerobus::polynomial< Ring >, 67
  aerobus::Quotient< Ring, X >, 74
  aerobus::zpz< p >, 98
addfractions_t
  aerobus, 22
aerobus, 17
  abs_t, 21
  add_t, 22
  addfractions_t, 22
  aligned_malloc, 34
  alternate_t, 22
  alternate_v, 35
  asin, 22
  asinh, 24
  atan, 24
  atanh, 24
  bell_t, 24
  bernoulli_t, 25
  bernoulli_v, 35
  combination_t, 25
  combination_v, 35
  cos, 25
  cosh, 25
  div_t, 26
  E_fraction, 26
  embed_int_poly_in_fractions_t, 26
  exp, 26
  expm1, 27
  factorial_t, 27
  factorial_v, 35
  field, 34
  fpq32, 27
  fpq64, 27
  FractionField, 27
  gcd_t, 27
  geometric_sum, 28
  lnp1, 28
  make_frac_polynomial_t, 28
  make_int_polynomial_t, 29
  make_q32_t, 29
  make_q64_t, 29
  makefraction_t, 29
  mul_t, 30
  mulfractions_t, 30
  pi64, 30
  PI_fraction, 30
  pow_t, 30
  pq64, 31
  q32, 31
  q64, 31
  sin, 31
  sinh, 31
  SQRT2_fraction, 32
  SQRT3_fraction, 32
  stirling_signed_t, 32
  stirling_unsigned_t, 32
  sub_t, 32
  tan, 33
  tanh, 33
  taylor, 33
  vadd_t, 34
  vmul_t, 34
aerobus::ContinuedFraction< a0 >, 49
  type, 49
  val, 49
aerobus::ContinuedFraction< a0, rest... >, 50
  type, 50
  val, 51
aerobus::ContinuedFraction< values >, 48
aerobus::ConwayPolynomial, 51
aerobus::Embed< i32, i64 >, 52
  type, 52
aerobus::Embed< polynomial< Small >, polynomial< Large > >, 52
  type, 53
aerobus::Embed< q32, q64 >, 53
  type, 54
aerobus::Embed< Quotient< Ring, X >, Ring >, 54
  type, 55
aerobus::Embed< Ring, FractionField< Ring > >, 55
  type, 56
aerobus::Embed< Small, Large, E >, 51
aerobus::Embed< zpz< x >, i32 >, 56
  type, 57
aerobus::i32, 57
  add_t, 58
  div_t, 58
  eq_t, 58
  eq_v, 60
  gcd_t, 58
  gt_t, 59
  inject_constant_t, 59

inject_ring_t, 59
inner_type, 59
is_euclidean_domain, 60
is_field, 60
lt_t, 59
mod_t, 59
mul_t, 59
one, 60
pos_t, 60
pos_v, 60
sub_t, 60
zero, 60
aerobus::i32::val< x >, 82
enclosing_type, 83
eval, 84
get, 84
is_zero_t, 83
to_string, 84
v, 84
aerobus::i64, 61
add_t, 62
div_t, 62
eq_t, 62
eq_v, 64
gcd_t, 62
gt_t, 62
gt_v, 64
inject_constant_t, 62
inject_ring_t, 63
inner_type, 63
is_euclidean_domain, 64
is_field, 64
lt_t, 63
lt_v, 64
mod_t, 63
mul_t, 63
one, 63
pos_t, 63
pos_v, 65
sub_t, 64
zero, 64
aerobus::i64::val< x >, 85
enclosing_type, 86
eval, 86
get, 86
inner_type, 86
is_zero_t, 86
to_string, 87
v, 87
aerobus::internal, 36
index_sequence_reverse, 39
is_instantiation_of_v, 40
make_index_sequence_reverse, 39
type_at_t, 39
aerobus::is_prime< n >, 65
value, 65
aerobus::IsEuclideanDomain, 45
aerobus::IsField, 45
aerobus::IsRing, 46
aerobus::known_polynomials, 40
bernoulli, 41
bernstein, 41
chebyshev_T, 41
chebyshev_U, 42
hermite_kind, 44
hermite_phys, 42
hermite_prob, 42
laguerre, 43
legendre, 43
physicist, 44
probabilist, 44
aerobus::polynomial< Ring >, 66
add_t, 67
derive_t, 68
div_t, 68
eq_t, 68
gcd_t, 68
gt_t, 69
inject_constant_t, 69
inject_ring_t, 69
is_euclidean_domain, 72
is_field, 72
lt_t, 69
mod_t, 69
monomial_t, 70
mul_t, 70
one, 70
pos_t, 70
pos_v, 72
simplify_t, 71
sub_t, 71
X, 71
zero, 71
aerobus::polynomial< Ring >::val< coeffN >, 94
aN, 95
coeff_at_t, 95
degree, 96
enclosing_type, 95
eval, 96
is_zero_t, 95
is_zero_v, 96
ring_type, 95
strip, 95
to_string, 96
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, E >, 47
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index< 0 || index > 0)> >, 47
type, 47
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)> >, 48
type, 48
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 87
aN, 88

coeff_at_t, 88
degree, 90
enclosing_type, 89
eval, 89
is_zero_t, 89
is_zero_v, 90
ring_type, 89
strip, 89
to_string, 90
aerobus::Quotient< Ring, X >, 73
add_t, 74
div_t, 75
eq_t, 75
eq_v, 77
inject_constant_t, 75
inject_ring_t, 75
is_euclidean_domain, 77
mod_t, 75
mul_t, 76
one, 76
pos_t, 76
pos_v, 77
zero, 76
aerobus::Quotient< Ring, X >::val< V >, 91
raw_t, 91
type, 91
aerobus::type_list< Ts >, 78
at, 79
concat, 80
insert, 80
length, 81
push_back, 80
push_front, 80
remove, 81
aerobus::type_list< Ts >::pop_front, 72
tail, 73
type, 73
aerobus::type_list< Ts >::split< index >, 78
head, 78
tail, 78
aerobus::type_list<>, 81
concat, 82
insert, 82
length, 82
push_back, 82
push_front, 82
aerobus::zpz< p >, 96
add_t, 98
div_t, 98
eq_t, 99
eq_v, 102
gcd_t, 99
gt_t, 99
gt_v, 102
inject_constant_t, 99
inner_type, 100
is_euclidean_domain, 102
is_field, 102
lt_t, 100
lt_v, 102
mod_t, 100
mul_t, 100
one, 101
pos_t, 101
pos_v, 103
sub_t, 101
zero, 101
aerobus::zpz< p >::val< x >, 91
enclosing_type, 92
eval, 93
get, 93
is_zero_t, 92
is_zero_v, 93
to_string, 93
v, 93
aligned_malloc
aerobus, 34
alternate_t
aerobus, 22
alternate_v
aerobus, 35
aN
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 88
asin
aerobus, 22
asinh
aerobus, 24
at
aerobus::type_list< Ts >, 79
atan
aerobus, 24
atanh
aerobus, 24

bell_t
aerobus, 24
bernoulli
aerobus::known_polynomials, 41
bernoulli_t
aerobus, 25
bernoulli_v
aerobus, 35
bernstein
aerobus::known_polynomials, 41

chebyshev_T
aerobus::known_polynomials, 41
chebyshev_U
aerobus::known_polynomials, 42
coeff_at_t
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 88
combination_t
aerobus, 25

combination_v
aerobus, 35
concat
aerobus::type_list< Ts >, 80
aerobus::type_list<>, 82
cos
aerobus, 25
cosh
aerobus, 25

degree
aerobus::polynomial< Ring >::val< coeffN >, 96
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 90
derive_t
aerobus::polynomial< Ring >, 68
div_t
aerobus, 26
aerobus::i32, 58
aerobus::i64, 62
aerobus::polynomial< Ring >, 68
aerobus::Quotient< Ring, X >, 75
aerobus::zpz< p >, 98

E_fraction
aerobus, 26
embed_int_poly_in_fractions_t
aerobus, 26
enclosing_type
aerobus::i32::val< x >, 83
aerobus::i64::val< x >, 86
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 89
aerobus::zpz< p >::val< x >, 92
eq_t
aerobus::i32, 58
aerobus::i64, 62
aerobus::polynomial< Ring >, 68
aerobus::Quotient< Ring, X >, 75
aerobus::zpz< p >, 99
eq_v
aerobus::i32, 60
aerobus::i64, 64
aerobus::Quotient< Ring, X >, 77
aerobus::zpz< p >, 102
eval
aerobus::i32::val< x >, 84
aerobus::i64::val< x >, 86
aerobus::polynomial< Ring >::val< coeffN >, 96
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 89
aerobus::zpz< p >::val< x >, 93
exp
aerobus, 26
expm1
aerobus, 27

factorial_t
aerobus, 27
factorial_v
aerobus, 35
field
aerobus, 34
fpq32
aerobus, 27
fpq64
aerobus, 27
FractionField
aerobus, 27

gcd_t
aerobus, 27
aerobus::i32, 58
aerobus::i64, 62
aerobus::polynomial< Ring >, 68
aerobus::zpz< p >, 99
geometric_sum
aerobus, 28
get
aerobus::i32::val< x >, 84
aerobus::i64::val< x >, 86
aerobus::zpz< p >::val< x >, 93
gt_t
aerobus::i32, 59
aerobus::i64, 62
aerobus::polynomial< Ring >, 69
aerobus::zpz< p >, 99
gt_v
aerobus::i64, 64
aerobus::zpz< p >, 102

head
aerobus::type_list< Ts >::split< index >, 78
hermite_kind
aerobus::known_polynomials, 44
hermite_phys
aerobus::known_polynomials, 42
hermite_prob
aerobus::known_polynomials, 42

index_sequence_reverse
aerobus::internal, 39
inject_constant_t
aerobus::i32, 59
aerobus::i64, 62
aerobus::polynomial< Ring >, 69
aerobus::Quotient< Ring, X >, 75
aerobus::zpz< p >, 99
inject_ring_t
aerobus::i32, 59
aerobus::i64, 63
aerobus::polynomial< Ring >, 69
aerobus::Quotient< Ring, X >, 75
inner_type
aerobus::i32, 59
aerobus::i64, 63
aerobus::i64::val< x >, 86

aerobus::zpz< p >, 100
insert
aerobus::type_list< Ts >, 80
aerobus::type_list<>, 82
Introduction, 1
is_euclidean_domain
aerobus::i32, 60
aerobus::i64, 64
aerobus::polynomial< Ring >, 72
aerobus::Quotient< Ring, X >, 77
aerobus::zpz< p >, 102
is_field
aerobus::i32, 60
aerobus::i64, 64
aerobus::polynomial< Ring >, 72
aerobus::zpz< p >, 102
is_instantiation_of_v
aerobus::internal, 40
is_zero_t
aerobus::i32::val< x >, 83
aerobus::i64::val< x >, 86
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 89
aerobus::zpz< p >::val< x >, 92
is_zero_v
aerobus::polynomial< Ring >::val< coeffN >, 96
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 90
aerobus::zpz< p >::val< x >, 93

laguerre
aerobus::known_polynomials, 43
legendre
aerobus::known_polynomials, 43
length
aerobus::type_list< Ts >, 81
aerobus::type_list<>, 82
lnp1
aerobus, 28
lt_t
aerobus::i32, 59
aerobus::i64, 63
aerobus::polynomial< Ring >, 69
aerobus::zpz< p >, 100
lt_v
aerobus::i64, 64
aerobus::zpz< p >, 102

make_frac_polynomial_t
aerobus, 28
make_index_sequence_reverse
aerobus::internal, 39
make_int_polynomial_t
aerobus, 29
make_q32_t
aerobus, 29
make_q64_t
aerobus, 29
makefraction_t
aerobus, 29
mod_t
aerobus::i32, 59
aerobus::i64, 63
aerobus::polynomial< Ring >, 69
aerobus::Quotient< Ring, X >, 75
aerobus::zpz< p >, 100
monomial_t
aerobus::polynomial< Ring >, 70
mul_t
aerobus, 30
aerobus::i32, 59
aerobus::i64, 63
aerobus::polynomial< Ring >, 70
aerobus::Quotient< Ring, X >, 76
aerobus::zpz< p >, 100
mulfractions_t
aerobus, 30

one
aerobus::i32, 60
aerobus::i64, 63
aerobus::polynomial< Ring >, 70
aerobus::Quotient< Ring, X >, 76
aerobus::zpz< p >, 101

physicist
aerobus::known_polynomials, 44
pi64
aerobus, 30
PI_fraction
aerobus, 30
pos_t
aerobus::i32, 60
aerobus::i64, 63
aerobus::polynomial< Ring >, 70
aerobus::Quotient< Ring, X >, 76
aerobus::zpz< p >, 101
pos_v
aerobus::i32, 60
aerobus::i64, 65
aerobus::polynomial< Ring >, 72
aerobus::Quotient< Ring, X >, 77
aerobus::zpz< p >, 103
pow_t
aerobus, 30
pq64
aerobus, 31
probabilist
aerobus::known_polynomials, 44
push_back
aerobus::type_list< Ts >, 80
aerobus::type_list<>, 82
push_front
aerobus::type_list< Ts >, 80
aerobus::type_list<>, 82

q32

aerobus, 31
q64
aerobus, 31

raw_t
aerobus::Quotient< Ring, X >::val< V >, 91
README.md, 105
remove
aerobus::type_list< Ts >, 81
ring_type
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 89

simplify_t
aerobus::polynomial< Ring >, 71
sin
aerobus, 31
sinh
aerobus, 31
SQRT2_fraction
aerobus, 32
SQRT3_fraction
aerobus, 32
src/aerobus.h, 105
stirling_signed_t
aerobus, 32
stirling_unsigned_t
aerobus, 32
strip
aerobus::polynomial< Ring >::val< coeffN >, 95
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 89
sub_t
aerobus, 32
aerobus::i32, 60
aerobus::i64, 64
aerobus::polynomial< Ring >, 71
aerobus::zpz< p >, 101

tail
aerobus::type_list< Ts >::pop_front, 73
aerobus::type_list< Ts >::split< index >, 78
tan
aerobus, 33
tanh
aerobus, 33
taylor
aerobus, 33
to_string
aerobus::i32::val< x >, 84
aerobus::i64::val< x >, 87
aerobus::polynomial< Ring >::val< coeffN >, 96
aerobus::polynomial< Ring >::val< coeffN, coeffs >, 90
aerobus::zpz< p >::val< x >, 93
type
aerobus::ContinuedFraction< a0 >, 49
aerobus::ContinuedFraction< a0, rest... >, 50
aerobus::Embed< i32, i64 >, 52
aerobus::Embed< polynomial< Small >, polynomial< Large > >, 53
aerobus::Embed< q32, q64 >, 54
aerobus::Embed< Quotient< Ring, X >, Ring >, 55
aerobus::Embed< Ring, FractionField< Ring > >, 56
aerobus::Embed< zpz< x >, i32 >, 57
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index< 0 || index > 0)> >, 47
aerobus::polynomial< Ring >::val< coeffN >::coeff_at< index, std::enable_if_t<(index==0)> >, 48
aerobus::Quotient< Ring, X >::val< V >, 91
aerobus::type_list< Ts >::pop_front, 73
type_at_t
aerobus::internal, 39

v
aerobus::i32::val< x >, 84
aerobus::i64::val< x >, 87
aerobus::zpz< p >::val< x >, 93
vadd_t
aerobus, 34
val
aerobus::ContinuedFraction< a0 >, 49
aerobus::ContinuedFraction< a0, rest... >, 51
value
aerobus::is_prime< n >, 65
vmul_t
aerobus, 34

X
aerobus::polynomial< Ring >, 71

zero
aerobus::i32, 60
aerobus::i64, 64
aerobus::polynomial< Ring >, 71
aerobus::Quotient< Ring, X >, 76
aerobus::zpz< p >, 101