Contents

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1   2D Geometry

1.1   Primitives

```cpp
typedef complex<double> point;
struct circle {
  point c; double r;
  circle(point c, double r):c(c),r(r){}
  circle(){}
};
double cross(const point &a, const point &b) {
  return imag(conj(a)*b);
}
double dot(const point &a, const point &b) {
  return real(conj(a)*b);
}
```

1.2   Intersections

```cpp
// Line - Line
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Line - Segment
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Segment - Segment
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Circle - Line
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Circle - Segment
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Circle - Circle
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Line - Point
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Segment - Point
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
```

1.3   Circle Generation

```cpp
// From 3 Points
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// From 1 Line 2 Points
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// From 2 Lines 1 Point
// Algorithm
// Algorithm
```

```cpp
// Algorithm
// Algorithm
// Algorithm
// From 3 Lines
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
```

1.4   Heron Triangle Area

```cpp
// Formula
// Formula
// Formula
```

1.5   Polygon Centroid

```cpp
for(int i = 1; i < n-1; i++) {
  pt  ai = pts[i] - pts[i-1],
      ib = pts[i+1] - pts[i];
  area += (conj(ai)*ib).imag();
}
```

1.6   Point In Polygon

```cpp
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
```

1.7   Convex Hull

```cpp
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
```

1.8   Line Segment Set Intersection

```cpp
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
// Algorithm
```

```
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
21  // Algorithm
22  // Algorithm
23  // Algorithm
24  // Algorithm
25  // Algorithm
26  // Algorithm
27  // Algorithm
28  // Algorithm
29  // Algorithm
30  // Algorithm
31  // Algorithm
32  // Algorithm
33  // Algorithm
34  // Algorithm
35  // Algorithm
36  // Algorithm
37  // Algorithm
38  // Algorithm
39  // Algorithm
40  // Algorithm
41  // Algorithm
42  // Algorithm
43  // Algorithm
44  // Algorithm
45  // Algorithm
46  // Algorithm
47  // Algorithm
48  // Algorithm
49  // Algorithm
```

1.9   Voronoi Diagrams

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
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7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

2   3D Geometry

2.1   Primitives

```
1   // Code
2   // Code
3   // Code
4   // Code
5   // Code
6   // Code
7   // Code
8   // Code
9   // Code
10  // Code
11  // Code
12  // Code
13  // Code
14  // Code
15  // Code
```

2.2   Convex Hull

```
1   // Algorithm
2   // Algorithm
```

```
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

2.3   Great Circle Distance

```
1   // Code
2   // Code
3   // Code
4   // Code
5   // Code
6   // Code
7   // Code
8   // Code
9   // Code
10  // Code
```

3   Combinatorics

3.1   Basics

```
1   // catalan numbers
2   long long C(int n) {
3     return (C(n-1)*2*n*(2*n-1))/(n*(n+1));
4     return NCR(2*n, n) - NCR(2*n, n+1);
5     return NCR(2*n, n)/(n+1);
6   }
7   // derangements
8   long long D(int n) {
9     return n*D(n-1) + pow(-1, n);
10    return (n-1)*(D(n-1) + D(n-2));
11  }
12  // iterate over all subsets with < m elements
13  for (int i = 0; i < (1<<n); i=Integer.bitCount(i) < m ? i
          +1 : (i|(i-1))+1)
14  // iterate over all the subsets
15  for (int i=0; i < (1<<n); i++)
16    // iterate over all the subsets of the i-th subset
17    for(int i2 = i; i2 > 0; i2 = (i2-1) & i)
```

4   Data Structures

4.1   Palindromic Tree

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

4.2   Treap

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
```

```
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
16 // Algorithm
17 // Algorithm
18 // Algorithm
19 // Algorithm
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23 // Algorithm
24 // Algorithm
25 // Algorithm
26 // Algorithm
27 // Algorithm
28 // Algorithm
29 // Algorithm
30 // Algorithm
```

4.3   Sparse Array

```
1  // Code
2  // Code
3  // Code
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13 // Code
14 // Code
15 // Code
```

4.4   Skip Lists

```
1  // Code
2  // Code
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11 // Code
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13 // Code
14 // Code
15 // Code
16 // Code
17 // Code
18 // Code
19 // Code
20 // Code
21 // Code
22 // Code
```

4.5   BIT + Search

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
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5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
```

```
13 // Algorithm
14 // Algorithm
15 // Algorithm
16 // Algorithm
17 // Algorithm
18 // Algorithm
19 // Algorithm
20 // Algorithm
```

4.6   Segment Tree + Lazy Propagation

```
1  // Algorithm
2  // Algorithm
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20 // Algorithm
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22 // Algorithm
23 // Algorithm
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26 // Algorithm
27 // Algorithm
28 // Algorithm
29 // Algorithm
30 // Algorithm
```

4.7   Weighted Union Disjoint Sets

```
1  // Algorithm
2  // Algorithm
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7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
```

5   Game Theory
5.1   Nim Game

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

5.2   Grundy Numbers

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
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6  // Algorithm
7  // Algorithm
8  // Algorithm
```

```
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
16 // Algorithm
17 // Algorithm
18 // Algorithm
19 // Algorithm
20 // Algorithm
```

5.3   General Josephus Problem
6   General Mathematics
6.1   Inclusion-Exclusion Patterns

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

6.2   Determinant

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
```

6.3   Gaussian Elimination

```cpp
double* GaussianElimination(int N, double **mat) {
  int i, j, k, L; double t;
  for (i = 0; i < N - 1; i++) {
    L = i;
    for (j = i + 1; j < N; j++)
      if (fabs(mat[j][i]) > fabs(mat[L][i]))
        L = j;
    for (k = i; k <= N; k++)
    swap(mat[i][k], mat[L][k]);
    for (j = i + 1; j < N; j++)
      for (k = N; k >= i; k--)
        mat[j][k] -= (mat[i][k] * mat[j][i]) / mat[i][i];
  }
  double *res = new double[N];
  for (j = N - 1; j >= 0; j--) {
    for (t = 0.0, k = j + 1; k < N; k++)
    t += mat[j][k] * res[k];
    res[j] = (mat[j][N] - t) / mat[j][j];
  }
  return res;
}
```

6.4   Fast Fourier-Transform

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

6.5   Misc. Formulas

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
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6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
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23 // Algorithm
24 // Algorithm
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27 // Algorithm
28 // Algorithm
29 // Algorithm
30 // Algorithm
```

7   Graph Theory
7.1   Primitives

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
```

7.2   Articulation Points & Bridges

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
16 // Algorithm
17 // Algorithm
18 // Algorithm
19 // Algorithm
20 // Algorithm
```

7.3   SCC

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
```

```
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
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16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.4   2-SAT

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
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16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.5   Edmonds-Karp Max Flow

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
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5   // Algorithm
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7   // Algorithm
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13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.6   Dinic's Max Flow

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.7   Min-Cost Max Flow

```
1   // Algorithm
```

```
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.8   Euler Cycles

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.9   Maximum Matching

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.10   HL Decomposition

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
```

```
18  // Algorithm
19  // Algorithm
20  // Algorithm
```

7.11 Modelling Inequalities

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
```

7.12 Max Flow Tricks

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
```

7.13 Bellman Ford

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
```

7.14 Stable Marriage

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
```

7.15 Maximum Assignment

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
```

8 Linear Programming

8.1 Simplex

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
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18  // Algorithm
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20  // Algorithm
21  // Algorithm
22  // Algorithm
23  // Algorithm
24  // Algorithm
25  // Algorithm
26  // Algorithm
27  // Algorithm
28  // Algorithm
29  // Algorithm
30  // Algorithm
31  // Algorithm
```

9 Number Theory

9.1 Extended GCD

```
1   long long gcd( long long a, long long b )
2   { return( b == 0 ? a : gcd( b, a % b ) ); }
3   //USED BY: egcd, msolve, inverse, ldioph
4   template< class Int > struct Triple {
5     Int d, x, y;
6     Triple(Int q, Int w, Int e):d(q), x(w), y(e){}
7   };
8   //USED BY: msolve, inverse, ldioph
9   template< class Int > Triple< Int > egcd( Int a, Int b ) {
10    if( !b ) return Triple< Int >( a, Int( 1 ), Int( 0 ) );
11    Triple< Int > q = egcd( b, a % b );
12    return Triple< Int >( q.d, q.y, q.x - a / b * q.y );
13  }
```

9.2 Modular Inverse

```
1   //solves ax = 1 (mod n).
2   template< class Int > Int inverse( Int a, Int n ) {
3       Triple< Int > t = egcd( a, n );
4       if( t.d > Int( 1 ) ) return Int( 0 );
5       Int r = t.x % n;
6       return( r < Int( 0 ) ? r + n : r );
7   }
```

9.3 Modular Linear Equation

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
```

9.4 Linear Diophantine Equation

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
```

```
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.5 Modular Powers

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.6 Sieve of Eratosthenes

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.7 Primality Testing & Factoring

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.8 Euler Phi

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.9 Chinese Remainder

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.10 Discerete Logarithm

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
```

9.11 Tortoise & Hare

```
1  // mu = start of cycle, lambda = cycle length
2  ii floyd(int x0) {
3    int tortoise = f(x0), hare = f(f(x0));
4    while(tortoise != hare)
5      tortoise = f(tortoise), hare = f(f(hare));
6    int mu = 0; hare = x0;
7    while(tortoise != hare)
8      tortoise = f(tortoise), hare = f(hare), mu++;
9    int lambda = 1; hare = f(tortoise);
10   while(tortoise != hare)
11     hare = f(hare), lambda++;
12   return ii(mu, lambda);
13 }
```

9.12 Pollard Rho

10 Search

10.1 Binary Search

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
5  // Algorithm
6  // Algorithm
7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
```

10.2 Ternary Search

```
1  long double min() {
2      long double lo = -1e6, hi = 1e6, res = 3e6;
3      while(fabs(lo-hi) > EPS) {
4          long double left = (hi-lo)/3 + lo, right = (2*(hi-
                 lo))/3 + lo;
5          long double resL = F(left), resR = F(right);
6          if(resL < resR)
7              hi = right;
8          else
9              lo = left;
10         res = min(res, min(resL, resR));
11     }
12     return res;
13 }
```

11 Strings

11.1 Aho Corasick

```
1  // Algorithm
2  // Algorithm
3  // Algorithm
4  // Algorithm
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6  // Algorithm
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10 // Algorithm
11 // Algorithm
12 // Algorithm
13 // Algorithm
14 // Algorithm
15 // Algorithm
```

11.2 Hashing

```
1  // Algorithm
2  // Algorithm
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7  // Algorithm
8  // Algorithm
9  // Algorithm
10 // Algorithm
11 // Algorithm
```

```
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
```

11.3   Z-Algorithm

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
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8   // Algorithm
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11  // Algorithm
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14  // Algorithm
15  // Algorithm
```

11.4   KMP + Periods

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
12  // Algorithm
13  // Algorithm
14  // Algorithm
15  // Algorithm
```

11.5   Manacher

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
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11  // Algorithm
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17  // Algorithm
18  // Algorithm
19  // Algorithm
20  // Algorithm
21  // Algorithm
```

11.6   Suffix Array

```
1   // Algorithm
2   // Algorithm
3   // Algorithm
4   // Algorithm
5   // Algorithm
6   // Algorithm
7   // Algorithm
8   // Algorithm
9   // Algorithm
10  // Algorithm
11  // Algorithm
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14  // Algorithm
15  // Algorithm
16  // Algorithm
17  // Algorithm
```

```
18  // Algorithm
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23  // Algorithm
24  // Algorithm
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26  // Algorithm
27  // Algorithm
28  // Algorithm
29  // Algorithm
30  // Algorithm
```

12   Misc

13   Last Page

Problem	Tags
01 A	
02 B	
03 C	
04 D	
05 E	
06 F	
07 G	
08 H	
09 I	
10 J	
11 K	
12 L	
13 M	

Time	Meeting Description	Chk
030	All Problems Read. Write Tags.	
060	Ace Decided. Choose Coder.	
090	Decide & Order Solveable Problems	
120	Status Check	
150	Status Check	
180	Status Check	
210	Status Check	
240	Status Check	
270	Status Check	