ICPC Template Notebook

Contents

Contest

template.cpp

```cpp
#include <bits/stdc++.h>
using namespace std;

using i64 = long long;
using i32 = int32_t;

i32 main() {
    cin.tie(0)->sync_with_stdio(0);
    return 0;
}
```

.bashrc

```
com() {
    g++ "$1.cpp" -o "$1" -std=c++20
    ↪  -fsanitize=address,undefined,signed-integer-overflow -ggdb
}
coms() {
    g++ "$1.cpp" -o "$1" -std=c++20
}
```

Mathematics

DSA

Strings

Geometry

Common Formulas

Combinatorics

Catalan Numbers:

$$\frac{1}{n+1}\binom{2n}{n}$$

Generalized Catalan Numbers:

$$\frac{n-m+1}{n+1}\binom{n+m}{m}$$

Probability

Expected number of trials before first success:

$$\frac{1}{p}$$

Probability of having exactly k successes after n trials:

$$\binom{n}{k} p^k (1-p)^{n-k}$$

Graphs

Trigonometry

Angle sum formulas:

$$\sin(a+b) = \sin(a)\cos(b) + \sin(b)\cos(a)$$

$$\cos(a+b) = \cos(a)\cos(b) - \sin(a)\sin(b)$$

$$\tan(a+b) = \frac{\tan(a) + \tan(b)}{1 - \tan(a)\tan(b)}$$