

# Standard Code Library

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# 一切的开始

## 宏定义

```
1  #include <bits/stdc++.h>
2  using namespace std;
3  using ll = long long;
4
5  #ifndef ONLINE_JUDGE
6  #define dbg(args...) \
7      do { \
8          cerr << "\033[32;1m" << #args << " -> "; \
9          err(args); \
10     } while (0)
11 #else
12 #define dbg(...)
13 #endif
14 void err() { cerr << "\033[39;0m" << endl; }
15 template <typename...> class T, typename t, typename... Args>
16 void err(T<t> a, Args... args) {
17     for (auto x : a) cerr << x << ' ';
18     err(args...);
19 }
20 template <typename T, typename... Args>
21 void err(T a, Args... args) {
22     cerr << a << ' ';
23     err(args...);
24 }
25 // -----
```

## 读入挂

```
1  inline char nc() {
2      static char buf[100000], *p1 = buf, *p2 = buf;
3      return p1 == p2 &&
4          (p2 = (p1 = buf) + fread(buf, 1, 100000, stdin), p1 == p2)
5          ? EOF
6          : *p1++;
7  }
8  template <typename T>
9  bool rn(T& v) {
10     static char ch;
11     while (ch != EOF && !isdigit(ch)) ch = nc();
12     if (ch == EOF) return false;
13     for (v = 0; isdigit(ch); ch = nc()) v = v * 10 + ch - '0';
14     return true;
15 }
16
17 template <typename T>
18 void o(T p) {
19     static int stk[70], tp;
```

```

20     if (p == 0) {
21         putchar('0');
22         return;
23     }
24     if (p < 0) {
25         p = -p;
26         putchar('-');
27     }
28     while (p) stk[++tp] = p % 10, p /= 10;
29     while (tp) putchar(stk[tp--] + '0');
30 }

```

## 快速幂

```

1  ll pow(ll x, ll n, ll mod) {
2      assert(n >= 0);
3      ll ret = mod != 1;
4      for (x %= mod; n; n >>= 1, x = x * x % mod)
5          if (n & 1) ret = ret * x % mod;
6      return ret;
7  }
8  ll inv(ll a, ll p) { return pow(a, p - 2, p); }
9  inline ll mul(ll a, ll b, ll mod) {
10     if (mod <= 1000000000)
11         return a * b % mod;
12     else if (mod <= 1000000000000011)
13         return (((a * (b >> 20) % mod) << 20) + (a * (b & ((1 << 20) - 1)))) % mod;
14     else {
15         ll d = (ll)floor(a * (long double)b / mod + 0.5);
16         ll ret = (a * b - d * mod) % mod;
17         if (ret < 0) ret += mod;
18         return ret;
19     }
20 }

```