

# AtCoder Beginner Contest 177

## A - Don't be late

一个匀速直线运动问题

```
#include <bits/stdc++.h>
using namespace std;
typedef long long LL;
int main(){
    int d, t, s;
    cin>>d>>t>>s;
    s * t >= d ? cout<<"Yes" : cout<<"No";
}
```

## B - Substring

将t变为s的子串需要改动的最少字符 由于长度较小，可以暴力搜索

```
#include <bits/stdc++.h>
using namespace std;
typedef long long LL;
int main(){
    string s, t;
    cin>>s;
    cin>>t;
    int ls = s.length();
    int lt = t.length();
    int ans = INT32_MAX;
    for (int i = 0; i + lt <= ls; ++i) {
        int tot = 0;
        for (int j = 0; j < lt; ++j) {
            if(t[j] != s[i + j]){
                tot++;
            }
        }
        ans = min(tot, ans);
    }
    cout<<ans;
}
```

## C - Sum of product of pairs

数列中任意两数乘积之和。每个数乘当前位置之前的前缀和。

```
#include <bits/stdc++.h>
using namespace std;
typedef long long LL;
const int mod = 1e9+7;
int a[300000];
LL s[300000];
int main(){
    int n;
    cin>>n;
    LL ss = 0;
    for (int k = 0; k < n; ++k) {
        scanf("%d", a + k);
        ss += a[k];
        ss %= mod;
        s[k] = ss;
    }
    LL ans = 0;
    for (int i = 1; i < n; ++i) {
        ans += s[i-1] * a[i];
        ans %= mod;
    }
    cout<<ans;
}
```

## D - Friends

给定一些朋友关系信息。如果 $a-b$ 且 $a-c$ 是朋友那么 $a-c$ 也是朋友。求至少要分成多少组使每组中不存在一对朋友。

相当于求图的最大连通块包含的点数。

发现函数名命名为find居然会RE

```
#include <bits/stdc++.h>
using namespace std;
typedef long long LL;
int f[300000] = {};
int cnt[300000] = {};
int ff(int x){
    if(f[x] == x) return x;
    return f[x] = ff(f[x]);
}
void link(int x, int y){
    f[ff(y)] = ff(x);
}
int main(){
    int n;
    cin>>n;
```

```
for (int j = 0; j <= n; ++j) {
    f[j] = j;
}
int m;
cin>>m;
for (int i = 0; i < m; ++i) {
    int p, q;
    scanf("%d%d", &p, &q);
    link(p, q);
}
for (int i = 1; i <= n; ++i) {
    cnt[ff(i)]++;
}

int ans = 0;
for (int i = 1; i <= n; ++i) {
    ans = max(ans, cnt[i]);
}

cout<<ans;
}
```

## E - Coprime

判断一组数是否两两最大公约数为1、整体最大公约数为1。

整体最大公约数逐个求gcd即可。两两最大公约数为1可以在筛素数的同时统计出是否有两个数包含同一个素因子来判断，不过要注意两个数相等的情况。

```
#include <bits/stdc++.h>

using namespace std;
typedef long long LL;

int gcd(int a, int b) {
    if (b == 0) return a;
    return gcd(b, a % b);
}

const int MAXN = 1000005;
int a[MAXN];
int p[MAXN] = {};
set<int> fac;

bool notprime[MAXN];
bool gg = false;
void init() {
    memset(notprime, false, sizeof(notprime));
}
```

```
notprime[0] = notprime[1] = true;
for (int i = 2; i < MAXN; i++) {
    if (!notprime[i]) {
        int cnt = 0;
        if(p[i])cnt++;
        //if (i > MAXN / i)continue;
        for (int j = i * 2; j < MAXN; j += i) {
            notprime[j] = true;
            if(p[j]) cnt++;
            if(cnt >= 2) {
                gg = true;
                return;
            }
        }
    }
}

int main() {
    int n;
    cin >> n;
    int gcda = 0;
    init();
    for (int i = 0; i < n; ++i) {
        scanf("%d", a + i);
        if (gcda == 0)gcda = a[i];
        else gcda = gcd(gcda, a[i]);
        if(p[a[i]] && a[i] != 1){
            gg = true;
        }
        p[a[i]] = true;
    }
    if(!gg)init();

    if(!gg){
        cout<<"pairwise coprime";
    }
    else if(gcda == 1){
        cout<<"setwise coprime";
    }else cout<<"not coprime";
}
```

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