

# 思考题讲解

## 人员

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## 上周作业检查

Begin: 2024-12-28 09:07 CST

☆ 2024-1228 ~ 1229 三队上课

End: 2025-05-02 09:07 CST

Elapsed: 6:23:35:57

Running

Remaining: 118:00:24:02

Overview

Problem

Status

Rank (6:23:35:56)

Discuss

Setting

Clone

Update

Delete

Rank	Team	Score	Penalty	A 1 / 2	B 3 / 4	C 2 / 2
1	☆ Zheng_iii (郑岩泽)	3	23881	5:11:52:17 (-1)	5:12:33:26	5:13:15:33
2	☆ syzxiangyuhan (梁钰...)	2	7767		5:06:11:25	3:16:20
3	☆ ssine233 (穆鹏宇)	1	146		2:06:52 (-1)	

## 作业

<https://vjudge.net/contest/683609>

## 课堂表现

今天的几道题目相对复杂一些, 同学们课后要再好好复习一下这几道题目。

## 课堂内容

### CF1921F Sum of Progression

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

using namespace std;

typedef long long LL;
const int N = 1e5 + 5, M = 400 + 5;
int w[N];
LL suf[M][N], fSuf[M][N];

void solve() {
    int n, m; cin >> n >> m;
    for (int i = 1; i <= n; ++i) cin >> w[i];
    int limit = n; while (1LL*limit*limit > n) --limit;

    for (int i = 1; i <= limit; ++i) {
```

```

    for (int j = n; j >= 1; --j) {
        suf[i][j] = (j+i<=n?suf[i][j+i]:0) + w[j];
        fSuf[i][j] = (j+i<=n?fSuf[i][j+i]+suf[i][j+i]:0) + w[j];
    }
}

while (m -- ) {
    int s, d, k; cin >> s >> d >> k;
    // cout << "----- ";
    LL res = 0;
    if (d <= limit) {
        LL suf_value = 0;
        if (s+d*k <= n) {
            suf_value = fSuf[d][s+d*k] + suf[d][s+d*k]*k;
        }
        res = fSuf[d][s] - suf_value;
    } else {
        for (int i = 1; i <= k; ++i) res += 1LL*w[s+(i-1)*d]*i;
    }
    cout << res << " ";
    // cout << res << endl;
}
cout << endl;
}

int main()
{
    int T; cin >> T;
    while (T -- ) solve();
    return 0;
}

```

## CF2026D Sums of Segments

```

#include <bits/stdc++.h>

using namespace std;

typedef long long LL;
const int maxn = 3e5 + 5;
int w[maxn]; LL pW[maxn], pNums[maxn];
LL suf[maxn], pre[maxn], pSum[maxn];

LL get_wSum(int l, int r) { return pW[r] - pW[l-1]; }

LL calc(int n, LL k) {
    int pos = upper_bound(pNums+1, pNums+n+1, k) - pNums - 1;
    LL res = pSum[pos]; // need add [pos+1, k]

    int l = pos+1, r = pos + (k-pNums[pos]);
    LL t = suf[l] - suf[r+1]; t -= 1LL*get_wSum(l,r)*((n-l+1)-(r-l+1));
}

```

```

    return res + t;
}

void solve() {
    int n; cin >> n;
    for (int i = 1; i <= n; ++i) cin >> w[i], pW[i] = pW[i-1] + w[i];
    for (int i = 1; i <= n; ++i) pNums[i] = pNums[i-1] + n-i+1;

    for (int i = n; i >= 1; --i) {
        suf[i] = suf[i+1] + w[i]*(n-i+1); pre[i] = suf[i];
    }
    for (int i = 1; i <= n; ++i) pSum[i] = pSum[i-1] + pre[i];

    int m; cin >> m;
    while (m -- ) {
        LL l, r; cin >> l >> r;
        // cout << "----- ";
        // cout << calc(n,l-1) << " **** " << calc(n,r) << endl;
        cout << calc(n, r) - calc(n, l-1) << endl;
    }
}

int main()
{
    int T = 1;
    // int T; cin >> T;
    while (T -- ) solve();
    return 0;
}

```

### CF1367E Necklace Assembly

```

#include <bits/stdc++.h>

using namespace std;

const int N = 2000 + 5, M = 128 + 5;
char s[N];
int f[M];

void solve() {
    memset(f, 0, sizeof(f));

    int n, k; cin >> n >> k;
    cin >> (s+1);
    for (int i = 1; i <= n; ++i) f[s[i]]++;

    for (int i = n; i >= 1; --i) {
        int c = __gcd(k, i); // 一共有 c 组
        int len = i / c; // 一组里面有 len 个一样的
    }
}

```

```
    int res = 0;
    for (int i = 'a'; i <= 'z'; ++i) res += f[i] / len;
    if (res >= c) { cout << i << endl; return; }
}

int main()
{
    int T; cin >> T;
    while (T -- ) solve();
    return 0;
}
```