

Олимпиада «Ломоносов» по информатике  
2025-2026 учебный год. Заключительный этап  
Работа участника с id заявки 1628486, логином inf26f\_254

Сводный итог по всем задачам в проверяющей системе

Run ID	Time	User name	Problem	Language	Result	Tests	Score
587	2:18:59	inf26f_254	2	g++	Partial solution	6 6	
485	1:58:13	inf26f_254	6	g++	Partial solution	13 60	
381	1:34:28	inf26f_254	7	g++	Partial solution	0 0	
334	1:24:04	inf26f_254	5	g++	OK	103 100	
295	1:14:37	inf26f_254	4	g++	OK	103 100	
250	1:06:11	inf26f_254	3	g++	OK	23 100	
27	0:21:37	inf26f_254	1	g++	Partial solution	22 95	

461 (четыреста шестьдесят один) технический балл  
66 (шестьдесят шесть) итоговых баллов



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## Посылка по задаче 1

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] #include <map>
[5] using namespace std;
[6] long long k, c;
[7] map <char, long long> mp;
[8] string s, p, minn, maxx;
[9] vector <string> v;
[10] vector <long long> ans;
[11] int main() {
[12]     ios_base::sync_with_stdio(0);
[13]     cin.tie(0);
[14]     mp['N'] = 0;
[15]     mp['I'] = 1;
[16]     mp['V'] = 5;
[17]     mp['X'] = 10;
[18]     mp['L'] = 50;
[19]     cin >> k;
[20]     while (k--) {
[21]         cin >> s;
[22]         v.clear();
[23]         ans.clear();
[24]         p = "";
[25]         for (int i = 0; i < s.size(); ++i) {
[26]             if (s[i] == '.') {
[27]                 v.push_back(p);
[28]                 p = "";
[29]             } else {
[30]                 p.push_back(s[i]);
[31]             }
[32]         }
[33]         v.push_back(p);
[34]         ans.resize(v.size());
[35]         p = "";
[36]         for (int i = 0; i < v.size(); ++i) {
[37]             c = 0;
[38]             for (int j = v[i].size() - 1; j >= 0; --j) {
[39]                 if (mp[v[i][j]] >= c) {
[40]                     ans[i] += mp[v[i][j]];
[41]                 } else {
[42]                     ans[i] -= mp[v[i][j]];
[43]                 }
[44]                 c = max(c, mp[v[i][j]]);
[45]             }
[46]             if (ans[i] < 26) {
[47]                 p.push_back('A' + ans[i]);
[48]             } else {
[49]                 p.push_back('a' + (ans[i] - 26));
[50]             }
[51]         }
[52]         if (minn == "" || p < minn) minn = p;
[53]         if (maxx == "" || p > maxx) maxx = p;
[54]     }
[55]     cout << minn << '\n' << maxx;
[56]     cout << '\n';
[57] }
```

## Посылка по задаче 2

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] #pragma GCC optimize("Ofast")
[5] using namespace std;
[6] int n, x;
[7] int cnt[160001], flag[160001];
[8] bool itos(long long n) {
[9]     do {
[10]         if (n % 10 != 1) return 0;
[11]         n /= 10;
[12]     } while (n > 0);
[13]     return 1;
[14] }
[15] int get(long long n) {
[16]     long long cnt = 0;
[17]     while (n > 0) {
[18]         ++cnt;
[19]         n /= 10;
[20]     }
[21]     return cnt;
[22] }
[23] bool is_brazil(long long n, long long b) {
[24]     int cnt = 0;
[25]     while (n != 0) {
[26]         if (!itos(n % b)) return 0;
[27]         cnt += get(n % b);
[28]         n /= b;
[29]     }
[30]     if (cnt < 3) return 0;
[31]     return 1;
[32] }
[33] char not_prime[160001];
[34] int main() {
[35]     ios_base::sync_with_stdio(0);
[36]     cin.tie(0);
[37]     not_prime[0] = not_prime[1] = 1;
[38]     for (long long i = 2; i * i <= 160000; ++i) {
[39]         if (!not_prime[i]) {
[40]             for (long long j = i * i; j <= 160000; j += i) {
[41]                 not_prime[j] = 1;
[42]             }
[43]         }
[44]     }
[45]     cin >> n;
[46]     for (int i = 0; i < n; ++i) {
[47]         cin >> x;
[48]         if (!not_prime[i]) {
[49]             if (flag[i] == 0) {
[50]                 flag[i] = 1;
[51]                 for (int b = 2; b * b <= i + 10; ++b) {
[52]                     if (is_brazil(i, b)) {
[53]                         flag[i] = 2;
[54]                         break;
[55]                     }
[56]                 }
[57]             }
[58]         }
[59]         cnt[x] += flag[i];
[60]     }
[61]     x = 0;
[62]     for (int i = 1; i <= 160000; ++i) {
[63]         if (cnt[i] >= cnt[x] && cnt[i] != 0) x = i;
[64]     }
[65]     cout << x;
[66]     cout << '\n';
[67] }
```

### Посылка по задаче 3

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5] long long n, c, x, y, d, i, j;
[6] int main() {
[7]     ios_base::sync_with_stdio(0);
[8]     cin.tie(0);
[9]     cin >> n >> y >> x;
[10]    if (y == 1) {
[11]        cout << x - 1 << '\n';
[12]        return 0;
[13]    }
[14]    d = 1;
[15]    c = n - 1;
[16]    i = n;
[17]    j = 1;
[18]    while (1) {
[19]        if (x == i) {
[20]            cout << c + (y - j);
[21]            break;
[22]        }
[23]        c += n - d;
[24]        j += n - d;
[25]        if (y == j) {
[26]            cout << c + (i - x);
[27]            break;
[28]        }
[29]        c += n - d;
[30]        i -= n - d;
[31]        ++d;
[32]        if (x == i) {
[33]            cout << c + (j - y);
[34]            break;
[35]        }
[36]        c += n - d;
[37]        j -= n - d;
[38]        if (y == j) {
[39]            cout << c + (x - i);
[40]            break;
[41]        }
[42]        c += n - d;
[43]        i += n - d;
[44]        ++d;
[45]    }
[46]    cout << '\n';
[47] }
```

#### Посылка по задаче 4

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5] long long n, j;
[6] vector <long long> h, dp;
[7] int main() {
[8]     ios_base::sync_with_stdio(0);
[9]     cin.tie(0);
[10]    cin >> n;
[11]    h.resize(n);
[12]    for (int i = 0; i < n; ++i) {
[13]        cin >> h[i];
[14]    }
[15]    reverse(h.begin(), h.end());
[16]    dp.resize(n + 1, 1e18);
[17]    dp[0] = -1e18;
[18]    for (int i = 0; i < n; ++i) {
[19]        j = upper_bound(dp.begin(), dp.end(), h[i]) - dp.begin();
[20]        dp[j] = min(dp[j], h[i]);
[21]    }
[22]    for (int i = n; i >= 1; --i) {
[23]        if (dp[i] != 1e18) {
[24]            cout << n - i << '\n';
[25]            return 0;
[26]        }
[27]    }
[28] }
```

## Посылка по задаче 5

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5] long long n, ans;
[6] struct st {
[7]     long long x, y, w;
[8] };
[9] vector <st> v;
[10] vector <vector <int> > gr;
[11] vector <int> ts, d, used;
[12] void dfs(int v) {
[13]     used[v] = 1;
[14]     for (auto u : gr[v]) {
[15]         if (!used[u]) {
[16]             dfs(u);
[17]         }
[18]     }
[19]     ts.push_back(v);
[20] }
[21] int main() {
[22]     ios_base::sync_with_stdio(0);
[23]     cin.tie(0);
[24]     cin >> n;
[25]     v.resize(n);
[26]     for (int i = 0; i < n; ++i) {
[27]         cin >> v[i].x >> v[i].y >> v[i].w;
[28]     }
[29]     gr.resize(n);
[30]     d.resize(n, 1);
[31]     used.resize(n);
[32]     for (int i = 0; i < n; ++i) {
[33]         for (int j = 0; j < n; ++j) {
[34]             if (v[i].x < v[j].x && v[i].y < v[j].y && v[i].w > v[j].w) {
[35]                 gr[i].push_back(j);
[36]             }
[37]         }
[38]     }
[39]     for (int i = 0; i < n; ++i) {
[40]         if (!used[i]) {
[41]             dfs(i);
[42]         }
[43]     }
[44]     reverse(ts.begin(), ts.end());
[45]     for (auto i : ts) {
[46]         ans = max(ans, (long long)d[i]);
[47]         for (auto u : gr[i]) {
[48]             d[u] = max(d[u], d[i] + 1);
[49]         }
[50]     }
[51]     cout << ans << '\n';
[52] }
```

## Посылка по задаче 6

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5] long long ans, r, c, f;
[6] long long n[5];
[7] vector <vector <int> > v;
[8] char cr;
[9] void rec(int x, int cnt) {
[10]     if (cnt == n[x]) {
[11]         if (x == 1) {
[12]             ++ans;
[13]             return;
[14]         } else {
[15]             rec(x - 1, 0);
[16]         }
[17]     }
[18]     for (int i = 0; i < r; ++i) {
[19]         for (int j = 0; j < c; ++j) {
[20]             if (i + x <= r) {
[21]                 f = 1;
[22]                 for (int k = 0; k < x; ++k) {
[23]                     if (v[i + k][j] != -1) {
[24]                         f = 0;
[25]                     }
[26]                 }
[27]                 if (f) {
[28]                     for (int k = 0; k < x; ++k) {
[29]                         v[i + k][j] = x;
[30]                     }
[31]                     rec(x, cnt + 1);
[32]                     for (int k = 0; k < x; ++k) {
[33]                         v[i + k][j] = -1;
[34]                     }
[35]                 }
[36]             }
[37]             if (x != 1 && j + x <= c) {
[38]                 f = 1;
[39]                 for (int k = 0; k < x; ++k) {
[40]                     if (v[i][j + k] != -1) {
[41]                         f = 0;
[42]                     }
[43]                 }
[44]                 if (f) {
[45]                     for (int k = 0; k < x; ++k) {
[46]                         v[i][j + k] = x;
[47]                     }
[48]                     rec(x, cnt + 1);
[49]                     for (int k = 0; k < x; ++k) {
[50]                         v[i][j + k] = -1;
[51]                     }
[52]                 }
[53]             }
[54]         }
[55]     }
[56] }
[57] int main() {
[58]     ios_base::sync_with_stdio(0);
[59]     cin.tie(0);
[60]     for (int i = 1; i <= 4; ++i) {
[61]         cin >> n[i];
[62]     }
[63]     cin >> r >> c;
[64]     v.resize(r, vector <int> (c));
[65]     for (int i = 0; i < r; ++i) {
[66]         for (int j = 0; j < c; ++j) {
[67]             cin >> cr;
[68]             if (cr == '#') {
[69]                 v[i][j] = -1;
[70]             }
[71]         }
[72]     }
[73]     rec(4, 0);
[74]     f = 1;
[75]     for (int i = 1; i <= 4; ++i) {
[76]         for (int j = 1; j <= n[i]; ++j) {
[77]             f *= j;
[78]         }
[79]     }
[80]     cout << ans / f << '\n';
[81] }
```

## Посылка по задаче 7

```
[1] #include <iostream>
[2] #include <vector>
[3] #include <algorithm>
[4] using namespace std;
[5]
[6] int main() {
[7]     ios_base::sync_with_stdio(0);
[8]     cin.tie(0);
[9]     cout << -1;
[10]}
```