

Heaven's Light Is Our Guide
Rajshahi University of Engineering & Technology
Department of Computer Science & Engineering



Course Code: CSE 2102
Course Title: Discrete Mathematics Sessional

Experiment No. 04

Submitted By

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Section: C, Session: 2020-2021

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Problem-1:

Link: <https://codeforces.com/problemset/problem/1823/C>

Solution:

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

#include<ext/pb_ds/assoc_container.hpp>
#include<ext/pb_ds/tree_policy.hpp>

using namespace std;

using namespace __gnu_pbds;

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

#define pb          push_back
#define ll          long long
#define ff first
#define ss second

#define SZ(a) (int)a.size()

#define UNIQUE(a) (a).erase(unique(all(a)),(a).end())

#define eb emplace_back

#define mp make_pair

#define deb(x) cout << #x << "=" << x << endl

#define deb2(x, y) cout << #x << "=" << x << ", " << #y << "=" << y << endl

#define nn '\n'

#define pfl(x)      printf("%lld\n",x)

#define pcas(i)      printf("Case %lld: ",i)

#define Setpre(n) cout<<fixed<<setprecision(n)

#define itr(it, a) for(auto it = a.begin(); it != a.end(); it++)

#define debug        printf("I am here\n")

//CONSTANTS

#define md            10000007
```

```

#define PI 3.1415926535897932384626

const double EPS = 1e-9;

const ll N = 1e7+10;

const ll M = 1e9+7;

inline ll GCD(ll a, ll b) { return b == 0 ? a : GCD(b, a % b); }

inline ll LCM(ll a, ll b) { return a * b / GCD(a, b); }

inline ll Ceil(ll p, ll q) { return p < 0 ? p / q : p / q + !(p % q); }

inline ll Floor(ll p, ll q) { return p > 0 ? p / q : p / q - !(p % q); }

inline double logb(ll base, ll num) { return (double)log(num)/((double)log(base)); }

inline bool isPerfectSquare(long double x) { if (x >= 0) { long long sr = sqrt(x); return (sr * sr == x); } return false; }

double euclidean_distance(ll x1, ll y1, ll x2, ll y2) { double a = (x2 - x1) * (x2 - x1); double b = (y2 - y1) * (y2 - y1); double c = (double)sqrt(a + b); return c; }

int popcount(ll x) { return __builtin_popcountll(x); }

int poplow(ll x) { return __builtin_ctzll(x); }

int pophigh(ll x) { return 63 - __builtin_clzll(x); }

namespace io {

    template<typename First, typename Second> ostream& operator << ( ostream &os, const pair<First, Second> &p ) { return os << p.first << " " << p.second; }

    template<typename First, typename Second> ostream& operator << ( ostream &os, const map<First, Second> &mp ) { for( auto it : mp ) { os << it << endl; } return os; }

    template<typename First> ostream& operator << ( ostream &os, const vector<First> &v ) { bool space = false; for( First x : v ) { if( space ) os << " "; space = true; os << x; } return os; }

    template<typename First> ostream& operator << ( ostream &os, const set<First> &st ) { bool space = false; for( First x : st ) { if( space ) os << " "; space = true; os << x; } return os; }

    template<typename First> ostream& operator << ( ostream &os, const multiset<First> &st ) { bool space = false; for( First x : st ) { if( space ) os << " "; space = true; os << x; } return os; }

    template<typename First, typename Second> istream& operator >> ( istream &is, pair<First, Second> &p ) { return is >> p.first >> p.second; }

```

```
template<typename First> istream& operator >> ( istream &is, vector<First> &v ) { for( First
&x : v ) { is >> x; } return is; }
```

```
long long fastread(){ char c; long long d = 1, x = 0; do c = getchar(); while( c == ' ' || c == '\n'
); if( c == '-' ) c = getchar(), d = -1; while( isdigit( c ) ){ x = x * 10 + c - '0'; c = getchar(); } return
d * x; }
```

```
static bool sep = false;
```

```
using std::to_string;
```

```
string to_string( bool x ){ return ( x ? "true" : "false" ); }
```

```
string to_string( const string & s ){ return "\"" + s + "\""; }
```

```
string to_string( const char * s ){ return "\"" + string( s ) + "\""; }
```

```
string to_string ( const char & c ) { string s; s += c; return "\"" + s + "\""; }
```

```
template<typename Type> string to_string( vector<Type> );
```

```
template<typename First, typename Second> string to_string( pair<First, Second> );
```

```
template<typename Collection> string to_string( Collection );
```

```
template<typename First, typename Second> string to_string( pair<First, Second> p ){ return
"{" + to_string( p.first ) + ", " + to_string( p.second ) + "}"; }
```

```
template<typename Type> string to_string( vector<Type> v ) { bool sep = false; string s = "[";
for( Type x: v ){ if( sep ) s += ", "; sep = true; s += to_string( x ); } s += "]"; return s; }
```

```
template<typename Collection> string to_string( Collection collection ) { bool sep = false;
string s = "{"; for( auto x: collection ){ if( sep ) s += ", "; sep = true; s += to_string( x ); } s +=
"}"; return s; }
```

```
void print() { cerr << endl; sep = false; }
```

```
template <typename First, typename... Other> void print( First first, Other... other ) { if( sep )
cerr << " | "; sep = true; cerr << to_string( first ); print( other... ); }
```

```

} using namespace io;

vector<int> smallest_factor;

vector<bool> prime;

vector<int> primes;

void sieve(int maximum) {
    maximum = max(maximum, 2);
    smallest_factor.assign(maximum + 1, 0);
    prime.assign(maximum + 1, true);
    prime[0] = prime[1] = false;
    primes = {2};

    for (int p = 2; p <= maximum; p += 2) {
        prime[p] = p == 2;
        smallest_factor[p] = 2;
    }

    for (int p = 3; p * p <= maximum; p += 2)
        if (prime[p])
            for (int i = p * p; i <= maximum; i += 2 * p)
                if (prime[i]) {
                    prime[i] = false;
                    smallest_factor[i] = p;
                }

    for (int p = 3; p <= maximum; p += 2)
        if (prime[p]) {

```

```

        smallest_factor[p] = p;
        primes.push_back(p);
    }
}

int main()
{
    fast;

    ll t;
    //setIO();
    //ll tno=1;;
    t=1;
    cin>>t;
    sieve(N);
    while(t--){
        ll n;
        cin>>n;

        ll x;
        // cout<<vec<<nn;

        map<ll,ll>freq;
        for(ll i=0;i<n;i++){
            cin>>x;
            while(x>1){
                freq[smallest_factor[x]]++;
                x/=smallest_factor[x];
            }
        }

        ll rem=0;

```

```

ll tot=0;

for(auto it:freq){
    tot+=it.second/2;
    rem+=it.second%2;
}

tot+=rem/3;
rem=rem%3;

cout<<tot<<nn;
}

return 0;
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
203908065	Virtual: sefayetalam14	1823C - 16	GNU C++17	Accepted	124 ms	46564 KB	2023-04-29 16:18:50	2023-04-29 16:18:50	★	<button>Compare</button>

Problem-2:

Link: <https://codeforces.com/problemset/problem/1811/E>

Solution:

```

#include<bits/stdc++.h>

#include<ext/pb_ds/assoc_container.hpp>

#include<ext/pb_ds/tree_policy.hpp>

using namespace std;

using namespace __gnu_pbds;

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

#define pb          push_back

#define ll          long long

#define ff first

#define ss second

```

```

#define SZ(a) (int)a.size()

#define UNIQUE(a) (a).erase(unique(all(a)),(a).end())

#define eb emplace_back

#define mp make_pair

#define Set(x, k) (x |= (1LL << k))

#define Unset(x, k) (x &= ~(1LL << k))

#define Check(x, k) (x & (1LL << k))

#define Toggle(x, k) (x ^ (1LL << k))


#define scl(n)          scanf("%lld", &n)

#define fr(i,n)         for (ll i=0;i<n;i++)

#define fr1(i,n)        for(ll i=1;i<=n;i++)

#define Fo(i,k,n) for(i=k;k<n?i<n:i>n;k<n?i+=1:i-=1)

#define deb(x) cout << #x << "=" << x << endl

#define deb2(x, y) cout << #x << "=" << x << ", " << #y << "=" << y << endl

#define nn '\n'

#define pfl(x)          printf("%lld\n",x)

#define pcas(i)         printf("Case %lld: ",i)

#define Setpre(n) cout<<fixed<<setprecision(n)

#define itr(it, a) for(auto it = a.begin(); it != a.end(); it++)

#define debug           printf("I am here\n")

#define asort(a)         sort(a,a+n)

#define dsort(a)         sort(a,a+n,greater<int>())

#define vasort(v)        sort(v.begin(), v.end());

#define vdsort(v)        sort(v.begin(), v.end(),greater<ll>());

#define rev(x) reverse(all(x))

#define sortall(x) sort(all(x))

#define mem(a,b) memset(a,b,sizeof(a))

```



```

#define all(x) x.begin(), x.end()
#define rev(x) reverse(all(x))
#define md          10000007
#define PI 3.1415926535897932384626

const double EPS = 1e-9;
const ll N = 2e5+10;
const ll M = 1e9+7;

int main()
{
    fast;

    ll t;
    //setIO();
    //ll tno=1;;

    t=1;
    cin>>t;

    while(t--){
        ll n;
        cin>>n;
        vector<ll>vec;
        while(n){
            vec.pb( (n%9) + ((n%9)>3) );
            n/=9;
        }
        // cout<<vec<<endl;
        reverse(all(vec));
        for(auto it:vec) cout<<it;
        cout<<endl;
    }
}

```

```

    }
    return 0;
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
211847257	Practice: sefayetalam14	1811E - 12	GNU C++20 (64)	Accepted	62 ms	24 KB	2023-07-02 18:43:00	2023-07-02 18:43:00	★	<button>Compare</button>

Problem-3:

Link: <https://codeforces.com/problemset/problem/1804/C>

Solution:

```

#include<bits/stdc++.h>

#include<ext/pb_ds/assoc_container.hpp>

#include<ext/pb_ds/tree_policy.hpp>

using namespace std;

using namespace __gnu_pbds;

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

#define pb          push_back

#define ll          long long

#define ff first

#define ss second

#define SZ(a) (int)a.size()

#define UNIQUE(a) (a).erase(unique(all(a)),(a).end())

#define eb emplace_back

#define mp make_pair

#define deb(x) cout << #x << "=" << x << endl

#define deb2(x, y) cout << #x << "=" << x << "," << #y << "=" << y << endl

#define nn '\n'

#define pfl(x)      printf("%lld\n",x)

#define pcas(i)     printf("Case %lld: ",i)

```

```

#define Setpre(n) cout<<fixed<<setprecision(n)
#define itr(it, a) for(auto it = a.begin(); it != a.end(); it++)
#define debug      printf("I am here\n")
#define asort(a)    sort(a,a+n)
#define dsort(a)    sort(a,a+n,greater<int>())
#define vasort(v)   sort(v.begin(), v.end());
#define vdsort(v)   sort(v.begin(), v.end(),greater<ll>());
#define rev(x) reverse(all(x))
#define sortall(x) sort(all(x))
#define mem(a,b) memset(a,b,sizeof(a))
#define all(x) x.begin(), x.end()
#define rev(x) reverse(all(x))
#define md          10000007
#define PI 3.1415926535897932384626

const double EPS = 1e-9;
const ll N = 2e5+10;
const ll M = 1e9+7;

int main()
{
    fast;

    ll t;

    //setIO();

    //ll tno=1;;

    t=1;

    cin>>t;


    while(t--){
        int n,x,p;

```

```

cin>>n>>x>>p;
int ok=0;
int sum=x;
for(int i=1; i<=min(n,p); i++)
{
    sum+=i;
    sum%=n;
    ok|=(sum==0);
}
if(ok)
{
    cout<<"Yes"<<endl;
    continue;
}
if(n%2==1)
{
    cout<<"No"<<endl;
    continue;
}
ok=0;
sum=x;
for(int i=1; i<=min(2*n,p); i++)
{
    sum+=i;
    sum%=n;
    ok|=(sum==0);
}
if(ok) cout<<"Yes"<<endl;

```

```

        else cout<<"No"<<endl;
    }
    return 0;
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
197229591	Practice: sefayetalam14	1804C - 24	GNU C++20 (64)	Accepted	46 ms	12 KB	2023-03-13 14:48:44	2023-03-13 14:48:44		Compare

Problem-4:

Link: <https://codeforces.com/problemset/problem/1759/D>

Solution:

```

#include<bits/stdc++.h>

using namespace std;

#define ll          long long
#define scl(n)      scanf("%lld", &n)
#define fr(i,n)     for (ll i=0;i<n;i++)
#define fr1(i,n)    for(ll i=1;i<=n;i++)
#define pfl(x)      printf("%lld\n",x)
#define pb          push_back
#define asort(a)     sort(a,a+n)
#define dsort(a)     sort(a,a+n,greater<int>())
#define vasort(v)    sort(v.begin(), v.end());
#define vdsort(v)    sort(v.begin(), v.end(),greater<ll>());
#define pn          printf("\n")
#define md          10000007
#define debug        printf("I am here\n")

```

```
#define l(s)          s.size()
#define tcas(i,t)     for(ll i=1;i<=t;i++)
#define pcas(i)       printf("Case %lld: ",i)
#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);
```

```
#define M 10000
```

```
int main()
{
    fast;
    ll t;
    //setIO();
    //ll tno=1;;
    //t=1;
    cin>>t;

    while(t--){

        ll n,m;
        cin>>n>>m;
        ll g=n;
        ll cnt2=0,cnt5=0;
        while(g%2==0){
            g/=2;
            cnt2++;
        }
        while(g%5==0){
            g/=5;
```

```

    cnt5++;
}
ll curr=1;
if(cnt5>cnt2){
    for(ll i=1;i<=cnt5-cnt2;i++){

        curr*=2;
        if(curr>m) {curr/=2;break;}

    }
}
else if(cnt2>cnt5){
    for(ll i=1;i<=cnt2-cnt5;i++){

        curr*=5;
        if(curr>m) {curr/=5;break;}

    }
}
while(curr<=m){
    curr*=10;
    if(curr>m) {
        curr/=10;
        break;
    }
}
ll j=9;
while(curr*j>m){
    j--;
}

```

```

    }

    curr*=j;

    cout<<n*curr<<endl;


}

return 0;

}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
181587779	Practice: sefayetalam14	1759D - 25	GNU C++20 (64)	Accepted	46 ms	12 KB	2022-11-19 12:13:09	2022-11-19 12:13:09		<button>Compare</button>

Problem-5:

Link: <https://codeforces.com/problemset/problem/1744/E1>

Solution:

```

#include<bits/stdc++.h>

using namespace std;

#define ll          long long
#define scl(n)      scanf("%lld", &n)
#define fr(i,n)     for (ll i=0;i<n;i++)
#define fr1(i,n)    for(ll i=1;i<=n;i++)
#define pfl(x)      printf("%lld\n",x)
#define endl        "\n"
#define pb          push_back
#define asort(a)     sort(a,a+n)
#define dsort(a)     sort(a,a+n,greater<int>())
#define vasort(v)    sort(v.begin(), v.end());
#define vdsort(v)    sort(v.begin(), v.end(),greater<ll>());
#define pn          printf("\n")

```



```
#define md          10000007

#define debug        printf("I am here\n")

#define l(s)         s.size()
#define tcas(i,t)     for(ll i=1;i<=t;i++)
#define pcas(i)       printf("Case %lld: ",i)
#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);
```

```
#define M 10000
```

```
int main()
{
    fast;

    ll t;

    //setIO();

    //ll tno=1;;

    //t=1;

    cin>>t;
    while(t--){
        ll a,b,c,d;

        cin>>a>>b>>c>>d;

        ll m1=a*b;

        ll m2=c*d;

        ll ans1=-1,ans2=-1;

        bool f=0;


        for(ll i=a+1;i<=c;i++){
            // cout<<i<<endl;
```

```

ll g=__gcd(m1,i);
ll k=(m1)/g;
if(k>b && k<=d){
    ans1=i;ans2=k;
    break;
}
ll num=(b+k)/k;
if((num*k)<=d){
    //cout<<1<<endl;
    ans1=i;
    ans2=num*k;
    break;
}
}
cout<<ans1<<" "<<ans2<<endl;
}
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
181283477	Practice: sefayetiam14	1744E1 - 55	GNU C++14	Accepted	124 ms	8 KB	2022-11-17 11:42:58	2022-11-17 11:42:58		<button>Compare</button>

Problem-6:

Link: <https://codeforces.com/problemset/problem/1714/E>

Solution:

```

#include<bits/stdc++.h>

#define lili long long int

#define N 998244353

#define ioi ios_base::sync_with_stdio(false); cin.tie(NULL)

```

```
using namespace std;
```

```
int main(){  
    ioi;  
    int t; cin>>t;  
    while(t--){  
        int n, c0, c5; cin>>n;  
        bool f=true, f0=false, f5=false;  
        int a[n];  
        for(int i=0;i<n;i++){  
            cin>>a[i];  
            if(a[i]%10==5){  
                f5=true; c5=a[i];  
            }  
            if(a[i]%10==0){  
                f0=true; c0=a[i];  
            }  
        }  
        if(f5){  
            for(int i=0;i<n;i++){  
                if(a[i]==c5 || a[i]==(c5+5)) continue;  
                else{  
                    f=false;  
                    break;  
                }  
            }  
        }  
        else if(f0){
```

```

for(int i=0;i<n;i++){
    if(a[i]!=c0){
        f=false;
        break;
    }
}
}
else{
    sort(a,a+n);
    map<int,int>num1,num2;
    int x=a[0], mx=-1;
    for(int i=0;i<5;i++){
        num1[x]++;
        mx=max(mx,x);
        num2[x%20]++;
        x=x+x%10;
    }
    for(int i=1;i<n;i++){
        x=a[i];
        bool f2=false;
        for(int j=0;j<5;j++){
            if(x<=mx){
                if(num1.count(x)){
                    f2=true;
                    break;
                }
            }
        }
        else{

```

```

        if(num2.count(x%20)){
            f2=true;
            break;
        }
    }
    x=x+x%10;
}
if(!f2) f=false;
}
}
if(f) cout<<"Yes\n";
else cout<<"No\n";
}
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
167620784	Practice: sefayetalam14	1714E - 26	GNU C++20 (64)	Accepted	46 ms	788 KB	2022-08-09 13:39:20	2022-08-09 13:39:20		<button>Compare</button>

Problem-7:

Link: <https://codeforces.com/problemset/problem/1606/C>

Solution:

```

#include <bits/stdc++.h>

#define ll long long
#define ghost 0
#define PI 3.1415926535897932385
#define INF 1000111222
#define eps 1e-7

```

```

#define maxN 1011

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

using namespace std;

const ll md = 1000000007;

void setIO(){
    #ifndef ONLINE_JUDGE
        freopen("input.txt","r",stdin);
        freopen("output.txt","w",stdout);
    #endif
}

map<string,string> mp;

ll pow1(ll n, ll p)
{
    if (p == 0)
        return 1;
    ll x = pow1(n, p / 2);
    x = (x * x) % md;
    if (p % 2 == 0)
        return x;
    else
        return (x * n) % md;
}

char in[maxN],out[maxN];

int main()
{
    fast;
    //setIO();

    ll t;

```

```

string s;
cin>>t;
while(t--)
{
    ll n,k;
    cin>>n>>k;
    vector<ll> a(n),occ(n);
    for(ll i=0;i<n;i++){
        cin>>a[i];
    }
    ll powers[100];
    powers[0] = 1;
    ll ans=0;
    for (int i = 1;i<=9;i++)powers[i] = (powers[i - 1] * 10);
    for (int i = 0;i<n;i++){
        if (k < 0)break;//then we are done
        //occ[i] = min(k + 1,10^a[i + 1] / 10^a[i] - 1)
        occ[i] = k + 1;
        if (i != n - 1)//if i == n - 1 => a[i + 1] is not defined
            occ[i] = min(occ[i],powers[a[i + 1]]/powers[a[i]] - 1);

        k -= occ[i];
        ans += occ[i] * powers[a[i]];
    }
    cout<<ans<<endl;

}
return ghost;

```

}

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
159181355	Practice: sefayetalam14	1606C - 10	GNU C++14	Accepted	61 ms	148 KB	2022-06-01 19:30:28	2022-06-01 19:30:29		<button>Compare</button>

Problem-8:

Link: <https://codeforces.com/problemset/problem/1609/C>

Solution:

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

#include<ext/pb_ds/assoc_container.hpp>
#include<ext/pb_ds/tree_policy.hpp>

using namespace std;

using namespace __gnu_pbds;

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

#define pb          push_back
#define ll          long long
#define ff first
#define ss second

#define SZ(a) (int)a.size()
#define UNIQUE(a) (a).erase(unique(all(a)),(a).end())
#define eb emplace_back
#define mp make_pair
#define deb(x) cout << #x << "=" << x << endl
#define deb2(x, y) cout << #x << "=" << x << ", " << #y << "=" << y << endl
#define nn '\n'

#define pfl(x)      printf("%lld\n",x)
#define pcas(i)     printf("Case %lld: ",i)
```



```

#define Setpre(n) cout<<fixed<<setprecision(n)
#define itr(it, a) for(auto it = a.begin(); it != a.end(); it++)
#define debug      printf("I am here\n")
#define asort(a)    sort(a,a+n)
#define dsort(a)    sort(a,a+n,greater<int>())
#define vasort(v)   sort(v.begin(), v.end());
#define vdsort(v)   sort(v.begin(), v.end(),greater<ll>());
#define rev(x) reverse(all(x))
#define sortall(x) sort(all(x))
#define mem(a,b) memset(a,b,sizeof(a))
#define all(x) x.begin(), x.end()
#define rev(x) reverse(all(x))
#define md          10000007
#define PI 3.1415926535897932384626

const double EPS = 1e-9;
const ll N = 1e6+10;
const ll M = 1e9+7;

inline ll GCD(ll a, ll b) { return b == 0 ? a : GCD(b, a % b); }
inline ll LCM(ll a, ll b) { return a * b / GCD(a, b); }
inline ll Ceil(ll p, ll q) {return p < 0 ? p / q : p / q + !(p % q);}
inline ll Floor(ll p, ll q) {return p > 0 ? p / q : p / q - !(p % q);}
inline double logb(ll base,ll num){ return (double)log(num)/(double)log(base);}
inline bool isPerfectSquare(long double x){ if (x >= 0) { long long sr = sqrt(x);return (sr * sr == x); }return false; }

double euclidean_distance(ll x1,ll y1,ll x2,ll y2){double a=(x2-x1)*(x2-x1);double b=(y2-y1)*(y2-y1);double c=(double)sqrt(a+b);return c;}

int popcount(ll x){return __builtin_popcountll(x);};
int poplow(ll x){return __builtin_ctzll(x);};
int pophigh(ll x){return 63 - __builtin_clzll(x);};

```

```

ll n,e;
vector<ll>vec(N);
vector<bool> Primes(N,1);
vector<ll>primenos;
void SieveOfEratosthenes(ll n)
{
    Primes[1]=0;
    for (ll i=2;i*i<=n;i++) {
        if(Primes[i]==1){
            for(ll j=i*i;j<=n;j+=i)
                Primes[j]=0;
        }
    }
}
int main()
{
    fast;
    ll t;
    t=1;
    cin>>t;
    SieveOfEratosthenes(N);
    while(t--){
        cin>>n>>e;
        vec.resize(n);
        vector<ll>newn(n);
        for(ll i=0;i<n;i++){
            cin>>vec[i];
            if(Primes[vec[i]]){newn[i]=2;}
        }
    }
}

```

```

    if(vec[i]==1) newn[i]=1;
}
vector<ll>suff(n,0);
suff[n-1]=(newn[n-1]==1);
for(ll i=n-2;i>=0;i--){
    if(newn[i]==1)
        suff[i]++;
    if((n-1-i)>=e && newn[i+e]==1){
        suff[i]+=suff[i+e];
    }
}
vector<ll>pref(n,0);
pref[0]=(newn[0]==1);
for(ll i=1;i<n;i++){
    if(newn[i]==1)pref[i]++;
    if(i>=e && newn[i-e]==1){
        pref[i]+=pref[i-e];
    }
}
ll ans=0,k;
for(ll i=0;i<n;i++){
    if(newn[i]==2){
        ans+=(pref[i]+1)*(suff[i]+1)-1;
    }
}
cout<<ans<<nn;
}
return 0;

```

```
}
```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
209636555	Practice: sefayetalam14	1609C - 48	GNU C++20 (64)	Accepted	46 ms	12660 KB	2023-06-14 10:24:30	2023-06-14 10:24:30		<button>Compare</button>

Problem-9:

Link: <https://codeforces.com/problemset/problem/1538/F>

Solution:

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

#include<ext/pb_ds/assoc_container.hpp>

#include<ext/pb_ds/tree_policy.hpp>

using namespace std;

using namespace __gnu_pbds;

#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);

#define pb          push_back

#define ll          long long

#define ff first

#define ss second

#define SZ(a) (int)a.size()

#define UNIQUE(a) (a).erase(unique(all(a)),(a).end())

#define eb emplace_back

#define mp make_pair

#define asort(a)      sort(a,a+n)

#define dsort(a)      sort(a,a+n,greater<int>())

#define vasort(v)     sort(v.begin(), v.end());

#define vdsort(v)     sort(v.begin(), v.end(),greater<ll>());

#define rev(x) reverse(all(x))

#define sortall(x) sort(all(x))
```

```

#define mem(a,b) memset(a,b,sizeof(a))
#define all(x) x.begin(), x.end()
#define rev(x) reverse(all(x))
#define md          10000007
#define PI 3.1415926535897932384626
const double EPS = 1e-9;
const ll N = 2e5+10;
const ll M = 1e9+7;
int main()
{
    fast;
    ll t;
    //setIO();
    //ll tno=1;;
    t=1;
    cin>>t;

    while(t--){
        ll l,r;
        cin>>l>>r;
        ll div=10;
        ll p=r;
        ll ans1=0;
        while(p){
            ans1+=p;
            p/=div;
        }
        ll q=1;
    }

```

```

ll ans2=0;
while(q){
    ans2+=q;
    q/=div;
}
cout<<ans1-ans2<<endl;
}
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
211849195	Practice: sefayetalam14	1538F - 16	GNU C++20 (64)	Accepted	31 ms	8 KB	2023-07-02 19:00:35	2023-07-02 19:00:35	★	<button>Compare</button>

Problem-10:

Link: <https://codeforces.com/problemset/problem/1542/B>

Solution:

```

#include<bits/stdc++.h>
using namespace std;
#define ll          long long
#define scl(n)      scanf("%lld", &n)
#define fr(i,n)     for (ll i=0;i<n;i++)
#define fr1(i,n)    for(ll i=1;i<=n;i++)
#define pfl(x)      printf("%lld\n",x)
#define endl        "\n"
#define pb          push_back
#define asort(a)     sort(a,a+n)
#define dsort(a)     sort(a,a+n,greater<int>())
#define vasort(v)    sort(v.begin(), v.end());
#define vdsort(v)    sort(v.begin(), v.end(),greater<int>());

```

```

#define pn          printf("\n")
#define md          10000007
#define debug       printf("I am here\n")
#define l(s)        s.size()
#define tcas(i,t)    for(ll i=1;i<=t;i++)
#define pcas(i)      printf("Case %lld: ",i)
#define fast ios_base::sync_with_stdio(0);cin.tie(0);cout.tie(0);
#define M 10000

ll pow1(ll n, ll p)
{
    if (p == 0)
        return 1;

    ll x = pow1(n, p / 2);
    x = (x * x) % md;
    if (p % 2 == 0)
        return x;
    else
        return (x * n) % md;
}

int main()
{
    fast;

    ll t;

    //ll tno=1;;

    //t=1;

    cin>>t;

    while(t--){

        ll a,b,n;

```

```

cin>>n>>a>>b;

bool f=0;

if(a==1){
    if((n-1)%b==0) f=1;
    else f=0;
}

else{
    for(ll i=1;i<=n;){
        if((n-i)%b==0){f=1; break;}
        i=i*a;
    }
}

if(f) cout<<"Yes"<<endl;
else cout<<"No"<<endl;
}

return 0;
}

```

Status:

General										
#	Author	Problem	Lang	Verdict	Time	Memory	Sent	Judged		
164033970	Practice: sefayetalam14	1542B - 11	GNU C++14	Accepted	93 ms	8 KB	2022-07-13 15:45:23	2022-07-13 15:45:23		<button>Compare</button>