//Roll No: 12

#include<iostream>

#include<bits/stdc++.h>

using namespace std;

int main(){

//take input q,xa,xb,alpha

int q,xa,xb,alpha;

cout<<"Enter Q value: ";

cin>>q;

cout<<endl<<"Enter Xa and Xb: ";

cin>>xa; cin>>xb;

cout<<endl<<"Enter alpha: ";

cin>>alpha;

//calculate ya,yb

int ya,yb,res1,res1\_new,res2,res2\_new;

res1 = alpha % q;

res1\_new =1;

for(int i=0;i<xa;i++){

res1\_new \*= res1;

res1\_new = res1\_new % q;

}

ya = res1\_new;

cout<<endl<<"Ya is: "<<ya;

res2 = alpha % q;

res2\_new =1;

for(int i=0;i<xb;i++){

res2\_new \*= res2;

res2\_new = res2\_new % q;

}

yb = res2\_new;

cout<<endl<<"Yb is: "<<yb;

//calculate k1 and k2

int k1,k2,res3,res4,res3\_new,res4\_new;

res3 = yb % q;

res3\_new =1;

for(int i=0;i<xa;i++){

res3\_new \*= res3;

res3\_new = res3\_new % q;

}

k1 = res3\_new;

cout<<endl<<"k1 is: "<<k1;

res4 = ya % q;

res4\_new =1;

for(int i=0;i<xb;i++){

res4\_new \*= res4;

res4\_new = res4\_new % q;

}

k2 = res4\_new;

cout<<endl<<"k2 is: "<<k2;

cout<<endl;

return 0;

}

/\*

Output:

Enter Q value: 353

Enter Xa and Xb: 97 233

Enter alpha: 3

Ya is: 40

Yb is: 248

k1 is: 160

k2 is: 160

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