Arithmetic

● Graded

Student
JIYANSHU DHAKA

Total Points
180 / 180 pts

Autograder Score
180.0 / 180.0

Passed Tests
Test 1 (20/20)
Test 2 (20/20)
Test 3 (20/20)
Test 4 (20/20)
Test 5 (20/20)
Test 6 (20/20)

Autograder Results

Test 1 (20/20)

Test 2 (20/20)

Test 3 (20/20)

Test 4 (20/20)

Test 5 (20/20)

Test 6 (20/20)

Submitted Files

hw.c

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```c
#include <stdio.h>

long long modExp(int x,int y,int z){
    long long r=1,b=x%z;
    while(y>0){
        if(y&1)r=(r*b)%z;
        b=(b*b)%z;
        y>>=1;
    }
    return r;
}

void extEuclid(int m,int n,int*g,int*a,int*b){
    if(n==0){
        *g=m;
        *a=1;
        *b=0;
    }else{
        int g1,a1,b1;
        extEuclid(n,m%n,&g1,&a1,&b1);
        *g=g1;
        *a=b1;
        *b=a1-(m/n)*b1;
    }
}

int modInv(int a,int y){
    int inv=a%y;
    if(inv<0)inv+=y;
    return inv;
}

int main(){
    int o;
    scanf("%d",&o);
    if(o==0){
        int x,y,z;
        scanf("%d%d%d",&x,&y,&z);
        printf("%lld",modExp(x,y,z));
    }else if(o==1){
        int x,y,g,a,b;
        scanf("%d%d",&x,&y);
        extEuclid(x,y,&g,&a,&b);
        if(g==1){
            int inv=modInv(a,y);
            printf("%d %d",g,inv);
        }else{
            printf("%d 0",g);
        }
```

```
50      }
51      return 0;
52  }
53
```