WORKSHEET 1

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Branch: CSE

Section: DWWC - 43

1. Fire and Ice

Program Code:

```c
#include <stdio.h> #include<inttypes.h> void
multiply(uint64_t F[2][2], uint64_t M[2][2],uint64_t k); void
power(uint64_t F[2][2], uint64_t n,uint64_t k); uint64_t
fib(uint64_t n,uint64_t k)
{
  uint64_t F[2][2] = {{1,1},{1,0}};
  if (n == 0)
return 0;   power(F,
n-1,k);   return
F[0][0];
}
void power(uint64_t F[2][2], uint64_t n,uint64_t k)
{
  if( n == 0 || n == 1)
    return;
  uint64_t M[2][2] = {{1,1},{1,0}};
power(F, n/2,k);   multiply(F, F,k);   if
(n%2 != 0)     multiply(F, M, k);
}
void multiply(uint64_t F[2][2], uint64_t M[2][2],uint64_t k)
{   uint64_t x =  (F[0][0]*M[0][0] +
F[0][1]*M[1][0])%k;   uint64_t y =  (F[0][0]*M[0][1] +
```

```
F[0][1]*M[1][1])%k;   uint64_t z =  (F[1][0]*M[0][0] +
F[1][1]*M[1][0])%k;   uint64_t w =  (F[1][0]*M[0][1]
+ F[1][1]*M[1][1])%k;
 F[0][0] = x;
 F[0][1] = y;
 F[1][0] = z;
 F[1][1] = w;
}
int main()
{   uint64_t n,k,t;
scanf("%llu",&t);
 while(t--)
 {
  scanf("%llu",&n);
scanf("%llu",&k);
 printf("%llu\n", (2*fib(n,k))%k);
 }
return 0;
}
```

Output:

2. Gold Mining

Program Code:

```cpp
#include <iostream> using
namespace std;  int main()
{
 int t;
 scanf("%d", &t);  while(t--)
 {
    int n, x, y;
    scanf("%d %d %d", &n, &x, &y);

    int sum = 0;
for(int i=0; i<=n; i++)
    {
sum+=y;
    }

    if(sum<x)
    {
printf("NO\n");
    }
else    {
       printf("YES\n");
    }
 } return
0;
}
```

Output

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3. The Lead Game

Program Code:

```cpp
#include<bits/stdc++.h>
using namespace std;
typedef long long int lli; int
main(){    int t,S=0,T=0;
cin>>t;    vector<int> v;
while(t--){       int s,t;
    cin>>s>>t;
S+=s; T+=t;
    v.push_back(S-T);
  }
   int max=-1,win;
for(int i:v){
if(abs(i)>max){
max=abs(i);          if(i>0)
win = 1;
else win = 2;
     }  }
  cout<<win<<' '<<max;
}
```

4. Sums in a triangle

4) Binod and Chocolate:-

```cpp
#include<bits/stdc++.h
> using namespace std;
int main(){
    int i,j,t,n;    cin>>t;
while(t--){        cin>>n;        int
a[n][n];        for(int
i=0;i<n;i++){
for(j=0;j<=i;j++){
cin>>a[i][j];
        }        }
for(int i=n-2;i>=0;i--){
```

```
for(j=0;j<=i;j++){
        if((a[i][j]+a[i+1][j])>(a[i][j]+a[i+1][j+1]))
            a[i][j]=a[i][j]+a[i+1][j];
else
a[i][j]=a[i][j]+a[i+1][j+1];
```

Output

Subtask Info

Status: ✔ Correct Answer

Time:	Memory:
0.11s	5M

```
        }
    }
    cout<<a[0][0]<<endl;
  }
return 0;
}
```

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5. Small Factorials

Program Code:

```cpp
#include <bits/stdc++.h>
#include <boost/multiprecision/cpp_int.hpp>
#include <iostream> using namespace std;
using namespace boost::multiprecision;

int main() {  // your code goes here
int t;   cin>>t;
while(t--)      {
int          n;
cin>>n;
cpp_int fact=1;
for(int i=n;i>0;i--)
fact=fact*i;
cout<<fact<<endl;
 }
return 0;
} ;
```

Output

Subtask Info

Status: ✔ Correct Answer

Time: Memory:
0.00s   5.3M

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```cpp
1   #include <iostream>
2   using namespace std;
3
4   int main() {
5       int n,i;
6       int a,b;
7       cin>>a>>b;
8
9
10      if(a==0 and (b==0 or (b==1))){
11          cout<<"https://www.codechef.com/practice"<<endl;}
12      else if(a==1 and b==0){
13          cout<<"https://www.codechef.com/contests"<<endl;}
14      else{
15          cout<<"https://discuss.codechef.com"<<endl;}
16
17      return 0;
18  }
19  |
```

Test against Custom Input

```
0 1
```

Problem Solver Badge   **49** / 50

Solve **1** more problem to get Bronze Badge

Next Problem

Status: ✓ Correct Answer   Submission ID: 84131231

Time: