

Assignment 1 recursion

Q1. Write a program to calculate the sum of odd numbers between a and b (both inclusive) using recursion.

Sol;-

```
#include<iostream>
using namespace std;
int k=0;
void s(int a,int b ){

    if(a==b){
        cout<<k<<endl;
        return;
    }
    if(a%2!=0)
        k=k+a;
    s(a+1,b);
}

int main(){
    int a,b;
    cin>>a>>b;
    s(a,b);
}
```

Q2. Calculate the number of ways in which a person can climb n stairs if he can take exactly 1, 2 or 3 steps at each level.

Sol;-

```
#include<iostream>
using namespace std;
int k=0;
int s(int a ){
    if(a<0)return 0;
    if(a==0)return 1;
```

```

        return s(a-1)+s(a-2)+s(a-3);
    }

int main(){
    int a;
    cin>>a;
    s(a);
}

```

Q3. Given a positive integer, return true if it is a power of 2.

Sol :- `#include<iostream>`

```

using namespace std;
bool p(int n) {
    if(n == 1) {
        return true;
    }
    if(n % 2 == 0) {
        return p(n / 2);
    }
    return false;
}
int main() {
    int n;
    cin >> n;
    if(p(n)) {
        cout << "Yes" << endl;
    } else {
        cout<<"no"<<endl;
    }
}

```