1. **Write a recursive function to calculate sum of first N natural numbers**

#include<stdio.h>

int sunN(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Sum of first %d natural numbers is %d",n,sumN(n));

return 0;

}

int sumN(int n)

{

if(n==1)

return 1;

return n+sumN(n-1);

}

1. **Write a recursive function to calculate sum of first N odd natural numbers**

#include<stdio.h>

int sunN(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Sum of first %d odd natural numbers is %d",n,sumN(2\*n-1));

return 0;

}

int sumN(int n)

{

if(n==1)

return 1;

return n+sumN(n-2);

}

1. **Write a recursive function to calculate sum of first N even natural numbers**

#include<stdio.h>

int sunN(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Sum of first %d even natural numbers is %d",n,sumN(2\*n));

return 0;

}

int sumN(int n)

{

if(n==2)

return 2;

return n+sumN(n-2);

}

1. **Write a recursive function to calculate sum of squares of first n natural numbers**

#include<stdio.h>

int sunN(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Sum of square of first %d natural numbers is %d",n,sumN(n));

return 0;

}

int sumN(int n)

{

if(n==1)

return 1;

return n\*n+sumN(n-1);

}

1. **Write a recursive function to calculate sum of digits of a given number**

#include<stdio.h>

int sunOfDigits(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Sum of didgits of %d is %d",n,sumOfDigits(n));

return 0;

}

int sumOfDigits(int n)

{

if(n==0)

return 0;

return n%10+sumOfDigits(n/10);

}

1. **Write a recursive function to calculate factorial of a given number**

#include<stdio.h>

int fact(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("Factorial of %d is %d",n,fact(n));

return 0;

}

int fact(int n)

{

if(n==1)

return 1;

return n\*fact(n-1);

}

1. **Write a recursive function to calculate HCF of two numbers**

#include<stdio.h>

int hcf(int,int);

int main()

{

int a,b;

printf("Enter 2 numbers: ");

scanf("%d%d",&a,&b);

printf("HCF of %d and %d is %d",a,b,hcf(a,b));

return 0;

}

int hcf(int a,int b)

{

if(a>=b)

{

if(a%b==0)

return b;

return hcf(a%b,b);

}

else

{

if(b%a==0)

return a;

return hcf(b%a,a);

}

}

1. **Write a recursive function to print first N terms of Fibonacci series**

#include<stdio.h>

int fibo(int);

int main()

{

int n,i;

printf("Enter a number: ");

scanf("%d",&n);

for(i=0;i<n;i++)

printf("%d ",fibo(i));

return 0;

}

int fibo(int n)

{

if(n==0||n==1)

return n;

return fibo(n-1)+fibo(n-2);

}

1. **Write a program in C to count the digits of a given number using recursion.**

#include<stdio.h>

int countOfDigits(int);

int main()

{

int n;

printf("Enter a number: ");

scanf("%d",&n);

printf("%d has %d digits",n,countOfDigits(n));

return 0;

}

int countOfDigits(int n)

{

if(n==0)

return 0;

return 1+countOfDigits(n/10);

}

1. **Write a program in C to calculate the power of any number using recursion.**

#include<stdio.h>

int power(int,int);

int main()

{

int n,p;

printf("Enter the number: ");

scanf("%d",&n);

printf("Enter the power: ");

scanf("%d",&p);

printf("%d^%d is %d",n,p,power(n,p));

return 0;

}

int power(int n,int p)

{

if(p==1)

return n;

return n\*power(n,p-1);

}