**1.Write a program to find sum of following series using recursive functions:**

**i.1! + 2! + 3! + 4! +..... + n!**

**Note : For fact and sum two recursive functions**

**def factorial(i, n, sum, fact):**

**if i <= n:**

**fact \*= i**

**sum += fact**

**return factorial(i+1, n, sum, fact)**

**else:**

**return sum**

**n = int(input("Enter the number: "))**

**i = 1**

**sum = 0**

**fact = 1**

**res = factorial(i, n, sum, fact)**

**print("sum of factorials series till",n,"=",res)**

**2.Write a program to check if given number is Armstrong or not using recursive function.**

**def armstrong\_or\_not(num, num\_len, sum):**

**if num != 0:**

**rem = num % 10**

**sum += rem \*\* num\_len**

**return armstrong\_or\_not(num // 10, num\_len, sum)**

**else:**

**return sum**

**num = int(input("Enter a number:"))**

**num\_len = len(str(num))**

**sum = 0**

**res = armstrong\_or\_not(num, num\_len, sum)**

**if res == num:**

**print(num,"is an Armstrong Number.")**

**else:**

**print(num,"is not an Armstrong Number.")**

**3.Write a program to reverse a given number using recursive function.**

**def reverse\_of\_num(num, rev):**

**if num != 0:**

**rem = num % 10**

**rev = rev \* 10 + rem**

**return reverse\_of\_num(num // 10, rev)**

**else:**

**return rev**

**num = int(input("Enter a number: "))**

**rev = 0**

**res = reverse\_of\_num(num, rev)**

**print("Reverse of",num,"=",res)**

**4.Write a program to find sum of n numbers using recursion.**

**def son(n, i, sum):**

**if i <= n:**

**sum += i**

**return son(n, i+1, sum)**

**else:**

**return sum**

**n = int(input("Enter a number: "))**

**i = 1**

**sum = 0**

**res = son(n, i, sum)**

**print(res)**

**5.Write a program to find factorial using recursion.**

**def factorial(i, num, fact):**

**if i <= num:**

**fact \*= i**

**return factorial(i+1, num, fact)**

**else:**

**return fact**

**num = int(input("Enter a number to check its factorial: "))**

**i = 1**

**fact = 1**

**res = factorial(i, num, fact)**

**print("Factorial of",num,"=",res)**

**6.Write a program to printFibonacci series using recursion.**

**def fibo(i, n, f0, f1):**

**if i <= n:**

**fn = f0 + f1**

**print(fn, end=" ")**

**fibo(i+1, n, f1, fn)**

**n = int(input("Enter a number: "))**

**f0 = 0**

**f1 = 1**

**print(f0, f1, end=" ")**

**i = 1**

**fibo(i, n, f0, f1)**

**7.Write a program to find sum of digits using recursion.**

**def sod(n, sum):**

**if n != 0:**

**rem = n % 10**

**sum += rem**

**return sod(n // 10, sum)**

**else:**

**return sum**

**n = int(input("Enter a number: "))**

**sum = 0**

**res = sod(n, sum)**

**print("sum of digits of number",n,"=",res)**

**8.Write a program to check whether a number is prime or not using recursion.**

**def pon(n, i):**

**if i < n:**

**if n % i == 0:**

**return False**

**return pon(n, i+1)**

**else:**

**return True**

**n = int(input("Enter a number: "))**

**i = 2**

**flag = pon(n, i)**

**if flag == True:**

**print(n,"is a Prime Number.")**

**else:**

**print(n,"is not a Prime Number.")**

**9.Write a program to calculate the m to the power n using recursion.**

**def mtn(m, n, res, i):**

**if i <= n:**

**res \*= m**

**return mtn(m, n, res, i+1)**

**else:**

**return res**

**m = 5**

**n = 2**

**res = 1**

**i = 1**

**res = mtn(m, n, res, i)**

**print(m,"power to",n,"=",res)**