**Fibonacci Sequence Using Recursion**

python

Copy code

def fibonacci(n):

if n <= 0:

return []

elif n == 1:

return [0]

elif n == 2:

return [0, 1]

else:

seq = fibonacci(n-1)

seq.append(seq[-1] + seq[-2])

return seq

# Example usage

n = int(input("Enter the number of terms for Fibonacci sequence: "))

print(fibonacci(n))

**2. Factorial of a Number Using Recursion**

python

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def factorial(n):

if n == 0 or n == 1:

return 1

else:

return n \* factorial(n-1)

# Example usage

num = int(input("Enter a number to find the factorial: "))

print(factorial(num))

**3. Calculate Body Mass Index (BMI)**

python

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def calculate\_bmi(weight, height):

bmi = weight / (height \*\* 2)

return bmi

# Example usage

weight = float(input("Enter weight in kilograms: "))

height = float(input("Enter height in meters: "))

bmi = calculate\_bmi(weight, height)

print(f"Your Body Mass Index (BMI) is: {bmi:.2f}")

**4. Calculate the Natural Logarithm of a Number**

python

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import math

def natural\_logarithm(x):

if x > 0:

return math.log(x)

else:

return "Input must be a positive number"

# Example usage

num = float(input("Enter a number to calculate its natural logarithm: "))

print(natural\_logarithm(num))

**5. Cube Sum of First n Natural Numbers**

python

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def cube\_sum(n):

return sum(i\*\*3 for i in range(1, n+1))

# Example usage

n = int(input("Enter the number of natural numbers to calculate the cube sum: "))

print(f"Sum of cubes of first {n} natural numbers is: {cube\_sum(n)}")