Basic Python Programs for Practice

1. **Write a Python program to calculate the sum, product, division, multiplication, and modular division of two numbers entered by the user.**

```
# Input the two numbers from the user
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

# Calculate the sum of the two numbers
sum_result = num1 + num2

# Calculate the product of the two numbers
product_result = num1 * num2

# Calculate the division of the two numbers
division_result = num1 / num2

# Calculate the multiplication of the two numbers
multiplication_result = num1 * num2

# Calculate the modulus (remainder) of the two numbers
modulus_result = num1 % num2

# Print the results
print("Sum:", sum_result)
print("Product:", product_result)
print("Division:", division_result)
print("Multiplication:", multiplication_result)
print("Modulus:", modulus_result)
```

2. **Write a Python program to check if a given number is even or odd.**

```
number = int(input("Enter a number: "))
if number % 2 == 0:
    print(number, "is even.")
else:
    print(number, "is odd.")
```

3. **Write a Python program to convert temperature in Celsius to Fahrenheit.**

```
celsius = float(input("Enter temperature in Celsius: "))
fahrenheit = (celsius * 9/5) + 32
print("Temperature in Fahrenheit:", fahrenheit)
```

4. **Write a Python program to calculate the factorial of a given number.**

```
number = int(input("Enter a number: "))
factorial = 1
if number < 0:
    print("Factorial cannot be calculated for negative numbers.")
elif number == 0:
    print("The factorial of 0 is 1.")
else:
    for i in range(1, number + 1):
        factorial *= i
print("The factorial of", number, "is", factorial)
```

5. **Write a Python program to find the area of a triangle given its base and height.**

```
base = float(input("Enter the base of the triangle: "))
height = float(input("Enter the height of the triangle: "))
area = (base * height) / 2
print("The area of the triangle is:", area)
```

6. Write a Python Program to find the simple interest.

```
# Input the principal amount, interest rate, and time period from the user
principal = float(input("Enter the principal amount: "))
rate = float(input("Enter the interest rate: "))
time = float(input("Enter the time period (in years): "))

# Calculate the simple interest
interest = (principal * rate * time) / 100

# Print the result
print("The simple interest is:", interest)
```

7. Write a python program to swap two numbers using all 3 approaches.

Approach 1 : Using a temporary variable

```
# Input the two numbers from the user
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

# Swap the numbers using a temporary variable
temp = num1
num1 = num2
num2 = temp

# Print the swapped numbers
print("After swapping:")
print("First number:", num1)
print("Second number:", num2)
```

Approach 2: Using arithmetic operations.

```
# Input the two numbers from the user
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

# Swap the numbers using arithmetic operations
num1 = num1 + num2
num2 = num1 - num2
num1 = num1 - num2

# Print the swapped numbers
print("After swapping:")
print("First number:", num1)
print("Second number:", num2)
```

Approach 3: Using multiple assignment

```
# Input the two numbers from the user
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))

# Swap the numbers using multiple assignment
num1, num2 = num2, num1

# Print the swapped numbers
print("After swapping:")
print("First number:", num1)
print("Second number:", num2)
```

8. Write a program to find the sum of n natural numbers.

Approach 1:

```
# Input the value of n from the user
n = int(input("Enter a positive integer: "))

# Calculate the sum of the first n natural numbers
sum_natural = (n * (n + 1)) // 2

# Print the result
print("The sum of the first", n, "natural numbers is:", sum_natural)
```

Approach 2:

```
# Input the value of n from the user
n = int(input("Enter a positive integer: "))

# Initialize variables
sum_natural_numbers = 0
count = 1

# Calculate the sum of the first n natural numbers using a while loop
while count <= n:
    sum_natural_numbers += count
    count += 1

# Print the result
print("The sum of the first", n, "natural numbers is:", sum_natural_numbers)
```

Approach 3:

```
# Input the value of n from the user
n = int(input("Enter a positive integer: "))

# Initialize variable
sum_natural_numbers = 0

# Calculate the sum of the first n natural numbers using a for loop
for i in range(1, n + 1):
    sum_natural_numbers += i

# Print the result
print("The sum of the first", n, "natural numbers is:", sum_natural_numbers)
```