

1.

""" Program to Calculate Simple Interest """

```
p = eval(input("Enter Principle? "))
```

```
r = eval(input("Enter Rate? "))
```

```
t = eval(input("Enter Time? "))
```

```
si = p * r * t / 100
```

```
print("Simple interest = ", si)
```

2.

""" Program to Calculate Compound Interest """

```
p = eval(input("Enter Principle? "))
```

```
r = eval(input("Enter Rate? "))
```

```
t = eval(input("Enter Time? "))
```

```
A = p * (1 + r/100) ** t
```

```
CI = A - p
```

```
print("compound interest = ", CI)
```

3.

""" Area of Triangle """

```
import math
```

```
a = eval(input("Enter first side? "))
```

```
b = eval(input("Enter second side? "))
```

```
c = eval(input("Enter third side? "))
```

```
s = (a + b + c) / 2
```

```
area = math.sqrt(s * (s-a) * (s-b) * (s-c))
```

```
print("Area = ", area)
```

4.

""" To check number is even or odd """

```
num = eval(input("Enter any number? "))
```

```
if num % 2 == 0:
```

```
    print("EVEN NUMBER...")
```

```
else:
```

```
    print("ODD NUMBER...")
```

5.

"""Checking Divisibility """

```
a = eval(input("Enter first number? "))
```

```
b = eval(input("Enter second number? "))
```

```
if a % b == 0:
```

```
    print(a, " is divisible by", b)
```

```
else:
```

```
    print(a, " is NOT divisible by", b)
```

6.

"""Roots of a Quadratic Equation"""

```
import math as m
```

```
a = eval(input("Enter value for a?"))
```

```
b = eval(input("Enter value for b?"))
```

```
c = eval(input("Enter value for c?"))
```

```
d = b ** 2 - 4 * a * c
```

```
if d >= 0:
```

```
    r1 = (-b + m.sqrt(d)) / (2 * a)
```

```
    r2 = (-b - m.sqrt(d)) / (2 * a)
```

```
    print("Root1 = ", r1, "\nRoot2 = ", r2)
```

```
else:
```

```
    print("Root are imaginary")
```

7.

"""Calculating grades on total marks"""

```
tot_marks = eval(input("enter total marks obtained by student? "))
```

```
percent = tot_marks / 5
```

```
if percent >= 90:
```

```
    grade = "A"
```

```
elif percent >= 75:
```

```
    grade = "B"
```

```
elif percent >= 60:
```

```
    grade = "C"
```

```
else:
```

```
    grade = "D"
```

```
print("your percentage is ", percent, "and grade is : ", grade)
```

8.

```
"""Calculating income Tax"""
```

```
gs = eval(input("Enter gross salary : ?"))
```

```
if gs <= 100000:
```

```
    it = 0
```

```
elif gs <= 500000:
```

```
    it = (gs - 100000) * 10/100
```

```
elif gs <= 1000000:
```

```
    it = 10000 + (gs - 500000) * 20/100
```

```
else:
```

```
    it = 25000 + (gs - 1000000) * 30/100
```

```
print("Income tax to be paid = ", it)
```

9.

```
"""Maximum of 3 numbers"""
```

```
a = eval(input("Enter value for a ?"))
```

```
b = eval(input("Enter value for b ?"))
```

```
c = eval(input("Enter value for c ?"))
```

```
if a > b:
```

```
    if a > c:
```

```
        max = a
```

```
    else
```

```
        max = c
```

```
else:
```

```
    if b > c:
```

```
        max = b
```

```
    else:
```

```
        max = c
```

```
print("Maximum = ", max)
```

**10.**

"""Finding absolute value """

```
num = eval(input("Enter any number :"))
num1 = num
if num < 0 :
    num1 = -1 * num    # we can also write it as num1 = -num
print("Absolute value of ", num, "is = ", num1)
```

**11.**

"""Printing even numbers between 1 to N"""

```
x = 2
N = eval(input("Enter the limit N? "))
while x <=N:
    print(x)
    x += 2
```

**12.**

"""Sum of Digits for a given number"""

```
Sum = 0; Rem=0
num = eval(input("Enter any number "))
while num > 0:
    Rem = num % 10
    Sum = Sum + Rem
    num = num //10
print("Sum of digits = ", Sum)
```

**13.**

"""Reverse of a number"""

```
rev = 0; Rem=0
num = eval(input("Enter any number "))
while num > 0:
    Rem = num % 10
    rev = (rev * 10) + Rem
    num = num //10
print("Reverse of the given number = ", rev)
```

**14.**

```
"""Factorial of a given number"""
```

```
x = 1; fact = 1
```

```
N = eval(input("Enter the number N? "))
```

```
while x <=N:
```

```
    fact = fact * x
```

```
    x += 1
```

```
print("Factorial of ", N, " = ", fact)
```

**15.**

```
"""Print Fibonacci series upto N terms """
```

```
a = 0; b=1; count = 2
```

```
N = eval(input("Enter number of terms to be printed"))
```

```
print ("Fibonacci series upto ", N, "terms are : ",a ,b, end = ' ')
```

```
while count < N:
```

```
    c = a + b;
```

```
    print(c, end = ' ')
```

```
    a= b;
```

```
    b = c
```

```
    count= count + 1
```

**16.**

```
"""Factorial of a given number"""
```

```
N = eval(input("Enter any number :"))
```

```
fact = 1
```

```
for i in range(N, 1, -1):
```

```
    fact = fact * i
```

```
print("Factorial of ", N, " = ", fact)
```

**17.**

"""To check the given number is prime or NOT? """

```
flag = 1
```

```
N = eval(input("Enter any number : "))
```

```
for i in range(2, N):
```

```
    if ( N % i == 0):
```

```
        flag = 0
```

```
if(flag== 0):
```

```
    print("Number", N, "is NOT Prime")
```

```
else:
```

```
    print("Number", N, "is Prime")
```

**18.**

**#Program to Sort 3 Numbers in ascending order**

```
a = eval(input("Enter value for a ?"))
```

```
b = eval(input("Enter value for b ?"))
```

```
c = eval(input("Enter value for c ?"))
```

```
if a<b :
```

```
    if a < c:
```

```
        if b<=c:
```

```
            print ("Numbers in ascending order are = ", a, b, c)
```

```
        else:
```

```
            print ("Numbers in ascending order are = ", a, c, b)
```

```
    else:
```

```
        print ("Numbers in ascending order are = ", c, a, b)
```

```
else:
```

```
    if b < c:
```

```
        if a<=c:
```

```
            print ("Numbers in ascending order are = ", b, a, c)
```

```
        else:
```

```
            print ("Numbers in ascending order are = ", b, c, a)
```

```
    else:
```

```
        print ("Numbers in ascending order are = ", c, b, a)
```

19.

"""To Sum first N terms of the series  $2/5 + 4/10 + 6/15 + 8/20 + \dots + N$  terms"""

```
N = eval(input("Input number of terms to be sum : "))
```

```
num = 2
```

```
den = 5
```

```
sum = 0
```

```
for i in range(1, N+1):
```

```
    sum = sum + num/den
```

```
    num = num + 2
```

```
    den = den + 5
```

```
print("sum of first ", N, "terms = ", sum)
```

OR

```
N = eval(input("Input number of terms to be sum : "))
```

```
sum = 0
```

```
for i in range(1, N+1):
```

```
    sum = sum + (2*i)/(5*i)
```

```
print("sum of first ", N, "terms = ", sum)
```

20.

"""Calculating compound interest using loop"""

```
P = eval(input("Enter value for Principle :"))
```

```
R = eval(input("Enter value for rate :"))
```

```
T = eval(input("Enter value for Time(in years) :"))
```

```
si = 0; ci = 0; amt = 0
```

```
amt = P;
```

```
for t in range(1, T+1):
```

```
    si = amt * R * 1/100
```

```
    amt = amt + si;
```

```
ci = amt - P
```

```
print("Compound Interest = ", ci)
```

**21.**

```
"""Multiplication table"""
```

```
N = eval(input("Enter any number :"))
```

```
fact = 1
```

```
print("Multiplication table of ", N, "is : \n")
```

```
for i in range(1, 11):
```

```
    print(N , " X" , i , "= " , N*i)
```

**22.**

```
"""Pattern
```

```
1
```

```
12
```

```
123
```

```
1234
```

```
12345"""
```

```
for i in range(1, 6):
```

```
    for j in range(1,i+1):
```

```
        print(j, end = ' ')
```

```
    print()
```

**23.**

```
"""Pattern
```

```
1
```

```
22
```

```
333
```

```
4444
```

```
55555"""
```

```
for i in range(1, 6):
```

```
    for j in range(1,i+1):
```

```
        print(i, end = ' ')
```

```
    print()
```



24.

```
"""Pattern
```

```
*****
```

```
****
```

```
***
```

```
**
```

```
*
```

```
"""
```

```
for i in range(5, 0, -1):
```

```
    for j in range(i,0, -1):
```

```
        print("*", end = ' ')
```

```
    print()
```

25.

```
"""Pattern
```

```
    *
```

```
    * *
```

```
    * * *
```

```
    * * * *
```

```
    * * * * *
```

```
"""
```

```
for i in range(1, 6):
```

```
    for k in range(10, i, -1):
```

```
        print(' ', end = "")
```

```
    for j in range(1,i+1):
```

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

```
    print()
```