**Write a Program to Reverse a Number i.e. if n=123 then r=321**

**Version 1: using While loop**

Number = int(input("Please Enter any Number: "))

Reverse = 0

while Number > 0: # or while Number:

Reminder = Number %10

Reverse = Reverse \*10 + Reminder

Number = Number //10

print("\n Reverse of entered number is = %d" %Reverse)

**Version 2: A pythonic version for understanding only do not write in test / CBT use above approach**

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

while num > 0:

num, remainder = divmod(num, 10)

print (remainder,end="")

**Write a Program to check whether number is palindrome or not**

**This is extension of the above program only.**

**Version1**

Number = int(input("Please Enter any Number: "))

Original=Number

Reverse = 0

while Number:

Reminder = Number %10

Reverse = Reverse \*10 + Reminder

Number = Number //10

if Original == Reverse:

print('%d is a palindrome number' %Original)

else:

print('%d is not a palindrome number' %Original)

**Version 2**

n = int(input('Enter Number to check for palindrome'))

m=n

rev = 0

while m!=0:

rev = m % 10 + rev \* 10 **#two steps of prev program combined into single step**

m = m // 10

if n == rev:

print('%d is a palindrome number' %n)

else:

print('%d is not a palindrome number' %n)

**Program to find area and circumference of a Circle**

import math

radius = float(input(' Please Enter the radius of a circle: '))

area = math.pi\* radius \* radius

circumference = 2 \* math.pi \* radius

print(" Area Of a Circle = %.2f" %area)

print(" Circumference Of a Circle = %.2f" %circumference)

**Program to find area of a Circle or area of square based on user choice**

import math

choice = int(input('Enter:1 for area of circle, 2 for square]:'))

if choice == 1:

radius = float(input('Enter radius:'))

area = ( radius \*\* 2 ) \* math.pi

print ('The Area is=', area)

if choice == 2:

side = float(input('Enter length:'))

area = side \*\* 2

print ('The Area is=', area)

**Given three sides a,b and c of a triangle, write a program to find perimeter, semi-perimeter and area of triangle**

a = float(input('Please Enter the First side of a Triangle: '))

b = float(input('Please Enter the Second side of a Triangle: '))

c = float(input('Please Enter the Third side of a Triangle: '))

# calculate the Perimeter

Perimeter = a + b + c

# calculate the semi-perimeter

s = (a + b + c) / 2

# calculate the area

Area = (s\*(s-a)\*(s-b)\*(s-c)) \*\* 0.5

print("\n The Perimeter of Traiangle = %.2f" %Perimeter);

print(" The Semi Perimeter of Traiangle = %.2f" %s);

print(" The Area of a Triangle is %0.2f" %Area)

**Program to find whether given number is a Perfect Number or not**

Any number can be perfect number, if the sum of its positive divisors excluding the number itself is equal to that number. For example, 6 is a perfect number because 6 is divisible by 1, 2, 3 and 6. So, the sum of these values are: 1+2+3 = 6 (Remember, we have to exclude the number itself. That’s why we haven’t added 6 here). Some of the perfect numbers are 6, 28, 496, 8128 and 33550336 so on

Number = int(input(" Please Enter any Number: "))

Sum = 0

for i in range(1, Number):

    if Number % i == 0:

        Sum = Sum + i

if Sum == Number:

    print(" %d is a Perfect Number" %Number)

else:

    print(" %d is not a Perfect Number" %Number)

**Program to find Area of a Trapezoid**

base1 = float(input('Please Enter the First Base of a Trapezoid: '))

base2 = float(input('Please Enter the Second Base of a Trapezoid: '))

height = float(input('Please Enter the Height of a Trapezoid: '))

# calculate the area

Area = 0.5 \* (base1 + base2) \* height

# calculate the Median

Median = 0.5 \* (base1+ base2)

print("\n Area of a Trapezium = %.2f " %Area)

print(" Median of a Trapezium = %.2f " %Median)

**Program to find Area of a Rectangle and Perimeter of a Rectangle**

width = float(input('Please Enter the Width of a Rectangle: '))

height = float(input('Please Enter the Height of a Rectangle: '))

# calculate the area

Area = width \* height

# calculate the Perimeter

Perimeter = 2 \* (width + height)

print("\n Area of a Rectangle is: %.2f" %Area)

print(" Perimeter of Rectangle is: %.2f" %Perimeter)

**Program to find Area of an Equilateral Triangle**

The Equilateral Triangle is a triangle with all sides are equal and all of the angles are equal to 60 degrees. If we know the side of an Equilateral Triangle then, we can calculate the area of an Equilateral Triangle using below formula.

Area = (√3)/4 \* s² (S = Any side of the Equilateral Triangle)

Perimeter is the distance around the edges. We can calculate perimeter using below formula:

Perimeter = 3s

We can calculate Semi Perimeter of an Equilateral Triangle using the formula: 3s/2 or we can simply say Perimeter/2.

We can calculate Altitude of an Equilateral Triangle using the formula: (√3)/2 \* s

# Python Program to find Area of an Equilateral Triangle

import math

side = float(input('Please Enter Length of any side of an Equilateral Triangle: '))

# calculate the area

Area = (math.sqrt(3)/ 4)\*(side \* side)

# calculate the Perimeter

Perimeter = 3 \* side

# calculate the semi-perimeter

Semi = Perimeter / 2

# calculate the Altitude

Altitude = (math.sqrt(3)/2)\* side

print("\n Area of Equilateral Triangle = %.2f" %Area)

print(" Perimeter of Equilateral Triangle = %.2f" %Perimeter)

print(" Semi Perimeter of Equilateral Triangle = %.2f" %Semi)

print(" Altitude of Equilateral Triangle = %.2f" %Altitude)

**Program to find Area of a Right Angled Triangle**

If we know the width and height then, we can calculate the area of a right angled triangle using below formula.

Area = (1/2) \* width \* height

Using Pythagoras formula we can easily find the unknown sides in the right angled triangle.

c² = a² + b²

Perimeter is the distance around the edges. We can calculate perimeter using below formula

Perimeter = a + b+ c

# Python Program to find Area of a Right Angled Triangle

import math

width = float(input('Please Enter the Width of a Right Angled Triangle: '))

height = float(input('Please Enter the Height of a Right Angled Triangle: '))

# calculate the area

Area = 0.5 \* width \* height

# calculate the Third Side

c = math.sqrt((width\*width) + (height\*height))

# calculate the Perimeter

Perimeter = width + height + c

print("\n Area of a right angled triangle is: %.2f" %Area)

print(" Other side of right angled triangle is: %.2f" %c)

print(" Perimeter of right angled triangle is: %.2f" %Perimeter)

**Python Program to Check Leap Year**

The normal year contains 365 days but the leap year contains 366 days. Logically, All the years that are perfectly divisible by 4 are called as Leap years except the century years. Century year’s means they end with 00 such as 1200, 1300, 2400, 2500 etc (Obviously they are divisible by 100). For these century years we have to calculate further to check the Leap year.

* If the century year is divisible by 400 then that year is a Leap year
* If the century year is not divisible by 400 then that year is a Leap year

**# Python Program to Check Leap Year using If Statement**

year = int(input("Please Enter the Year Number you wish: "))

if (( year%400 == 0)or (( year%4 == 0 ) and ( year%100 != 0))):

print("%d is a Leap Year" %year)

else:

print("%d is Not the Leap Year" %year)

**# Python Program to Check Leap Year using Elif Statement**

year = int(input("Please Enter the Year Number you wish: "))

if (year%400 == 0):

          print("%d is a Leap Year" %year)

elif (year%100 == 0):

          print("%d is Not the Leap Year" %year)

elif (year%4 == 0):

          print("%d is a Leap Year" %year)

else:

          print("%d is Not the Leap Year" %year)

**# Python Program to Check Leap Year using Nested If Statement**

year = int(input("Please Enter the Year Number you wish: "))

if(year%4 == 0):

if(year%100 == 0):

if(year%400 == 0):

print("%d is a Leap Year" %year)

else:

print("%d is Not the Leap Year" %year)

else:

print("%d is a Leap Year" %year)

else:

print("%d is Not the Leap Year" %year)