In [2]:
```
# Program 1
# Area / Volume of Cylinder
import  math
def Area():
    r = eval(input("Enter the radius: "))
    h = eval(input("Enter the height: "))
    Area = 2*(math.pi)*r*h + 2*(math.pi)*r**2
    print("Area",Area)
Area()


import math
def Volume():
    r = eval(input("Enter the radius: "))
    h = eval(nput("Enter the height: "))
    Volume = math.pi*r**2*h
    print("Volume",Volume)
Volume()
```

```
Enter the radius: 5
Enter the height: 8
Area 408.4070449666731
Enter the radius: 3
Enter the height: 8
Volume 226.1946710584651
```

In [7]:
```
# Program 2
# Area / Volume of Rectangle
def Area():
    w = eval(input("Enter the width: "))
    l = eval(input("Enter the length: "))
    Area = l*w
    print("Area",Area)
Area()

import  math
def Volume():
    w = eval(input("Enter the width: "))
    l = eval(input("Enter the length: "))
    h = eval(input("Enter the height: "))
    Volume = l*w*h
    print("Volume",Volume)
Volume()
```

```
Enter the width: 4
Enter the length: 8
Area 32
Enter the width: 4
Enter the length: 8
Enter the height: 8
Volume 256
```

In [1]:
```
# Program 3
a=3
d=6
n=35
print("T = a+(n-1)d")
T=a+(n-1)*d
print(T)
while input("Do you want to continue [y/n]:") =="y":
    n=int(input("Enter the Next term:"))
    T=a+(n-1)*d
    print("T=",T)
print("Thank you")
```

```
T = a+(n-1)d
207
Do you want to continue [y/n]:y
Enter the Next term:45
T= 267
Do you want to continue [y/n]:y
Enter the Next term:96
T= 573
Do you want to continue [y/n]:n
Thank you
```

In [1]:
```
#Question 4
def palindrome():
    word = str(input("Enter String you want to know if it's palindrome :"))
    rword= ''.join(reversed(word))

    word.casefold()
    if word.casefold() == rword.casefold():
        print("The word ",word," is palindrome")
    else:
        print("Sorry ",word," is not palindrome")
palindrome()
```

```
Enter String you want to know if it's palindrome :FAAIZ
Sorry  FAAIZ  is not palindrome
```

In [1]:
```
# Program 8
def Reverse_name():
    Name =str(input("Enter your name:"))
    Reversed = reversed(Name)
    return("Reverse Name:", Reversed)

Reverse_name()
```

```
Enter your name:FAAIZ
```

Out[1]:
```
('Reverse Name:', <reversed at 0x33fcff0>)
```

In [1]:
```
# Program 7
# Projectile motion
from math import sin
def Projectile():
    g =eval(input("Enter the value of g:"))
    Vo =eval(input("Enter the value of Vo:"))
    thita =eval(input("Enter the value of thita:"))
    R = ((Vo**2)*sin(2*thita))/g
    print("R:",R)

Projectile()
```

```
Enter the value of g:9.8
Enter the value of Vo:20
Enter the value of thita:70
R: 40.0097820179719
```

In [3]:
```
#Program 5
name = str(input("\t\tEnter your name "))
father_name = str(input("\t\tEnter your Father's name "))

maths = float(input("\t\tEnter the marks of mathematics "))
Islamiat = float(input("\t\tEnter the marks of Islamiat "))
Fund_Programing = float(input("\t\tEnter the marks of Fund.Programing "))
Inf_Com_Technology = float(input("\t\tEnter the marks of Inf.Com.Technology "))
E_Electronics = float(input("\t\tEnter the marks of E.Electronics"))
obtain_marks = maths+Islamiat+Fund_Programing+Inf_Com_Technology+E_Electronics
Total_marks = 500
Percentage = (obtain_marks/Total_marks)*100

print("\n\n\t\t\t....1st Semester Mark Sheet...")
print("\n\t\tStudent Name   ",name)
print("\n\t\tFather Name    ",father_name)
print("\n\t\tRoll No.        ","19B-005-SE")
print("\n\t\tMark obtain in Mathematics      ",maths)
print("\n\t\tMark obtain in slamiat          ",Islamiat)
print("\n\t\tMark obtain in Fund_Programing  ",Fund_Programing)
print("\n\t\tMark obtain in Inf_Com_Technology   ",Inf_Com_Technology)
print("\n\t\tMark obtain in E_Electronics        ",E_Electronics)
print("\n\t\tMark your total Marks is            ",obtain_marks)
print("\n\t\tMark your percentage is             ",Percentage,"%")

if Percentage >= 80:
    print("\n\t\tYour grade is A+")
elif Percentage  >=80:
     print("\n\t\tYour grade is A+")
elif Percentage  >=70:
      print("\n\t\tYour grade is A")
elif Percentage >=60:
       print("\n\t\tYour grade is B")
elif Percentage >=50:
       print("\n\t\tYour grade is C")
elif Percentage >=40:
        print("\n\t\tYour grade is D")
```

```
Enter your name FAAIZ
Enter your Father's name AZEEM
Enter the marks of mathematics 88
Enter the marks of Islamiat 90
Enter the marks of Fund.Programing 92
Enter the marks of Inf.Com.Technology 89
Enter the marks of E.Electronics91


        ....1st Semester Mark Sheet...

Student Name    FAAIZ

Father Name     AZEEM

Roll No.         19B-005-SE

Mark obtain in Mathematics       88.0
```

```
Mark obtain in slamiat           90.0

Mark obtain in Fund_Programing   92.0

Mark obtain in Inf_Com_Technology    89.0

Mark obtain in E_Electronics         91.0

Mark your total Marks is              450.0

Mark your percentage is               90.0 %

Your grade is A+
```

In [8]:
```
# Program 6
# Laws of motions in physics
def First_Law():
    vi =eval(input("Enter the initial Velocity: "))
    vf =eval(input("Enter the final velocity: "))
    a  =vf-vi
    m =eval(input("Enter the mass: "))
    F =m*a
    print("F:", F)
First_Law()

def Second_Law():
    m =eval(input("Enter the mass: "))
    a =eval(input("Enter the acceleration: "))
    F =m*a
    print("F:" , F)
Second_Law()

def Third_Law():
    m =eval(input("Enter the mass: "))
    a =eval(input("Enter the acceleration: "))
    F =m*a
    F =-F
    print("F: ",F)
Third_Law()
```

```
Enter the initial Velocity: 5
Enter the final velocity: 5
Enter the mass: 10
F: 0
Enter the mass: 10
Enter the acceleration: 6
F: 60
Enter the mass: 10
Enter the acceleration: 5
F:  -50
```

In [4]:
```
# Program 9
def caesar_encrypt(realText, step):
        outText = []
        cryptText = []

        uppercase = ['A','B','C','D','E','F','G','H','I','J','K','L','M','N','O'

        lowercase = ['a','b','c','d','e','f','g','h','i','j','k','l','m','n','o'

        for eachLetter in realText:
                if eachLetter in uppercase:
                        index = uppercase.index(eachLetter)
                        crypting= (index+step)%26
                        cryptText.append(crypting)
                        newLetter = uppercase[crypting]
                        outText.append(newLetter)
                elif eachLetter in lowercase:
                        index = lowercase.index(eachLetter)
                        crypting = (index + step)%26
                        cryptText.append(crypting)
                        newLetter = lowercase[crypting]
                        outText.append(newLetter)
        return outText

caesar_encrypt("FAAIZ",5)
```

Out[4]:
```
['K', 'F', 'F', 'N', 'E']
```

In [2]:
```
# Program 10
from math import sin, cos, tan
def Table():
    x = int(input("Enter the initial value: "))
    y = int(input("Enter the final value:"))
    for i in range (x,y):
        print("Sin on ", i, sin(i))
        print("cos on ", i, sin(i))
        print("tan on ", i, sin(i))

Table()
```

```
Enter the initial value: 30
Enter the final value:33
Sin on  30 -0.9880316240928618
cos on  30 -0.9880316240928618
tan on  30 -0.9880316240928618
Sin on  31 -0.404037645323065
cos on  31 -0.404037645323065
tan on  31 -0.404037645323065
Sin on  32 0.5514266812416906
cos on  32 0.5514266812416906
tan on  32 0.5514266812416906
```

In [2]:
```
#Question 11
from math import pi
def Area():
    Radius = 14
    R2=4
    R3=10
    Area=(pi*Radius**2)/2
    print("Area of Bigger Circle = {0:.{1}f}cm\u00b2".format(Area,2))
    Area2=(pi*R2**2)/2
    Area3=(pi*R3**2)/2
    Area4=Area-(Area2+Area3)
    print("Area without semi circles = {0:.{1}f}cm\u00b2".format(Area4,2))
Area()

def perimeter():
    print('\n')
    Radius = 14
    R2=8
    R3=6
    Perimeter=(2*pi*Radius)/2 + 2*Radius
    print("Perimeter of Bigger Circle = {0:.{1}f}cm".format(Perimeter,2))
    Perimeter2=(2*pi*R2)/2
    Perimeter3=(2*pi*R3)/2
    Perimeter4=Perimeter+Perimeter2+Perimeter3
    print("Perimeter with two smaller Circle = {0:.{1}f}cm".format(Perimeter4,2)
perimeter()
```

```
Area of Bigger Circle = 307.88cm²
Area without semi circles = 125.66cm²


Perimeter of Bigger Circle = 71.98cm
Perimeter with two smaller Circle = 115.96cm
```