Ex 3.1

In [2]:

```
Fahrenheit=int(input("Enter the temperature in degrees Fahrenheit"))
celcium=(5/9)*(Fahrenheit-32)
print("The temperature in degrees Celsius is:",celcium,'deg_centigrade')
```

```
Enter the temperature in degrees Fahrenheit53
The temperature in degrees Celsius is: 11.666666666666668 deg_centigrade
```

Ex 3.2 ¶

In [3]:

```
#A
age=62
if age>62:
    print("You can get your pension benefits")

#B
name= ['Musial', 'Aaraon', 'Williams', 'Gehrig', 'Ruth']
if name ==['Musial', 'Aaraon', 'Williams', 'Gehrig', 'Ruth']:
    print("One of the top 5 baseball players")
#C
hits=10
shield=0
if hits>10 and shield<1:
    print("you are dead")
else:
    print("you are alive")

#D
x='west'
if 'north' or 'south' or 'east' or 'west':
    print('I can escap.')
```

```
One of the top 5 baseball players
you are alive
I can escap.
```

Ex 3.4

In [4]:

```
#A
age=62
if age>62:
    print("You can get your pension benefits")

#B
name= ['Musial', 'Aaraon', 'Williams', 'Gehrig', 'Ruth']
if name ==['Musial', 'Aaraon', 'Williams', 'Gehrig', 'Ruth']:
    print("One of the top 5 baseball players")
#C
hits=10
shield=0
if hits>10 and shield<1:
    print("you are dead")
else:
    print("you are alive")

#D
x='west'
if 'north' or 'south' or 'east' or 'west':
    print('I can escap.')
```

```
It could be a leap year
Better luck next time
```

EX 3.5

In [5]:

```
word_list=['stop', 'desktop', 'top', 'post']
for word in word_list:
    if len(word)==4:
        print(word)
    if len(word)==3:
        print(word)
```

```
stop
top
post
```

Ex 3.6

In [6]:

```
#a
for i in range(1,20):
    print(i, end=" ")
print("")
#b
for i in range(1,5):
    print(i,end = " ")
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
1 2 3 4
```

Ex 3.7

In [1]:

```
#a
for i in range(3,13):
    print(i)
#b
for i in range(0,10,2):
    print(i, end =" ")
print(" ")
#c
for i in range(0,24,3):
    print(i, end =" ")
print(" ")
#d
for i in range(3,12,5):
    print(i, end = " ")
```

```
3
4
5
6
7
8
9
10
11
12
0 2 4 6 8
0 3 6 9 12 15 18 21
3 8
```

3.8

In [3]:

```
#a
from math import pi
def perimeter(radius):
    per = 2 * pi * radius
    print("Perimeter of circle is: ",per,"cm")
    return
radius = eval(input("Enter radius in cm: "))
perimeter(radius)
```

```
Enter radius in cm: 60
Perimeter of circle is:  376.99111843077515 cm
```

3.9

In [4]:

```
def average(n1,n2):
    avg = (n1 + n2) /2
    print("Average is: ",avg)
    return
n1 = eval(input("Enter number 1: "))
n2 = eval(input("Enter number 2: "))
average(n1,n2)
```

```
Enter number 1: 100
Enter number 2: 200
Average is:  150.0
```

3.10

In [1]:

```
def noVowel(s):
    for i in s:
        if i in "AEIOUaeiou":
            return False
    return True
s = str(input("Enter string: "))
noVowel(s)
```

```
Enter string: reading
```

Out[1]:

```
False
```

3.11

In [ ]:

```
# a
def allEven(n):
    lst=[]
    for i in range(0,n):
        x = int(input("Enter number: "))
        lst.append(x)
    print(lst)
    for i in lst:
        if (i % 2 == 0):
            return True
        return False
n = int(input("Enter how many number you want to add in list: "))
allEven(n)
```

In [3]:

```
#b
def allEven(n):
    lst=[]
    for i in range(0,n):
        x = int(input("Enter number: "))
        lst.append(x)
    print(lst)
    for i in lst:
        if (i % 2 == 0):
            return False
    return True
n = int(input("Enter how many number you want to add in list: "))
allEven(n)
```

```
Enter how many number you want to add in list: 5
Enter number: 40
Enter number: 42
Enter number: 46
Enter number: 48
Enter number: 50
[40, 42, 46, 48, 50]
```

Out[3]:

```
False
```

3. 12

In [4]:

```
def negatives(n):
    lst=[]
    for i in range(0,n):
        x = int(input("Enter number: "))
        lst.append(x)
    print(lst)
    for i in lst:
        if i < 0:
            print(i)
    return
n = int(input("Enter how many number you want to add in list: "))
negatives(n)
```

```
Enter how many number you want to add in list: 7
Enter number: -9
Enter number: -11
Enter number: -13
Enter number: -15
Enter number: -17
Enter number: -19
Enter number: 23
[-9, -11, -13, -15, -17, -19, 23]
-9
-11
-13
-15
-17
-19
```

3. 13

In [5]:

```
#a
def average(n1,n2):
    x = (n1+n2)/2
    return x
help(average)
average(8,16)
```

```
Help on function average in module __main__:

average(n1, n2)
    #a
```

Out[5]:

```
12.0
```

In [ ]:

In [6]:

```
#b
def negatives(n):
    lst=[]
    for i in range(0,n):
        x = int(input("Enter number: "))
        lst.append(x)
    print(lst)
    for i in lst:
        if i < 0:
            print(i)
    return
help(negatives)
n = int(input("Enter how many number you want to add in list: "))
negatives(n)
```

```
Help on function negatives in module __main__:

negatives(n)
    #b

Enter how many number you want to add in list: 8
Enter number: -1
Enter number: -2
Enter number: -5
Enter number: -6
Enter number: -7
Enter number: 7
Enter number: 5
Enter number: 6
[-1, -2, -5, -6, -7, 7, 5, 6]
-1
-2
-5
-6
-7
```

3.14

In [7]:

```
a = [8,9,10]
print(a)
b = a
print(b)
a = 5
print(a)
```

```
[8, 9, 10]
[8, 9, 10]
5
```

3.15

In [8]:

```
team=['Ava','Eleanor','Clare','Sarah']
print(team)
temp= team[0]
team[0]=team[-1]
team[-1]= temp
print(team)
```

```
['Ava', 'Eleanor', 'Clare', 'Sarah']
['Sarah', 'Eleanor', 'Clare', 'Ava']
```

3.16

In [9]:

```
list=['bananas','mangoes','honey','chicken powder']
def swapFL():
    print(list)
    temp = list[0]
    list[0] = list[-1]
    list[-1] = temp
    print(list)
    return
swapFL()
```

```
['bananas', 'mangoes', 'honey', 'chicken powder']
['chicken powder', 'mangoes', 'honey', 'bananas']
```

In [ ]:

```

```

In [ ]:

```

```

3.17

In [10]:

```
a = 3
b = 4
c = 5
#a
if a < b:
    print("OK")
#b
if c < b:
    print("OK")
#c
if (a+b) == c:
    print("OK")
#d
if ((a**2)+(b**2)) == (c**2):
    print("OK")
```

```
OK
OK
```

3.18

In [11]:

```
a = 3
b = 4
c = 5
#a
if a < b:
    print("Not OK")
#b
if c < b:
    print("Not OK")
#c
if (a+b) == c:
    print("Not OK")
#d
if ((a**2)+(b**2)) == (c**2):
    print("Not OK")
```

```
Not OK
Not OK
```

3. 19

In [12]:

```
lst = ['January','February','March']
for i in lst:
    print(i[:3])
```

```
Jan
Feb
Mar
```

3. 20

In [14]:

```
lst = [2,3,4,5,6,7,8,9]
for i in lst:
    if (i%2 == 0):
        print(i)
```

```
2
4
6
8
```

3.21

In [15]:

```
lst = [2,3,4,5,6,7,8,9]
for i in lst:
    if ((i**2)% 8 == 0):
        print(i)
```

```
4
8
```

3.22

In [16]:

```
#a
for i in range(0,2):
    print(i,end= " ")
print(" ")
#b
for i in range(0,1):
    print(i,end= " ")
print(" ")
#c
for i in range(3,7):
    print(i,end= " ")
print(" ")
#d
for i in range(1,2):
    print(i,end= " ")
print(" ")
#e
for i in range(0,4,3):
    print(i,end= " ")
print(" ")
#f
for i in range(5,22,4):
    print(i,end= " ")
print(" ")
```

```
0 1
0
3 4 5 6
1
0 3
5 9 13 17 21
```

3.23

In [18]:

```
n = int(input("Enter number of words you want to add in list: "))
lst=[]
for i in range(0,n):
    x = str(input("Enter Word: "))
    lst.append(x)
print(lst)
for j in lst:
    if j == "secret":
        lst.remove("secret")
print(lst)
```

```
Enter number of words you want to add in list: 6
Enter Word: dia
Enter Word: cia
Enter Word: nia
Enter Word: mia
Enter Word: via
Enter Word: gia
['dia', 'cia', 'nia', 'mia', 'via', 'gia']
['dia', 'cia', 'nia', 'mia', 'via', 'gia']
```

3.24

In [19]:

```
lst=['Ellie','Steve','Sam','Owen','Gavin']
for i in lst:
    if i[0] in "ABCDEFGHIJKLM":
        print(i)
```

```
Ellie
Gavin
```

3. 25

In [20]:

```
n = int(input("Enter number of words you want to add in list: "))
lst=[]
for i in range(0,n):
    x = int(input("Enter number: "))
    lst.append(x)
print(lst)
list = [lst[0],lst[-1]]
print("the first list element is: ",list[0],"\nThe last list element is: ",list[1])
```

```
Enter number of words you want to add in list: 4
Enter number: 3
Enter number: 5
Enter number: 7
Enter number: 9
[3, 5, 7, 9]
the first list element is:  3
The last list element is:  9
```

3. 26

In [22]:

```
n = int(input("Enter number: "))
for i in range(0,4):
    res = n*i
    print(res)
```

```
Enter number: 8
0
8
16
24
```

3.27

In [24]:

```
n = int(input("Enter number: "))
for i in range(0,4):
    if i != n:
        res = i**2
        print(res)
```

```
Enter number: 6
0
1
4
9
```

3.28

In [25]:

```
n = int(input("Enter number: "))
for i in range(1,n+1):
    if ( n % i == 0):
        print(i)
```

```
Enter number: 64
1
2
4
8
16
32
64
```

3.29

In [26]:

```
n1 = eval(input("Enter number: "))
n2 = eval(input("Enter number: "))
n3 = eval(input("Enter number: "))
n4 = eval(input("Enter number: "))
avg = (n1+n2+n3)/3
if avg == n4:
    print("Equal")
```

```
Enter number: 4.5
Enter number: 3
Enter number: 3
Enter number: 3.5
Equal
```

3.30

In [28]:

```
x = eval(input("Enter x coordinate: "))
y = eval(input("Enter y coordinate: "))
if (x and y) <= 10 and (x and y) >= -10:
    print("It is in!")
```

```
Enter x coordinate: 3.5
Enter y coordinate: 6
It is in!
```

3. 31

In [29]:

```
n = int(input("Enter number: "))
for i in repr(n):
    if i.isdigit():
        print(i)
```

```
Enter number: 1234
1
2
3
4
```

3.32

In [ ]:

```
#a
def reverse_string(s):
    print(s[::-1])
    return
s = str(input("Enter string: "))
reverse_string(s)
#b
s = str(input("Enter string: "))
reverse_string(s)
```

3.33

In [2]:

```
#a
def reverse_string(s):
    print(s[::-1])
    return
s = str(input("Enter string: "))
reverse_string(s)
#b
s = str(input("Enter string: "))
reverse_string(s)
```

```
Enter string: def
fed
Enter string: ijk
kji
```

3.34

In [5]:

```
def pay(h,w):
    if h > 40:
        payment = (40*w)+((w*1.5)*(h-40))
        print("Employee payment is: ",payment)
    else:
        payment = h*w
        print("Employee payment is: ",payment)
    return
h=eval(input("Enter hours employee worked: "))
w = eval(input("Enter hourly wages of employee: "))
pay(h,w)
#b
h=eval(input("Enter hours employee worked: "))
w = eval(input("Enter hourly wages of employee: "))
pay(h,w)
```

```
Enter hours employee worked: 25
Enter hourly wages of employee: 10
Employee payment is:  250
Enter hours employee worked: 55
Enter hourly wages of employee: 10
Employee payment is:  625.0
```

3. 35

In [7]:

```
#a
def prob(n):
    p = 2**(-n)
    print(p)
    return
n = int(input("Enter number: "))
prob(n)
#b
n = int(input("Enter number: "))
prob(n)
```

```
Enter number: 3
0.125
Enter number: 7
0.0078125
```

3. 36

In [8]:

```
def reverse_int(n):
    Reverse = 0
    while(n > 0):
        Reminder = n %10
        Reverse = (Reverse *10) + Reminder
        n = n //10
    print(Reverse)
    return
n = int(input("Enter number: "))
reverse_int(n)
#b
n = int(input("Enter number: "))
reverse_int(n)
```

```
Enter number: 456
654
Enter number: 1000
1
```

3. 37

In [18]:

```
from math import sqrt
def point(x1,y1,x2,y2):
    if (x1-x2) == 0:
        dist = sqrt((x2-x1)**2+(y2-y1)**2)
    print("slope is infinty and Distance between two points is: ",dist,"cm")
else:
    slope = (y2-y1)/(x2-x1)
    dist = sqrt((x2-x1)**2+(y2-y1)**2)
    print("slope is: ",slope,"\nDistance between two points is: ",dist,"cm")
return
x1 = eval(input("Enter x coordinate of first point: "))
y1 = eval(input("Enter x coordinate of first point: "))
x2 = eval(input("Enter x coordinate of second point: "))
y2 = eval(input("Enter x coordinate of second point: "))
point(x1,y1,x2,y2)
#b
x1 = eval(input("Enter x coordinate of first point: "))
y1 = eval(input("Enter x coordinate of first point: "))
x2 = eval(input("Enter x coordinate of second point: "))
y2 = eval(input("Enter x coordinate of second point: "))
point(x1,y1,x2,y2)
```

```
  File "<ipython-input-18-c37795548e54>", line 6
    else:
       ^
SyntaxError: invalid syntax
```

3. 38

In [19]:

```
def abbreviation(day):
    print(day[:2])
    return
day = str(input("Enter day of a week: "))
abbreviation(day)
```

```
Enter day of a week: thusday
th
```

3.39

In [20]:

```
def collision(x1,y1,r1,x2,y2,r2):
    if x1 == x2 or r1 == r2:
        print(True)
    else:
        print(False)
    return
x1 = eval(input("Enter x coordinate of first circle: "))
y1 = eval(input("Enter y coordinate of first circle: "))
r1 = eval(input("Enter radius of first circle: "))
x2 = eval(input("Enter x coordinate of second circle: "))
y2 = eval(input("Enter y coordinate of second circle: "))
r2 = eval(input("Enter radius of second circle: "))
collision(x1,y1,r1,x2,y2,r2)
#b
x1 = eval(input("Enter x coordinate of first circle: "))
y1 = eval(input("Enter y coordinate of first circle: "))
r1 = eval(input("Enter radius of first circle: "))
x2 = eval(input("Enter x coordinate of second circle: "))
y2 = eval(input("Enter y coordinate of second circle: "))
r2 = eval(input("Enter radius of second circle: "))
collision(x1,y1,r1,x2,y2,r2)
```

```
Enter x coordinate of first circle: 1
Enter y coordinate of first circle: 1
Enter radius of first circle: 1
Enter x coordinate of second circle: 6
Enter y coordinate of second circle: 1
Enter radius of second circle: 3
False
Enter x coordinate of first circle: 3
Enter y coordinate of first circle: 3
Enter radius of first circle: 4
Enter x coordinate of second circle: 3.5
Enter y coordinate of second circle: 34
Enter radius of second circle: 45
False
```

3. 40

In [21]:

```
def partition( lst):
    for i in lst:
        if i[0] in "ABCDEFGHIJKLM":
            print(i)
partition(['Eleanor','Evelyn','Sammy','Owen','Gavin'])
```

```
Eleanor
Evelyn
Gavin
```

3. 41

In [22]:

```
def lastF(FirstName,LastName):
    x = len(FirstName)
    print(LastName+","+FirstName[:1-x])
    return
FirstName= str(input("Enter First Name: "))
LastName= str(input("Enter Last Name: "))
lastF(FirstName,LastName)
```

```
Enter First Name: shaheer
Enter Last Name: ali
ali,s
```

3.42

In [23]:

```
def avg(l1,l2,l3,l4):
    a1 = sum(l1)/len(l1)
    a2 = sum(l2)/len(l2)
    a3 = sum(l3)/len(l3)
    a4 = sum(l4)/len(l4)
    print("",a1,"\n",a2,"\n",a3,"\n",a4)
    return
avg([95,92,86,87],[66,54],[89,72,100],[33,0,0])
```

```
 90.0
 60.0
 87.0
 11.0
```

3. 43

In [27]:

```
def hit(x1,y1,r1,x2,y2):
    if (x2 <= r1) and (y2 <= r1):
        print(True)
    else:
        print(False)
    return
hit(1,1,4,4,1)
hit(1,1,4,5,1)
```

```
True
False
```

3.44

In [28]:

```
def distance(time):
    s=340.29
    d = s * time
    print("Distance of thunder is:",d/1000,"km")
    return
distance(5)
```

```
Distance of thunder is: 1.7014500000000001 km
```

In [ ]:

```

```