

D	D	M	M	Y	Y	Y	Y
0	2	0	8	2	0	1	9

## Exercise 1

- i) A civil contractor has mistakenly taken the measurement in feet instead of centimeter. Help him to convert the given feet value into centimeter.  
write a python program to convert the length in feet to centimeter.
- ii) Mr. Ashok has dig a borewell just without any measurement but somehow he was able to get the radius of the borewell , now he wants to find the area and perimeter of the borewell . So help ashok for the same. write a python program to find area & perimeter of borewell.
- iii) Mr. Bob has drawn a triangle using a scale with measuring all different sides of the triangle but not aware of the angles between sides of the triangle. Help her to find the area of the triangle.
- iv) Mr. Alex only knows that a year has 365 days (ignoring leap year) & he knows his age only in terms of number of days. Help him to find his age given in years, weeks and days.

## Programs

```

i) feet = float(input("Enter the feet measurement taken  
mistakenly by the contractor"))  

cm = feet * 30  

print ("The converted length in feet to centimeter  
is =", cm)

```

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ii) Considering borewell as a circle

import math

radius = float(input("Enter the radius of the borewell  
in ft"))

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

peri = 2 \* math.pi \* radius

print("For the measured radius as ", radius, "  
Area of the borewell = ", area, " in perimeter of  
the borewell = ", peri)

Considering borewell as a cylinder

import math

radius = float(input("Enter the radius of borewell in ft"))

height = float(input("Enter the height of the borewell  
in ft"))

peri = (2 \* math.pi \* radius \* height) + (4 \* math.pi  
\* radius)

area = (4 \* math.pi \* radius \*\* 2) + (2 \* math.pi \*  
radius \* height)

print("For the radius measured as ", radius, "  
Area of the borewell is ", area, " in Perimeter of  
the borewell is ", peri)

iii) import math

S1 = float(input("Enter the measured length of side 1  
in ft"))

S2 = float(input("Enter the measured length of  
side 2 in ft"))

D	D	M	M	Y	Y	Y	Y
0	9	0	2	2	0	1	9

$s_3 = \text{float}(\text{input}(" \text{Enter the measured length of side 3} \text{ in } "))$

$$s = (s_1 + s_2 + s_3) / 2$$

area = math.sqrt(s \* (s - s\_1) \* (s - s\_2) \* (s - s\_3))

~~print("Area of the triangle with sides measured as ", s, s\_1, s\_2, s\_3, " is ", area)~~

iv) age = int(input(" \text{Enter the age in days} \text{ in } "))

$$a = \text{int}(age / 365)$$

$$b = \text{age \% 365}$$

$$c = \text{int}(b / 7)$$

$$d = b \% 7$$

~~print(" The age ", age, " days can be expressed as  
", " ", a, " years ", b, " weeks ", d, " days ")~~

### Output

- 2) Enter the feet measurement taken mistakenly by  
the contractor 6  
The converted length in feet to centimeter is  
= 180.0

## Output

- i) Enter the radius of the borewell 4  
For the measured radius as 4.0  
Area of the borewell = 50.26548245743669  
Perimeter of borewell = 25.132741228718345
- ii) Enter the radius of the borewell  
5  
Enter the height of the borewell  
3  
For radius measured as 5.0  
Area of borewell is 408.401044966181  
Perimeter of borewell is 157.0196326194896

## Output

- iii) Enter the measured length of side 1 3  
Enter the measured length of side 2 4  
Enter the measured length of side 3 5  
Area of the triangle with sides measured as 3.0 4.0 5.0 is 6.0
  
- iv) Enter the age in days 373  
The age 373 days can be expressed as  
1 years 1 weeks 1 days.

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## Exercise 2

### programs using input & library function

- a) A security agency company has a string of 4 char to be communicated with its client. But wants to encode it in the form of ASCII or UTF code & send. Help them to convert the given string of 4 char into its equivalent UTF or ASCII code.
- b) A 10<sup>th</sup> std child is given a number & is asked to do the following:-
- i) round off to the nearest int
  - ii) round off the next / first decimal place
  - iii) round off to the second decimal place.
- Give the child a solution to do the task listed above.

## Programs

```

0) str = input("enter the 4 char string")
print(" new string", end = " ")
print(str[0], end = (str[0]))
str[1], end = (str[1])
str[2], end = (str[2])
str[3], end = (str[3])

```

```

b) a = float(input("enter the number"))

```

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print("round off number - " round(a))

print("round off to first decimal place - " round(a, 1))

~~print("round off to second decimal place - " round(a, 2))~~

## Output

- i) Cut the 4 char steering input  
new steering n 110 m 109 p 105 t 116
- ii) Cut the 4 char steering okay  
new steering a 91 k 107 s 114 g 103

## output

- b) i) Given the number 63.214  
round off number = 63  
round off to first decimal place = 63.3  
round off to second decimal place = 63.21
- ii) Given the number 107.526  
round off number = 108  
round off to first decimal place = 107.5  
round off to second decimal place = 107.53

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### Exercise 3

programs working with library function & Simple program

- Mr. Allen is been asked to design and simulate the working of a simple calculator. Help to implement the operations like (+, -, ×, ÷, %, //, \*\*)
- Mr. Alex is given deck of 52 cards & asked to do the following:-
  - shuffle the deck of cards
  - To choose one single card from deck
  - To create a random sample of size 2. from available deck of cards. But it is very hard to do this game. Help them to design & implement
- A computer programmer has stored 2 in 2 memory locations. But now he needs to shuffle help him to
  - swap using temporary variable.
  - swap using without temporary variable.

### programs

- ~~x = float(input("Enter the first number - "))~~  
~~y = float(input("Enter the second number - "))~~

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$$z = x/y$$

print(" sum (+) = ", x+y)  
 print(" difference (-) = ", x-y)  
 print(" multiplication (\*) = ", x\*y)  
 print(" division (/) = ", x/y)  
 print(" modulo (%.) = ", x%y)  
 print(" division (//) = ", z)

~~print(" Power (\*\*)) = ", x\*\*y)~~

b) import random

deck = [" Diamonds ", "spades", "Hearts", "clubs"]  
 print(" Before shuffling : ", deck)  
 random.shuffle(deck)  
 print(" After shuffling : ", deck)  
~~print(" Randomly draw a suit : ", random.choice(deck))~~

New-deck = random.sample(deck, 2)

Print " New deck : ", New-deck)

c) i) a = int(input(" Enter a number : "))

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

Print " Entered numbers are a = ", a, ", ", b = ", b)

temp = a

a = b

b = temp

Print " After swapping : a = ", a, ", ", b = ", b)

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ii)   
 a = `int input ("Enter a number")`  
 b = `int input ("Enter a number")`  
~~Print("Entered numbers are : a - " , a , ", " , "b = " , b)~~  
~~Print("After Swapping : a - " , a , ", " , "b - " , b)~~  
 a, b = b, a

## Output

a) Enter the first number 4

Enter the second number 2

sum (+)= 6.0

difference (-)= 2.0

multiplication (\*)= 8.0

division (/)= 2.0

modulus (%)= 0.0

division (//)= 2

Power (\*\*) = 16.0

b) Before shuffling ['Diamonds', 'spades', 'Hearts',  
'clubs']

After shuffling ['Hearts', 'Diamonds', 'spades', 'clubs']  
randomly drawn w/ suit : Hearts  
new-deck : ['clubs', 'spades']

c) Enter a number 10

Enter a number 20

Entered numbers are a=10, b=20

After Swapping : a=20, b=10

## Output

c) i) Enter a number 15

Enter a number 35

Entered numbers are : a=15, b=35

After swapping : a=35, b=15

D	D	M	M	Y	Y	Y	Y
2	3	0	2	2	0	1	9

## Exercise 4

### Programs on control Structures

- a) A mathematics teacher has given a problem to a student to find the root of quadratic equation  $-ax^2+bx+c$  & also given the case study with the values as ( $a=0$ ,  $b^2 - 4ac \geq 0$ ,  $b^2 - 4ac < 0$ ) but the student is very weak in mathematics, so could you help the student to do this task using python programming.
- b) Mr. Disney is given with a number & been asked to do 2 arithmetic operations i.e. addition & multiplication for example given a number 4 the result should be
- 9)  $1 + 2 + 3 + 4 = 10$
  - 10)  $1 * 2 * 3 * 4 = 24$
- Help Mr. Disney to achieve this task.
- c) A pebble shop keeper has kept some pebbles in a glass bottle with each having different count, help him to find out, how many bottles are with odd number of pebbles and how many are with even number of pebbles

D	D	M	M	Y	Y	Y	Y
2	3	0	2	2	0	1	9

## Programs

a) import math

print("Enter the coefficients of the quadratic equation in the form (-ax<sup>2</sup>+bx+c)")

a = float(input("Enter the first coefficient:"))

b = float(input("Enter the second coefficient:"))

c = float(input("Enter the third coefficient:"))

if (a == 0):

print("Enter a valid coefficient")

$$d = b^2 - 4*a*c$$

if (d > 0):

print("Roots are real and distinct")

$$r_1 = ((-b + \sqrt{d}) / (2*a))$$

$$r_2 = ((-b - \sqrt{d}) / (2*a))$$

print("Roots are", r<sub>1</sub>, "l", r<sub>2</sub>)

elif (d == 0):

print("Roots are real and equal")

$$r_1 = (-b / (2*a))$$

print("Roots are", r<sub>1</sub>, "l", r<sub>1</sub>)

else (d < 0):

print("Roots are imaginary")

$$r_1 = (\sqrt{-d}) / (2*a)$$

$$r_2 = (-b / (2*a))$$

print("Roots are", r<sub>2</sub>, "+", r<sub>1</sub>, "i", r<sub>2</sub>, "-", r<sub>1</sub>, "i")

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### b) output math

`a = int(input("Enter the number it"))`

`x=0`

`y=1`

`i=1`

`j=1`

`for i in range(a+1):`

`x=x+i`

`y = math.factorial(i)`

`print("Addition", x, "In Multiplication", y)`

### c) n = int(input("Enter the number of elements"))

`l = []`

`print("Enter the elements :")`

`for i in range(n):`

~~`a = int(input())`~~

~~`l.append(a)`~~

~~`counte, counto = 0, 0`~~

`for i in l:`

~~`if (i%2):`~~

`counto+=1`

`else:`

`counte+=1`

`print("Number of ODD elements", counto)`

`print("Number of EVEN elements", counte)`

*for  
2  
09/09/2019*

## Output

- Q) i) Enter the coefficients of the quadratic equation  
in the form ( $a x^2 + b x + c$ )

Enter the first coefficient : 2

Enter the second coefficient : 4

Enter the third coefficient : 2

Roots are real and equal

Roots are : -1.0 -1.0

- ii) Enter the coefficients of the quadratic equation  
in the form ( $-a x^2 + b x + c$ )

Enter the first coefficient : 5

Enter the second coefficient : 4

Enter the third coefficient : 8

Roots are Imaginary

Roots are :  $-0.4 + 0.6623i$   $-0.4 - 0.6623i$

## Output

b) Enter the number 4

Addition : 10

Multiplication: 24

c) Enter the number of elements 3

Enter the elements

1

Number of ODD elements : 1

Number of EVEN elements : 0

2

Number of ODD elements : 1

Number of EVEN elements : 1

3

Number of ODD elements : 2

Number of EVEN elements : 1

D	D	M	M	Y	Y	Y	Y
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## EXERCISE-5

### Programs on control structures

Ques 5(a) find all factors of a given number , count the number of factors , check whether a given number is a prime number.

5(b) check whether a given number is a

- i) perfect square
- ii) fibonacci series
- iii) perfect power of 2.

5(c) check whether a given number is a perfect number or not . perfect number is a positive number which is the sum of all its positive divisors excluding that number and is equal to that number itself .

~~Example : 6 is a perfect number since its divisors are 1, 2 and 3 and sum = 6.~~

## PROGRAMS

5(a)

```
a = int(input("Enter a number [n]"))
print("Factors of ", a, "are [n]")
count = 0
for i in range(1, n):
    if (i == 0):
        continue
```

D	D	M	M	Y	Y	Y	Y
3	0	0	8	2	0	1	9

if ( $a \% i == 0$ ):

    count = count + 1

    print (i)

print ("Number of factors are It", count)

if (count > 2):

    print ("It is not a prime number")

else:

    print ("It is a prime number")

5b)

import math

a = int(input("Enter a number It"))

b = math.sqrt(a)

if (b == round(b)):

    print ("It is a perfect square")

else:

    print ("It is not a perfect square")

for i in range(2, a):

    if (2 \*\* i == a):

        print ("It is a perfect power of 2")

        break

    elif (i == a - 1):

        print ("It is not a perfect power of 2")

print ("Fibonacci Series")

c = 0

d = 1

if (a == 0):

    print ("Enter a number other than 0")

elif (a == 1):

    print (c)

D	D	M	M	Y	Y	Y	Y
0	6	0	9	2	0	1	9

elif ( $a == 2$ ):

print ('c, " ", d)

else:

print ('c, d, end = " ")

for i in range (a):

c = c + d

print ('(c+d), end = " ")

c = d

d = c

print ("lu")

5c) a = int (input ("Enter the number to be checked whether perfect or not (u)"))

count = 0

print ("All the positive divisors of ", a, " excluding the number itself are lt")

for i in range (1, a):

if ((a % i) == 0):

count = count + i

print (i, end = " ")

else:

continue

print ("lu")

print ("Sum of all positive divisors of ", a, " = ", count)

if (count == a):

print ("Sum of all positive divisors of ", a, " is ", a, " itself therefore ", a, " is a perfect number lu")

D	D	M	M	Y	Y	Y	Y

else :

Point ("Since sum of all divisors of  $a^4$ , a, " is "  
count, " Therefore ", a, " is not a perfect number  
( $a^4$ )")

Then  
Hence

## OUTPUT

① Enter a number

6

Factors of 6 are

1

2

3

6

It is not a prime number

② Enter a number

2

Factors of 2 are

1

2

It is a prime number

## OUTPUT

- ① Enter a number 6  
It is not a perfect square  
It is not a perfect power of 2  
Fibonacci Series  
0 1 1 2 3 5
- ② Enter a number 4  
It is a perfect square  
It is a perfect power of 2  
Fibonacci Series  
0 1 1 2

## OUTPUT

- ① Enter the number to be checked whether perfect or not

6

All the positive divisors of 6 excluding the number itself are

1 2 3

Sum of all positive divisors of 6 = 6

Since sum of all positive divisors of 6 is 6 itself

Therefore 6 is a perfect number

- ② Enter the number to be checked whether perfect or not

5

All the positive divisors of 5 excluding the number itself are

1

Sum of all positive divisors of 5 = 1

Since sum of all positive divisors of 5 is 1.

Therefore 5 is not a perfect number.

D	D	M	M	Y	Y	Y	Y
1	3	0	9	2	0	1	9

## Programs on Strings & Sets

- 6a) find cartesian product of sets.
- 6b) Program to find / count number of characters (Alphabets, digits and special characters) in a given string and print the same.
- 6c) Give a list of strings & print number of strings where the string length is 2 or more & the first & last characters are same.
- 6d) Program to reverse each word in a given sentence.

## Programs

- 6a) 

```
a = ["apple", "banana", "cherry"]
b = ["carrot", "beans", "avocado"]

print("Cartesian Product:")
for i in range(len(a)):
    for j in range(len(b)):
        print("[", a[i], b[j], "]")
```
- 6b) 

```
a = input("Enter a String:")
print("Number of characters are:", len(a))
alpha = 0
num = 0
```

$spl = 0$   
for  $i$  in range( $\text{len}(a)$ ):  
    if (((((ord( $a[i]$ ))  $\geq$  ord('a')) and ((ord( $a[i]$ ))  $\leq$  ord('z')))) or (((ord( $a[i]$ ))  $\geq$  ord('A')) and ((ord( $a[i]$ ))  $\leq$  ord('Z')))):  
        alpha = alpha + 1  
    elif ( $a[i] \geq '0'$ ) and ( $a[i] \leq '9'$ ):  
        num = num + 1  
else:

    spl = spl + 1  
print(" Number of alphabets are ", alpha)  
print(" Number of digits are ", num)  
print(" Number of special characters are ", spl)

$a = ['noon', 'malayalam', 'dad', 'mom', 'i', 'a', 'hello', 'world']$

count = 0

num = 0

for  $i$  in range( $\text{len}(a)$ ):

    count = count + 1

print(" Strings count = " count)

for  $i$  in range( $\text{len}(a)$ ):

    c =  $a[i]$

    b =  $\text{len}(a[i])$

    if ( $b \geq 2$  and ( $c[0] == c[\text{len}(c) - 1]$ )):  
        num = num + 1

print(" Strings count with string length two and same first and last letters are ", num)

D	D	M	M	Y	Y	Y	Y
2	0	0	9	2	0	1	9

6d)  $s = \text{input}(\text{"Enter a string (w)}"). \text{split}()$

~~for i in s:~~

~~print(i[::-1], end=" ")~~

~~print("w")~~

## OUTPUT

6(a) Cartesian product

[apple carrot] [apple beans] [apple avocado]  
[banana carrot] [banana beans] [banana avocado]  
[cherry carrot] [cherry beans] [cherry avocado]

## OUTPUT

b) Enter a string

123@gmail.com

Number of characters are 13

Number of alphabets are 3

Number of digits are 3

Number of special characters are 2

c) Strings count = 8

Strings count with string length 2 and same first & last letters are 4.

## OUTPUT

6a) Enter a String hello world  
olleh dlrow

- i) Given a list : SRN, P-marks, C-marks, M-marks and B-marks
- i) create a dictionary with SRN as the key & marks in PCMB as a list
  - ii) make another dictionary of SRN & total marks display in the order of marks.
  - iii) make a dictionary with m-marks as the key & names of the students with same marks.
- b) find the mode of the given list using dictionary  
num-list = [1, 2, 3, 4, 1, 1, 2, 3, 1]
- c) find the mean & S.D for given list of elements  
 $L = [1, 2, 3, 4]$

D	D	M	M	Y	Y	Y	Y

A = {}

SRN, P-mark, C-mark, M-mark, B-mark = [], [], [], [], []  
 $n = \text{int}(\text{input}(" \text{enter the number of records } n"))$

for i in range(n):

SRN.append(int(input(" enter the SRN ")))

P-mark.append(int(input(" enter the physics marks ")))

C-mark.append(int(input(" enter the chemistry marks ")))

M-mark.append(int(input(" enter the maths marks ")))

B-mark.append(int(input(" enter the biology marks ")))

for i in range(n):

A[SRN[i]] = [P-mark[i], C-mark[i], M-mark[i],  
 B-mark[i]]

print(" dict with SRN and marks as key: ")

for i in A:

print(i, " ==> ", end=" ")

for j in A[i]:

print(j, end=" ")

print(" ")

total = {}

print(" dict of SRN and total marks ")

for i in A:

total[i] = sum(A[i])

for i, j in sorted(total.items(), key=lambda a: a[1]):

print(i, " ==> ", j)

stud\_details = {}

print(" dict with m-marks as key and SRN's with semesters")

for i in m-mark:

stud\_details[i] = []

D	D	M	M	Y	Y	Y	Y

for j in A:

if (i == A[j][z]):

stud.details[i].append(j)

for i in stud.details:

print(i, " --> ", end="")

for j in stud.details[i]:

print(j, end=" ")

print("n")

(b) list - []

n = int(input("enter the no. of values for the list"))

print("enter the elements :")

for i in range(n):

list.append(int(input())))

modelist = []

for i in list:

modelist.setdefault(i, 0)

modelist[i] += 1

print(modelist)

m = 0

for i in modelist:

if m <= modelist[i]:

m = modelist[i]

k = i

print("modi = ", k)

(d) list = []

n = int(input("enter the number of elements"))

D	D	M	M	Y	Y	Y	Y

print(" enter the elements in")

for i in range(n):

list.append(int(input()))

mean = sum(list)/len(list)

S=0

for i in list:

$$St = (i - \text{mean})^{**2}$$

~~$$SD = (\sqrt{\text{sum}(\text{list})})^{**0.5}$$~~

~~print(" mean =", mean)~~~~print(" SD = ", SD)~~

outfit

- 10) Enter the number of biocides I & disinfectants  
Ans: 30 marks  $\rightarrow$  3000 + 300 = 3300  
Enter the SRN  
101  
Enter the physics marks  
45  
Enter the chemistry marks "9000"  
50  
Enter the maths marks  
39  
Enter the biology marks "9000"  
49  
Enter the SRN  
102  
Enter the physics marks  
48  
Enter the chemistry marks "9000"  
50  
Enter the maths marks "9000"  
44  
Enter the biology marks "9000"  
50  
Enter the SRN  
10.3) Enter the marks of 10 students  
Enter the physics marks 10, 18, 8, 17, 16, 15, 14, 16, 15, 16  
16

enter the maths marks

39

enter the biology marks

50

enter the SRN

109

enter the physics marks

38

enter the chemistry marks.

36

enter the maths marks

44

enter the biology marks

45

dict with SRN and marks as list

101 => 45 50 39 49

102 => 48 50 44 50

103 => 45 46 39 50

104 => 38 36 44 45

dict of SRN and total marks

104 => 163

103 => 180

101 => 183

102 => 192

dict with m-marks as key and SRNs with same marks

39 => 101 103

44 => 102 104

16) output

enter the number of values for the list &

enter the elements 1 to 20

longest 3 digit num

2

3

5

4

5

6

5

20:1, 2:1, 3:1, 5:3, 4:1, 6:1, 5:2, 6:2, 6:3, 6:4

mod5 = 5

17)

enter the number of elements 5

5

enter the elements

1

5

8

9

-1

mean = 6.0

SD = 2.8284271241461903

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## EXERCISE 8

- a) Given 2 lists as arguments (marks and names) write a function to return a tuple containing the highest marks & the corresponding name.
- b) Given a dictionary where values are not unique, write a function to create a new dictionary where the key is the value and the value is concatenated keys of the original dictionary & return.
- c)
  - i) def is\_square(x). pass  
check whether a given number is a perfect square.
  - ii) def is\_even(x). pass  
check whether a given number is an even number.
  - iii) find all numbers between 1 and n which are both square & even.

Q.

8a) def highest(marks, names):  
 if len(marks) != len(names):  
~~return "NO of records mismatch"~~  
~~max\_marks = max(marks)~~  
~~index = []~~  
~~for i in range(len(marks)):~~  
~~if (marks[i] == max\_marks):~~  
~~index.append(i)~~  
~~res = [ ]~~

D	D	M	M	Y	Y	Y	Y

for i in index:

    res.append([marks[i], names[i]])

return res

def enterList(n, text=False):

    print("enter the elements")

    for i in range(n):

        if (text):

            list.append(input())

        else:

            list.append(int(input())))

marks, names = [], []

n1 = int(input("enter the number of marks"))

enter(marks, n1)

n2 = int(input("enter the number of names"))

enter(names, n2, True)

print(marks)

print(names)

print(highest(marks, names))

8b) def sortedDict(d):

    res = {}

    for i in d:

        if d[i] not in res:

            res[d[i]] = []

            res[d[i]].append(i)

D	D	M	M	Y	Y	Y	Y

else:

res[d[i]].append(i)

return res

```
dict = {'apple': 'fruit', 'egg': 'car', 'beans': 'veg',
        'olive': 'car', 'mango': 'fruit', 'carrot': 'veg',
        'potato': 'veg', 'oil': 'car'}
```

print(sortdict(dict))

8) def is\_square(n):

if int(n\*\*0.5) == n\*\*0.5:

return True

else:

return False

def is\_even(n):

if n%2 == 0:

return True

else:

return False

n = int(input("enter a number"))

print("numbers that are square numbers")

for i in range(2, n+1, 2):

if is\_square(i):

print(i, end=" ")

print("\n")

D	D	M	M	Y	Y	Y	Y

point ("numbers that are even")

for i in range (2, n+1, 2):

if is-even(i):

    point(i, end = " ")

point("w") → m-point(input ("enter upperlimit"))

point("numbers that are both even and square numbers")

for i in range (2, n+1, 2):

    if is-even(i) and is-square(i):

        point(i, end = " ")

point("l")

Today  
12/10/19

outfit

- 80) enter the number of marks 4 (Calculus) no. 3 38  
enter the elements ~~they're half longer list~~  
89 (Bill and Kellie) and enter 49  
15  
64  
89  
enter the number of names 4 ~~as ((Bill, will)) = 92~~ 4  
enter the elements ~~Calculus & vom Thien~~  
~~(92, 4, 42, vom)~~  
santu  
keder  
shonne  
sethu  
[89, 15, 64, 89]  
['santu', 'keder', 'shonne', 'sethu']  
[(89, 'santu'), (89, 'sethu')]

outfit 8 or 11

? 32.07.17

b) { 'feuille' : [ 'apple', 'mango' ], 'car' : [ '800', 'volvo', '110' ]  
+ 'orange', 'carrot' : [ 'beetroot', 'carrot', 'potato' ] }  
Labeled with qualitative values in measure of quantitative  
values qualitative values with absolute

values for each subject under qualitative or absolute (if  
qualitative) case is shown at quantitative absolute  
at value with qualitative or absolute absolute  
but qualitative absolute with absolute absolute

2017-06-11 10:32 11  
values from [ 0.0 to maximum value in absolute ]

## output

Q)

check if given number (81) is square or not

Square number

number is not a square number

entered

number

is square number finding for

number with other method

check if upper limit = 10000 is reached

and both entered and square number

16(14\*14) is square

(entered) is square or not

ans

[T]  $\rightarrow$  confirmation

confirmation of return value "square" or "not"

confirmation of return value "square" or "not"