1.Write a Python program to calculate the area of a rectangle using user input for length and width.

input

```
# calculating the area of rectangle
length= 500
width= 300
area= length*width
print("area of the rectangle is:",area)
```

Out put

area of the rectangle is: 150000

2.Write a Python program to find the maximum of three numbers using conditional statements

Input

```
# fing the maximum number of three
a, b, c = 10000, 25000, 15000
max = max(a, b, c)
print (f"the maxmimum number is: {max}")
```

Output

the maxmimum number is: 25000

3.Write a Python program to swap the values of two variables without using a temporary variable

input

```
#swapping the 2 varables withot using temporary variable
a=10000
b=15000
a, b = b, a
print (f"after swapping: a= {a} and b= {b}")
```

Output

after swapping: a= 15000 and b= 10000

4.Write a Python program to convert temperature from Celsius to Fahrenheit and vice versa using functions

Input

```
#converting from fahrenheat to celcius and  celcius to fahrenheat
celsius=36.5
fahrenheat = (celsius * 9/5)+32
print (f"temperature in fahrenheat: {fahrenheat}")
fahrenheat=102
celsius= (fahrenheat-32)*5/9
print (f"temperature in celsius: {celsius}")
```

Output
temperature in fahrenheat: 97.7
temperature in celsius: 38.888888888888886

If we use float division then the output won't give desimal numbers it gives the exact value.

5.Write a Python program to count the number of vowels in a given string.
Input

```
# counting the vowels from a string
text = "India is my country , I love indian Army, Jai jawan jai kisan !"
vowels= "aeiouAEIOU"
counting_the_vowels = sum(1 for char in text if char in vowels)
print(f"number of vowels:{counting_the_vowels}")
```

Output

number of vowels:21

9. Write a Python program to remove duplicates from a list
Input

```
# removing the duplicates numbers from the list
lisst =[1,2,3,4,5,4,3,1,5,6,9,10,11,11,15,25,14,2,1]
removing_dupli = list(set(lisst))
print(f"list after removing the dupliucates:{removing_dupli}")
```

Output
list after removing the duplicates:[1, 2, 3, 4, 5, 6, 9, 10, 11, 14, 15, 25]

10. Write a Python program to find the intersection of two lists
Input

```
# intersection between the 2 lists
list1 = ["dog", "cat" , "mouse", "cycle" ]
list2 = ["dog", "rat", "bus", "cycle"]
intersection = list(set(list1)& set(list2))
print(f"intersection of these two words:{intersection}")
```

Output
intersection of these two words:['dog', 'cycle']

11.Write a Python program to find the longest word in a given list of words.

Input

```
# the longest word in the list
words = ["handbag", "mobile phone", "highschool", "hyderabad",
"puropalecreations", "book"]
longest_word = max(words, key=len)  # Ensure 'max' is not redefined elsewhere
```

```
print(f"Longest word: {longest_word}")
```

Output
Longest word: puropalecreations

13. Write a Python program to reverse a given string.
Input

```
# reverse a string
word = "I LOVE INDIA AND I HATE PAKISTAN"
print(f"reversed string: {word[::-1]}")
```

Output'
reversed string: NATSIKAP ETAH I DNA AIDNI EVOL I

15. Write a Python program to find the sum of all elements in a list using a loop
Input

```
# sum of the elements in a list
lst = [1,2,3,4,5,6,7,8,15,34,45,67]
print(f"sum of elements in a list:{sum(lst)}")
```

Output
sum of elements in a list:197

18..Write a Python program to find the common characters between two strings
Input

```
# find the common charactors between the strings
string1 = "mobile"
string2 = "gold chain"
string3 = "camera"
common_charactors = set(string1) & set(string2)
common_charactors2 = set(string2) & set(string3)
print(f"common charactors : {common_charactors}")
print(f"common charactors :{common_charactors2}")
```

Output
common charactors : {'o', 'i', 'l'}
common charactors :{'c', 'a'}

20 .Write a Python program to find the difference between two sets

Input

```
# difference between two sets
set1= {4,5,6,7,8,9}
set2= {7,8,9,10,11,12}
```

```
difference = set1-set2
print(f"defference between two sets: {difference}")
```

Output
difference between two sets: {4, 5, 6}

21. Arithmetic Operators
Create two variables a and b with numeric values.
Calculate the sum, difference, product, and quotient of a and b.
Print the results.
Input

```
# arithmetic operations
a=100
b=20
sum=a+b
diff=a-b
multiply=a*b
div=a/b
floordiv=a//b
mod=a%b
expo=a**b
print(sum)
print(diff)
print(multiply)
print(div)
print(floordiv)
print(mod)
print(expo)
```

Output
120
80
2000
5.0
5
0
100000000000000000000000000000000000000

22. Comparison Operators
Compare the values of a and b using the following comparison operators: <, >, <=, >=, ==, and !=.
Print the results of each comparison.

Input

```
#comparision operators
```

```
x=10
y=5
print (x==y)
print (x!=y)
print (x>y)
print (x<y)
print (x>=y)
print (x<=y)
```

Output
False
True
True
False
True
False

23 ..Logical Operators
Create two boolean variables, x and y.
Use logical operators (and, or, not) to perform various logical operations on x and y.
Print the results.

```
#logical operators
x=8
y=5
print(x>5 and y<10)
print(x>5 or y>10)
print(not (x>6))
```

Output
True
True
False

24.Assignment Operators
Create a variable total and initialize it to 10.
Use assignment operators (+=, -=, *=, /=) to update the value of total.
Print the final value of total.

```
#assignmnet operators
x=20
total += 5
total -= 3
total /= 4
total *= 5
```

```
total //= 7
print("Final value of total:", total)
```

Output
Final value of total: 2.0

26: Identity and Membership Operators
Create a list my_list containing a few elements.
Use identity operators (is and is not) to check if two variables are the same object.
Use membership operators (in and not in) to check if an element is present in my_list.
Print the results.

Input

```
#identity operators
a=[6,7,8,9,0]
b=a
c=[6,7,8,9,0]
print (a is b)
print (a is not c)
print (a==c)
```

Output
True
True
True

Input

```
# membership operators
text = "puropale creations"
print("a" in text)
print("z" not in text)
```

Output
True
True