Bridge Course
Python Worksheet 1

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2.Given the following assignments:
i1 = 2
i2 = 5
i3 = -3
Evaluate each of the following Python expressions.
(a) i1 * i2
(b) i1 / i2
(c) i1 // i2
(d) i2 / i1
(e) i2 // i1
(f) i1 i3**

```python
i1 = 2
i2 = 5
i3 = -3

a = i1 * i2
b = i1 / i2
c = i1 // i2
d = i2 / i1
e = i2 // i1
f = i1 ** i3

print("Answers -> ", a,b,c,d,e,f)
```

3.Given the following definition: b1, b2, b3, b4 = true, false, x == 3, y < 3
Evaluate the following Boolean expressions:
i.
not b4ii. b1 and b2
iii. not b1 or b2 or b3
iv. b1 and b2 or b3
v. not b1 or not b2 or not b3

```python
b1 = True
b2 = False
b3 = True
b4 = False
```

```
a = not b4
b = b1 and b2
c = not b1 or b2 or b3
d = b1 and b2 or b3
e = not b1 or not b2 or not b3



print(a,b,c,d,e)
```

4. Give the output of the following if num1 = 8, num2 = 6, num3 = 4
a) num1 += num2 + num3 print (num1)
b) num1 = num1 ** (num2 + num3) print (num1)
c) num1 **= num2 + num3
d) num1 = '5' + '5' print(num1)
e) print(4.00/(2.0+2.0))
f) num1 = 2+9*((3*12)-8)/10 print(num1)
g) num1 = 24 // 4 // 2 print(num1)
h) num1 = float(10) print (num1)
i) num1 = int('3.14') print (num1)
j) print('Bye' == 'BYE')
k) print(10 != 9 and 20 >= 20)
l) print(10 + 6 * 2 ** 2 != 9//4 -3 and 29 >= 29/9)
m) print(5 % 10 + 10 < 50 and 29 <= 29)
n) print((0 < 6) or (not(10 == 6) and (10<0)))

```
num1 = 8
num2 = 6
num3 = 4


num1 += num2 + num2
print(num1)


num1 = num1 ** (num2 + num3)
print(num1)


num1 **= num2+num3
print(num1)


print(4.00 / (2.0+2.0))


num1 = 2+9*((3*12)-8)/10
print(num1)
```

```
num1 = 24 // 4 //2
print(num1)

num1 = float(10)
print(num1)

#num1 = int('3.14') #ValueError: invalid literal for int() with base
10: '3.14'
num1 = int(3.14)
print(num1)

print("BYE" == "bye")
print(10 != 9 and 20 >= 20)
print(10 + 6 * 2**2 != 9//4 - 3 and 29 >= 29/9)

print(5%10+10 < 50 and 29 <= 29)
print((0 < 6) or (not(10==6)) and (10 < 0) )
```

5. Express the value 0.00000000000000000000000000449 as a Python literal

```
print(4.49e-26)
print(f"{4.49e-26:.28f}")
```

6. Express the value 56992341200000000000000000000000000000 as a Python Literal.

```
print(5.69923412e37)
print(f"{5.69923412e+37:.0f}")
```

7. Add a pair of parentheses to each expression so that it evaluates to True.
a) 0 == 1 == 2
b) 2 + 3 == 4 + 5 == 7
c) 1 < -1 == 3 > 4

```
# a = 0 == 1 == 2
a = 0 == (1 == 2)
print(a)

#b = 2 + 3 == 4 + 5 == 7
b = 2 + (3 == 4) + 5 == 7
print(b)

#c =1 < -1 == 3 > 4
```

```
c = (1 < -1) == (3 > 4)
print(c)
```

8. A dartboard of radius 10 and the wall it is hanging on are represented using the two-dimensional coordinate system, with the board's center at coordinate (0, 0). Variables x and y store the x- and y-coordinate of a dart hit. Write an expression using variables x and y that evaluates to true if the dart hits (is within) the dartboard, and evaluate the expression for these dart coordinates: (0,0) (10,10) (6,-6) (-7,8)

```
radius = float(input("Enter radius : "))

x = int(input("Enter x coordinate : "))
y = int(input("Enter y coordinate : "))

if(x < radius and x > -radius) and (y < radius and y > -radius):
    print("It hit the DART!")
else:
    print("It NOT hit the dart")
```

9. The school decided to replace the desks in three classrooms. Two students can sit at each desk.. Given the number of students in each class, print the smallest possible number of desks that can be purchased. The program should read three integers: the number of students in each of the three classes, a, b and c respectively

```
a = int(input("No of students in A : "))
b = int(input("No of students in B : "))
c = int(input("No of students in C : "))

total_students = a + b + c

needed_desk = round(total_students / 2)

print("Total needed desk -> ", needed_desk)
```

10. N students take K apples and distribute them among each other evenly. The remaining (the undivisible) part remains in the basket. How many apples will each single student get? How many apples will remain in the basket?

```
students = int(input("Enter number of students : "))
```

```
apples = int(input("Enter number of apples : "))
equal_dis = apples // students
remainings = apples % students
print("Distributed for each -> ", equal_dis)
print("Remaing apples -> ", remainings)
```

11. Given an integer number, print its tens digit. Input: 1745 Output : 4

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

if(num > 9 or num < -9):
    after_removing_last_digit = num // 10
    last_digit = after_removing_last_digit % 10

    print("10s digit is", last_digit)
else:
    print("Type minimum 2 digit numbers")
```

12. Given a positive real number, print its fractional part. Input : 10.93 Output : 0.93

```
num = float(input("Enter a float number : "))

real_num = float(int(num))

round(num,3)

ans = round(num - real_num,3)
print(ans)
```

13. Given a positive real number, print its first digit to the right of the decimal point. Input : 10.9345 Output : 9

```
num = float(input("Enter float real number : "))
decimal_part = num - int(num)
first_digit = decimal_part * 10
print("Frist digit of decimal -> ", int(first_digit))
```

14. Given the integer N - the number of minutes that is passed since midnight - how many hours and minutes are displayed on the 24h digital clock?The program should print two numbers: the number of hours (between 0 and 23) and the number of minutes (between 0 and 59).For example, if N = 150, then 150 minutes have passed since midnight - i.e. now is 2:30 am. So the program should print 2 30.

```python
N = int(input("Number of Minutes : "))

if(N < 1440):
    num_of_hrs = N // 60
    num_of_mins = N % 60
    print("Time is :", num_of_hrs ,num_of_mins)
else:
    print("Above 24HRS")
```

15. Write a Python program that accepts an integer (n) and computes the value of n+nn+nnn.

```python
n = int(input("Enter num : "))
print(n + (n**2) + (n**3))
times_to_run = int(input("How many times to run : ")) #5 - > n^1, n^2,
n^3, n^4,n^5
start = 1
ans = 0
while(start <= times_to_run):
    ans += n**start
    start += 1

print("Answer : ", ans)
```

16. Write a Python program to solve (x + y) * (x + y).
Input : x = 4, y = 3
Output : (4 + 3) ^ 2) = 49

```python
x = int(input("Enter x : "))
y = int (input("Enter Y : "))
ans = (x+y) ** 2
print(ans)
```

17. Write a Python program to compute the distance between the points (x1, y1) and (x2, y2)

```python
x1 = int(input("Enter x1: "))
x2 = int(input("Enter x2: "))
y1 = int(input("Enter y1: "))
y2 = int(input("Enter y2: "))


distance = ((x2 - x1)**2 + (y2 - y1)**2)**0.5


print("Distance between points:", distance)
```

18. Write a program to swap two numbers.

```python
num1 = int(input("Enter num1 ; "))
num2 = int(input("Enter num2 : "))


print("Before swap -")
print("N1 : ",num1 , "N2 : ",num2)


num1,num2 = num2, num1


print("After swap -")
print("N1 : ",num1 , "N2 : ",num2)


'''
temp = num1
num1 = num2
num2 = temp
'''
```