

**PSG COLLEGE OF TECHNOLOGY**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**PYTHON PROGRAMMING**

1. Write the output of the following expressions (execute in python interactive mode)

float(22//3+3/3)	print( 9 //2)	print( 4.5 % 2)
8/4/2, 8/(4/2)	print ( 7 not in range(7))	print ( 2 ** 3)
2**(3**2) , 2**3**2	print( " hello"[3])	print ( 2== 3)
40/8 , 40//8 , 40%8	print("hello[ 0: : 2])	print( 2 is 3)
x = int(43.55+2/2)	print( 2 < 5 > 8)	bin(10-2)+bin(12^4)
a=5; b=5 ; print(id(a)); print(id(b))	a=5; b=5.6 ; print(type(b))	A=[1,2,3] ; print(2 in A)
Evaluate the expression given below if A = 16 and B = 15. S= A % B // A	print( 'Hai'*8)	x = True print(type(x))
print( 0.1 + 0.2 == 0.3)	print(bool('False'))	print(bool())
y=input('Enter number') print(20+y)	Correct the error n1='78' n2=12.56 s=n1+n2 print(s)	<u>Bitwise operators</u> a =12 , b = 8 Find : a & b a   b a ^ b ~a a>>3 ; a<<3
print(format("python","<10")) print(format("python",">10"))	print(format(245,'b')) print(format(15,'x')) print(format(9,'o'))	
S=3*4/2+2/2+6-4+4/2	G=(x+y-abs(x-y))/2, when X=4 and y=6	l=5 ; k=15 print(k%i<k/i)
p=int(True) q=int(False) print(p,q)	print('The sum of {0:b} and {1:x} is {2:o}'.format(2, 10, 12)) x = 10.0 y = (x < 100.0) and isinstance(x, float) print(y)	

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

3. Given the following definition: b1, b2, b3, b4 = true, false, x == 3, y < 3

Evaluate the following Boolean expressions:

i. not b4

- ii. 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
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)))
5. Express the value 0.000000000000000000000000449 as a Python literal
6. Express the value 569923412000000000000000000000000000000000000000 as a Python literal.
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

#### **Implement the following programs in script mode**

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)
9. The school decided to replace the desks in three classrooms. Two students can sit in 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.

Input	Output
20	32
21	
22	

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?

Input	Output
6	8
50	2

11. Given an integer number, print its tens digit.

Input	Output
1745	4

12. Given a positive real number, print its fractional part.

Input	Output
10.93	0.93

13. Given a positive real number, print its first digit to the right of the decimal point.

Input	Output
10.9345	9

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.

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

16. Write a Python program to solve  $(x + y) * (x + y)$ .

Input :  $x = 4, y = 3$

Output :  $(4 + 3) ^ 2 = 49$

17. Write a Python program to compute the distance between the points  $(x_1, y_1)$  and  $(x_2, y_2)$

18. Write a program to swap two numbers.
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