Python Homework 5

In the following multiple choice questions, please circle the correct output of Python code.

1.
```
for num1 in range(0,3,1):
    for num2 in range(num1, 3, 1):
        print(num1+num2)
```
(a) 0 1 2 2 3 4 (b) 1 2 3 2 3 4 (c) 0 1 2 1 2 3 (d) 0 1 2 0 1 2 (e) 0 1 2 0 2 4

2.
```
nums=[1,2,3,4,5]
idx=[0,4]
temp=nums[idx[0]]
nums[idx[0]]=nums[idx[1]]
nums[idx[1]]=temp
print(nums)
```
(a) [1,2,3,4,5] (b) [5,4,3,2,1] (c) [5,2,3,4,1] (d) [1,3,5,2,4] (e) [4,2,3,1,5]

3.
```
nums=[1,2,3,4,5,6,7,8,9]
idx=[0,1,0,2,0,6]
sum=0
for i in range(0,len(idx)):
    sum=sum+nums[idx[i]]
print(sum)
```
(a) 12 (b) 13 (c) 14 (d) 15 (e) 16

4.
```
nums=[1,3,5,3,2,6,2,1,3]
count = 0
for i in range(0,len(nums)):
    for j in range(0,len(nums)):
        if (nums[i]==nums[j]):
            count=count+1
print(count)
```
(a) 15 (b) 16 (c) 17 (d) 18 (e) 19

5.
```
nums1=[1,3,5,3,2,6,2,1,3]
nums2=[1,2,3]
count = [0,0,0]
for i in range(0,len(nums2)):
    for j in range(0,len(nums1)):
        if (nums2[i]==nums1[j]):
            count[i]=count[i]+1
print(count)
```
(a) [1,2,3] (b) [2,2,3] (c) [3,2,1] (d) [3,2,2] (e) [3,2,3]

Coding question 1: Make a function remove_dup(nums) to remove any duplicated values from the list. Test your function with remove_dup([1,3,6,4,3,2,5,4,2,1,2], and answer should be [1,3,6,4,2,5] You may use find_idx function we made from last class to check if a value is in a list.

```
def find_idx(nums, num):
    for i in range(len(nums)):
        if nums[i]==num:
            return i
    return -1
```

Coding question 2: Make a function get_distance(x1,y1,x2,y2) to calculate distance between 2 points (x1, y1) and (x2,y2). Please ignore this question if you do not know what is square root. The equation to calculate distance is

In Python to calculate square root, first you need to import math library,

```
from math import sqrt
```

Then you can calculate square root of any number with function sqrt.

Test your function with get_distance(0,0,3,4) and result should be 5.

Coding question 3: Make a function inside_circle(center_x, center_y, radius, x, y). Here point (center_x, center_y) is the center of a circle. Radius is the radius of the circle. (x,y) is another point. If the point is inside the circle, return 1. If the point is edge of the circle, return 0. If the point is outside of the circle, return -1. Test the function with inside_circle(3,3,5,4,4), and result should be 1. Test the function with inside_circle(3,3,5,7,6), and result should be 0. Test the function with inside_circle(3,3,5,8,8), and result should be -1. You can ignore this question if you do not have enough geometry knowledge.