# Feedback — Quiz 4b

Help Center

Thank you. Your submission for this quiz was received.

You submitted this quiz on Thu 11 Feb 2016 4:55 AM PST. You got a score of 95.00 out of 100.00. You can attempt again, if you'd like.

uestion 1		
Python, [1, 2, 3] is of ty	pe list. What is the name of t	he type of (1, 2, 3)?
Your Answer	Score	Explanation
Array		
Pair		
Tuple	<b>✓</b> 10.00	
Triple		
Set		
otal	10.00 / 10.00	

# Question 2

Which of the following types of data are immutable in Python?

Your Answer		Score	Explanation
✓ Booleans	<b>~</b>	2.00	
Strings	<b>~</b>	2.00	
✓ Numbers	<b>~</b>	2.00	
✓ Tuples	<b>~</b>	2.00	
Lists	<b>~</b>	2.00	

Total 10.00 / 10.00

# Question 3

Which of the following functions must include a global point declaration in order to change the global variable point?

```
point = [0, 0]

def function1():
    point[0] += 1
    point[1] += 2

def function2():
    point = [50, 50]
```

Your Answer		Score	Explanation
function2	<b>~</b>	5.00	
function1	~	5.00	
Total		10.00 / 10.00	

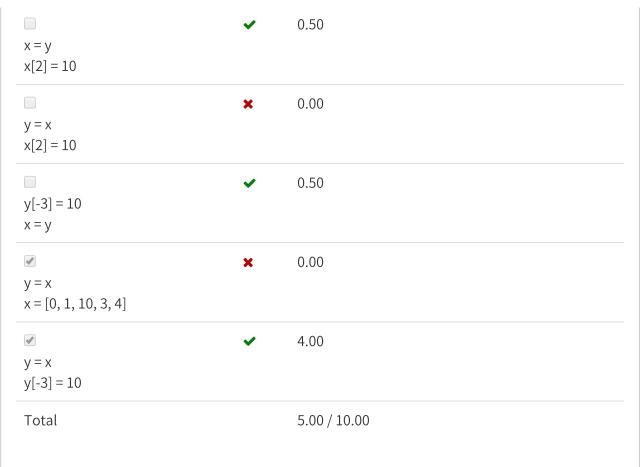
# Question 4

Consider the following program.

```
x = range(5)
???
???
```

We can replace the question marks with what two statements to make both variables have the value [0, 1, 10, 3, 4]?

Your Answer		Score	Explanation
<b>⊘</b>	×	0.00	
y = x y = [0, 1, 10, 3, 4]			



## Question 5

In our program, the variable position represents a 2D position on the canvas. We want to be able to change the position by some amount in variable delta. Why is the following code snippet incorrect?

```
position = [50, 50]

delta = [1, -2]

...

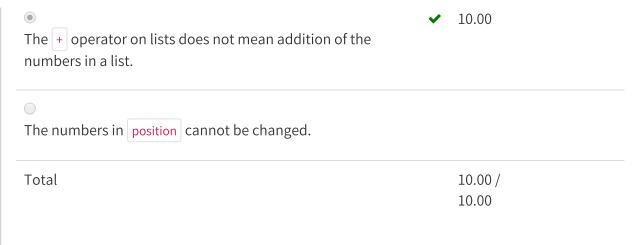
position = position + delta
```

Note that the ellipses represent that we might have code in between what is shown, but such code is irrelevant and omitted.

Your Answer

One of the elements of delta is negative.

Lists do not support the + operator.



### Question 6

Consider the following program.

```
a = ["green", "blue", "white", "black"]
b = a
c = list(a)
d = c
a[3] = "red"
c[2] = a[1]
b = a[1:3]
b[1] = c[2]
```

At the end of this code, to how many list objects do the variables refer?

If you run the code and print the variables' values, you can begin to answer this question. After all, if two variables print differently, they certainly can't refer to the same object. However, if two variables print the same, you still need to determine whether they refer to the same object. One way is to step through the code while drawing reference diagrams. Another is to mutate one and see if others also mutate.

Your Answer		Score	Explanation
Tour Answer			Ехріанаціон
○ 4 — The four variables each refer to different lists.			
• 3	<b>~</b>	10.00	
○ 2			
$\bigcirc$ 1 — The four variables each refer to the same list.			
Total		10.00 / 10.00	

### Question 7

Convert the following specification into code. Do the point and rectangle ever overlap?

A point starts at [10, 20]. It repeatedly changes position by [3, 0.7] — e.g., under button or timer control. Meanwhile, a rectangle stays in place. Its corners are at [50, 50] (upper left), [180, 50] (upper right), [180, 140] (lower right), and [50, 140] (lower left).

To check for overlap, i.e., collision, just run your code and check visually. You do *not* need to implement a point-rectangle collision test. However, we encourage you to think about how you would implement such a test.

Your Answer		Score	Explanation
Yes	~	10.00	
O No			
Total		10.00 / 10.00	

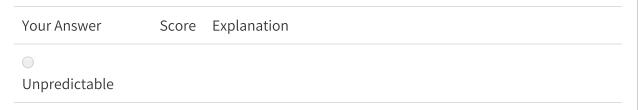
### Question 8

Assume we are using acceleration control for a spaceship in a game. That is, we regularly have the following updates:

- The position is incremented by the time interval multiplied by the velocity. This happens on each draw event.
- The velocity is incremented by the time interval multiplied by the acceleration. This happens on each draw event.
- The acceleration is periodically incremented by some fixed vector (the same vector for each step). This could happen on keyboard or timer events.

Assume that, initially, the ship is stationary and subject to no acceleration. What sort of trajectory will the spaceship fly in?

Either figure this out mathematically, or implement it in CodeSkulptor and see what happens.



○ A non- linear, smooth curve		
<ul><li>A straight line</li></ul>	<b>✓</b> 10.00	Since the change to acceleration is a fixed vector, both the acceleration and velocity will always be a multiple of this fixed vector. Therefore, the trajectory of the ship will follow a straight line in the direction of the fixed vector.
Total	10.00 / 10.00	

#### **Question Explanation**

Remember that the ship starts at rest with no initial acceleration. If the ship can accelerate in only one direction, what is its trajectory?

## Question 9

Write a Python program that initializes a global variable to 5. The keydown event handler updates this global variable by doubling it, while the keyup event handler updates it by decrementing it by 3.

What is the value of the global variable after 12 separate key presses, i.e., pressing and releasing one key at a time, and repeating this 12 times in total?

To test your code, the global variable's value should be 35 after 4 key presses.

You entered:

8195				
Your Answer		Score	Explanation	
8195	<b>~</b>	20.00		
Total		20.00 / 20.00		