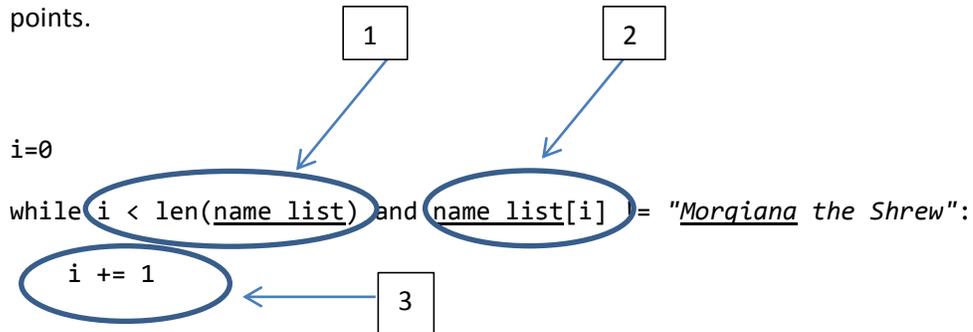


Name: _____

1. (4 pts) Explain what each of the following numbered items does in the linear search. Explain the concept in relation to the linear search, e.g. saying that $i += 1$ adds one to i will not give you any points.



- 1.
 - 2.
 - 3.
2. (1 pt) In the linear search above, explain or show how to tell if the element was found or not.
3. (1 pt) If a list has 300 elements, in the best case how many elements would the computer need to check before it found the desired element using the linear search?
4. (1 pt) If a list has 500 elements, in the worst case how many elements would the computer need to check before it found the desired element using the linear search?
5. (1 pt) If a list has 150 elements, how many elements need to be checked to determine that the desired element does not exist in the list using the linear search?

Given the following grid of numbers:

	0	1	2	3	4
0	0	0	0	5	0
1	0	0	0	0	0
2	0	1	0	0	0
3	0	0	0	0	2
4	0	0	0	0	0

11. (1 pt) Write the code that would print the cell that contains the number 5

12. (1 pt) Write code that would set the cell that contains a 1, to the number 3 instead.

13. (1 pt) Write code that would set each cell to the number 5.

14. (2 pts) Explain 2 points about the following line of code:

```
class Customer(Person):
```

15. (2 pts) Explain 2 points about the following code:

```
def __init__(self):  
    Customer.__init__(self)
```

16. (1 pt) How does a programmer create his/her own library file in Python?

17. (3 pts) Write a function that takes two numbers and returns True if they are less than 10 of each other. For example, 10 and 15 would return True, because they are 5 apart. 20 and 40 would return False. 10 and 20 would return False, because while they are within 10, they are not less than 10. Do not assume the smallest number will be given first.

18. (4 pts) Write code for a function that will take in an array and set each element to zero.

19. (4 pts) Write code that creates a class called Ball. Give it one attribute and one method.

20. (3 pts) Write code that creates an instance of Ball. Set the attribute and call the method.