Quiz Worksheet - Week 1

Name: _____

(3 points each, 30 points total)

1. What is the **Optimal Stopping** rule? Briefly describe the algorithm presented in the book and discussed in class.

2. Give 3 examples of real-world problems where we might use optimal stopping?

3. What are the examples of **Big-O notation** using the *n* dinner party guests discussed in the book?
    a. Constant time, O(1):
    b. Linear time, O(n):
    c. Quadratic time, $O(n^2)$:

4. Name two **inefficient sorting algorithms** described in the book?

5. What is the Big-O running time of the **Mergesort** algorithm?

6. Briefly describe the trade-off between **sorting and searching**?

7. Name two types of **sorting algorithms used in sports**? Bonus points if you can name all three.

8. What are the two types of **control flow** we discussed in class? What Python code elements do they each correspond to?

9. What is the difference between a **list** and a **dictionary** in Python?

10. Give an example of optimal stopping and an example of sorting that you used in your day-to-day life recently?

[5 BONUS POINTS]

11. Write pseudo-code or give a **high-level algorithm** to calculate the **median** of a list of 10 random numbers. Example list: [24, 89, 12, 73, 92, 17, 35, 56, 63, 44]