Computer Science 1	Exercises 13.01-02	Date:
Name:		Period:

1. What is a *Simple Data Type*?

2. What is a *data structure*?

3. What is an *array*?

4. A 1-D array is frequently also called a _____ and a 2-D array is frequently also called a _____.

5. If you need to store several pieces of data for many people, and you create one array for their names, another array for their addresses, another for their birthdates, another for their social security numbers, etc. What kind of arrays have you created?

6. What is a *record*?

7. What is a *file*?

8. The *indexes* of the individual items in an array are <u>always</u> _____.

For questions 9 through 12, assume this array already exists in your program:

```
ages = [21,19,18,22,17,20,16,13,15]
```

9. Write the Python code necessary to display the very first number in the array.

10. Write the Python code necessary to display the very last number in the array.

11. Write the Python code necessary to display the **17**.

12. Write the Python code necessary to display the **16**.

13. What does it mean to "traverse an array?"

14. What control structure is ideal for traversing an array?

15. Compare programs **ArraySyntax04.py** and **ArraySyntax05.py**. Both programs display the contents of the **names** array. Why does the book say that the second program is more "flexible?"

16. Look at programs **ArraySyntax06.py** and **ArraySyntax07.py**. Why do both of these programs crash?

17. What is the difference between a *list* and an *array*?

18. Write the code necessary to create an array called **numbers** that will store **1000** zeros.

19. The **+** operator and the **+=** operator can both add numbers and concatenate strings. What can they do for arrays?

20. In the context of Python arrays, what is a *slice*?

21. Look at program **ArraySyntax13.py** and its output.
Explain how you would change this program so that is will display the following:
`[102, 103, 104, 105, 106, 107, 108]`

22. When "slicing" arrays in Python, what happens if you leave out the first number?
(Hint: Look at program **ArraySyntax14.py**.)

23. When "slicing" arrays in Python, what happens if you leave out the second number?
(Hint: Look at program **ArraySyntax15.py**.)

24. When "slicing" arrays in Python, what happens if the second number is way to big?
(Hint: Look at program **ArraySyntax15.py** again.)

25. Look at programs **ArraySyntax12.py** which was originally program **GraphicsLibrary20.py** from Chapter 6. Where are the "Hidden Arrays" in this program?