Answer Key

Chapter 3 Review Questions

1. The text, or code, in a program is governed by very rigid rules of Java syntax
2. A compiler will catch most syntax errors, and will provide error messages that may describe what is wrong with the code.
3. Once the code is checked for errors, it may still contain a bug that creates an undesirable result in the program's output or behavior.
4. The style of a program makes it more readable, but is technically optional.
5. It is a good idea to start the source code of each Java class with a comment that briefly describes the purpose of the class or program.
6. import statements tell the compiler where to look for other classes used by the current class.
7. What keyword allows methods and classes to be visible and accessible to other classes? public
8. With regards to style, all class names should start with a capital letter, and all variable and method names should start with a lower case letter.
9. List examples of two different types of comments in Java:

```
/* multi-line comments
 * exist on multiple lines
 */
```

```
// single lines are on one line
```

10. Write an example of a Javadoc comment in a program:

```
/** A Javadoc comment is multi-lined and starts with
 *  two asterisks */
```

11. Java keywords are reserved words in a program that must not be used for naming classes, methods, or variables.
12. List three keywords for data types found in a program:
    int, double, boolean
13. There are a couple syntax rules you must follow when naming variables, methods, and classes. What are they?
    - variable names cannot start with a digit
    - variable names cannot contain a space
    - variable names must not be keywords
14. Constants in a program are data values that will never change. How should these be named (stylistically)? with all caps!

```
double PIE = 3.14;
```

15. Think about types of words found in the English language. Names of classes and objects usually sound like nouns, and names of methods often sound like verbs.

16. Declarations and statements in Java are terminated with a semicolon.

17. What symbols will group statements into blocks of code? braces or curly brackets

18. When a block of code is contained within another block of code, it is considered to be nested

Describing String Methods

Outputs of the `length()`, `substring()`, and `indexOf()` methods

You have declared and initialized a String variable, identified as studentID, which contains the data in the line below. Use problems #1-8 to evaluate what you think each method does with the data.

```
String studentID = "Cookie Monster";
```
(0 1 2 3 4 5 6 7 8 9 10 11 12 13)

Line #	Method Call	Return Value
1.	`studentID.substring(1, 6)`	`ookie` ← no space is included here!
2.	`studentID.substring(9)`	`nster` starts at index 9 and takes the remaing characters
3.	`studentID.length()`	14 → # of characters
4.	`studentID.indexOf("Mon")`	7 → index of first letter in the string in the argument
5.	`studentID.indexOf("o")`	1 ← index of "o"
6.	`studentID.indexOf("ook")`	1 ← index of first letter in "ook"
7.	`studentID.indexOf(4, "o")` ← starts searching after index 4	8 ← first index of "o" after index 4 in "Cookie Monster"
8.	`studentID.substring(20)` ↑ 20 does not exist as an index in the string "Cookie Monster"	`Index Out of Bounds Error`