Lab 2 - Variable Definitions

A. Declare a variable for each of the following using the Java naming conventions and a descriptive identifier. The first one is shown as an example.

1. short numPeople = 3; // number of people
2. _____ = 32.32; // price of an item
3. _____ = false; // value of a boolean flag
4. _____ = 'a'; // character data value
5. _____ = 207; // class room number
6. _____ = 30.0; // price of dinner
7. _____ = 990123456789; // a rather long number
8. _____ = 177609; // not quite as long of a number

B. Initialize the value of each of the following variables. Be sure to use a valid value for the data type as demonstrated in the first one.

1. int count = 42 ;
2. double total = _____
3. char stopKey = _____
4. boolean stopFlag = _____
5. float temperatureReading = _____
6. byte numPets = _____
7. short littleNum = _____
8. long reallyBigNumber = _____

C. How is a constant created in Java? _____

What happens if you try to assign a value to a constant?

_____

D. Write a program called `VariableDefinitions.java` that contains a main method. Inside the main method, complete each of the following steps:
   - Write an output statement using `System.out.println()` that displays your name and course section number. Remember that the string literal must be placed inside the parenthesis of the output statement and the characters must be enclosed in double quotes.
   - Declare and initialize each of the variables in part A and part B. Save and compile your program, correcting any compilation errors before continuing each step.

```
int numPeople = 42;         // initial declaration of numPeople variable
```

   - Add statements to print out the name of each variable and its value from Part A. Compile and execute your program.

```
System.out.println("The numPeople variable has a value of " + numPeople);
```

   - Modify the value of each variable from Part A with another assignment statement. Compile and run your program.

```
numPeople = 6;              // modified value of the numPeople variable
```

   - Add code to print out the names of the variables and their new values, compile and run your program. For example:

```
System.out.println("The numPeople variable has a value of " + numPeople);
```

E. Next, write statements to declare and initialize eight constants, one for each of the primitive types in Java. Add statements to print the name of the constant and its value to your `VariableDefinitions.java` program and compile the program.

   Comment out the lines of code that cause compilation errors but do not delete them and recompile your program.

F. Download the program `Expressions.java`. Each invocation of `println` outputs the result of an arithmetic expression. The first two `println` commands are followed by comments that describe the operations that occur in each expression. Before compiling the program add a comment after each `println` statement that thoroughly **describes all the arithmetic operations that occur when evaluating the expression that is printed and include the expected result that would be displayed.**
Compile and execute the program. Verify that the actual results match the expected results in the comments. Be certain that any discrepancies are corrected and that you thoroughly understand how the arithmetic expressions are evaluated.

G. Upload the source code files for both of your completed programs,

   `VariableDefinitions.java` and `Expressions.java`.