Programming Assignment 2: Five Expressions
Total Points (50 pts) - Due Monday, October 5th at 11:59 PM

The second programming assignment is intended to demonstrate your knowledge of the following:

- Compiling and running a Java program
- Performing input and output of data
- Performing a simple calculation using primitive data types and numeric operators
- Using variables to store results of a computation into memory
- Writing arithmetic expressions to accomplish a task

Five Expressions

You will create two *int* variables into which you will store

- Your Foothill College *student ID*. (This is normally an 8-digit number; don't confuse it with your social security # or a password, which it is not.)
- The number of letters in your *first name*. (Example: My name is Hanan Ibrahim, so my first name is Hanan which has 5 letters.)

Your program will compute some values based on these two numbers, so each student will have a unique output.

The Program Spec

The following five expressions assume that you have stored your student ID into the variable *myId* and the number of letters in your *first* (*not* your family) name into the variable *numLet*. You can manually enter both of these using *assignment statements* in your program source. No user input allowed.

Write a program that computes and displays the following five values.

$$\#1: \quad myId \ \% \ 17$$

$$\#2: \quad (numLet + 17) \ \% \ 11$$

$$\#3: \quad \frac{myId}{numLet + 800.}$$

$$\#4: \quad 1 + 2 + 3 + \ldots + numLet$$

$$\#5: \quad \frac{15{,}000.}{80. + \left[\frac{myId - 123{,}456.}{(numLet + 20.)^2}\right]}$$

CLASS NAME. Your program class should be called *FiveExpressions.java*

Your run should look something like this (although the values will differ for each student):

Sample run:

```
My first name is Hanan
My Student ID is 22222222
The number of characters in my first name is 5

Expression #1 --> 9

Expression #2 --> 0

Expression #3 --> 27605.244720496896

Expression #4 --> 15


Expression #5 --> 0.4232741453857971
```

Your exact output doesn't have to look like mine. The first part, "Expression #N -->" can be the actual expression or some other wording. Note that the first three lines are output from your program, not added after the run. This should all be done in one run of a single program, not several runs.

Here are some tips and **REQUIREMENTS**:

- Don't limit the precision of the expected double output in any way. We want to see as many decimal places for the double results as possible.
- The "..." is called an "ellipsis" and means "and so forth." So, in expression **#4** if your ***numLet*** is 8, the expression **1 + 2 + ... +** ***numLet*** really means 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8. Since we have not covered loops, just use this latter expression to compute result in expression **#4**.
- Remember that long source code lines (> 80 chars) are illegal according to the style rules.
- Only one run, please, which means you must produce all **five** answers in your program in a single source file.
- Use as few variables as possible. You can, for example, use one **intResult** variable for the three int expressions and a second **doubleResult** variable for the two double expressions. However, don't use five separate result variables.
- As you see in the sample run, the first thing your program needs to do is print out your **first name**, your ***student ID***, and the **number of characters**. (If there is a **dash**, **-**, in your first name, list that and count it.)
- Do not use any power or exponential methods to compute **#5**. First, we haven't had that yet, and second, it is inefficient to use a **pow()** method to compute small integral powers likes squares or cubes. Instead, use multiplication to compute the power(s) you need.

Submission Instructions

- Execute the program and copy/paste the output that is produced by your program into the bottom of the source code file, making it into a comment. I will run the programs myself to see the output.
- Make sure the run "matches" your source. If the run you submit could not have come from the source you submit, it will be graded as if you did not hand in a run.
- Use the Assignment Submission link to submit the source code file.
- Submit the following file:
    - FiveExpressions.java
- Do not submit **.class** files.

Standard program header

Each programming assignment should have the following header, with italicized text, appropriately replaced.

```
/*
 * Class: CS1A
* Description: (Give a brief description of Assignment 1)
 * Due date:
 * Name: (your name)
 * File name: FiveExpressions.java
*/
```