CS2102 B2006 Exam #1A NAME _____

Q1. [15 points] This question tests your basic knowledge of the **while** statement. Show the console output, line by line, on the right.

```
String s = "Special";
int x=5;
while (x > 0) {
  System.out.println (s.charAt (x));
  x = (x*2)/3;
}
```

Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
Line 7
Line 8
Line 9
Line 10

Q2. [25 points] Please circle either TRUE or FALSE for each statement.

[5 pts]. The reason why a **return** statement cannot be used within the main method of a Java program is because that method is declared **static**.	TRUE	FALSE

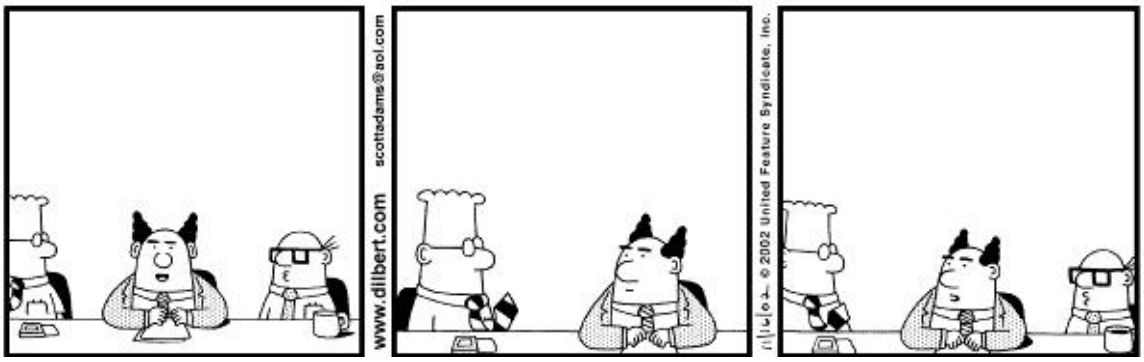
[5 pts]. The following code fragment outputs nothing to the screen.
 	
`for (int i = 0; i < 10; i++) {`
`  if (i == 10) {`
`  System.out.println (i);`
`  }`
`}`
	TRUE	FALSE

[5 pts]. The only purpose of the **new** operator is to create new arrays.	TRUE	FALSE
[5 pts]. A method can have multiple **return** statements in its body, but it can have only a single return type.	TRUE	FALSE
[5 pts]. Given **int** variables *x* and *y* whose values are > 0, the value of *x*y* is always greater than *x*.	TRUE	FALSE

Q3. [20 points] There are five logical errors in the following code that compiles successfully. The code is supposed to read in two numbers and then print them out in increasing order. Instead, an `InputMismatchException` is thrown when run.

```
package exam;
import java.util.Scanner;
public class QuestionThree {
   /** Read two values from console and output in increasing order. */
   public static void main (String[] args) {
      System.out.println ("Enter two numbers, separated by a space.");
      Scanner sc = new Scanner ("console");

      int ar[] = new int [2];
      int x = sc.nextInt();
      int y = sc.nextInt();

      // if second number is smaller, then swap.
      if (y < x) {
         int t = y;
         x = y;
         y = t;
      }

      ar [1] = x;
      ar [2] = y;
      int i = 1;
      if (i < ar.length) {
         System.out.println (ar[i]);

         i++;   // ADVANCE
      }
   }
}
```

Q4. [2 points] Fill in this Dilbert cartoon. Extra points if I fall out of my chair laughing.



Q5. [6 pts.] You find the following code fragment. Identify the method's parameter list and the argument list used when the method is invoked. What is the relationship between the argument list and the parameter list?

```
public class Sample {
   public static int power (int b, int exp) {
      // something inside here
   }
   public static void main (String[] args) {
      int x = power (3, 4);
   }
}
```

Q6. [15 pts.] Write a Java method *isDivisibleByFive* that takes a String value composed only of digits '0' through '9' and returns a **boolean** value that determines if the String represents a number divisible by 5. Do not provide documentation.

Q7 [**6 pts.**] What is the meaning of the following statement, where `s` is a variable of type String.

```
s = null;
```

Q8 [13 pts.] You are given an array of **int** values *ar* that records the U.S. population from 1900 to 2006. Write a method that calculates the number of times that the population growth in a single year exceeded 5%.