Practice Test

Determine the value of $mystery$ after running the following code segments by hand:

1.

```
String word = "programming";
int length = word.length();
boolean isLong = length > 8;
char firstChar = word.charAt(0);
boolean startsWithA = (firstChar == 'a');
boolean mystery = (isLong && startsWithA);
```

2.

```
int a = 15;
int b = 4;
String mystery = "";

if (a % b == 3)
{
    if (a < 10)
    {
        mystery = "first";
    }
    else
    {
        mystery = "second";
    }
}
else if (b < 5)
{
    mystery = "third";
}
else
{
    mystery = "fourth";
}
```

3.

```
String word = "programming";
int length = word.length();
String mystery1 = word.substring(length / 3);
int index = word.indexOf("m");
String mystery2 = word.substring(index - 1, index);
String mystery3 = mystery1.substring(index);
String mystery = mystery1 + mystery2 + mystery3;
```

Write programs in Java to solve the following problems.

1. You are studying for an upcoming test. If you don't study enough for the test, you will do poorly. If you study too much, you'll get tired, and then do poorly. In fact, how well you do on the test corresponds to the piecewise function x:

$$x \quad x \quad x \quad x \quad x \quad x \quad x$$

Write a computer program that declares and initializes an integer x representing how long you will study for an upcoming test. Then, using the formula above, print out a prediction for your score on the test.

2. Write a program that, given some double , splits the double into two new variables, $t\ e$ and e em that represent the integer and decimal part of , respectively. As an example, if , then e and em .

```

```

3. As you may know, Mr. Alig really does not want people to start emails with the phrase "Hello (so and so),". Instead, he prefers that people start emails with "Hello, (so and so),". It is our moral imperative as programmers to help Mr. Alig fight against grammatical errors. Write a program that prompts the user for a String. If this String starts with "Hello" and then no comma, insert a comma into the String, then print the entire String out.

   Ex: "Hello Mr. Gao," -> "Hello, Mr. Gao,"
   Ex: "While, this String has a comma, it does not start with Hello" -> "While, this String has a comma, it does not start with Hello"

```
import java.util.Scanner;

...

// write code below
```