


```
public int mystery(Die d1, Die d2) {
    int x=0;
    int i=0;
    while (x > -10 && x < 10) {
        x = x + d1.roll();
        x = x - d2.roll();
        i = i + 1;
    }
    return i;
}
```

Problem 2: [25 points]

a) In *English*, describe what the mysterious method above does. (Try to focus on *what* it does rather than a step-by-step description of *how* it works.) To get in the right frame of mind, think about what you would write as a comment for the method.

b) Would you expect the loop to run more times, or fewer, if the dice passed to `mystery` don't have the same number of sides? Explain.

Problem 3: [25 points]

Below, define a method called `sumRandomlySelectedValues` that takes two arguments: An array of `ints`, and a single integer specifying the number of times a value should be randomly selected from the array. It should pick values at random from the array, summing them as it goes, and return the total. It's fine if the same value from the array is selected more than once. For full credit, it should be possible to select any of the values from the array.

For example, if passed an array containing `[100,5,30]` and the number 2, the method might return 130 if the two values selected at random were the first and last entries in the array. Or it might return 35 (5 plus 30), or 200 (if 100 was randomly selected twice in a row). You do not need to write an import statement as part of your solution.

```
import java.util.ArrayList;
public class Notebook
{
    // Storage for an arbitrary number of notes.
    private ArrayList<String> notes;

    ... // Other methods deleted to save space
}
```

Problem 4: [26 points]

The code above shows the start of the `Notebook` class we used in lecture and in lab. Below, define a new method, `getNotesContaining`, that could be added to the class. It should take a `String` as its input, and return an `ArrayList` holding *all* items from the notebook that contain the specified `String`. For example, if a `Notebook` instance contained “Walk the dog”, “Grade exams”, and “Feed the dog”, calling `getNotesContaining("dog")` would return an `ArrayList` containing “Walk the dog” and “Feed the dog”. (There’s a `contains` method in the `String` class that will be helpful: `"doggie".contains("dog")` returns `true`, for example.) The order of the items in the `ArrayList` does not matter. Your code should not modify the `notes` `ArrayList`.