50 pts

Name1: _____

Name2: _____

Class Day / Time: _____

Due Date: _____

Lab #7 – Testing

It is a well-known fact that cartoon sheep love chocolate! However, if sheep get too much chocolate it is unhealthy for them. So one sheep can only consume up to 4 chocolate bars before they get sick. Farmer Pete will provide a number of sheep and a number of chocolate bars. He needs your help to write a program to calculate how many bars each sheep gets and how many chocolate bars are left over. To avoid that some sheep be upset, Farmer Pete would like to ensure that at any give time all sheep would receive the same number of chocolate bars. Use functions for input/output and each calculation.

Before writing the code, create a test plan for this problem. Your test plan should include test cases for expected, unexpected and boundary inputs. In addition, you should perform Black Box and White Box testing. Add test cases as you go (if necessary).

The test plan should include a column to indicate the test case number, one column to indicate the category (expected, unexpected or boundary input), one column to indicate the type of testing (Black or White Box), one column for input, one column for output, one column for test results (pass or fail) including the expected output values and one column for comments/notes.

Then write at least 3 test drivers to exercise your code and run each of your test cases.

Output should be provided in a reasonable format. Please include the test case number as part of the output.

Turn in (IN THIS ORDER)

1. This page
2. Test Plan
3. Output
4. Your header file.
5. A listing of main.cpp (conforming to style discussed in class)
6. A listing of your functions

Sample Code

(it does not include input validation, functions, etc)

```
...
int numSheep;
int numBars;
int barsPerSheep;
int barsLeftOver;

// INPUT - get number of sheep and chocolate Bars
cout << "Enter the number of Sheep: ";
cin   >> numSheep;
cout << "Enter the number of Chocolate Bars: ";
cin    >> numBars;

// PROCESSING - calculate BarsPerSheep and BarsLeftOver
barsPerSheep = numBars / numSheep;
If (barsPerSheep > 4)
{
    barsPerSheep = 4;
    barsLeftOver = numBars – (numSheep * 4);
}
else
{
    barsLeftOver = numBars % numSheep;
}

// OUTPUT - BarsPerSheep and BarsLeftOver
cout << "Each sheep should have " << barsPerSheep
      << " bars. There will be "       << barsLeftOver
      << " bars left over."              << endl;

return 0;
...
```