Lab 3 – Calculations

Instructions: Complete each problem. If you're struggling with a problem, feel free to ask questions on the class forum.

This lab is optional, but it gives you valuable programming experience. You should definitely complete the lab if you can.

Problem 1 – Basic Calculations

Write a Console application to convert a temperature from Fahrenheit to Celsius and back again (to verify the math!).

Hint: What type should you use to store the degrees? Your answer may have a dramatic affect on the outcome of your calculations …

You need to use three variables for this program: one variable for the original temperature in Fahrenheit, one variable for the calculated temperature in Celsius, and one variable for the calculated temperature in Fahrenheit (when you convert from Celsius back to Fahrenheit). Be sure to name your variables appropriately.

To get the original temperature in Fahrenheit from the User:

Assuming you declared your first variable as a `float` named `originalFahrenheit`, here's the code you'd use to get the original temperature from the user:

```
Console.Write("Enter temperature (Fahrenheit): ");
originalFahrenheit = float.Parse(Console.ReadLine());
```

The `Console ReadLine` method returns whatever `string` the user typed on the keyboard before pressing the Enter key. Passing that `string` as an argument to the `float Parse` method converts the `string` to a `float`.

To go from Fahrenheit to Celsius:

- Begin by subtracting 32 from the Fahrenheit number.
- Divide the answer by 9.
- Then multiply that answer by 5.

For example - if it's 70 degrees F outside, and you want to know the temperature in C:

- 70 - 32 = 38
- 38 / 9 = 4.2
- 4.2 * 5 = 21.1

It's therefore about 21 degrees Celsius outside.

To go from Celsius to Fahrenheit:

- Begin by multiplying the Celsius temperature by 9.
- Divide the answer by 5.
- Now add 32.

Display the following message:

```
XX degrees Fahrenheit is YY degrees Celsius
YY degrees Celsius is ZZ degrees Fahrenheit
```

XX should be a number that you assign to your first variable (the one that holds the original temperature in Fahrenheit). You must calculate YY (the calculated temperature in Celsius) from XX and you must calculate ZZ (the calculated temperature in Fahrenheit) from YY. DO NOT use XX, YY, or ZZ in your code, these are just names I used as an example in the output.

Test your application with the following values for degrees Fahrenheit: 0, 32, 212