CS111 Lab exercise: Arithmetic operations

1. Integer division: Put the following in your program and pay attention to the outputs. What do you notice?
   
   ```cpp
   cout << "1/2 = " << 1 / 2 << endl;
   cout << "1.0/2 = " << 1.0 / 2 << endl;
   cout << "1/(double) 2 = " << 1/(double) 2 << endl << endl;
   ```

2. (from professor Lai)

   Write a C++ program that prompts for user name, today’s temperature in Fahrenheit, and then performs the calculation of changing temperature to Celsius. You should

   1. Declare string variable to store user name.
   2. Declare two double variables to store Fahrenheit and Celsius temperature.
   3. Perform arithmetic operation to convert Fahrenheit to Celsius.
      
      \[
      \text{Celsius} = \frac{5}{9} \times (\text{Fahrenheit} - 32)
      \]
   4. Use commenting when necessary.
   5. Use meaningful variable names.
   6. Output the result.

   Your output should look like this.

   ```
   What is your name? Snoopy
   What is today’s temperature in Fahrenheit? 86
   
   Hello, Snoopy.
   Today’s temperature is 30 Celsius.
   ```
3. (from professor Mahavadi)

Write a program that asks the user to enter two fractions, and then displays their sum in fractional form (You don’t need to reduce it to lowest terms). The interaction with the user might look like this (where the characters in bold are user input with cin and the rest are program output using cout):

Enter first fraction: 1/2
Enter second fraction: 2/5
Sum:

9
---
10

(Pay attention to output format)

Hint: You can take advantage of the fact that the input operator (>>) can be chained to read in more than one quantity at once (dummychar can be declared as a char variable):
cin >> a >> dummychar >> b;

Adding Formula: \[ \frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd} \]