

```

1 #include <iostream>
2 #include <string>
3 #include <cmath>
4 using namespace std;
5
6 /**
7  * Rounds float to the nearest cent (I hope, this took a lot of trial and error
8  * to get it not to add trailing 0's).
9  *
10 * Undefined behavior if result of rounding adds more or less than four 0's.
11 * I don't know why it adds them so I only know that it works in the scope of this
    project.
12 *
13 * @param price a float of arbitrary precision representing cost of meal.
14 * @returns string of number rounded to 2nd decimal place.
15 */
16 string cents(float price)
17 {
18     float rounded = (round(price * 100) / 100) + 0.001;
19     string str_rounded = to_string(rounded);
20     return str_rounded.substr(0, str_rounded.length()-4);
21     // Man oh man do I miss Python's round() right now.
22 }
23
24 /**
25  * Provides formatted visual of tax and tip calculations.
26  *
27  * @param subtotal the cost, of arbitrary precision, of the meal before tax and
28  * tip calculations.
29  * @returns receipt as multiline string.
30 */
31 string billCalculator(float subtotal)
32 {
33     string str_subtotal = cents(subtotal),
34         tax = cents(subtotal * 0.0675),
35         tip = cents((subtotal * 1.0675) * 0.2),
36         total = cents(1.281 * subtotal); // 1.0675x + 0.2(0.675x)
37     string answer = "Subtotal: $" + str_subtotal +
38         "\nTax:      $" + tax +
39         "\nTip:       $" + tip +
40         "\n\nTotal:    $" + total;
41     return answer;
42 }
43
44 int main()
45 {
46     float mealPrice = 88.67;
47     cout << "-----\n"
48         << billCalculator(mealPrice)
49         << "\n\n-----\nCustomer Copy\n\n";
50 }

```