MTH 3300
Spring 2017
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Written Homework 1

1. Make sure you have downloaded an IDE and that it runs the "Hello world" from class! (You don't have to submit anything for this problem – just do it!)

   Problems 2 and 3 have nothing to do with computers (except that they involve algorithms, which computer programs also use). They should be answered in the same way that we answered the "which number is larger" question on the first day of class: as a detailed set of directions for humans to follow. If you use the words "compiler" or "double" or "cout" or even "print", you're not answering the question.

2. Given *any* price under one dollar, give a (practical) algorithm that determines the number of quarters, dimes, nickels, and pennies one should use to make that price. This means: describe the steps, in order, USING ENGLISH – NOT CODE!. Every cashier uses this algorithm everyday, and most of them don't know C++; describe their thought process, but be precise about how you describe it. Make sure that your algorithm works for any input!

3. Given *any* longitude and latitude, give an algorithm that determines the name of the nearest subway entrance (using the subway data file from class). Again, this means to describe the steps, in order, in detail, and in ENGLISH. You may use the fact that around New York, 1 degree of longitude is roughly 52 miles, and 1 degree of latitude is roughly 69 miles.

For the rest of the problems, you may simply submit the answer. Problems 4, 5 and 6 should be single lines of code, not whole programs!!

4. Write down single C++ statements (one for each question) that do the following:

   a. Declare a variable named `score` whose value is 17

   b. Declare a variable named `sure` whose value is `false`

   c. Declare a variable named `length` whose value is `12.5`

   d. Declare a variable named `initial` whole value is `f`

5. Write a SINGLE `cout` statement that prints the following:

```
Worst.
Episode.
Ever.
```

6. Carefully write C++ statements that accomplish the following, using Google if necessary:

   a. Display the newline character

   b. Display the tab character

   c. Display the double quotation mark

   (For parts a and b, you wouldn't actually see anything on the screen from displaying them, but you would notice them if you try to print something else later in the program.)

7. Rewrite the following program so that the formatting doesn't suck:

```
#include <iostream>
using namespace std;int main()
{int first,second;cout <<"Enter two integers"<<endl;
      cin>> first
 >> second; int sum =first+second;
cout<<"The sum is" << sum;return 0;
            }
```

8. Evaluate the following expressions, as your compiler would, or state that there is an error (try to do it without using your compiler!):

   a. `20/7`

   b. `5 - 8/3*2`

   c. `3.0/4 + 2`

   d. `56%10`

e. `56%10*2`

f. `5.6%10*2`

g. `static_cast<double>(25)/2`

h. `static_cast<double>(25/2)`

9. Problem 1 from Section 1 Problems.
10. Problem 2 from Section 1 Problems.