Homework 9: Basics of C++

For the following exercises, write your code in one `.cpp` *file for each problem. Be sure to use a plain text editor (i.e., NOT Word).*

Make sure that your code compiles without error in order to get credit. Do not hesitate to ask for help if needed!

Do NOT submit executables to me. If you are having trouble getting your code to compile, and you can't figure it out on your own, email me with your code attached and I'll try to help you debug. Better yet, come to office hours!

Problem 1 (3 pts)

Write a program that calculates the following:

- $\sqrt{-1}$
- $\cos^{-1}(2.0)$
- $\log(0.0)$

and prints the results with some comments on why it is what it is.

Problem 2 (6 pts)

Write a program that asks for your full name, the date, and the answer to 2+2, and then prints

```
Hello, "full name!"
Today is "date".
```

where "`full name`" and "`date`" are replaced by the answers provided by the user, followed by a message that depends on whether the answer for $2 + 2$ was correct or not.

Problem 3 (9 pts)

Write a program that asks for your age in years, your weight in kilograms, and your height in centimeters and then tells you the following based on the values provided:

(a) If you are old enough to drive;

(b) Whether or not you are in your twenties;

(c) If you are either younger than 22 and less than 65 kg, or older than 26 and taller than 180 cm.

(d) If you are neither old enough to vote, tall enough to hit your head on a 150 cm door frame, nor the right weight to box in the 60-64 kg division (all or none).

Each item should be a single test leading to a printed statement indicating that the test was passed ("You are old enough to drive.") or that the test was failed ("You are not old enough to drive.").

Problem 4 (7 pts)

Write a program that lists all integers up to 50 and next to each integer the sum of all previous integers (including the current one). The output should look something like this:

```
i = 0    sum = 0
i = 1    sum = 1
i = 2    sum = 3
i = 3    sum = 6
...
```