$\qquad$
Score $\qquad$

These test problems are due Thursday, May 5, at the beginning of class.

1. (5 points) Suppose $f$ and $g$ are two user-defined functions that both take a single double and return a double. Write a $\mathrm{C}++$ function that accepts $f, g$, and $x$, and returns $f(x)+g(x)$.
2. (5 points) Write a C++ function that accepts two floats and has no return value. The function should accept two numbers $a$ and $b$, and on function exit, $a$ should be replaced by $a+b$ and $b$ should be replaced by $a-b$.
3. (5 points) Use the formulas we derived in class to find an equation of the line that best fits the following data.

$$
(1.1,3.6),(2.4,6.1),(2.6,6.3),(3.0,6.9),(3.5,8.3),(4,9.6),(4.1,10.2)
$$

4. (4 points) Suppose $A$ is an $n$-by- $m$ 2-D array. Write a $\mathrm{C}++$ function that accepts $A$, $n$, and $m$, and returns the sum of the absolute values of the entries of the array. (You can assume the physical dimensions of $A$ are 20 -by- 20 and $n, m \leq 20$.)
5. (16 points) Write a single C++ program that does all of the following.

- Prompts for and reads a user-supplied output file name.
- Opens the output file and checks for successful opening.
- Reads a list of user-supplied integers from console input until end-of-file.
- Outputs the integers to the file.
- Closes the output file.
- Opens the same file for input and checks for successful opening.
- Reads the file's integers and outputs them, one per line, to console output.
- Closes the file.

