

CS 115 Exam 1 Review Quiz, Spring 2010

Rules

- You may use one handwritten 8.5 x 11" cheat sheet (front and back). This is the only resource you may consult during this exam.
 - You must show your work/explain your answers in order to receive partial credit for incorrect answers.
 - All snippets of code can be assumed to be enclosed within `int main()`. You can assume that the `iostream`, `fstream`, `iomanip`, `string`, `algorithm`, and `cmath` libraries have been included at the beginning of the program.
 - When you are asked to write *a snippet* of code, you may also assume that it is enclosed within `int main()` and that any necessary libraries have been included.
 - When you are asked to write *a complete program*, you must write the `#include` statements, the `int main()`, etc. in your solution to receive full credit.
 - A line consisting solely of "..." represents one or more unspecified C++ statements, some of which may change the values of program variables.
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Problem 1: 24 points.

What does each of the following snippets of code print to the screen?

(a)

```
string a = "b";  
string b = "a";  
cout << a << endl;
```

(b)

```
string a = "b";  
string b = "a";  
cout << a << b << endl;
```

(c)

```
int a = 5;  
cout << ++a << endl;
```

(d)

```
for (int i=0; i < 2; i++) {
    for (int j = 0; j < 2; j++) {
        cout << j << endl;
    }
}
```

(e)

```
bool b = true;
if (b) {
    b = b && false;
}
cout << b;
```

(f)

```
int i = 4;
while (i > 0) {
    cout << i << endl;
    i -= 2;
}
```

Problem 2: 16 points.

State whether each segment of code is valid C++, meaning that it will compile. If it is valid, write "valid." If it is invalid, write "invalid" and fix it so that it will compile.

(a)

```
int a;
cin >> a;
if (sqrt(a)) {
    cout << "Moo!" << endl;
}
```

(b)

```
int i = 5;
while (i--) {
    cout << i << endl;
}
```

(c)

```
int q = 2;
if (q > 0); {
    cout << "Baa!"
}
else {
    cout << "Grrr!"
}
```

(d)

```
int i = 25;
int j = 100;
i *= j;
```

Problem 3: 30 points.

Write short snippets of code to accomplish the following tasks:

(a) *Assume:*

- An integer variable N has already been declared and defined.

Your task:

- Print the word "Hello!" N times (if N is negative, do not print the word at all).
- Each "Hello!" should be on a separate line.

(b) Repeatedly ask the user to enter an integer. You should stop asking when *either*

- The user enters something that could not be read, *or*
- The user enters a negative number

Other than prompting the user for an integer, your program should not print anything to the screen.

(c) *Assume:* Float variables a , b , and c have been declared and defined.

Your task:

- Print "Yes!" if a , b , and c could be the side lengths of a triangle. For this to be the case, each number must be less than the sum of the other two numbers.
- Print "No!" otherwise.

(d) *Assume:* Float variables a and b have already been declared and defined.

Your task: Print a , b , and a^b (that is, a raised to the power of b) as shown in the example below for $a=2$ and $b=3.5$:

2 to the 3.5th power = 11.3137

You do not need to worry about formatting the answer to a specific number of decimal places.

Problem 4: 30 points.

For this problem, you must write a **complete program** that does the following:

- Prompts the user to enter 100 integers. It should prompt for each integer individually.
- If the user enters an invalid input, the program should stop asking for integers and should not print anything else.
- Otherwise, after the user has entered all 100 integers, the program should print the maximum of the 100 integers.