This worksheet is for your use during and after lecture. It will not be collected or graded, but I think you will find it a useful tool as you learn C++ and study for the exams. Explain all false answers for the "True or False" questions; in general, show enough work and provide enough explanation so that this sheet is a useful pre-exam review. I will be happy to review your answers with you during office-hours, via Email, or instant messaging.

- 1. C++, like many programming languages, has *repetition statements* or *looping structures*. Explain precisely what is being repeated when these are used.
- 2. Which repetition structure is most likely to have a "loop counter"?
- 3. How many question marks will be printed to the console?

```
I for( int i(0); i<5; i++ ) {
    for( int j(i); j>=1; j-- ) {
        cout << '?'; ;
}

cout << endl;</pre>
```

4. Using an if statement and the break keyword, add code to the following program so that it terminates instead of attempting the sqrt() of a negative number.

```
1
    #include <iostream>
 2
    #include <cmath>
 3
    using namespace std;
 4
 5
    int main()
 6
 7
        // Variable to be read from user
        double x(0);
 8
 9
        while( true ) {
10
11
             cout << "Enter_a_number_for_SQRT:_" <<</pre>
12
                      endl;
13
             cin >> x;
14
             cout << "The_SQRT_of_" << x << "_is_" <<
15
                      sqrt(x) << endl;</pre>
16
17
18
19
20
        return 0;
21
```

5.	Write a user input loop that waits until a user enters an upper-case vowel (A, E, I, O, or U).
6.	What are the four control structures we have studied so far (the if-then and if-then-else <i>do not</i> count as two)? Of the four, one does not use the implicit notion of a Boolean expression in its definition. Which is it?
7.	Explain the difference between a sentinel loop and a counting loop. Which C++ repetition structure is most easily used for each?
8.	Explain the difference between a sentinel loop and a conditional loop.