

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. All of our C++ programs will have a function named: A. begin B. EntryPoint C. main D. WinMain

**Solution:** C

2. All C++ statements end with a(n): A. period B. semi-colon C. colon D. flourish

**Solution:** B

3. (a) Write “This is a comment” as a comment in two different ways for C++.

**Solution:** `/*This is a comment */` and `//This is a comment.`

- (b) Write the aforementioned comment across multiple lines in C++.

**Solution:**

```
/* This           // This
   is a           // is a
   comment */     // comment
```

4. True or False: Indentation is required for the compiler to understand the logical structure of a C++ source listing.

**Solution:** False. Indentation is to help humans visualize the structure of program logic.

5. True or False: Everything in a C++ source listing is translated to the computer program.

**Solution:** False. Comments and indentation are ignored.

6. True or False: A computer program is the compiler and linker translation of *only* the program source listing.

**Solution:** False. Pre-processor directives “import” code from system libraries.

7. Which of the following properties does a program variable possess?

- A. Size (in bits or bytes)
- B. Location (address in memory)
- C. URL (universal resource locator)
- D. Name
- E. Value

**Solution:** A, B, D, and E.

8. What is another term for the name given to a variable?

**Solution:** An identifier.

9. List three examples of valid C++ variable names.

**Solution:** x3, SuperMan, mighty\_mouse

10. List two examples of **invalid** C++ variables names, and state why they are invalid.

**Solution:** 3x: numerals cannot begin variable names. C02%: The percent sign is an invalid character for variable names.

11. In the following table are four fundamental variables types in C++, list example values for each variable type.

double	3.14, -1, 0, 32
int	-3, 0, 256
string	"c", "word", or "a phrase of several words"
bool	true, false

12. Which of the fundamental variable types in 11 require(s) a pre-processor directive and a compiler directive? What are they?

**Solution:** The string type requires #include <string>, and using namespace std;.

13. Write two ways to declare a Boolean variable named truth as logical false.

**Solution:** bool truth( false ); or bool truth = false;.

14. Write two ways to declare an integer variable named N with the value 3.

**Solution:** int N( 3 ); or int N = 3;.

15. Write two ways to declare a constant real valued variable named PI as the value  $\pi$ .

**Solution:** const double PI( acos(-1) ); or double PI = acos(-1);.

16. Assume the real valued variables x, y, and z are properly declared in a C++ program, complete the table by translating the mathematical expression to a C++ *statement*.

Mathematical Expression	C++ Statement
$x^2 + y - \frac{1}{z}$	x*x + y - 1/z
$\sqrt{3x - 4y} + \frac{x}{zy}$	sqrt( 3*x - 4*y ) + x/(z*y)

17. (a) Write a C++ statement that prompts a user to enter a value for  $\pi$ .

```
Solution: cout << "Enter a value for  $\pi$ :"<<endl;
```

- (b) Suppose your program has a variable named `user_pi` declared as a double variable type. Write a C++ statement that reads a value for `user_pi` from the keyboard.

```
Solution: cin >> user_pi;
```

- (c) Now, write a C++ statement that prints `user_pi` to the console.

**Solution:**

```
cout << user_pi;
```