CS 1044, Summer II 2000  
Homework #1  
Due: Tuesday, July 11 (by midnight)

All answers must be typed using either MS Word or an ASCII text editor and submitted to the EAGS by midnight on Tuesday, July 11. There will be no late extensions for this assignment. Handwritten answers will not be accepted; answers will not be accepted by methods other than the EAGS (such as e-mail). All short answer questions ("describe, "define", etc) can (and should) all be answered in one or two sentences. If you find yourself needing to write more, it probably means that you have the wrong answer. For any problem that involves computational steps (e.g. 3), show intermediate work for partial credit.

The Honor Code is in effect for this assignment. You may consult your book, notes, or the instructor/GTA, but NOT other students (regardless of if they are in the class or not). By submitting this assignment you are pledging: "I have neither given nor received unauthorized help on this assignment."

1) Describe the purpose of a compiler.

2) Define a variable.

3) Given the following excerpt of C++ code:

```cpp
const float NUM_TESTS = 4.0;

int Test1 = 98;
int Test2 = 94;
int Test3 = 100;
int Test4 = 94

float TestAverage = 0;

TestAverage = (Test1 + Test2 + Test3 + Test4) / NUM_TESTS;
```

What is the final value stored in TestAverage?

4) Which of the following identifiers are invalid and why:
   - Main
   - Number-of-Students
   - Micro$oft
   - Test1
   - double

5) Given the following excerpt of C++ code:
int Num1 = 3;
int Num2 = 7;
int Num3 = 1;

float Result1,
    Result2,
    Result3 = 0.0;

Result1 = Num1 * Num2 / ++Num3;
Result2 += Num2;
Result3 = Num1-- + Num3++ / Num2;

What are the final values stored in Result1, Result2, and Result3?

6) Give two disadvantages of using machine code to program.

7) Describe how the divide and conquer method is used to solve a problem.

8) What is the difference between a syntax and a run-time error?

9) For the following C++ code, identify all the errors (including what may be logical errors). Comments may be helpful in determining logical errors. Use line numbers to reference the error, and provide a short description of the problem. Each line may have more than one error, and some lines may have none.

```cpp
int Main()
{
    /* Declarations */
    const int Height = 10, // Height of the square
    const int Width = 5; // Width of the square

    float Ratio = 0; // Ratio of the Height/Width

    /* Calculate the ratio between the height and the width
    Ratio = Height / Width;

    /* Determine if the ratio is an even number -
    if it is, the remainder will be 0 */
    int remainder = Ratio % 2;

    // Increment the value of Height and Width and
    then re-calculate the ratio //
    Ratio = Height++ / Width++;

    /* Determine if the ratio is an even number -
```
if it is, the remainder will be 0 */ 
Remainder = Ratio % 2;
return (0);    // The program terminated successfully