1. Suppose I want to add a comment to my C++ program that says "This is a comment.". Show two different ways that this can be done.

2. What is the purpose of the preprocessing directive given by:
   
   ```cpp
   #include<iostream>
   ```

3. Write a C++ expression for the following equation. Assume that x and y are integers.

   \[ y = \frac{3x + 7}{z + 2} \]

4. What is the output of the following program segment?

   ```cpp
   int number;
   number = (1/3) * 3;
   cout << "(1/3) * 3 is equal to " << number << endl;
   ```

5. If you are given a two-digit integer number, write a short C++ sequence that prints the number with the digits reversed. For example, if the number is 84 your program would print 48. **Hint: Use integer arithmetic to get one number and the mod operator to get the other.**

6. The following sequence is syntactically correct but does not do what the programmer intended. Rewrite a correct sequence.

   ```cpp
   i = 3;
   if(i == 3);
   {cout << "The value of i is 3." << endl;
   }
   ```

7. If i = 3, j = 12, and k = 4, determine whether each of the following is TRUE or FALSE.

   A) \(((i+j)<20)\&\&!(i==3))\) _____  B) \(!((j==12)||!(k<7)))\) ______
8. Fill in the blanks below with T or F to indicate whether the Boolean variable tf is true or false.

```cpp
main()
{
    int i = 4;
    int j = 3;
    bool tf;
    tf = (j < 4);              _______
    tf = (j < 3);              _______
    tf = (j < i);              _______
    tf = (i < 4);              _______
    tf = (j <= 4);             _______
    tf = (4 > 4);              _______
    tf = (i != j);             _______
    tf = (i == j || i < 100);  _______
    tf = (i == j && i < 100);  _______
    tf = (! (i > 2 && j == 4)); _______
    tf = !1;                   _______
    return 0;
}
```

9. Answer the following questions about the program below.

A) What value or range of values must be entered for the variable i in order to get an output of -22? ___________

B) What value or range of values must be entered for the variable i in order to get an output of 60? ___________

C) Is there any legal integer value which will produce no output at all? If so what is the input? ________________

D) What is printed if the value entered is 3? ___________

E) What is printed if the value entered is 0? ___________

```cpp
main()
{
    int i;
    cout << "Enter an integer..."; 
    cin >> i;
    if(i < 0)
        cout << i << endl;
    else if(i < 10)
        {if(i > 5)
            cout << 10*i << endl;
        else
            {if(i == 0)
                cout << "zero" << endl;
            else
                cout << 100*i << endl;
            }
        }
    return 0;
}
```