

Do these conditions evaluate to true or false? (4 points each)

```
short int A = 5, B = -8, C = 18, D = 0;
```

- | | |
|----------------------------------|--|
| 1. ____true____ (A > B) | 7. ____false____ (D >= C A == B) |
| 2. ____true____ (B <= 0) | 8. ____false____ ((C + 1) == (D + 19)) |
| 3. ____false____ (D != 0) | 9. ____true____ (B == 0 C == 0 D == 0) |
| 4. ____true____ (C = 17) | 10. ____false____ (A == 0 && (B > 1 C > 1)) |
| 5. ____true____ (A > B && C > D) | 11. ____false____ (!(A = 5) !(C = 8)) |
| 6. ____true____ (C != (B + 28)) | 12. ____false____ (A > (B + C) && A < (D + B)) |

13. Write a condition for the if statement that makes the code correct. (10 points)

```
int X, Y;
cout << "Enter a value for X: ";
cin >> X;
cout << "Enter a value for Y: ";
cin >> Y;
if (X % 2 == 0 && Y % 2 == 0)
    cout << "Both X and Y are even";
```

14. Write a condition for the if statement that makes the code correct. (10 points)

```
int X, Y, Z;
cout << "Enter a value for X: ";
cin >> X;
cout << "Enter a value for Y: ";
cin >> Y;
cout << "Enter a value for Z: ";
cin >> Z;
if ((X < 0 && Y < 0 && Z >= 0) || (X < 0 && Z < 0 && Y >= 0) || (Y < 0 && Z < 0 && X >= 0))
    cout << "Exactly two of the variables are negative";
```

15. (30 points) Copy the source code for the program below into your Word document using a syntax highlighter (such as tohtml.com) so it is presentable.

Write a program that prompts the user to enter how many donuts they are going to buy. The program should

then output how many dozen and single donuts this is. For example, if the user enters 29, the program will say, "This is 2 dozen plus 5 single donuts."

```
// Samone Cook
// Homework #3

#include <iostream>
using namespace std;

int main()
{
    int numDonuts;

    // Ask the user for the number of donuts they plan to eat
    cout << "Enter how many donuts you are going to eat: "; // Request user input
    cin >> numDonuts;

    // Calculate the number of dozens and remaining donuts
    int dozen = numDonuts / 12; // Find how many full dozens of donuts
    int single = numDonuts % 12; // Find the leftover single donuts

    // Output the total number of dozens and leftover donuts
    cout << "This is " << dozen << " dozen plus " << single << " donuts." << endl; //
    Display result of the calculation

    // Output a message based on the number of donuts
    if (numDonuts == 0) {
        cout << "Taking a break from sweets?" << endl; // Comment for no donuts
    } else if (numDonuts >= 1 && numDonuts <= 2) {
        cout << "Not too many, huh?" << endl; // Comment for 1-2 donuts
    } else if (numDonuts >= 3 && numDonuts <= 6) {
        cout << "A little snack to start with?" << endl; // Comment for 3-6 donuts
    } else if (numDonuts >= 7 && numDonuts <= 9) {
        cout << "Is there a donut party happening?" << endl; // Comment for 7-9 donuts
    } else if (numDonuts >= 10 && numDonuts <= 12) {
        cout << "Donut enthusiast alert!" << endl; // Comment for 10-12 donuts
    } else {
        cout << "You must really love donuts!" << endl; // Comment for more than 12
        donuts
    }

    return 0;
}
```

Also, have the program output different comments (minimum 6) depending on how many donuts the user enters. The ranges for the comments should be **contiguous**. Look at the example below, but use your own original comments and ranges.

If the user eats this many donuts	The program will output this
0	"Taking a break from sweets?"
1 - 2	"Not too many, huh?"
3 - 6	"A little snack to start with?"
7 - 9	"Is there a donut party happening?"
10 - 12	"Donut enthusiast alert!"
> 12	"You must really love donuts!"