

Exercise # 6 - Solution

(07-11-2001)

Exercise 1:

Given these values for Boolean variables x, y, and z:

x = TRUE, y = FALSE, z = TRUE

Evaluate the following logical expressions. In the blank next to each expression, write a T if the result is TRUE or an F if the result is FALSE.

 T a. x && y || x && z

 F b. (x || !y) && (!x || y)

 T c. x || y && z

 F d. !(x || y) && z

Exercise 2:

Match each logical expression in the left column with the logical expression in the right column that tests for the same condition.

 4 a. x < y && y < z

(1) !(x != y) && y == z

 2 b. x > y && y >= z

(2) !(x <= y || y < z)

 5 c. x != y || y == z

(3) (y < z || y == z) || x == y

 3 d. x == y || y <= z

(4) !(x >= y) && !(y >= z)

 1 e. x == y && y == z

(5) !(x == y && y != z)

Exercise 3:

Given the int variables x, y, and z, where x is 3, y is 7, and z is 6, what is the output from each of the following code fragments?

a.

```
if (x <= 3)
    cout << x + y << endl;
    cout << x + y << endl;
```

10

10

b.

```
if (x != -1)
    cout << "The value of x is " << x << endl;
else
    cout << "The value of y is " << y << endl;
```

The value of x is 3

```

c. if (x != -1)
    {
        cout << x << endl;
        cout << y << endl;
        cout << z << endl;
    }
    else
        cout << "y" << endl;
        cout << "z" << endl;

```

3
7
6
z

Exercise 4:

Simplify the following program segment , taking out unnecessary comparisons. Assume that age is an int variable.

```

if (age > 64)
    cout << "Senior voter";
if (age < 18)
    cout << "Under age";
if (age >= 18 && age < 65)
    cout << "Regular voter";

```

```

if (age < 18)
    cout << "Under age";
else if (age > 64)
    cout << "Senior voter";
else cout << "Regular voter";

```

Exercise 5:

Rewrite the following code fragment using a switch statement.

```

if (n == 3)
    alpha++;
else if (n == 7)
    beta++;
else if (n == 10)
    gamma++;

```

```

switch (n)
{
    case 3 : alpha++; break;
    case 7 : beta++; break;
    case 10 : gamma++; break;
}

```

Exercise 6:

What is printed by the following code fragment if n equals 3?

```
switch (n +1)
{
    case 2 : cout << "Bill";
    case 4 : cout << "Mary";
    case 7 : cout << "Joe";
    case 9 : cout << "Anne";
    default : cout << "Whoops!";
}
```

MaryJoeAnneWhoops!