1. Given the following declarations,

**double** X;

**int** Y;

assume that *X* and *Y* have the values 10.5 and 2, respectively. What are the values and resulting data type for the following expressions?

|  |  |  |  |
| --- | --- | --- | --- |
|  | Expression | Resulting Value | Data Type |
| a. | X + Y \* 2 |  |  |
| b. | ( 12 + Y) % 3 |  |  |
| c. | Y + 9 / 2 - 6 |  |  |

2. Given the following declarations,

**double** netPrice, salesTax, total;

assume that netPrice has a value of 119.00 and salesTax has a value of 7.14, write a code segment that calculates the total and displays the following output:

**Net Price $ 119.00**

**Sales tax $ 8.10**

**-------------------**

**TOTAL $ 127.10**

3. Assuming that **Count** is 4 and **Number** is 3, what are the values of the following expressions? Use operator precedence rules where needed. Assume **Count** and **Number** are data type **int**.

a. Count + 2 \* Number - 1

b. Count \* 2 - Number / 1

c. (Number + 2) / Number - 1

d. Number + 2 / Number - 1

e. Count / 2 \* 2 / Count

4. Write a code segment that asks for the user’s initials, one at a time, and reads them into character variables and then displays them.

Include the necessary variable declarations needed for the initials.

5. Write a code segment that displays a menu and then reads a character representing the user’s choice from the menu. The menu to be displayed is

**Enter F for first name**

**or L for last name**

Include the necessary variable declarations for the variable(s).

6. Convert each of the following (non-C++) arithmetic expressions into C++ arithmetic expressions. Assume x, y and z are declared as variables of type **int**.

a. 3x b. 3x + y

c. x + y d. 3x + y

7 z + 2

7. Rewrite the following **if-else** as a **switch** statement**.**

if (shippingCode == 0)

cout << “Standard Shipping (3-5 days)” << endl;

else if (shippingCode == 1)

cout << “Priority (2 days)” << endl;

else if (shippingCode == 2)

cout << “Next day delivery” << endl;

else

cout << “Error: Invalid shipping code” << endl;

8. Write a code segment that compares the variable **value1** (data type **int**) and displays TRUE if the value is positive or zero and FALSE otherwise.

9. Assume the following declarations,

**const int** HI = 100;

**const int** LO = 0;

**int** x;

write a code segment that displays the message "IN RANGE" if **x** is between HI and LO (inclusive) or the message "TOO LOW" if **x** is less than **LO** or "TOO HIGH" if **x** is greater than **HI**.

10. The following expressions make sense but are invalid according to C++ syntax. Rewrite them so that they are valid Boolean expressions. Assume x, y and z are variables of data type **int**.

a. x, y, and z are greater than zero

b. x is equal to neither y nor z

c. x is equal to y as well as z