Exercises 1

5. Show the content of the following variables after executing the assignment statements. Determine the size of memory that is reserved to store the data in the variables.

a. int id = 109; Size 4 byte

b. char symbol = '$'; size 1 byte

c. float average = 4.5; size 4 byte

d. long population = 4567890; size 4 byte

e. double volume = 6788.987; size 8 byte

12. State the order of evaluation for each of operator in the following C++ statements, and shhow the value of X after each statement is performed. Fill in the following boxes.

a. X = 8\*(2+3)/(4-2); X= 8\*5/2= 20

b. X = (12+4)/4+30/3-3; X= 16/4+30/3-3= 4+10-3= 11

c. int a=3, b=5, c=4;

X = a+b\*c-- % ++b; X = 3+5\*4%6= 3+20%6= 3+2= 5

13. Given the following definition of the variables, determine the content of the variables.

a. z = a/b; =0

b. z = static\_cast<double>(a)/b; =0.8

c. z = static\_cast<double>(a/b); =0

d. c = static\_cast<int>(x)/a; =2

e. c = static\_cast<int>(x/a); =2

f. c = static\_cast<int>(x)/static\_cast<int>(y) =1

14. referring to the variable definitions below, what are the values changed in the following statements? show the memory layout of the variables.

a. k += j; = 5

b. j \*= 2; = 4

c. m /= j+3; = 0

d. m -= j \* k; =-2

Exercises 2

1. Type the following program (program2.3). identify the variables and the data type. show the content of the memory for the variable.

a. compile and run the program 2.3. Identify the variables and the data type.

variables(data type)= length(int), width(int), area(int)

b. Show the content of the memory for the variable.

Variable(size in byte) = length(4), width(4), area(4)

c. Now, modify the program 2.3 by changing statements at line 9 with the value of length to 10.10 and statement at line10 with the value of width 20.20. Compile and run the modified program. explain what happen.

Answer = When I compile and run the program the result of the area is the same as it was before I change the length and width, it is because the int char type can't read the decimal type of number.

d. Now, apply the appropriate typecasting to the statement at line 9 and 10. compile and run the modified program. what happen to the program?

Answer = After I change the int to double, the program can read the decimal and the result is 204.02

2. For operands % required both value to be integer as s is double we need to change the data type from double to integer.t1=4.05134e-322 while t2=24.5.the output is such like this because we don’t initialize t1 value.

3. What is the output for the following code excerpts ?

a. x1 is 0, x2 is 2, i is 2, j is 5, k is 12, y is 6, z is 7, f is 0

b. The value of X is 1, The value of b is 1

4.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Line No.** | **Number 1** | **Number 2** | **z** | **code** | **Word** |
| 1 | 0 | 0 | 0 | 0 | 0 |
| 2 | 6 | 0 | 0 | 0 | 0 |
| 3 | 6 | 13 | 0 | 0 | 0 |
| 4 | 6 | 13 | 2.25 | 0 | 0 |
| 5 | 6 | 13 | 2.25 | F | 0 |
| 6 | 6 | 3 | 2.25 | F | 0 |
| 7 | 6 | 3 | 15.3 | F | 0 |
| 8 | 24 | 3 | 15.3 | F | 0 |
| 9 | 24 | 3 | 15.3 | F | Great |
| 10 | 24 | 6 | 15.3 | F | Great |
| 11 | 24 | 6 | 15.3 | D | Great |
| 12 | 92 | 6 | 15.3 | D | Great |
| 13 | 92 | 6 | 76.7 | D | Great |

Exercises 3

2. write A program that computes the perimeter and the area of that circle. The program should assign a value of the radius of a circle to a variable. determine the result if the value of the radius is as follows:

a.67 = perimeter: 420.76, area: 14095.5

b. 320 = perimeter: 2009.6, area: 321536

c. 19 = perimeter: 119.32, area: 1133.54

3.write a program that compute the number of days, hours and minutes that can be extracted from the time. The program should assign a value of time in minutes. Determine the result if the value for time as follow:

a. 8924 = 6 days, 4 hours and 44 minutes

b. 732 = 0 days, 12 hours and 12 minutes

c. 56 = 0 days, 0 hours and 56 minutes