Structure, Arrays & Functions (C++ revision)

Part 1: Function

1. Declare a function *called* triangle which *takes* two parameters, height and width, and would *return* the area of a triangle. (function declaration)
2. Write the *function definition* for the above function declaration in Question 1. (function definition)
3. Call the above function inside the *main* function and output the result. (calling a function)
4. Declare a function *called* multiplication which *takes* three parameters, num1, num2 and num3 and would *return* a multiplication of the three numbers.
5. Write the *function definition* for the above function declaration in Question 4.
6. Call the above function inside the *main* function and output the result

Part 2: Array

1. Declare an array called *arr1* of type int which holds five elements. (array declaration)
2. Declare an array called *arr2* of type double which holds 10 elements. (array declaration)
3. Initialize an array called *new_arr* of type int with the following elements 10, 20, 30, 40, 50. (array initialization)
4. Write a program that initializes an array of five doubles. Change the values of the *first* and *last* array elements to any number and print the new values. (accessing array elements)
5. Write a program that initializes an array of six integers and prints all the array elements. (accessing array elements)

Part 3: Structure

1. Write a block of code that defines a structure called *Book* with these data members: *ISBN, title, num_pages*. (structure definition)
2. Declare a variable called b1 of type *Book*. (structure declaration)
3. Declare a variable called b2 of type *Book*. (structure declaration)
4. Declare an array of structures of type *Book*. (structure declaration)
5. Write a block of code that defines a structure called *Company* with these data members: *employees, registers, sales*. (structure definition)
6. Assign any value to the data members of b1 from Q2.
7. Assign any value to the data members of b2 from Q3.

Part 4: Function and Array

1. Declare a function *called* calculateSum which *takes* two parameters, the array name and the size of the array, to *return* the sum of array elements. (function declaration)
2. Write a function definition for the above declaration to compute the sum. (function definition)
3. Call the above function inside the *main* function and output the result (calling a function)

4. Write a function definition to compute quotient which corresponds to the following function declaration:
   double quotient (double a, double b);

Part 5: Function and Structure

1. Given the following structure definition and declaration, Write a function definition which reduces the population of a structure with type City by 20% (function definition)

```
struct City
{
String name;
long int population;
};
City metro1;
```

2. Call the above function inside the *main* function and output the updated result (calling a function)