Exercise №3

Task №1. Write a C# program that takes a number as input and prints its multiplication table. Use an array to resolve the task.
*Test data: number_1=**5***
*Result: 5*1=**5**, 5*2=**10**, 5*3=**15**, 5*4=**20**, 5*5=**25**, 5*6=**30**, 5*7=**35**, 5*8=**40**, 5*9=**45**, 5*10=**50***
Task №2: Write a C# program that stores 10 elements in an array and prints it in the console.
*Test data: number_1=**2**, number_2=**4**, number_3=**6**, number_4=**8**, number_5=**10**, number_6=**12**, number_7=**14**, number_8=**16**, number_9=**18**, number_10=**20***
*Result: **2**,**4**,**6**,**8**,**10**,**12**,**14**,**16**,**18**,**20***
Task №3: Write a C# program that reads the length and values of an array and displays it in reverse order.
*Test data: length =**3**, elements = **1**,**2**,**3***
*Result: **3**,**2**,**1***
Task №4: Write a C# program that reads the length of two arrays and their elements from a console and checks if they are the same.
*Test data: length of a first array = **2**, first element = **1** and second element =**2**; length of a second array =**2**, first element= **3**, second element = **2**.*
*Result: **The arrays are not equal but they have the same length.***
Task №5: Write a C# program for a 2D array of size 3x3 and print the matrix.
Test data:
*element - [0],[0] : **1***
*element - [0],[1] : **2***
*element - [0],[2] : **3***
*element - [1],[0] : **4***
*element - [1],[1] : **5***
*element - [1],[2] : **6***
*element - [2],[0] : **7***
*element - [2],[1] : **8***
*element - [2],[2] : **9***
Result:
The matrix is:
1 2 3
4 5 6
7 8 9
Task №6: Write a C# program to find the sum of the numbers in the right diagonal of a matrix. Input the length of an array in the console.
Test data: length of an array =2
element - [0],[0] : 1
element - [0],[1] : 2
element - [1],[0] : 3
element - [1],[1] : 4
Result:
The matrix is :
1 2
3 4

The Sum of the right Diagonal elements is: 5

Task №7: Write a C# program that finds the longest sequence of equal elements in an array.
*Test data: {2,1,1,2,3,3,**2**,**2**,**2**,1}*
*Result: **2**,**2**,**2***

Task №8: Write a C# program that finds the longest sequence of consecutive numbers in an array.
*Test data: {3,**2**,**3**,**4**,2,2,4}*
*Result: **2**,**3**,**4***
Task №3: Write a C# program that finds the longest sequence of elements in arithmetic progression. The elements may not be ordered in the array.
*Test data: {9,6,**2**,7,**4**,7,**6**,5,**8**,4}*
*Result: {**2**,**4**,**6**,**8**}*