Functions and procedures

Make a program with the following options:

1. **Calculate n!**
   - Enter the number ***n*** in *main*
   - Make a function to calculate the factorial, that takes **n** as an argument and returns the result.
2. **Calculate the binomial coefficient**
   - Enter the numbers ***n*** and ***k***
   - Check the conditions for ***n*** and ***k*** (bold) and if it's ok
   - Calculate the binomial coefficient based on the formula:
     - For the factorial use the function from task 1.
3. **Adding numbers**
   - Enter 2 int numbers in *main*
   - Make a function to add the two numbers. If the sum is greater than 50 return 1, and if not return 0. The sum itself should be returned via reference.
4. **Switch numbers**
   - Enter 2 int numbers in *main*
   - Make a function to switch values of these two variables
   - After returning from the function print the values of the variables (in main)

5. **Make a program to enter and display integer array elements** (maximum 100) with the following functions:
   1. **Enter an element** – enter one element to the array, the function takes as arguments the address of the array and the number of elements already entered in the array. If the maximum number of elements is not reached, then ask the user to enter a new element. If the maximum number is reached, display an adequate message.
   2. **Display all entered elements from the array** – the function takes as arguments the address of the array and the number of elements entered in the array.

Task 2.

$$\binom{n}{k} = \frac{\mathrm{n!}}{\mathrm{k!\,(n-k)!}}, \mathbf{n \geq k \geq 0}$$