Lab 2. Conditionals, Loops

Conditionals

1. A whole number is given. If it is positive, add 1 to it; if it is negative, subtract 2 from it; if it is zero, change it to 10. Output the resulting number.
2. Three whole numbers are given. Find the number of positive and the number of negative numbers in the given set.
3. Three numbers are given. Find the sum of the two largest of them.
4. The user sets an integer number. The program must then output a message saying whether the number is even or odd.
5. The user specifies the coordinates of a point that does not lie on the coordinate axes OX and OY. Determine the number of the coordinate quadruple in which the given point is located

Loops

1. There are two integers A and B (A < B). Find the sum of all integers from A to B inclusive.
2. There are two integers A and B (A < B). Find the product of all integers of all integers from A to B inclusive.
3. An integer N is given (> 0). Find the sum of $N^2 + (N + 1)^2 + (N + 2)^2 + \cdots + (2N)^2$.
4. Given a real number A and an integer N (> 0). Using one loop, output all integer degrees of the number A from 1 to N.
5. Given an integer N (> 0). Using one loop, find the sum of 1! + 2! + 3! + ... + N! (the expression N! means N-factorial, it denotes the product of all integers from 1 to N, N! = 1*2*....*N).
6. Compute all combinations of the values a, b, c, and d (each starting from 1 and less than 100) for which the following formula holds: $a^2 + b^2 = c^2 + d^2$