Basic Syntax – Exercises

Write C++ code for solving the tasks on the following pages.

Problem 1 – Order Two Numbers

Write a program that reads two integers from the console and prints them in increasing order.

Examples

Input	Output
1 2	1 2
1 -1	-1 1
4242 1313	1313 4242

Problem 2 – Product Sign

Write a program that shows the sign (+ or -) of the product of three real numbers without calculating it.

The program should read 3 real numbers from the console (on a single line, separated by spaces) and should print the sign of their product (i.e. the sign of the number resulting from the multiplication of the 3 numbers). If the product is 0, print +.

Examples

Input	Output
1 2 0	+
1 -1 1	-
-411531.13 123123 -8673.24	+

Problem 3 – Quadratic Equation

Write a program that enters the coefficients **a**, **b** and **c** of a quadratic equation **a*x2 + b*x + c = 0** and calculates and prints its real roots. Note that quadratic equations may have **0**, **1** or **2** real roots. You can check your program against this: https://www.mathsisfun.com/quadratic-equation-solver.html

The numbers **a**, **b**, and **c** will be entered on a single line from the console, separated by spaces.

If the quadratic equation has no real roots (e.g. if the Discriminant is less than 0), print "**no roots**", if it has one real root print it, if it has two roots, print them on a single line, separated by a single space

Examples

Input	Output	Explanation
2 5 -3	-3 0.5	*Equation: $2x^2 + 5x - 3 = 0$*
10 1 3	no roots	*Equation: $10x^2 + x + 3 = 0$*
0.5 5 12.5	-5	*Equation: $0.5x^2 + 5x + 12.5 = 0$*

Problem 4 – 1 to N

Write a program that that reads the integer number N from the console and prints all numbers from 1 to N (i.e. in the range [1, N]) to the console on a single line. The number N will always be larger than or equal to 1.

Examples

Input	Output
1	1
10	1 2 3 4 5 6 7 8 9 10

Problem 5 – Min and Max

Write a program that reads an integer number N, then reads a line of N integers, and prints the minimum and maximum of those integers.

Examples

Input	Output
2 -1 5	-1 5
7 5 3 44 21 69 2 10	2 69

Problem 6 – Greatest Common Divisor

Write a program that calculates the greatest common divisor (GCD) of given two numbers. Hint: you can use the Euclidean algorithm.

The two integer numbers will be entered on a single line from the console, separated by a single space.

Find and print their GCD.

Examples

Input	Output	Explanation
25 10	5	5 is the largest number that divides both 25 and 10 (without a remainder)
50 50	50	Both numbers are 50, so GCD is 50
7 13	1	7 and 13 are prime numbers, meaning they only divide by 1 and themselves, so their GCD is 1