Exercise: Basic Syntax

Please submit your solutions (source code) of all below-described problems in Judge

1. Order Two Numbers

Write a program that:

- Read **two integers** from the console
- Print the **two numbers in increasing order**

Examples

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

2. Product Sign

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

- Read **3 real numbers** from the console (on a single line, separated by spaces)
- Print the sign of their product (if the product is 0, print '+')

Examples

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

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 solutions. Note that quadratic equations may have **0**, **1**, or **2** real solutions.

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.
  On the first place, print the root calculated by formula **(- b + sqrt(D)) / 2 * a**
  On the second place, print the root calculated by the formula **(- b - sqrt(D)) / 2 * a**

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: $0.5x^2 + 5x + 12.5 = 0$

4. Numbers 1 to N

Write a program that:

- Read the **integer number N** from the console
- Print **all numbers from 1 to N (inclusively)** to the console on a single line

Note: 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

5. Min and Max

Write a program that:

- Reads an **integer number N**
- Then reads a **line of N integers**
- Print the **minimum** and **maximum** of those integers, separated by single space

Examples

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

6. Greatest Common Divisor

Write a program that calculates the **greatest common divisor (GCD)** of given two numbers

- Read **two integer numbers** on a single line from the console, separated by a single space
- **Find** their GCD (Greatest Common Divisor)
- **Print** their GCD (Greatest Common Divisor)

Hint: you can use the Euclidean algorithm.

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

7. Print and Sum

Write a program that:

- Read an **integer number (start number)** on the first line from the console
- Read an **integer number (end number)** on the second line from the console
- Print numbers from given start number to given end number
- Print their sum in the following format: **"Sum: {sum}"**

Note: All the numbers will be integers.

Examples

Input	Output
5 10	5 6 7 8 9 10 Sum: 45
0 26	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 Sum: 351
50 60	50 51 52 53 54 55 56 57 58 59 60 Sum: 605

8. Strong Number

Write a program that:

- Reads an **integer number N**
- Check whether a given number is **strong**
  - Number is strong if the sum of the Factorial of each digit is equal to the number.
    For example: 145 is a strong number, because **1! + 4! + 5! = 145**
- Print "**yes**" if the number is **strong**
- Print "**no**" if the number is **NOT strong**

Examples

Input	Output
2	yes
3451	no
40585	yes