Exercise: Lists

Problems for exercises and homework for the "Python Fundamentals" course @ SoftUni.

You can check your solutions here: https://judge.softuni.bg/Contests/924/.

01. Sum List Items

Write a program, which reads a **list** of integers, calculates its **sum** and **prints** it.

The input consists of a **number n** (the number of items) + **n** integers, each as a separate line.

Examples

Input	Output
4 1 2 3 4	10
5 1 1 1 1 1	5
4 2 -1 -2 8	7

Hints

- First, read the number **n**.
- Read the integers in a **for**-loop.

02. Multiply a List of Integers

Write a program to read **a list of integers**, an integer **p**, multiply each item by **p** and print the resulting list.

Examples

Input	Output
1 3 12 4 4	4 12 48 16
6 8 1 -9 3	18 24 3 -27

Hints

- Read the list
- **Loop through** the list, **multiplying each item** by **p**

- Finally, **print** the resulting list, using a **for** loop

03. Smallest Item in List

Write a program to read **a list of integers**, find the **smallest item** and **print** it.

Examples

Input	Output
1 2 3 4	1
3 2 9 **-9** 6 1	-9
-6 0 **-17** -1	-17

Hints

- **Loop through** the **integer list** until you find the **smallest item**

04. Rotate List of Strings

Write a program to read **a list of strings**, **rotate** it to the right and **print** its rotated items.

Examples

Input	Output
a b c d e	e a b c d
soft uni hi	hi soft uni
i r a b	b i r a

Hints

- You can store the rotated list in a **second list** alongside the first one

05. Count of Odd Numbers in List

Write a program to read **a list of integers** and find **how many odd items it holds**.

Examples

Input	Output
1 -2 **3** 4	2
3 9 -9 -6 **1** -2	4
66 0 2 1	1

Hints:

- You can check if a number is **odd** if you **divide it by 2** and check whether you get **a remainder of 1**.
- Odd numbers, which are negative, have a **remainder** of **-1**.

06. Odd Numbers at Odd Positions

Write a program to read a list of integers and find how many **odd numbers** at **odd positions** the list holds. If there are no numbers, which match this criterion, **do not print anything**

Examples

Input	Output	Explanation
2 **3** 5 2 7 **9** -1 **-7**	Index 1 -> 3 Index 5 -> 9 Index 7 -> -7	Indexes: 0 **1** 2 3 4 **5** 6 **7** Numbers: 2 **3** 5 2 7 **9** **-1** -7 Odd positions with odd numbers: 1, 5 and 7
2 **3** 55 2 4 **1**	Index 1 -> 3 Index 5 -> 1	Indexes: 0 **1** 2 3 4 **5** Numbers: 2 **3** 55 2 4 **1** Odd positions with odd numbers: 1 and 5
5 0 1 2	*(no output)*	Indexes: 0 1 2 3 Numbers: 5 0 1 2 Odd positions with odd numbers: **none**

Hints

- Positions are counted **from 0** from left to right, so if for example the second item (**index 1**) is **odd**, then we **should** count it, and so on…
- Do **NOT** count odd numbers, which are at **even** positions (0, 2, 4, etc…)

07. Remove Negatives and Reverse

Read a **list of integers**, **remove all negative numbers** from it and print the remaining items in **reversed order**. In case of no items left in the list, print "**`empty`**".

Examples

Input	Output
10 -5 7 9 -33 50	50 9 7 10
7 -2 -10 1	1 7
-1 -2 -3	empty

Hints

- Read the list
- Create a new empty list for the results.
- Scan the input list from the end to the beginning. Check each item and append all non-negative items to the result list.
- Finally, print the results list (at a single line holding space-separated numbers).

08. Append Lists

Write a program to **append several lists** of numbers.

- Lists are separated by '**|**'.

- Values are separated by spaces (‘ ’, one or several)
- Order the lists from the **last** to the **first**, and their values from **left** to **right**.

Examples

Input	Output
1 2 3 |4 5 6 | 7 8	7 8 4 5 6 1 2 3
7 | 4 5|1 0| 2 5 |3	3 2 5 1 0 4 5 7
1| 4 5 6 7 | 8 9	8 9 4 5 6 7 1

Hints

- Create a new empty list for the results.
- Split the input by ‘|’ into list of tokens.
- Pass through each of the obtained tokens from tight to left.
    - For each token, split it by space and append all non-empty tokens to the results.
- Print the results.

09. Sort Numbers

Read a **list of integers** and **sort** them in **ascending order**. Print the output as shown in the examples below.

Examples

Input	Output
8 2 7 3	2 <= 3 <= 7 <= 8
2 4 -9	-9 <= 2 <= 4

Hints

- Use the built-in method **`list.sort()`**.

10. Square Numbers

Read a **list of integers** and **extract all square numbers** from it and print them in **descending order**. A **square number** is an integer which is the square of any integer. For example, 1, 4, 9, 16 are square numbers.

Examples

Input	Output
3 **16** **4** 5 6 8 **9**	16 9 4
12 **1** **9** **4** **16** 8 **25** **49** **16**	49 25 16 16 9 4 1

Hints

- To find out whether an integer is “**square number**”, check whether its square root is integer number (has no fractional part):
    - **`if (√num == (int)√num) …`**
- To order the results list in descending order use sorting with reverse