

# Exercise: Functions

Problems for exercise and homework for the [Python Fundamentals Course @SoftUni](#).  
Submit your solutions in the SoftUni judge system at <https://judge.softuni.org/Contests/1728>.

## 1. Smallest of Three Numbers

Write a function that receives **three integer** numbers and **returns** the **smallest**. Print the result on the console. Use an appropriate name for the function.

### Examples

Input	Output
2 5 3	2
600 342 123	123
25 21 4	4

## 2. Add and Subtract

You will receive **three integer numbers**.

Write functions named:

- **sum\_numbers()** that **returns** the **sum** of the **first two** integers
- **subtract()** that **returns** the **difference** between the **returned result** of the first function and the **third** integer

Wrap the two functions in a function named **add\_and\_subtract()** which will receive the three numbers as parameters. Print the result of the **subtract()** function on the console.

### Examples

Input	Output
23 6 10	19
1 17 30	-12
42	0

58	
100	

### 3. Characters in Range

Write a function that receives **two characters** and **returns** a **single string with all the characters in between them** (according to the **ASCII** code), separated by a single **space**. Print the result on the console.

#### Examples

Input	Output
a d	b c
# :	\$ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9
# C	\$ % & ' ( ) * + , - . / 0 1 2 3 4 5 6 7 8 9 : ; < = > ? @ A B

### 4. Odd and Even Sum

You will receive a **single number**. You should write a function that returns the **sum** of **all even** and **all odd digits** in a given number. The result should be returned as a single string in the format:

"Odd sum = {sum\_of\_odd\_digits}, Even sum = {sum\_of\_even\_digits}"

Print the result of the function on the console.

#### Examples

Input	Output
1000435	Odd sum = 9, Even sum = 4
3495892137259234	Odd sum = 54, Even sum = 22

### 5. Even Numbers

Write a program that receives a sequence of numbers (integers) separated by a single space. It should print a list of **only the even numbers**. Use **filter()**.

#### Example

Input	Output
1 2 3 4	[2, 4]
1 2 3 -1 -2 -3	[2, -2]

## 6. Sort

Write a program that receives a sequence of numbers (integers) separated by a single space. It should print a **sorted** list of numbers in **ascending order**. Use `sorted()`.

### Example

Input	Output
6 2 4	[2, 4, 6]
12 52 11 53 2 8 45	[2, 8, 11, 12, 45, 52, 53]

## 7. Min Max and Sum

Write a program that receives a sequence of numbers (integers) separated by a single space. It should print **the min and max values** of the given numbers and **the sum** of all the numbers in the list. Use `min()`, `max()` and `sum()`.

The output should be as follows:

- On the first line: "The minimum number is {minimum number}"
- On the second line: "The maximum number is {maximum number}"
- On the third line: "The sum number is: {sum of all numbers}"

### Example

Input	Output
2 4 6	The minimum number is 2 The maximum number is 6 The sum number is: 12
12 52 11 53 2 8 45	The minimum number is 2 The maximum number is 53 The sum number is: 183

## 8. Palindrome Integers

A palindrome is a number that reads the same **backward as forward**, such as 323 or 1001. Write a function that receives a **list of positive integers**, separated by comma and space ", ". The function should **check if each integer is a palindrome** - True or False. Print the result.

### Examples

Input	Output	Input	Output
123, 323, 421, 121	False True False True	32, 2, 232, 1010	False True True False

## Hints

- You can read more about palindromes here: <https://en.wikipedia.org/wiki/Palindrome>

## 9. Password Validator

Write a function that checks if a given password is valid. Password validations are:

- It should be **6 - 10** (inclusive) characters long
- It should consist **only of letters and digits**
- It should have **at least 2** digits

If a password is **valid**, print **"Password is valid"**.

Otherwise, for every unfulfilled rule, print a message:

- "Password must be between 6 and 10 characters"**
- "Password must consist only of letters and digits"**
- "Password must have at least 2 digits"**

## Examples

Input	Output
logIn	Password must be between 6 and 10 characters Password must have at least 2 digits
MyPass123	Password is valid
Pa\$\$s	Password must consist only of letters and digits Password must have at least 2 digits

## 10. Perfect Number

A perfect number is a **positive** integer that is equal to the **sum** of its **proper positive divisors**. That is the sum of its positive **divisors**, excluding the number itself (also known as its **aliquot sum**).

Write a function that receives an integer **number** and **returns one** of the following messages:

- "We have a perfect number!"** - if the number is **perfect**.
- "It's not so perfect."** - if the number is **NOT perfect**.

Print the result on the console.

## Examples

Input	Output	Comments
6	We have a perfect number!	1 + 2 + 3
28	We have a perfect number!	1 + 2 + 4 + 7 + 14
1236498	It's not so perfect.	

## Hint

Every perfect number is **half the sum** of all its positive divisors (including itself) => the sum of all positive divisors (all of which are divided without remainder) of 6 is  $1 + 2 + 3 + 6 = 12$ . Half of 12 is 6 => 6 is perfect number.

- You could read more about the perfect number here: [https://en.wikipedia.org/wiki/Perfect\\_number](https://en.wikipedia.org/wiki/Perfect_number)

## 11. \* Loading Bar

You will receive a **single integer number** between **0** and **100** (inclusive) divisible by 10 without remainder (0, 10, 20, 30...). Your task is to create a function that returns a **loading bar** depending on the number you have received in the input. Print the result on the console. For more clarification, see the examples below.

### Examples

Input	Output
30	30% [%%%. . . . .] Still loading...
50	50% [%%%%%%%%. . . . .] Still loading...
100	100% Complete! [%%%%%%%%%]

## 12. \* Factorial Division

Write a function that receives **two** integer numbers. Calculate the **factorial** of each number.

Divide the first result by the second and **print the division** formatted to the **second decimal point**.

### Examples

Input	Output
5 2	60.00
6 2	360.00

## Hints

- Read more about factorial here: <https://en.wikipedia.org/wiki/Factorial>