# Exercise: Functions

This document defines the exercises for the ["C++ Fundamentals" course @ Software University](https://softuni.bg/trainings/4263/cpp-fundamentals-november-2023).

Please submit your solutions (source code) of all below-described problems in [Judge](https://judge.softuni.org/Contests/2938/CPlusPlus-Functions).

## Center Point

Write a program that:

* Read **four integer numbers (coordinates of two points** on a [Cartesian coordinate system](https://en.wikipedia.org/wiki/Cartesian_coordinate_system))
  + From the first line – **coordinate X of the first point**
  + From the second line – **coordinate Y of the first point**
  + From the third line – **coordinate X of the second point**
  + From the forth line – **coordinate Y of the second point**
* **Create a method** that **prints** **coordinates of the given point that is closest** to the center of the coordinate system (0, 0) in the format: **(X, Y)**

**Note:** **If the points are at the same distance from the center, print only the first point coordinates.**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 2  4  -1  2 | (-1, 2) |
| 1  2  7  6 | (1, 2) |

## Operations

Write a program that:

* Read **two integer numbers** from the first line of the console separated by single space
* Read **symbol** (one of the following: +, -, \*, /) from the second line of the console
  + The operations are as follows:
    - + is addition
    - - is subtraction
    - \* is multiplication
    - / is division
* Create **four functions (for each operation)** and call the right one depending on the command
* Print **result from the calculation**

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 8 4  / | 2 |
| 2 3  - | -1 |
| 1 2  + | 3 |

## Factorial Division

Write a program that:

* Read **two integer numbers**
* Calculate the [factorial](https://en.wikipedia.org/wiki/Factorial) of each number
* Divide the **factorial of the first number by the factorial of the second number**
* Print the **division, formatted to the second decimal point**

### Examples

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input** | **Output** |  | **Input** | **Output** |
| 5  2 | 60.00 |  | 6  2 | 360.00 |

## Print Name of Numbers

Write a program that:

* Read an integer **number in the range [0, 9999]**
* Prints **the name of that number in English**

**Hints:**

* Use lowercase English letters only
* Don't place "and" (957 is nine hundred fifty-seven, NOT nine hundred and fifty-seven)
* Skip 0 digits, except for the number 0 (0 -> zero; 101 -> one hundred one; 1001 -> one thousand one)
* Don't print dashes (print 75 as seventy five, NOT seventy-five)

### Examples

|  |  |
| --- | --- |
| **Input** | **Output** |
| 0 | zero |
| 101 | one hundred one |
| 957 | nine hundred fifty seven |

## Multiply Evens Sum by Odds

Write a program that:

* Read an **integer number**
* **Multiply the sum of all its even digits** by **the sum of all its odd digits**
* Print the **result of the multiplication**

### Examples

|  |  |  |
| --- | --- | --- |
| **Input** | **Output** | **Comments** |
| 12345 | 54 | 12345 has **2 even digits** - 2 and 4. Even digits have a **sum of 6**.  Also, it has **3 odd digits** - 1, 3, and 5. Odd digits have a **sum of 9**.  **Multiply 6 by 9** and you get **54**. |
| -12345 | 54 |  |