

# Challenge 1: Subtract Two Complex Numbers

Let's test your understanding of structures by solving a simple challenge.

## We'll cover the following

- Problem statement
  - What is a complex number?
  - Structure `complex_number`
  - Function `subtract`
  - Subtraction of complex numbers
  - Sample input
  - Sample output
- Coding exercise

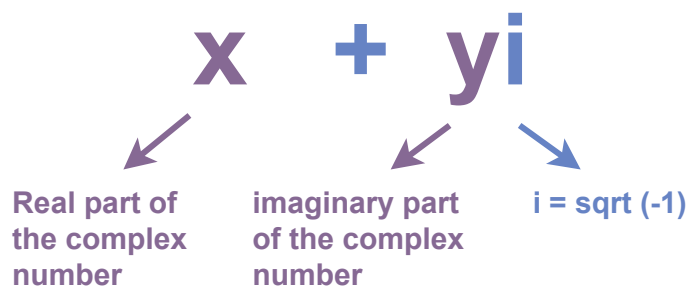
## Problem statement #

In this challenge, your task is to subtract two complex numbers.

## What is a complex number? #

A complex number is a number with both real and imaginary parts.

In the figure below, `x + yi` is a complex number.



## Structure `complex_number` #

To store the complex number, we have already defined the structure

`complex_number` for you.

```
struct complex_number {
```

```
double real ; —————> real will store real part of the complex number
```

```
double imaginary ; —————> imaginary will store imaginary part of the complex number
```

```
};
```

## Function `subtract` #

In this challenge, we have already declared the function `complex_number` that will take values of type `complex_number` in its input parameters and return value of type `complex_number` in output.

```
complex_number subtract ( struct complex_number c1 , struct complex_number c2 )
```

You have to write your program logic inside the function `complex_number`.

## Subtraction of complex numbers #

To subtract the complex number, we will follow the following steps:

**STEP 1:** Apply the negative sign to the real and imaginary parts of the second complex number.

**STEP 2:** Add a real part of the first complex number in the real part of the second complex number and imaginary part of the first complex number in the imaginary part of a second complex number.

## Sample input #

```
subtract ({12.3 , 67.4} , {54.2 , 90.8})
```

## Sample output #

```
-41.900000 + -23.400000
```

## Coding exercise #

Before diving directly into the solution, first, try to solve it yourself, and then check if your code passes all the test cases. If you get stuck, you can always see the given

solution.

Good Luck! 👍

```
// Structure to store complex number
struct complex_number {
    double real;
    double imaginary;
};

// Function to subtract two complex numbers
complex_number subtract(struct complex_number c1, struct complex_number c2) {
    struct complex_number c;
    // Write your code here
    return c;
}
```



🎉 Well done! If you have solved the problem, give yourself a round of applause.

In case you are stuck, let's go over the solution review in the next lesson.