



Lab 002: Clase Complejos

Realizar un programa en Java y Javascript que defina la clase Complejo para sumar, restar y multiplicar, toString, numeros complejos, y operar utilizando html

Enviar un archivo pdf con las corridas de estas funciones, que ademas incluya el nombre del estudiante

Enlace de GitHub: <https://github.com/JuanApazaG/Ing-de-software0.2.git>

Realizamos el LAB con JS

```
<body>
  <!-- Lab 002: Ingenieria de Software
    Operacion con numeros complejos
    @autor Juan Agustin Apaza Guzman
    @version 1.0
    @date 01/03/2024
  -->

  <h1> Lab 002: Clase Complex</h1>
  <script>
    console.log("Lab 002: Ingenieria de Software")
    console.log("@autor Juan Agustin Apaza Guzman")
    console.log(" @version 1.0")
    console.log(" @date 01/03/2024")

    class Complex{
      real = 0;
      img = 0;
      constructor (real,img){
        this.real = real;
        this.img = img;
      }

      suma(y){
        let z = new Complex(0,0);
        z.real = this.real+ y.real;
        z.img = this.img + y.img;
        return z;
      }

      restar(y){
        let z = new Complex(0,0);
        z.real = this.real- y.real;
        z.img = this.img - y.img;
        return z;
      }
    }
  </script>

```



```
    multiplicar(y){
        let z = new Complex(0,0);
        z.real = this.real* y.real - this.img*y.img;
        z.img = this.real * y.img + this.img*y.real; ;
        return z;
    }

    toString(){
        let str = this.real + " ";
        if(this.img>0) str+="+ ";
        str += this.img + "i";
        return str;
    }
}

var x = new Complex(5,3)
var y = new Complex(-2,1)

var z=x.suma(y);
console.log("Suma:")
console.log("Complex x")
console.log(x.toString())
console.log("complex y")
console.log(y.toString())
console.log("resultado")
console.log(z.toString())

var z=x.restar(y);
console.log("Restar:")
console.log("Complex x")
console.log(x.toString())
console.log("complex y")
console.log(y.toString())
console.log("resultado")
console.log(z.toString())

var z=x.multiplicar(y);
console.log("multiplicar:")
console.log("Complex x")
console.log(x.toString())
console.log("complex y")
console.log(y.toString())
console.log("resultado")
console.log(z.toString())
```

</script>

Resultados:



Lab 002: Ingenieria de Software	index.html:18
@autor Juan Agustin Apaza Guzman	index.html:19
@version 1.0	index.html:20
@date 01/03/2024	index.html:21
Suma:	index.html:64
Complex x	index.html:65
5 + 3i	index.html:66
complex y	index.html:67
-2 + 1i	index.html:68
resultado	index.html:69
3 + 4i	index.html:70
Restar:	index.html:73
Complex x	index.html:74
5 + 3i	index.html:75
complex y	index.html:76
-2 + 1i	index.html:77
resultado	index.html:78
7 + 2i	index.html:79
multiplicar:	index.html:82
Complex x	index.html:83
5 + 3i	index.html:84
complex y	index.html:85
-2 + 1i	index.html:86
resultado	index.html:87
-13 -1i	index.html:88

> |

Ahora con JAVA



```
1  /* Lab 002: Ingenieria de Software
2      Operacion con numeros complejos
3      @autor Juan Agustin Apaza Guzman
4      @version 1.0
5      @date 01/03/2024
6  */
7
8  public class Complex {
9      private double real;
10     private double imaginary;
11
12     public Complex(double real, double imaginary) {
13         this.real = real;
14         this.imaginary = imaginary;
15     }
16
17     public Complex add(Complex other) {
18         double realPart = this.real + other.real;
19         double imaginaryPart = this.imaginary + other.imaginary;
20         return new Complex(realPart, imaginaryPart);
21     }
22
23     public Complex subtract(Complex other) {
24         double realPart = this.real - other.real;
25         double imaginaryPart = this.imaginary - other.imaginary;
26         return new Complex(realPart, imaginaryPart);
27     }
28
29     public Complex multiply(Complex other) {
30         double realPart = this.real * other.real - this.imaginary * other.imaginary;
31         double imaginaryPart = this.real * other.imaginary + this.imaginary * other.real;
32         return new Complex(realPart, imaginaryPart);
33     }
34
35     @Override
36     public String toString() {
37         if (imaginary >= 0) {
38             return real + " + " + imaginary + "i";
39         } else {
40             return real + " - " + (-imaginary) + "i";
41         }
42     }
43
44     public static void main(String[] args) {
45         Complex x = new Complex(5, 3);
46         Complex y = new Complex(-2, 1);
47
48         Complex z = x.add(y);
49         System.out.println("Suma:");
50         System.out.println("Complex x");
51         System.out.println(x);
52         System.out.println("Complex y");
53         System.out.println(y);
54         System.out.println("Resultado");
55         System.out.println(z);
56
57         z = x.subtract(y);
58     }
59 }
```



```
public static void main(String[] args) {  
    Complex x = new Complex(5, 3);  
    Complex y = new Complex(-2, 1);  
  
    Complex z = x.add(y);  
    System.out.println("Suma:");  
    System.out.println("Complex x");  
    System.out.println(x);  
    System.out.println("Complex y");  
    System.out.println(y);  
    System.out.println("Resultado");  
    System.out.println(z);  
  
    z = x.subtract(y);  
    System.out.println("\nRestar:");  
    System.out.println("Complex x");  
    System.out.println(x);  
    System.out.println("Complex y");  
    System.out.println(y);  
    System.out.println("Resultado");  
    System.out.println(z);  
  
    z = x.multiply(y);  
    System.out.println("\nMultiplicar:");  
    System.out.println("Complex x");  
    System.out.println(x);  
    System.out.println("Complex y");  
    System.out.println(y);  
    System.out.println("Resultado");  
    System.out.println(z);  
}
```

Resultados



```
java -cp /tmp/et0gtMYu94 Complex
Suma:
Complex x
5.0 + 3.0i
Complex y
-2.0 + 1.0i
Resultado
3.0 + 4.0i

Restar:
Complex x
5.0 + 3.0i
Complex y
-2.0 + 1.0i
Resultado
7.0 + 2.0i

Multiplicar:|
Complex x
5.0 + 3.0i
Complex y
-2.0 + 1.0i
Resultado
-13.0 - 1.0i
```