

Practical 1

```
class Complex {
```

```
    double real, imaginary;
```

```
    Complex() {
```

```
        real = 0;
```

```
        imaginary = 0;
```

```
    }
```

```
    Complex(double r, double i) {
```

```
        real = r;
```

```
        imaginary = i;
```

```
    }
```

```
    Complex add(Complex c) {
```

```
        return new Complex(real + c.real, imaginary + c.imaginary);
```

```
    }
```

```
    Complex subtract(Complex c) {
```

```
        return new Complex(real - c.real, imaginary - c.imaginary);
```

```
    }
```

```
    Complex multiply(Complex c) {
```

```
        double r = real * c.real - imaginary * c.imaginary;
```

```
        double i = real * c.imaginary + imaginary * c.real;
```

```
        return new Complex(r, i);
```

```
    }
```

```
    Complex divide(Complex c) {
```

```
        double denominator = c.real * c.real + c.imaginary * c.imaginary;
```

```
        double r = (real * c.real + imaginary * c.imaginary) / denominator;
```

```
double i = (imaginary * c.real - real * c.imaginary) / denominator;
return new Complex(r, i);
}
```

```
void display() {
    if (imaginary >= 0)
        System.out.println(real + " + " + imaginary + "i");
    else
        System.out.println(real + " - " + (-imaginary) + "i");
}
```

```
public static void main(String[] args) {
    Complex c1 = new Complex(3, 2);
    Complex c2 = new Complex(1, 7);
    Complex result;

    System.out.print("Addition: ");
    result = c1.add(c2);
    result.display();

    System.out.print("Subtraction: ");
    result = c1.subtract(c2);
    result.display();

    System.out.print("Multiplication: ");
    result = c1.multiply(c2);
    result.display();

    System.out.print("Division: ");
    result = c1.divide(c2);
    result.display();
}
```

}

}