第 3 次平时作业

```
package work3;

import java.util.Scanner;

// 复数类
public class ComplexNumber {
    // 类属性，实部与虚部
    double real;
    double virtual;

    // 默认无参构造函数
    public ComplexNumber(){

    }

    // 有参构造
    public ComplexNumber(double real, double virtual) {
        this.real = real;
        this.virtual = virtual;
    }

    /* 类方法 add,实现两个复数之间的和运算
    *  返回值亦是复数*/
    public ComplexNumber add(ComplexNumber cmxNum){
        return new
ComplexNumber(this.real+cmxNum.real,this.virtual+cmxNum.virtual);
    }

    /* 类方法 reduce，实现减法运算
    * 复数返回值*/
    public ComplexNumber reduce(ComplexNumber cmxNum){
        return new ComplexNumber(this.real-cmxNum.real,this.virtual-
cmxNum.virtual);
    }

    /* 类方法 multiply，实现乘法*/
    public ComplexNumber multiply(ComplexNumber cmxNum){
        double a = this.real*cmxNum.real -
this.virtual*cmxNum.virtual;
        double b = this.virtual*cmxNum.real +
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this.real*cmxNum.virtual;
        return new ComplexNumber(a,b);
    }

    /* 类方法 divide，实现除法*/
    public ComplexNumber divide(ComplexNumber cmxNum){
        double denominator = cmxNum.real*cmxNum.real +
cmxNum.virtual*cmxNum.virtual;
        double numerator1 = this.real*cmxNum.real +
this.virtual*cmxNum.virtual;
        double numerator2 = this.virtual*cmxNum.real -
this.real*cmxNum.virtual;
        double a = numerator1 / denominator;
        double b = numerator2 / denominator;
        return new ComplexNumber(a,b);
    }

    /* 类方法 print，将复数打印出来*/
    public void print(){
        double a = this.real;
        double b = this.virtual;
        System.out.println(a+" + "+b+'i');
    }

    // main 函数
    public static void main(String[] args) {
        /* 交互，读入数据，实体化类，进行方法调用*/
        System.out.println("please enter the real and virtual parts of
the first complex number");
        Scanner myGet = new Scanner(System.in);
        double newNumReal1 = myGet.nextDouble();
        double newNumVir1 = myGet.nextDouble();
        ComplexNumber newCmxNum1 = new
ComplexNumber(newNumReal1,newNumVir1);
        System.out.println("OK,I get it:");
        newCmxNum1.print();

        System.out.println("then,enter another one, I will get some
calculate");
        double newNumReal2 = myGet.nextDouble();
        double newNumVir2 = myGet.nextDouble();
        ComplexNumber newCmxNum2 = new
ComplexNumber(newNumReal2,newNumVir2);
        System.out.println("I get it:");
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        newCmxNum2.print();

        System.out.print("so, num1 add num2 is: ");
        ComplexNumber resAdd = newCmxNum1.add(newCmxNum2);
        resAdd.print();

        System.out.print("then, the subtract is: ");
        ComplexNumber resReduce = newCmxNum1.reduce(newCmxNum2);
        resReduce.print();

        System.out.print("and, the multiply is: ");
        ComplexNumber resMul = newCmxNum1.multiply(newCmxNum2);
        resMul.print();

        System.out.print("last, the divide is: ");
        ComplexNumber resDiv = newCmxNum1.divide(newCmxNum2);
        resDiv.print();
    }
}
```