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JAVA PROGRAMMING

Assignment 5

Source code:

Complex.java

```
public class Complex{
    private int real=0;
    private int imaginary=0;
    public Complex(){
        real = 0;
        imaginary = 0;
    }
    public Complex(int re,int img){
        real = re;
        imaginary = img;

    }
    public void add(int re,int img ){
        int addREAL = real+re;
        int addIMaginary = imaginary+img;
        System.out.println("ADDTION OF COMPLEX NUMBERS:");
        System.out.println("real :"+addREAL+"  imaginary :"+addIMaginary);
    }
    public void subtract(int re,int img){
        int subREAL = real-re;
        int subIMaginary = imaginary-img;
         System.out.println("\n");
         System.out.println("SUBTRACTION OF COMPLEX NUMBERS:");
         System.out.println("real :"+subREAL+"  imaginary :"+subIMaginary);
    }
    public void multiplyWith(int re,int img){

            int mulReal1 = (real*re) - (imaginary*img);
            int mulImaginary1 = (real*img) + (imaginary*re);
```

```
            System.out.println("\n");
            System.out.println("MULTIPLICATION OF COMPLEX NUMBERS:");
            System.out.println("real :"+mulReal1+"  imaginary :"+mulImaginary1);

    }
    public void divideBy(int re,int img){

        int spl = (re*re)+(img*img);

        int diviReal = (((real*re)+(imaginary*img)) / spl);
        int divImaginary = (((imaginary*re)-(real*img))/spl);
        System.out.println("\n");
        System.out.println("DIVITION OF COMPLEX NUMBERS:");
        System.out.println("real :"+diviReal+"  imaginary :"+divImaginary);
    }
    public boolean isReal(){

        if(real !=0 && imaginary==0){
            return true;
    }
    else{
        return false;
    }
}
    public boolean isImaginary(){
        if(real==0 && imaginary!=0){

            return true;
        }
        else{
            return false;
        }
    }
}
```

Solution.java

```
public class Solution{
    public static void main(String arg[]){
        Complex complex1 = new Complex();
        Complex complex = new Complex(4,7);
        complex.add(2,1);
        complex.multiplyWith(2,1);
        complex.divideBy(1,1);
        complex.subtract(2,1);
        System.out.println("\n");
        System.out.println("COMPLEX NUMBER ISREAL : "+complex1.isReal());
        System.out.println("COMPLEX NUMBER ISREAL : "+complex1.isImaginary());



    }
}
```

OUTPUT:

```
C:\Users\students\Documents\kavitha>javac Complex.java

C:\Users\students\Documents\kavitha>javac Solution.java

C:\Users\students\Documents\kavitha>java Solution
ADDTION OF COMPLEX NUMBERS:
real :6  imaginary :8


MULTIPLICATION OF COMPLEX NUMBERS:
real :1  imaginary :18


DIVITION OF COMPLEX NUMBERS:
real :5  imaginary :1


SUBTRACTION OF COMPLEX NUMBERS:
real :2  imaginary :6


COMPLEX NUMBER ISREAL : false
COMPLEX NUMBER ISREAL : false

C:\Users\students\Documents\kavitha>
```