

```

package structure;

import structure.exceptions.ComplexException;

public class Complex
{
    public double re;
    public double im;

    public Complex() {
        this.re = 0.0;
        this.im = 0.0;
    }

    public Complex(double a, double b)
    {
        this.re = a;
        this.im = b;
    }

    public Complex plus(Complex z) throws ComplexException
    {
        if (z == null)
        {
            throw new ComplexException(new String("it's null!"));
        }
        return new Complex(re + z.re, im + z.im);
    }

    public Complex minus(Complex z) throws ComplexException
    {
        if (z == null)
        {
            throw new ComplexException(new String("it's null!"));
        }
        return new Complex(re - z.re, im - z.im);
    }

    public boolean isReal() {
        return Math.abs(im) < MIN;
    }

    public boolean equals(Complex z) throws ComplexException
    {
        if (z == null)
        {
            throw new ComplexException(new String("it's null!"));
        }
        return (Math.abs(re - z.re) + Math.abs(im - z.im)) < MIN;
    }
}

```

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    }

    public double mod() {
        return Math.sqrt(re * re + im * im);
    }

    public double arg() {
        return Math.atan2(re, im);
    }

    public String toString()
    {
        return new String("Complex: " + re + " " + im);
    }

    public void print()
    {
        System.out.println (re + (im < 0.0 ? "" : "+") + im + "i");
    }

    private final double MIN = 0.00001;
}

```