

Junior Knights Exercise: Complete the ComplexNumber class

In class we wrote a portion of a ComplexNumber class. The class manages a Complex Number object and, when completed will have the following functionality:

```
// Default constructor.
public ComplexNumber()

// Constructor for a real value.
public ComplexNumber(double r)

// Takes in both a real and imaginary part.
public ComplexNumber(double r, double i)

// Returns this ComplexNumber plus other.
public ComplexNumber add(ComplexNumber other)

// Returns this ComplexNumber plus other.
public ComplexNumber subtract(ComplexNumber other)

// Returns the magnitude of this ComplexNumber.
public double magnitude()

// Creates and returns the complex conjugate of this number.
public ComplexNumber conjugate()

// Divides this by realval and returns the result.
public ComplexNumber divide(double realval)

// If other is zero, returns null, otherwise returns this
divided by other.
public ComplexNumber divide(ComplexNumber other)

// Returns the product of this ComplexNumber and other.
public ComplexNumber multiply(ComplexNumber other)

// Returns a String representation of this object.
public String toString()
```

Most of the class has been written. For this assignment, complete the subtract method and the multiply method. Then, write a main method to test the class.