Rational Numbers

A *rational number* is a number expressed as an integer numerator and denominator. Their importance in computation is due to the fact that they can be represented exactly in a binary fixed point representation. To maintain that exact representation all arithmetic operations must be performed in integer format. You cannot convert the numbers to real, do the math, then convert them back to rational. A further description and formulas for arithmetic operations can be found here: [WIkipedia]. Note that division by 0 must throw an **`ArithmeticException`**.

The Problem

Write a Java program to represent a rational number in a **`class`** called **`RationalNumber`** that implements the provided **`interface`**. Note that the **`interface`** file provides comments for constructors that must be included in **`RationalNumber`** (given that it is an **`interface`** it cannot specify the actual constructors.)

```
public class RationalNumber implements RationalNumberInterface
```

You may include any additional **`private`** member functions and variables as needed.
Test your program with the TestRationalNumber class provided. You may not alter this class.

Deliverables

1. Source code attached to assignment in Blackboard
    a. One .java file
2. A text document in PDF format (do not use any other format), that contains
    a. A reflective essay on your successes, difficulties, and how you tested your code to ensure correctness
    b. Screen shot of the running program