Folsom High

WELCOME

Chapter 15: Section 1 Real Number System

Warm Up

1. What are some of the different types of numbers you can think of? (Ex. Integers)

List at least 3 that you can think of.

2. Factor: $2x^2 + 12x - 54$

Chapter 15:1 Learning Target

-I can Identify the different ***subsets*** of the ***real number system*** and how they relate to each other.

I can determine ***closure of operations*** on different sets of ***numbers***.

I can take a ***repeating decimal*** and write it as a ***fraction***.

Real Number System

Numbers can be classified into sets based on their characteristics.

Most numbers we use fall into the Real Numbers

($\mathbb{R}$: Real Num.)

Natural Number System

The natural numbers can be thought of as the counting numbers.
(Not including 0 or negatives)

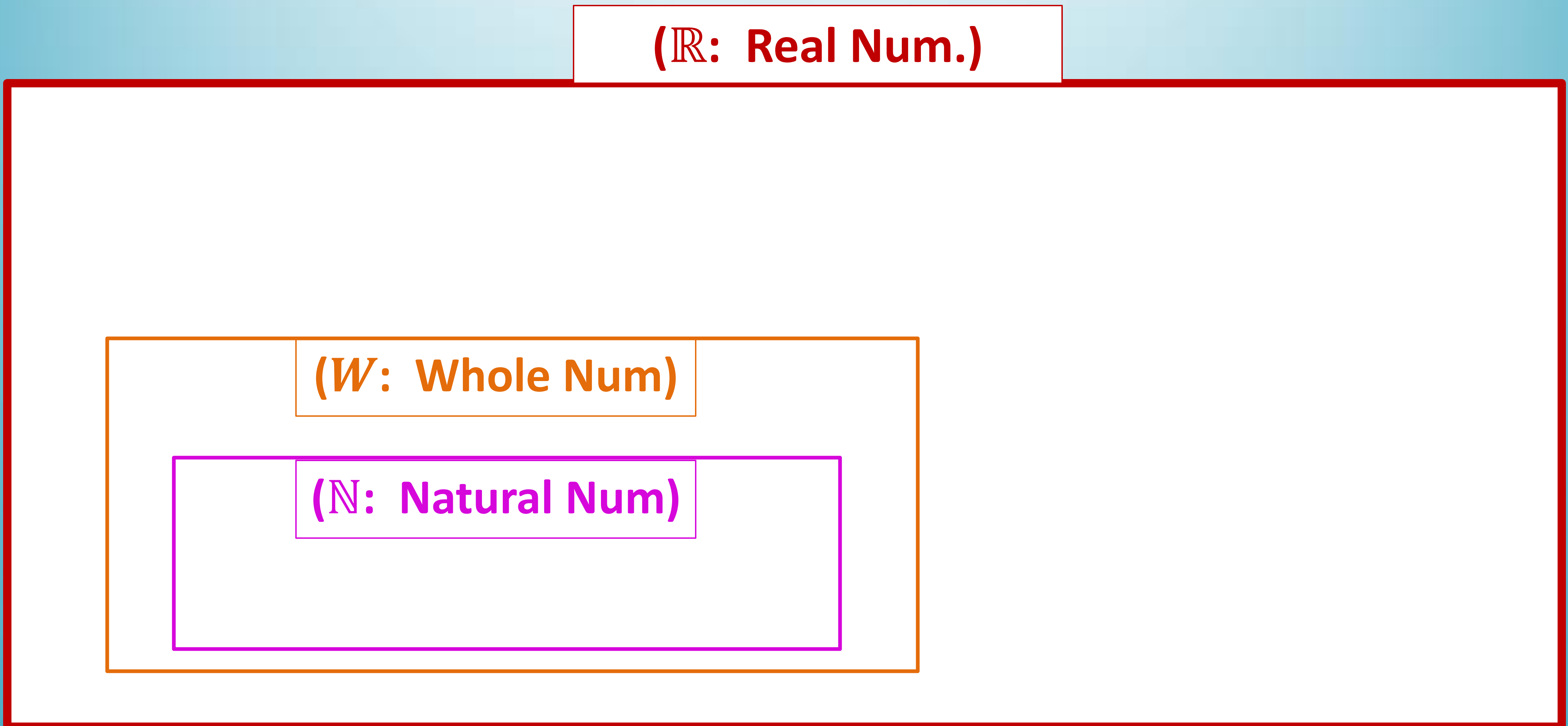
(ℝ: Real Num.)

(ℕ: Natural Num)

Whole Number System

The Whole numbers are the naturals and the addition of Zero.

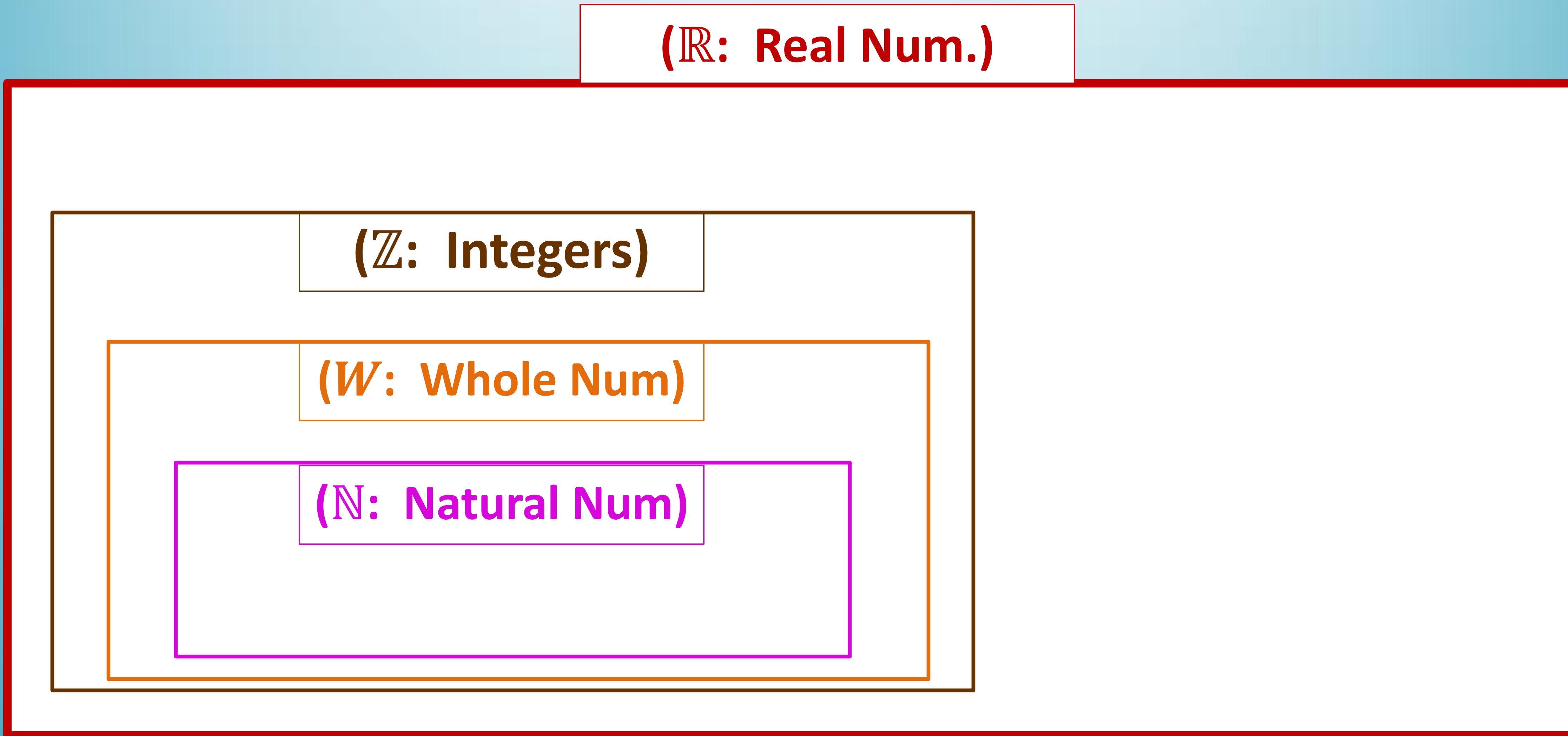
(No negatives)



Integer Number System

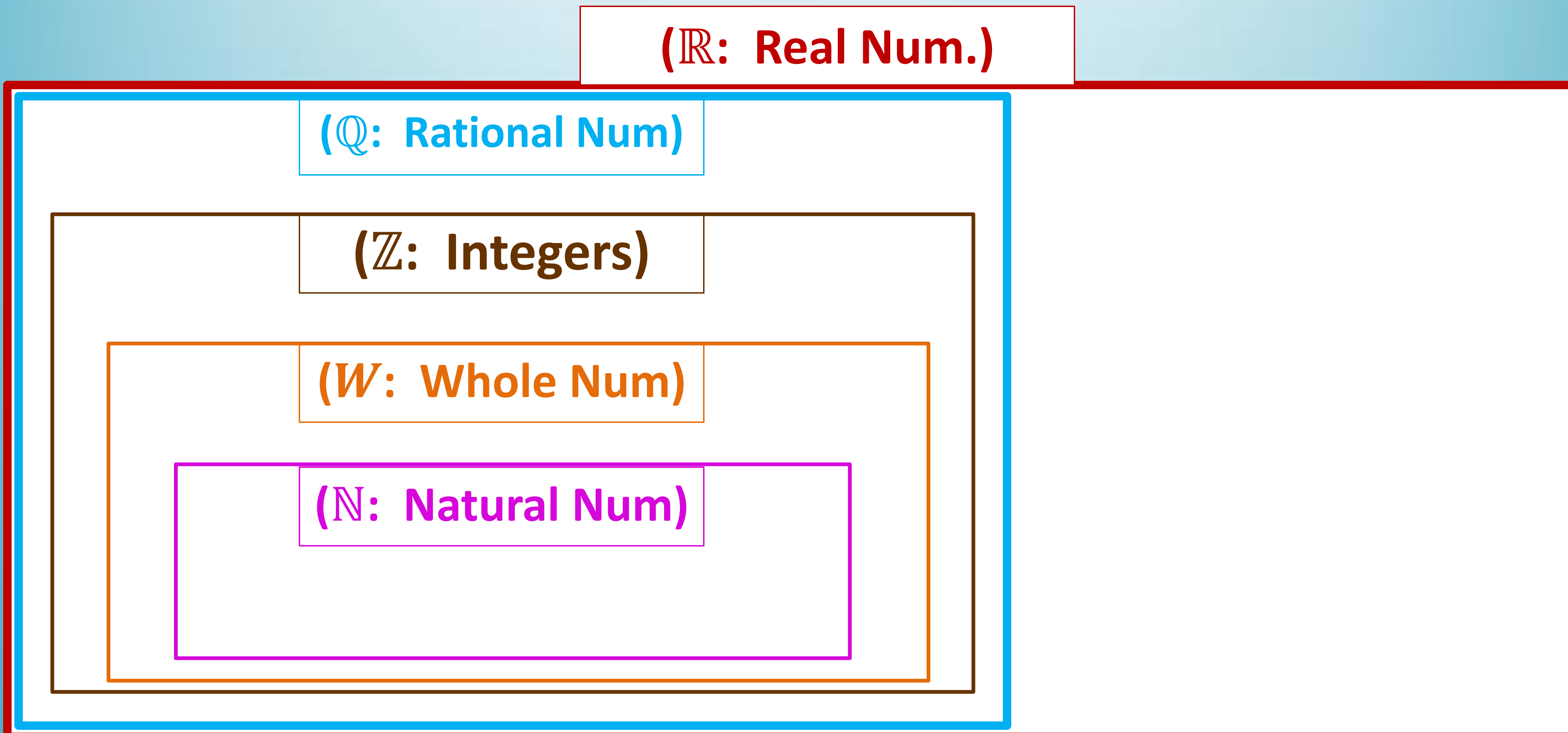
The Integers are the whole number and their additive inverse

(Now negatives are included)



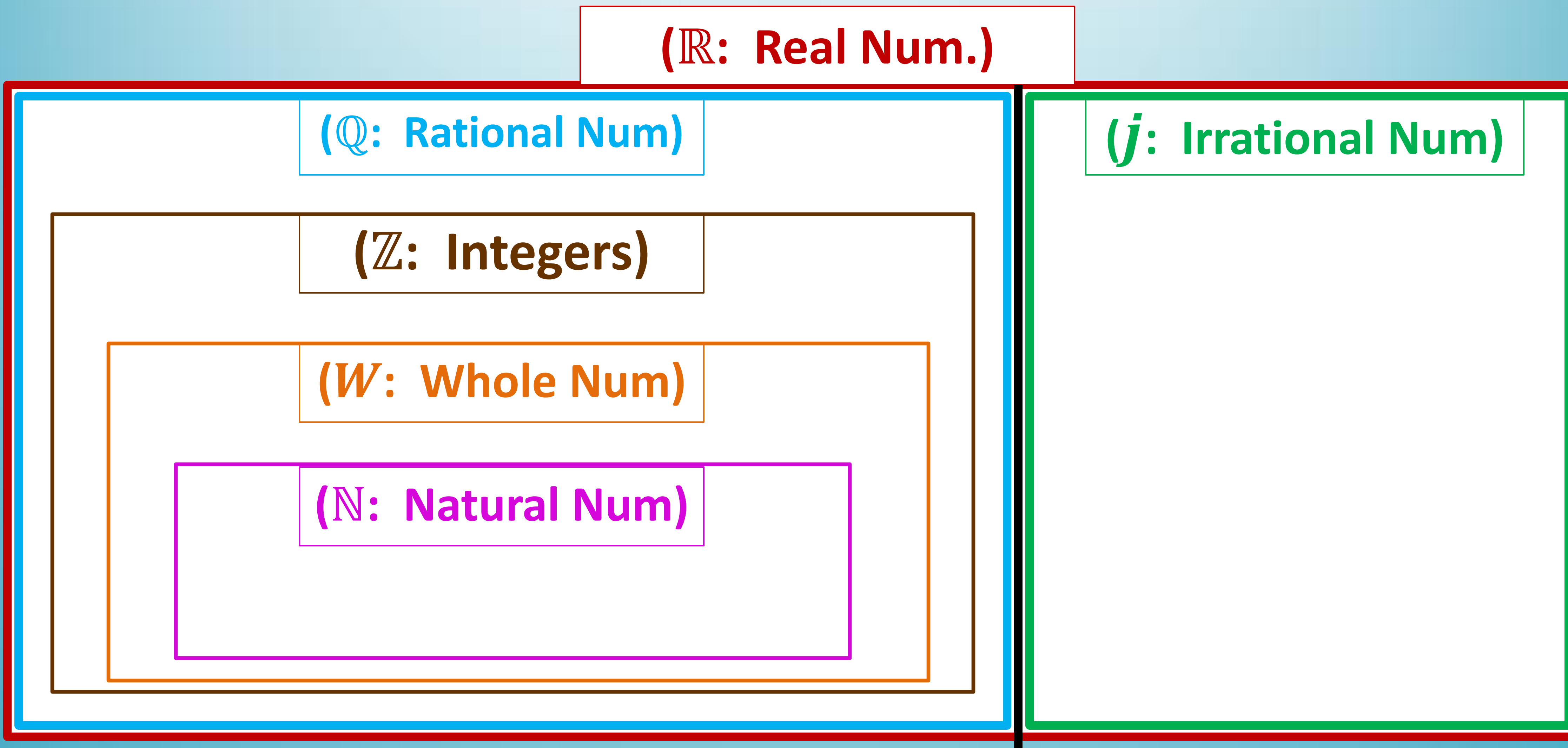
Rational Number System

The Rational numbers can all be written as a ratio $\frac{a}{b}$



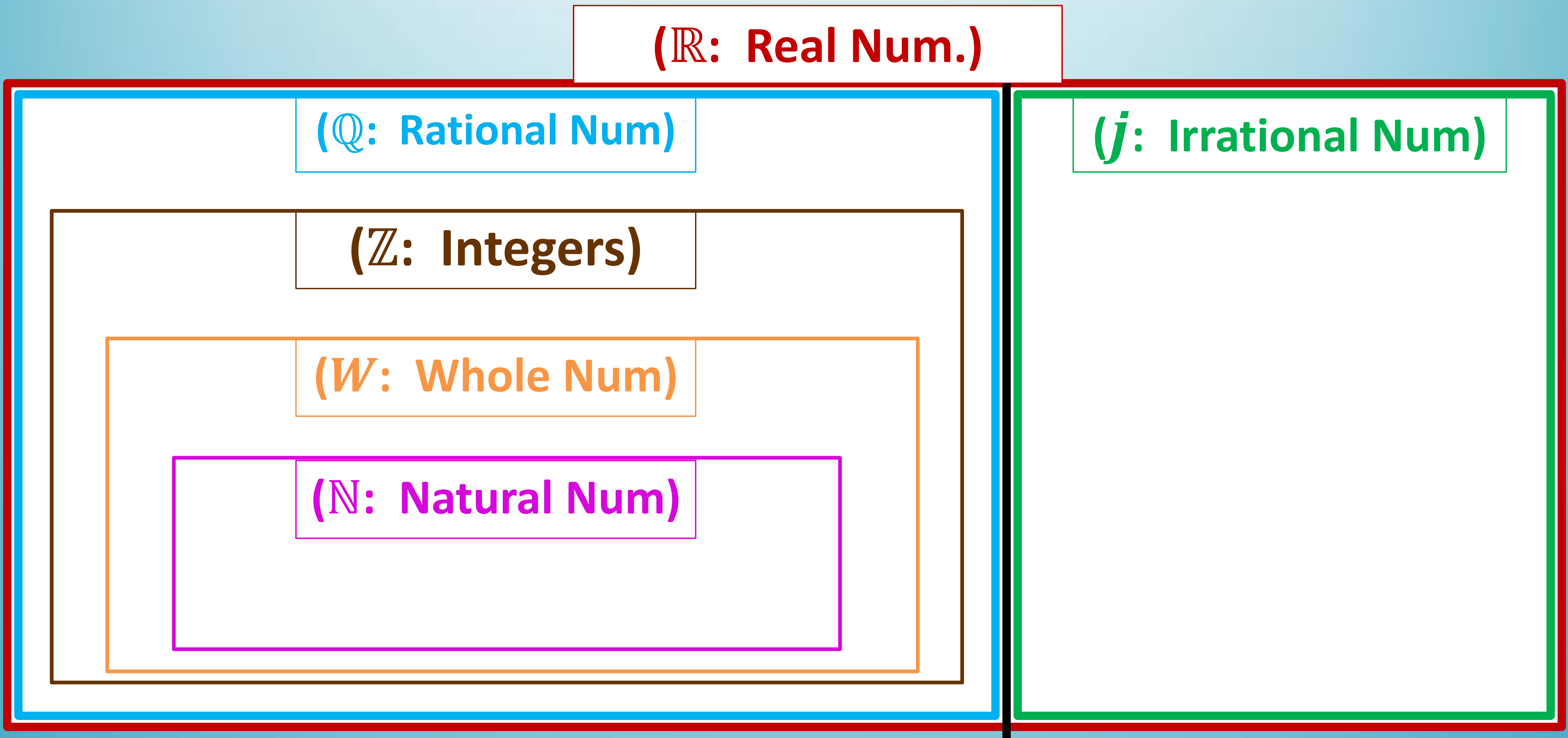
Irrational Number System

The Irrational numbers <u>cannot</u> all be written as a ratio $\frac{a}{b}$

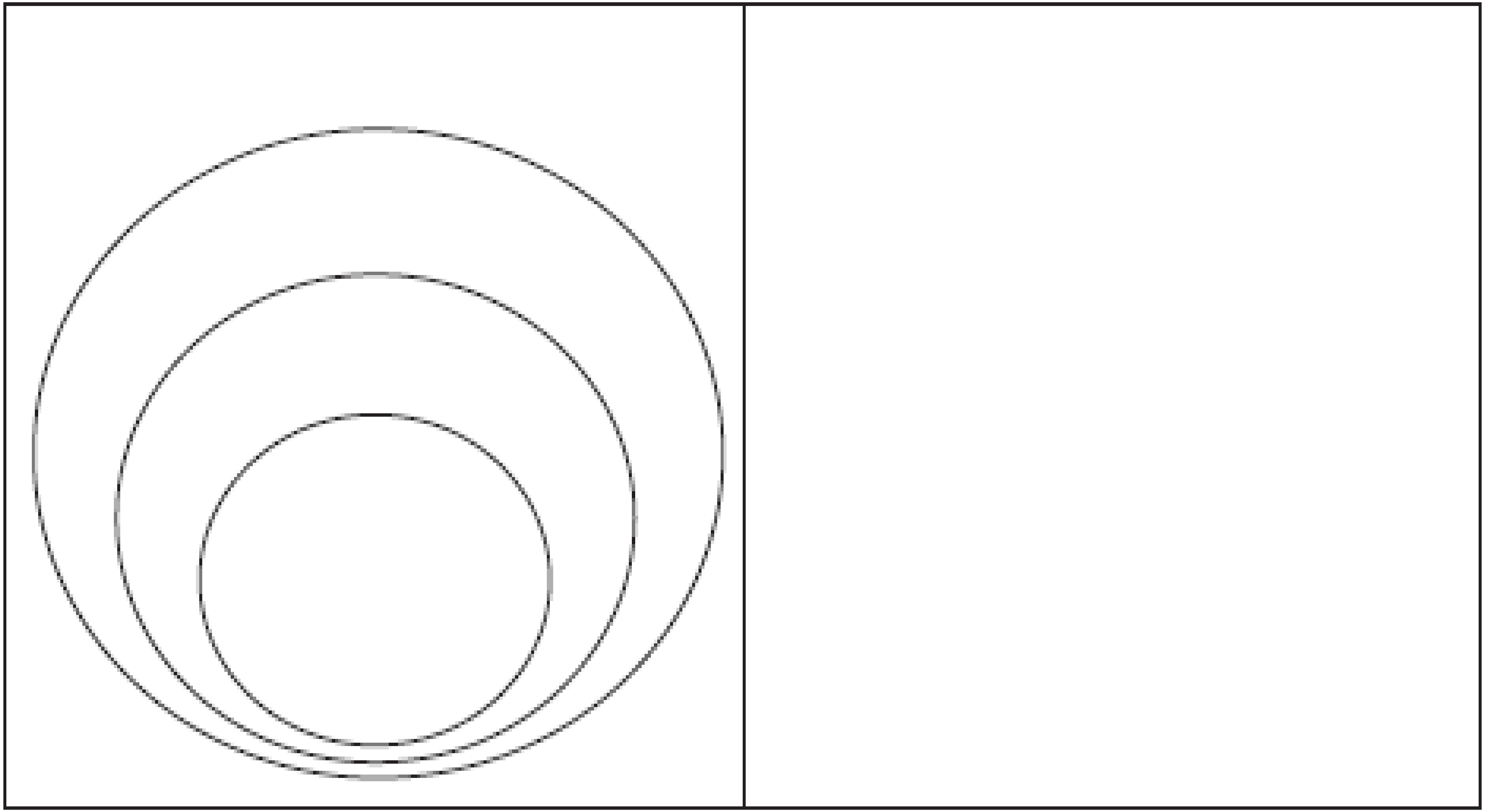


Real Number System

Made up of the rational and Irrationals as well as their subsets



Real Numbers



Determining Closure For Sets

When an operation (+,-,·,÷,…) is performed on any of the numbers in a set and the result is a number in that same set, the set is said to be closed, or have closure.

Closed for Subtraction	Not Closed for Subtraction
$\ldots, -2, -1, 0, 1, 2, \ldots$	$1, 2, 3, 4 \ldots$
In the integers I can subtract any two numbers and get another integer.	**In the naturals I cannot always subtract two numbers and get another natural.**

Try it & give examples…

Is the set of all <u>even numbers</u> closed for addition?

Is the set of all <u>odd numbers</u> closed for addition?

Rational Repeating Decimals

.75757575…