Do Now

Answer on the paper that is on your desk.
WRITE YOUR NAME

1. $\sqrt{4}$ 2. $\sqrt{16}$ 3. $\sqrt{36}$ 4. $\sqrt{81}$ 5. $\sqrt{\dfrac{1}{9}}$
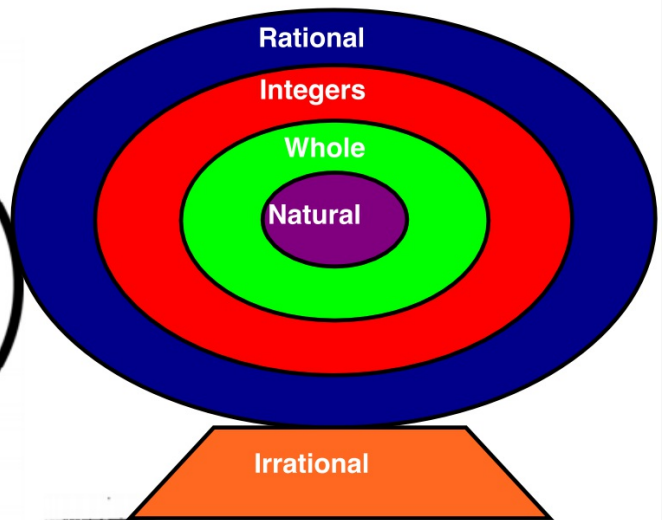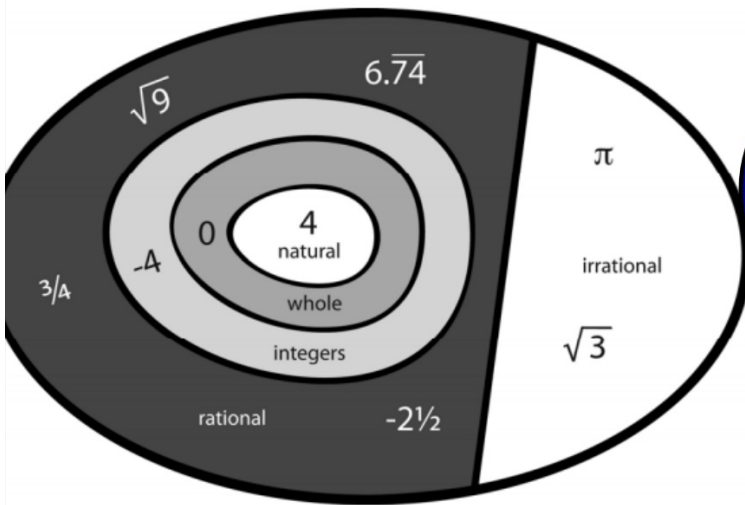
The Real Number System

I CAN:

Classify numbers within the appropirate subset(s): Natural, Whole, Integer, Rational, Irrational, Real
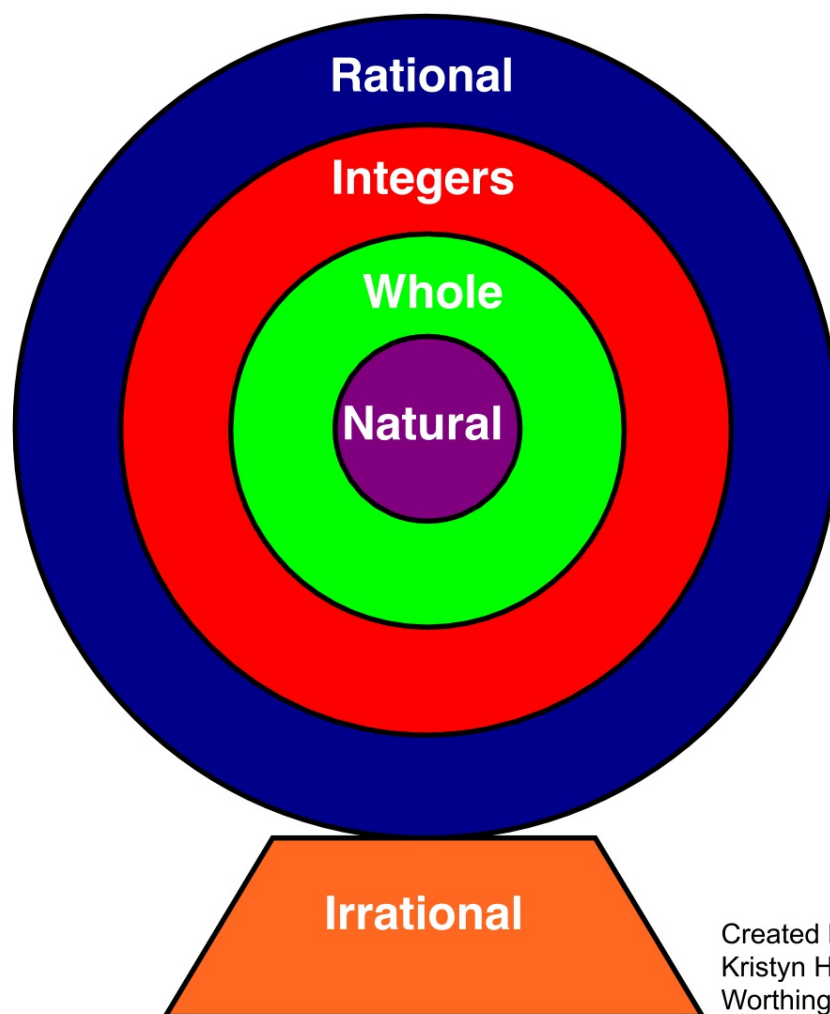
8.NS.1

Real Numbers

$\sqrt{9}$

$6.\overline{74}$

π

$3/4$

-4 0 4
natural

whole

integers

irrational

$\sqrt{3}$

rational

-2½

Rational

Integers

Whole

Natural

Irrational

ole Numbers: _____

egers: _____

tional Numbers: _____
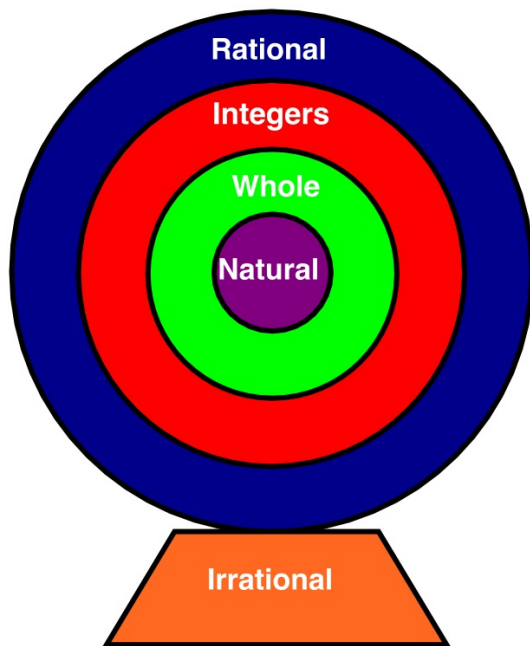
rational Numbers: _____

Real Numbers

Rational

Integers

Whole

Natural

Irrational

Created By: Crystal Clawson, Kristyn Heagen, and Lindsey Worthington

Real Numbers

The set of Real Numbers consists of both the rational and irrational numbers.

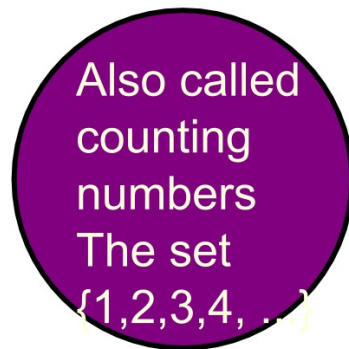# Natural Numbers

617

Also called counting numbers The set {1,2,3,4, ...}

2

13

1

36

17

12

3

Whole Numbers

5

0

45

The natural numbers plus 0

23

1

2

17

99

567

Integers

1

-3

2

The whole numbers and their opposites

0

-2

3

-1
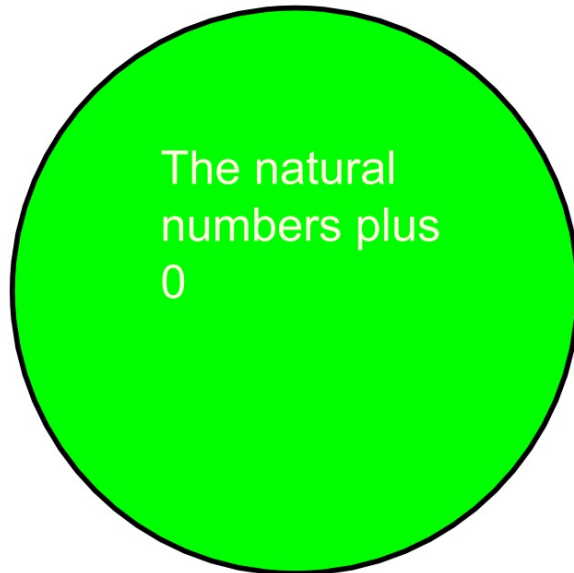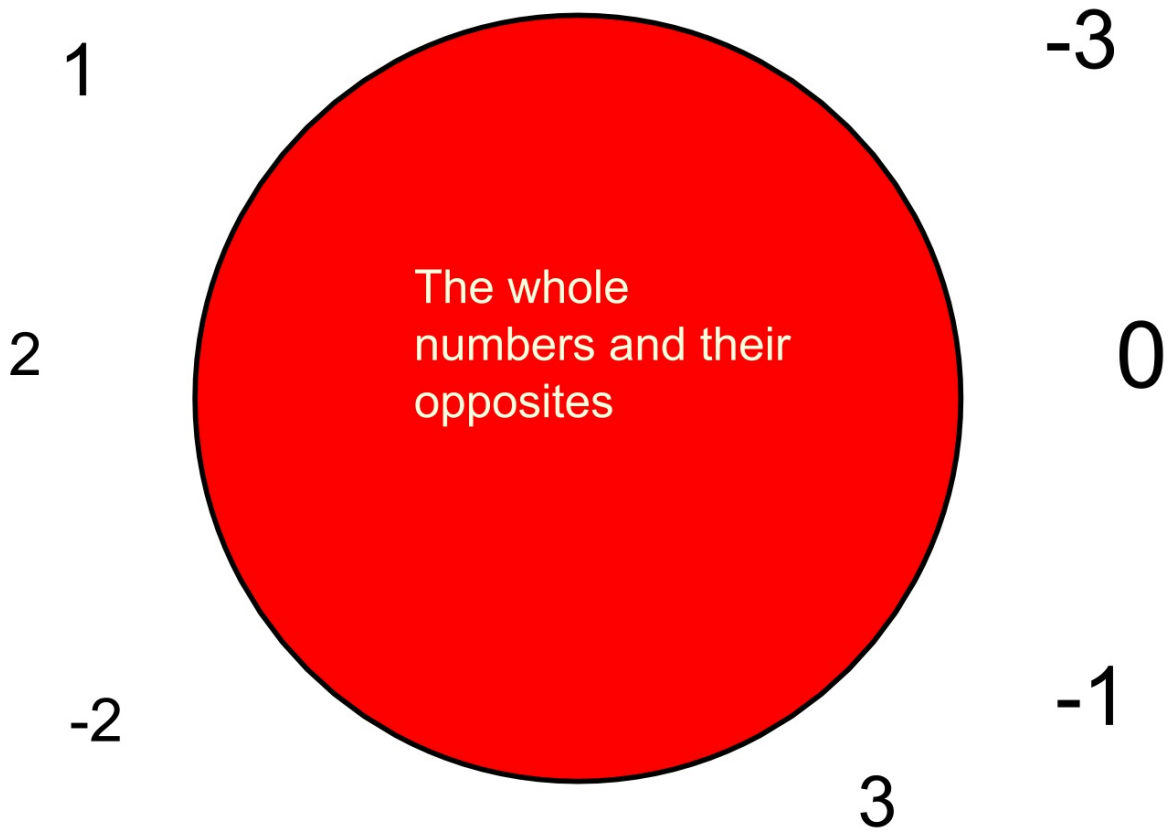
Rational Numbers

$$\frac{26}{7}$$

$$8\frac{13}{99}$$

$$\frac{-2}{5}$$

The set of numbers that can be written a/b where a and b are integers and b is not equal to 0

3

0

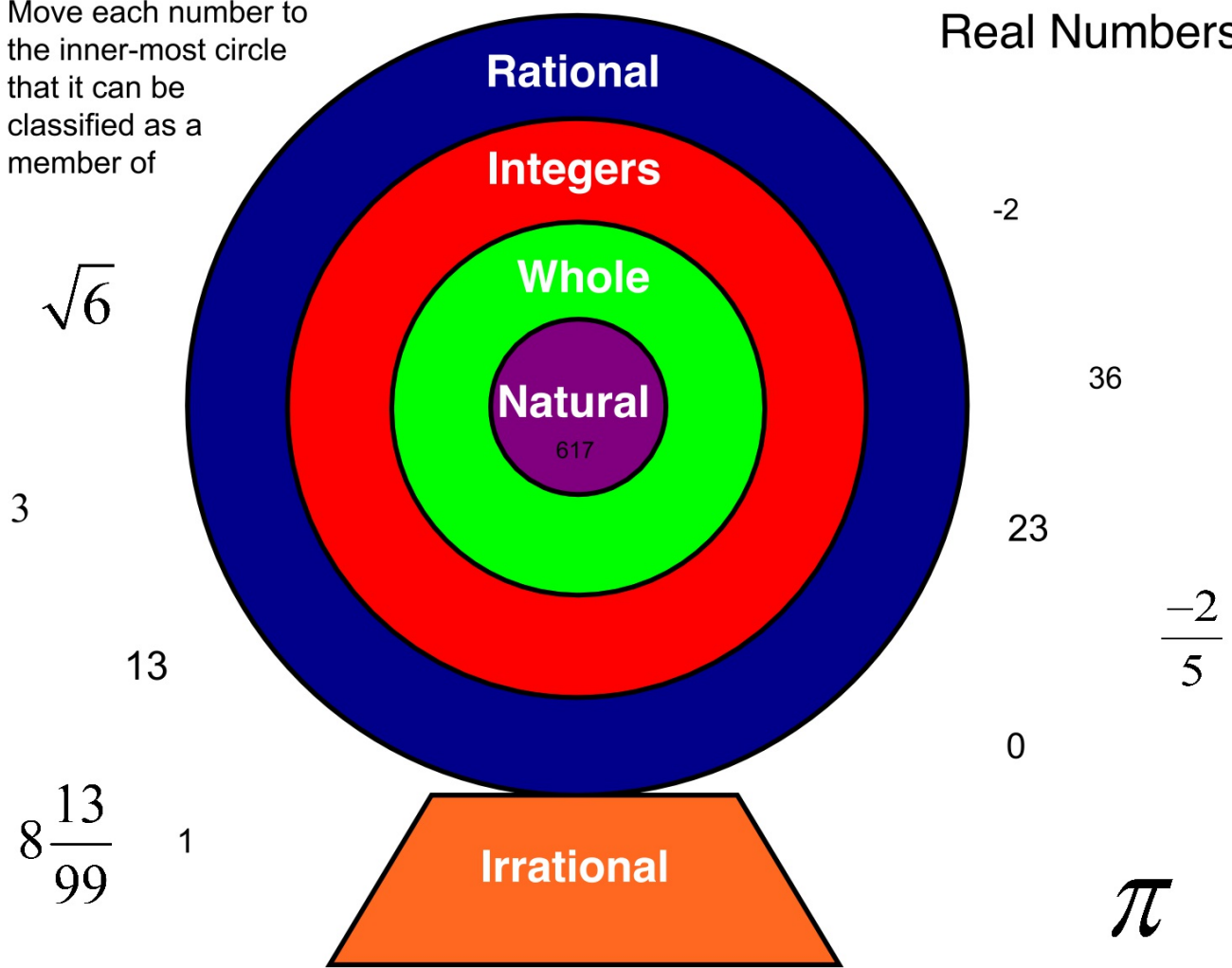# Irrational Numbers

e

Non-repeating and non-terminating decimals

$\sqrt[7]{5}$

$\sqrt{6}$

π

Move each number to the inner-most circle that it can be classified as a member of

Real Numbers

Rational

Integers

Whole

Natural

617

-2

36

23

$\dfrac{-2}{5}$

0

$\sqrt{6}$

3

13

$8\dfrac{13}{99}$

1

Irrational

π

Foldable

An <u>irrational number</u> is a number that cannot be written as the quotient of two integers. The decimal form of an irrational number neither terminates nor repeats.

A <u>rational number</u> is a number that can be written as $\frac{a}{b}$, where a and b are integers and b ≠ 0.

{...-3, -2, -1, 0, 1, 2, 3...}

<u>Integers</u> include whole numbers and their opposites.

{0, 1, 2, 3, 4...}

{1, 2, 3, 4...}

Real numbers

¡RRational
$\pi = 3.14159265...$
$\sqrt{2} = 1.4142135...$

Rational
$\frac{1}{3}$ $\frac{2}{9}$ 0.5 $\frac{3}{4}$

0.875 $0.\overline{2}$

integers
-18 -99

whole numbers
0

natural numbers
5   84

iRRational numbers

- -

Rational numbers

- -

integers

- -

whole numbers

- -

natural numbers
(a.k.a. counting numbers)

Check For Understanding

Identify which numbers are Rational or Irrational using a T-Chart.

Rational | **Irrational**

0.1237	18.7
0.43682...	0.5
$\sqrt{12}$	$-\sqrt{5}$
$-\dfrac{2}{3}$	$\dfrac{4}{7}$

Classwork/Homework

- **Identifying Sets of Real Numbers**

- **Real Number System**

- **Real Number Hexagon**

- **Rational and Irrational Numbers IP Practice**

The Real Number System

- The **natural numbers** are the **counting numbers**, without _____.

- **Whole numbers** include the natural numbers and _____.

- **Integers** include all whole numbers and their _____.

- **Rational numbers** are real numbers that can be written as a
  _____ where a and b are integers and b ≠ 0. Any rational
  number can be represented as a terminating or a repeating
  _____.

- **Irrational numbers** are any real numbers that are not _____.