

Name:

Date:

Period:

THE REAL NUMBER SYSTEM

This side includes **ONE** special **TYPE** of # ONLY:

IRRATIONAL NUMBERS:
non-terminating (don't end)
&
non-repeating (no pattern)
decimal numbers.

Irrational Numbers **cannot** be written as a fraction.

IRRATIONAL NUMBERS



COUNTING NUMBERS



WHOLE NUMBERS



INTEGERS



RATIONAL NUMBERS



Smallest **SET** of Numbers (least amount of numbers in the set):

COUNTING (NATURAL) NUMBERS: The set of numbers you learn when you learn to count.

Ex: (1, 2, 3, 4, ...)

Add **ONE** thing to first **SET** to get a newly **NAMED** Set (includes all #s in first bucket + new):

WHOLE NUMBERS: The set of natural numbers AND zero.

Ex: (0, 1, 2, 3, 4, ...)

Add to the previous **SET** to get a newly **NAMED** Set (includes all #s in second bucket + new):

INTEGERS: The set of whole numbers and their opposites.

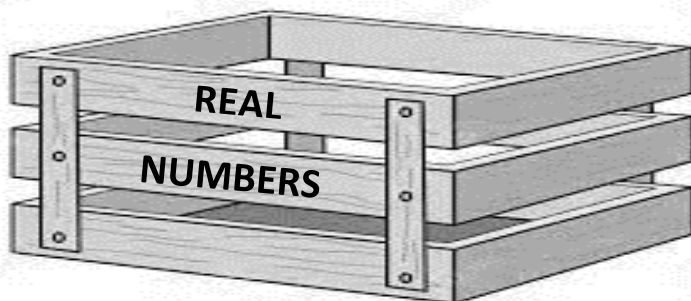
Ex: (... , -3, -2, -1, 0, 1, 2, 3, ...)

Largest **SET** of Numbers in this category (includes **ALL** other #s from this side ONLY + new):

RATIONAL NUMBERS: The set of numbers that includes terminating decimals, repeating decimals, fractions, and integers. All rational numbers can be written as a fraction.

Ex: (-3, 1.75, $0.\bar{3}$, $-\frac{2}{3}$, 4.25, 0)

REAL NUMBERS: A rational or irrational number. Every point on a number line is a real number.



All buckets empty into REAL NUMBER bin!

Special Notes:

A number can only be RATIONAL or IRRATIONAL, but never BOTH.

RATIONAL #s may be broken down further into other categories, if applicable.

A number, whether RATIONAL or IRRATIONAL, is ALWAYS REAL!