Algebra 10-12
Chapter 1 – Algebra

Name: Key

Section 1-3: Real Numbers and the Number Line

Objectives: 1) To classify, graph, and compare real numbers.
2) To find and estimate square roots.

Types of Numbers

Natural numbers: Counting Numbers 1, 2, 3, ...

Whole numbers: Includes 0 0, 1, 2, 3, ...

Integers: Includes Negatives ..., -2, -1, 0, 1, ...

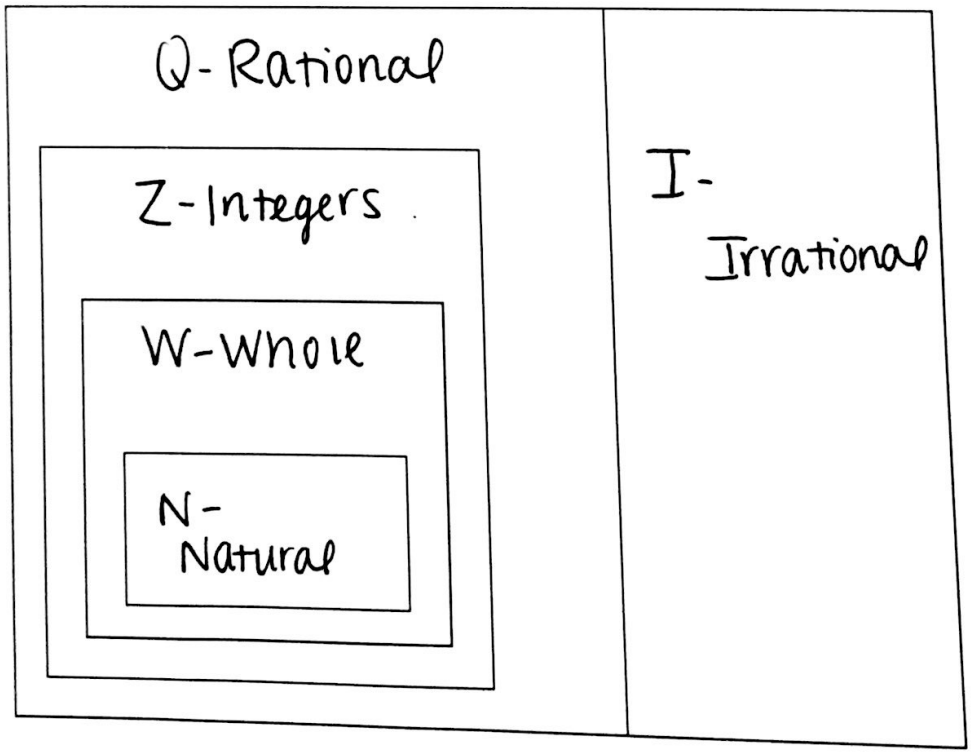
Rational numbers: All numbers that can be written as a fraction or decima

Examples: $\frac{1}{2}$, $-\frac{3}{4}$, $0.\overline{6}$

Irrational numbers: non-terminating, non-repeating.

Examples: π, $\sqrt{2}$, 1.23456...

All of these are examples of what we call real #'s. The diagram below shows the relationship between all these types of numbers.



Problem 1 – Classifying Real Numbers

To which subsets does each number belong?

a) 15

Natural, Whole, Integers, Rational, Real

b) -1.75

Rational, Real

c) $\sqrt{2}$

Irrational, Real

d) -3

Integers, Rational, Real

Problem 2 – Comparing Real Numbers

What is the inequality ($<$, $>$, $=$) that compares the numbers $\sqrt{17}$ and 4?

$\sqrt{17} > 4$

$\sqrt{16}$

Now you try…

a) $\sqrt{29} > 5$

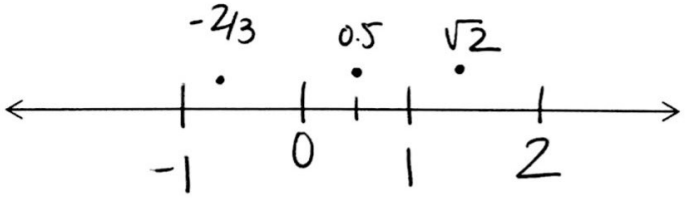
$\sqrt{25}$

b) $\sqrt{50} > 7$

$\sqrt{49}$

Problem 3 – Graphing and Ordering Real Numbers

What is the order of $\sqrt{2}$, 0.5, $-\frac{2}{3}$? Graph it on the number line.



What is the order of 3, $\sqrt{17}$, $\frac{3}{2}$? Graph it on the number line.