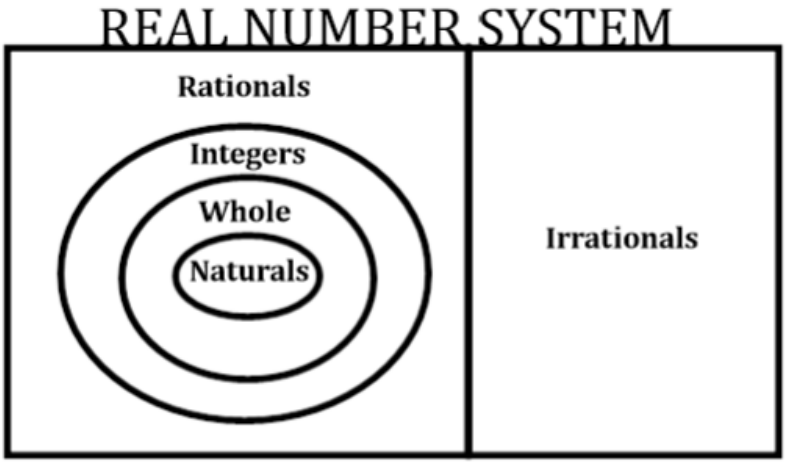
Lesson 2.2: Real Number System

Specific Outcome: 2.1 – Sort a set of numbers into rational and irrational numbers. 2.3 – Approximate the locations of irrational numbers on a number line, using a variety of strategies, and explain the reasoning. 2.4 – Order a set of irrational numbers on a number line. 2.8 – Represent, using a graphic organizer, the relationship among the subsets of the real numbers (natural, whole, integer, rational, irrational).

REAL NUMBERS:

This diagram shows all of the number systems of the real numbers:



NUMBER SYSTEMS OF THE REAL NUMBERS

Natural numbers: N =

Whole number: W =

Integers: I =

Rational numbers: Q =

Irrational numbers: Q =

REAL numbers: R = {Q and Q}

Practice

1. Identify each number as rational or irrational. Explain your reasoning for each.

a) 1.625 b) 43.5 c) 2.145145….. d) $\sqrt{8}$ e) $\sqrt[3]{-30}$ f) $\frac{-23}{19}$

2. Identify all of the number systems that each of the following numbers belong to.

	N	W	I	Q	$\overline{Q}$	R
$1/3$						
123 983						
-2						
$7.53\overline{4}$						
9.5						
$\sqrt{75}$						
$-\pi$						
$-355/113$						
$-\sqrt{49}$						
0.000005						
2.232425...						
$\sqrt{0.16}$						

3. Order the following rational and irrational numbers on a number line.

a) $\sqrt{10}$ b) $-\sqrt{9}$ c) $\frac{29}{19}$ d) $2\sqrt[3]{-2}$ e) $\sqrt[4]{30}$ f) $(0.5)\sqrt{\frac{49}{16}}$

HOMEWORK: P. 211 – 3-7, 9, 12-15