Algebra 2
Lesson 1-Classifying Numbers and Basic Algebraic Practice
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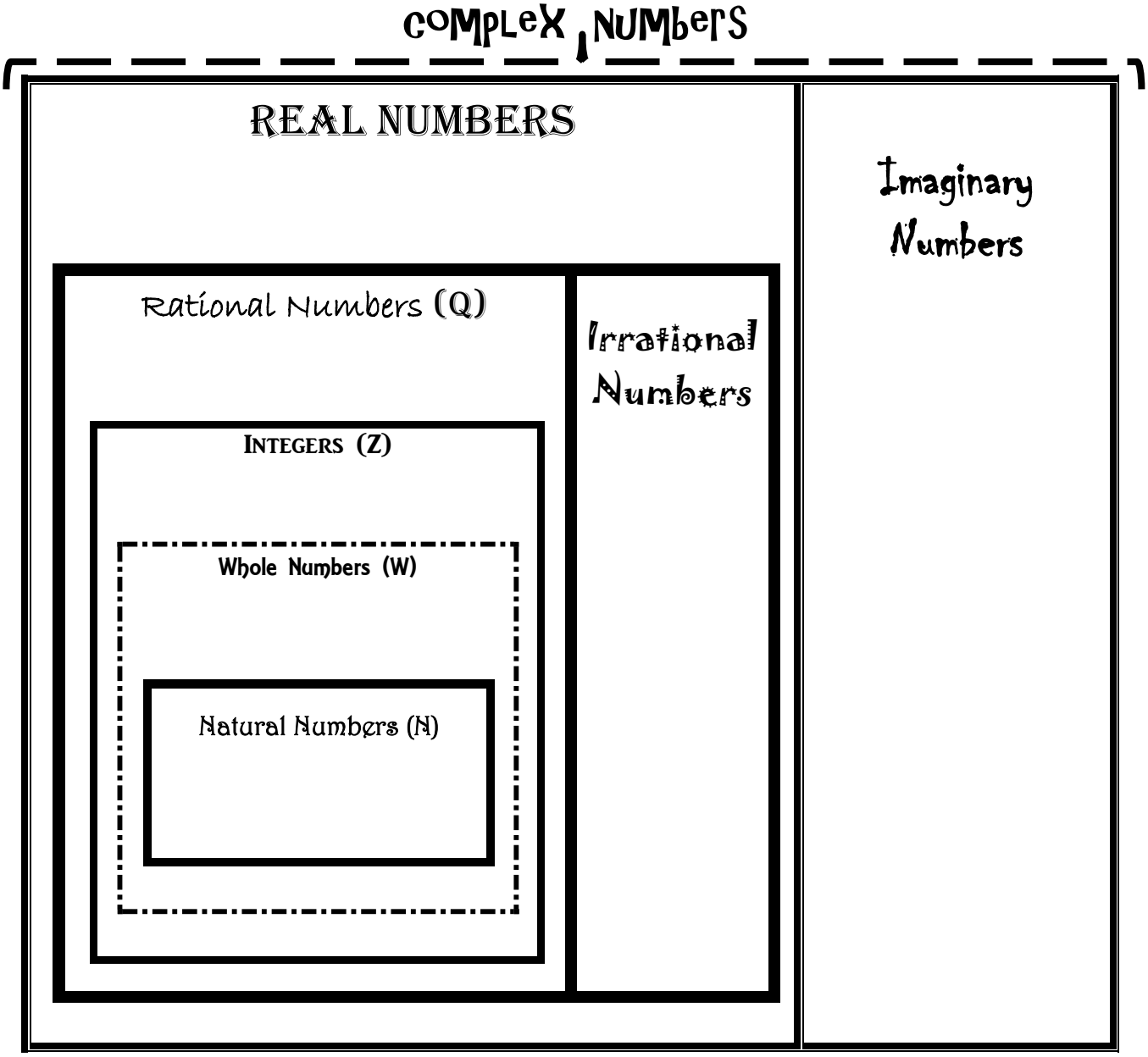
There are five (5) sets of numbers that form the foundation for all of the mathematics. The three dots (. . .) is a notation used to mean "and so on and so on into infinity." The following diagram shows their relationships to one another. Let's define and give some examples of each number set.



Notice that some numbers can belong to several sets of numbers while others can belong to only one set of numbers. For example, 3 can belong to all of the sets of numbers except Irrational Numbers. Why?

The number 0.25 can belong to only the set of real numbers and _____numbers. Then number $\sqrt{11}$ can only belong to the_____ and real numbers.

Classify each number to the sets of number it belongs.

a) -2.4

b) $\overline{0.33}$

c) 2π

d) $\frac{1}{2}$

e) $2i$

f) 13

g) -5

Vocabulary:

Inverse - means the **opposite in effect**. The reverse of an mathematical operation.

Additive inverse – or opposite is what you add to a number to get 0.

The *additive inverse* of the number **a** $is -\boldsymbol{a}$.

Multiplicative inverse - or reciprocal is what you multiply a number by to get 1.

The *multiplicative inverse* of $\boldsymbol{a}$ $is \frac{\mathbf{1}}{\boldsymbol{a}}$.

Find the additive inverse (opposite) and the multiplicative inverse (reciprocal) of each number.

a. $4\frac{1}{5}$ b. -0.002 c. $-\frac{4}{9}$

Evaluate the expressions

a. $(x-18)^2-4x\,;x=6$ b. $k^2-(3k-5n)+4n\,;k=-1,\ n=-2$

The expression, $-0.3y+61$ models the percent of eligible voters who voted in presidential elections from 1960-2000, where y represents the number of years after 1960. Find the approximate number of voters who voted in 1988.

Simplify the expression

$a.\ 4 + (2 + 1)^2$

b. $4 + 3[4 - 2(6 - 1)] \div 2$

c. 2h-3k+7(2h-3k)

d. $5x^2 - 3x + x^2$

Solve the equation

a. 2(y-4)+6=70

b. 6(t-2)=2(9-2t)

Solve the formula for the indicated variable

a. $A = \frac{1}{2}bh\ ;\ h$

b. $S = 2\pi rh\ ;\ r$

Quick check √ Answer with **True or False.**

a) Every integer is a whole number

b) Every integer is a rational number

c) Every irrational is not a whole number.

d) A repeating decimal like 2.3333…. is an example of a rational number.

e) A number like $\frac{4}{0}$ is an irrational number.