

OUR NUMBER SYSTEM

PRAXIS FLASHCARD #4 (diagram to the right)

PRAXIS FLASHCARD #12

NATURAL NUMBERS

Natural numbers = same as the counting numbers (1, 2, 3, 4 ...). The symbol used for the set of natural numbers is \mathbf{N} .

PRAXIS FLASHCARD #13

COUNTING NUMBERS

Counting numbers = same as the natural numbers (1, 2, 3, 4, ...). A bold capital letter- \mathbf{N} is often used to represent the set of natural numbers.

PRAXIS FLASHCARD #11

WHOLE NUMBERS

Whole numbers = the counting numbers and zero (0, 1, 2, 3, 4, ...). The symbol used for the set of whole numbers is \mathbf{W} .

PRAXIS FLASHCARD #10

INTEGERS

Integers = the counting numbers, their negatives, and zero (... , -3, -2, -1, 0, 1, 2, 3 ...). The symbol for the set of integers is \mathbf{Z} .

PRAXIS FLASHCARD #8

RATIONAL NUMBERS

Rational Numbers = integers, fractional numbers, and those decimal numbers which terminate or repeat; examples are 12.5 and 23.666666... The symbol used for the set of rational numbers is \mathbf{Q} .

The opposite of rational numbers are the irrational numbers. All real numbers are either rational or irrational.

PRAXIS FLASHCARD #9

IRRATIONAL NUMBERS

Irrational numbers = all real numbers except the rational numbers; those numbers that are square roots of non-square numbers or are non-terminating, non-repeating decimal. Perhaps the most well-known irrational number is pi (π) which is *approximately* equal to 22/7 or 3.14. The opposite of Irrational numbers are the **rational numbers** – all real numbers are either rational or irrational.

PRAXIS FLASHCARD #6

REAL NUMBERS

Real Numbers are numbers that can be located on the number line. The opposite of real numbers are imaginary numbers. The symbol used for the set of real numbers is \mathbf{R} .

PRAXIS FLASHCARD #7

IMAGINARY NUMBERS

Imaginary Numbers are numbers that contain the imaginary number “ i ”, which is the square root of negative one:

$$i = \sqrt{-1}$$

Note that if the discriminant portion of the quadratic equation is negative, the function or quadratic equation has no real solutions.

PRAXIS FLASHCARD #5

COMPLEX NUMBERS

Complex Numbers are numbers made up of a real number plus an imaginary number; usually written in the form $a + bi$ where “ a ” is the real number and “ bi ” is the imaginary number. The letter- i is used to denote the imaginary number: $i = \sqrt{-1}$. The symbol used for the set of complex numbers is \mathbf{C} .

PRAXIS FLASHCARD #334

SETS

A **set** is a collection of objects. The objects in a set can be numbers, expressions, and other mathematical objects. Georg(e) Cantor developed set theory in the late 1800’s. Common operations on sets include intersection, union, complements, and Cartesian products. Other concepts include the Universal set, Null set, members or elements, and sub-sets.

Sets in mathematics include the set of integers (\mathbf{Z}), rational numbers (\mathbf{Q}), primes (\mathbf{P}), real numbers (\mathbf{R}), natural numbers (\mathbf{N}), whole numbers (\mathbf{W}), etc.

