

THE ULTIMATE GUIDE TO NUMBER CLASSIFICATION

We have been using numbers in everyday life. Everything from 0 to $22/7$ might sound the same to most, but numbers differ from one another. Based on their characteristics, they are classified in groups. Based on all the different types of numbers Mathematician's have named, we have built the ultimate guide to Number classification.

The associated chart shows how the number groups are related to each other. Read below for more details on each number group.

Real Numbers – All kinds of numbers that you usually think of – from bus route numbers, to your weight, to pi and even the square root of pi! In short everything!! Everything? Really? Well...almost ☺

Imaginary numbers – Have you ever tried finding the square root of -1? If you haven't, try it on your calculator. It might show an error (if it is a dumb calc) or it might show an 'i'. That little 'i' is called an imaginary number. In short square roots of negative numbers make imaginary numbers.

Complex Numbers – It's rather simple! Make a combination of [Real](#) and [Imaginary](#) numbers and voila! You get a Complex number. Stuff like $3+2i$ or $3/4i$ make up complex numbers. Just think of it when you mix a [real number](#) with an [imaginary](#) one, things do get a bit complex!

Rational Numbers – Any number that can be written as a [fraction](#) is a rational number. So numbers like $\frac{1}{2}$, $\frac{3}{4}$, even $22/7$ and all [integers](#) are also rational numbers.

Irrational Numbers – Simply the opposite of [rational numbers](#) i.e. numbers that cannot be written as [fraction](#), like square roots of [prime numbers](#), the golden ratio, the real value of pi ($22/7$ is a mere approximation not the real value of pi) are irrational numbers

Integers – Any number that is not a [fraction](#) and does not have a tail after the decimal point is an integer. This includes both negative as well as positive numbers as well as zero.

Fractions – Numbers that are expressed in a ratio are called fractions. This classification is based on the number arrangement and not the number value. Remember that even [integers](#) can be expressed as fractions – $3 = 6/2$ so $6/2$ is a fraction but 3 is not.

Proper Fractions – Whenever the value of the numerator in a [fraction](#) is less than the value of the denominator, it is called a proper fraction. i.e. it's bottom heavy.

Improper Fractions - Whenever the value of the denominator in a [fraction](#) is less than the

value of the numerator, it is called a proper fraction. i.e. it's top heavy.

Mixed Fractions – All improper fractions can be converted into an [integer](#) with a [proper fraction](#). This combination of an [integer](#) with a [proper fraction](#) is called a mixed fraction.

Natural Numbers – All positive [integers](#) (not including the zero) are Natural numbers. Simply put, whatever you can count in Nature uses a natural number.

Whole Numbers – All positive [integers](#) inclusive of the zero are Whole numbers. Not a big deal different from [Natural numbers](#).

Even Numbers – All [integers](#) that end with a 0, 2, 4, 6, or 8 (including the numbers 0, 2, 4, 6 & 8 themselves) are even numbers. Note that '0' itself is an even number. Also note that negative numbers can also be even so long as they can be integrally divided by 2.

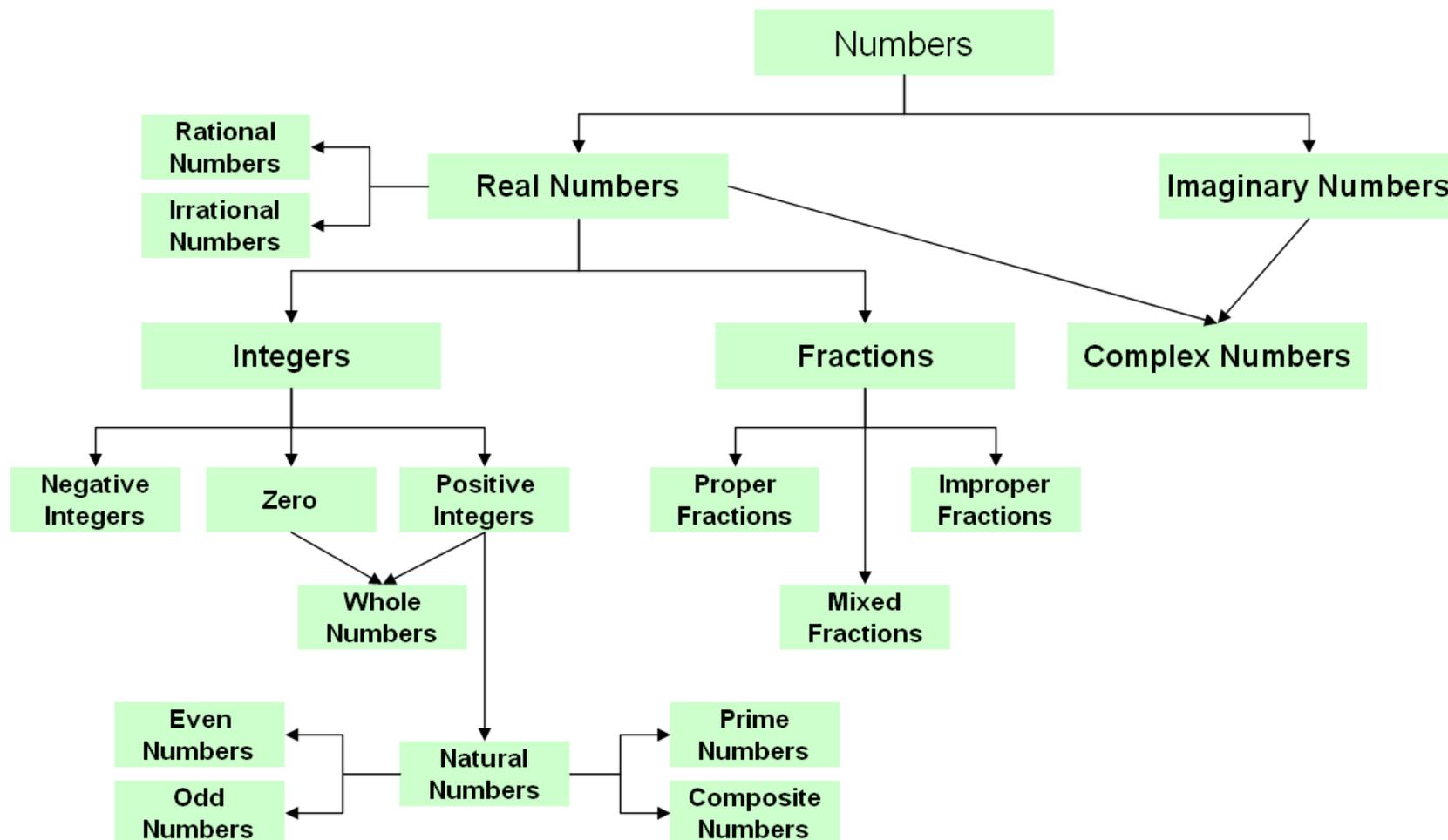
Odd Numbers – All [integers](#) that are not [even numbers](#) are odd number ;-)

Prime Numbers - A [natural number](#), more than one, which has exactly two distinct [natural number](#) divisors: 1 and itself - is called a Prime number. There can be infinite prime numbers.

Composite Numbers – A positive [integer](#) which has a positive divisor other than one or itself is a composite number. In other words, all numbers that are not [prime](#) are composite ;)

→ Don't forget to see the Number Classification chart on the next page

Here's a little chart to help you visually understand how the numbers are classified.



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