

Subsets of Real Numbers

Natural Numbers -are used for counting and the set does not include zero.

1, 2, 3, 4, 5, ...

Whole Numbers – include the set of natural numbers and zero.

0, 1, 2, 3, 4, 5, ...

Integers – includes zero, the set of natural numbers, commonly called the positive integers and the opposite of the natural numbers.

... - 2, -1, 0, 1, 2...

Rational Numbers – include any number that can be represented by the quotient of two integers. In that quotient the denominator must not be zero.

Given that a and b are integers, then $\frac{a}{b}$ where $b \neq 0$.

There are all kinds of numbers that fit this description. Any combination of the fractions with the subsets above fit the definition of a rational number.

It is good to remember that all numbers that are termination decimals such as $0.25 = \frac{25}{100} = \frac{1}{4}$ and $0.4 = \frac{4}{10} = \frac{2}{5}$.

Let's not forget those decimals that have a pattern that can be identified as repeating. Here are just two examples: $0.\overline{6} = \frac{2}{3}$ and $0.\overline{4} = \frac{4}{9}$.

Irrational Numbers – $\pi, \sqrt{2}, \sqrt{5}, \sqrt[6]{7}, 1.021502160217...$

These are just a few of the examples of irrational numbers. If a number does not fit in as one of the other numbers, it is irrational. There is another set of numbers to, but that is another topic for another day.