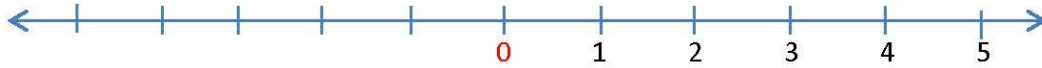


# Real Numbers

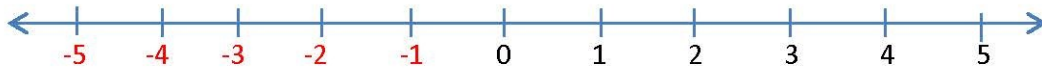
1. **Natural (Counting) Numbers:** {1, 2, 3, 4, 5, ...}



2. **Whole Numbers:** {0, 1, 2, 3, 4, 5, ...} WHOLE NUMBERS = NATURAL NUMBERS + 0



3. **Integers Numbers:** {..., -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, ...} INTEGERS = NATURAL NUMBERS + THEIR OPPOSITES + 0



4. **Rational Numbers:** {any number that can be written as a fraction}



Rational Numbers are either repeating or terminating decimals

Ex.  $\frac{1}{2} = 0.5$  is a terminating decimal, so the decimal representation of  $\frac{1}{2}$  is also a rational number.

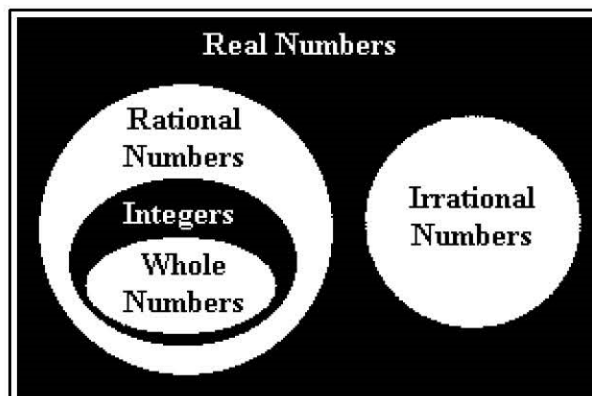
Ex.  $\frac{1}{3} = 0.333\dots$  is a repeating decimal, so the decimal representation of  $\frac{1}{3}$  is also a rational number.

Ex.  $4 = \frac{4}{1} = 4.0$  is a terminating decimal, so 4 is a rational number.

5. **Irrational Numbers:** {any number that is not a rational}

Ex.  $\sqrt{5} \cong 2.236067977$  is a non-repeating, non-terminating decimal and is therefore irrational.

Ex.  $\pi \cong 3.141592654$  is a non-repeating, non-terminating decimal and is therefore irrational.



**The Real Number Line:**

