

MATH 1710 Definitions of Sets for Unit 1 2011F

number: abstract concept of a characteristic of things or ideas.
NOT the numeral, which is the symbol that represents the number. Think of quantity.

set: a collection of items that have something in common.

Sets of Numbers: collections of numbers that fit a common pattern.

1. **Natural**, aka counting, numbers: the set of numbers that start with 1 and increase by 1's

Ex: 1, 2, 3, . . .

2. **Whole:** the set of numbers that start with 0 and increase by 1's

Ex: 0, 1, 2, 3, . . .

3. **Integers:** The positive and negative Whole numbers and zero. The set of numbers that starts at zero (0) and both increases by 1's (positive Integers) and decreases by 1's (negative Integers).

Ex: . . . , -3, -2, -1, 0, 1, 2, 3, . . .

4. **Rational:** any number that can be written in the form of a ratio of two Integers, as long as the second Integer is NOT ZERO. (Think: it looks like a regular fraction and the bottom number can not be zero. See Division by Zero on web site).

Ex: . . . , -1, $-\frac{3}{4}$, $-\frac{2}{3}$, $\frac{-1}{2}$, $-\frac{1}{3}$, $\frac{-1}{4}$, 0, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, 1, . . .

5. **Irrational:** Numbers that can not be written as Rational Numbers,

Ex. π , $\sqrt{2}$, $-\pi$, and $-\sqrt{7}$

6. **Real:** the set made by combining all of the Rational and Irrational numbers. The union of the Rationals and Irrationals into one set.

Ex. all the numbers represented by the continuous number line.