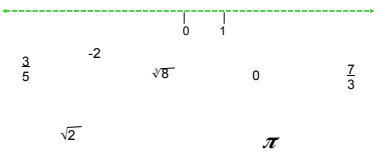
MATH 1010 ~ Intermediate Algebra Chapter 1 Fundamentals of Algebra

Section 1.1: Sets and Real Numbers

Objectives:

- Understand the set of real numbers and the subsets of real numbers.
- Order numbers on the real number line.
- Determine the distance between two numbers on the real number line.
- Determine the absolute value of a real number.



The Real Number System

Natural numbers

Whole numbers

Integers

Rational numbers

Irrational numbers

Real numbers

≈ means approximately equal to.

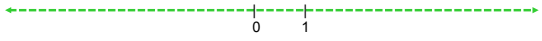
①Example:

To which set(s) do each of these numbers belong?

$\frac{3}{5}$ -2 $\sqrt[3]{8}$ π $\sqrt{2}$ 0 $\frac{7}{3}$

a. Natural
b. Whole
c. Integers
d. Rational
e. Irrational

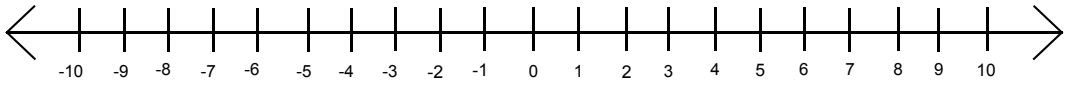
② Example: Put each of the numbers above on this number line.



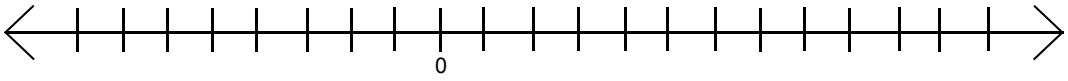
a< b means:

a > b means:

The distance between two points:

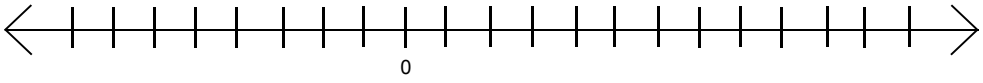


The opposite of a number:



The absolute value of a number:

$|a| = a$ if $a \geq 0$
$|a| = -a$ if $a < 0$



③ Example: a) $|-5| =$
b) $-|5| =$
c) $|5| =$
d) $-|5| =$

④ Example: Find the opposite of each number and the absolute value of each number.

a) -32

b) 17