Properties of Real Numbers

For any real numbers ***a***, ***b***, ***c***:

## Communicative Properties:

**Addition**

**Multiplication**

## Associative Properties:

**Addition**

**Multiplication**

## Additive identity Property:

## Additive inverse Property:

## Multiplicative identity Property:

## Multiplicative inverse Property:

## Distributive Property:

Absolute Value

For any real number **a,**

When **a** is non-negative, the absolute value of **a** is **a**. When **a** is negative, the absolute value of **a** is the opposite, or additive inverse, of **a**.

is never negative; that is, for any real number **a**,

Distance Between two Points on the Number line

For any real numbers **a** and **b**, the distance between **a** and **b** is

or

Integers as Exponents

For any positive integer **n**

Where **a**, is the base and **n** is the exponent.

Zero and negative-integer exponents

For any non-zero real number **a** and any integer **m**,

and

For any non-zero numbers **a** and **b** and any integers **m** and **n**,

Properties of Exponents

For any real numbers **a** and **b** and any integers **m** and **n**, assuming **0** is not raised to a non-positive number:

## Product Rule:

## Quotient Rule:

## Power Rule:

## Raising a product to a power

## Raising a quotient to a power