

Chapter P Prerequisites

Section P.1 Real Numbers

Objective: In this lesson you learned how to represent and order real numbers and use inequalities, and to evaluate algebraic expressions using the basic rules of algebra.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Real numbers

Real number line

Origin

Order

Inequality

Absolute value

Variables

Constant

Evaluate

Additive inverse

Multiplicative inverse

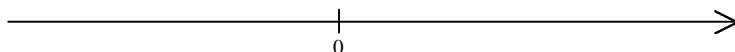
Factors

I. Real Numbers (Page 2)

A real number is **rational** if it can be written as . . .

A real number that cannot be written as _____
_____ is called **irrational**.

On the number line shown below, the numbers to the left of 0 are _____ . The numbers to the right of 0 are _____ .



What you should learn

How to represent and classify real numbers

Every point on the real number line corresponds to exactly _____ real number.

Example 1: Give an example of
(a) a rational number (b) an irrational number

II. Ordering Real Numbers (Pages 3–4)

The symbol $<$ means _____.

The symbol $>$ means _____.

The symbol \geq means _____.

The symbol \leq means _____.

What you should learn
How to order real numbers and use inequalities

Example 2: Place the correct symbol ($<$ or $>$) between the numbers: $-\frac{14}{3}$ _____ $-\sqrt{26}$.

Inequalities can be used to describe subsets of real numbers called _____. In the interval $[a, b]$, the real numbers a and b are the _____ of the interval. The interval (a, b) is called a _____ interval.

Positive infinity, represented by the symbol _____, and **negative infinity**, represented by the symbol _____, do not represent real numbers. Instead, these symbols are used to describe the unboundedness of an interval.

Example 3: Write an interval representing the entire real line.

III. Absolute Value and Distance (Page 5)

If a is a real number, then the absolute value of a is:

$$|a| = \begin{cases} \text{_____} \\ \text{_____} \end{cases}$$

What you should learn
How to find the absolute values of real numbers and find the distance between two real numbers

Let a and b be real numbers. The **distance between a and b** is

_____.

Example 4: Explain how to find the absolute value of a negative number.

IV. Algebraic Expressions (Page 6)

An **algebraic expression** is

What you should learn
How to evaluate algebraic expressions

The **terms** of an algebraic expression are those parts that are separated by _____.

A term that contains variables is called a _____ term, and a term that consists of a number alone is called a _____ term. The numerical factor of a variable term is the _____ of the variable term.

The **Substitution Principle**, used when an algebraic expression is evaluated, states that . . .

Example 5: Use the Substitution Principle to evaluate the algebraic expression $2x + 5$ when $x = -2$.

V. Basic Rules of Algebra (Pages 6–8)

Let r , s , and t be real numbers, variables, or algebraic expressions. Use r , s , and t to write an example of each of the following properties:

Commutative Property of Multiplication: _____

Associative Property of Addition: _____

Distributive Property: _____

Multiplicative Identity Property: _____

Additive Inverse Property: _____

What you should learn
How to use the basic rules and properties of algebra

List five Properties of Negation.

- 1)
- 2)
- 3)
- 4)
- 5)

List four Properties of Equality.

- 1)
- 2)
- 3)
- 4)

List five Properties of Zero.

- 1)
- 2)
- 3)
- 4)
- 5)

To add or subtract fractions with like denominators, . . .

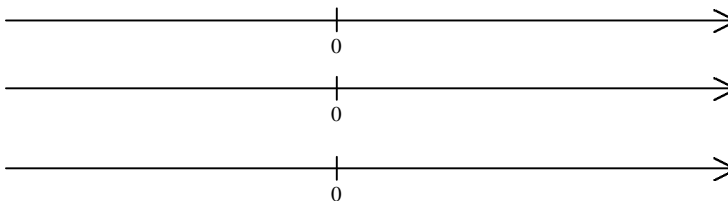
To multiply two fractions, . . .

A **prime number** is an integer that . . .

A **composite number** can be written as . . .

The number _____ is neither prime nor composite.

Additional notes



Homework Assignment

Page(s)

Exercises