Algebra 1 Chapter 2 Notes Properties of Real Numbers

2.1 The Real Number Line

Vocabulary

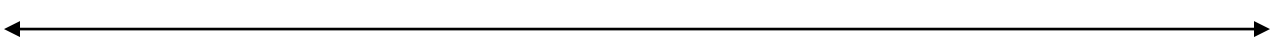
Real Numbers:

Integers:

Opposites:

Absolute Value:

The Real number line:



Examples

2.2 Addition of Real Numbers

Rules for Addition

Same Sign:

Opposite Signs:

Examples

Properties of Addition

Commutative Property:

Associative Property:

Identity Property:

Property of Zero:

2.3 Subtraction of Real Numbers

Subtraction Rules

1. Change subtraction sign to addition
2. Change the sign of the *next* number
3. Use Addition Rules

Examples

Terms of an Expression

Evaluating a Function

Input	Function	Output

Practice

1. Evaluate $1 - 2 - (-3)$

2. Find the terms of $-8 - 7x$

3. Use a calculator to evaluate $-3.84 — 1.57 + 4.86$

4.Evaluate the function $y = -x + 3$ for these values of x: $-2, -1, 0, 1, 2$. Organize your results in the table.

2.4 Adding & Subtracting Matrices

Vocabulary

Matrix:

Entry or Element:

To Add/Subtract Matrices, simply add/subtract the corresponding elements and put the result in the same position in the new matrix.

Examples

Practice

Find the sum or difference of the matrices.

1. $[2 \quad -3] - [-1 \quad 7]$

2. $\begin{bmatrix} 5 & -7 \\ -1 & 3 \end{bmatrix} + \begin{bmatrix} 6 & 2 \\ 8 & -12 \end{bmatrix}$

2.5 Multiplication of Real Numbers

The Sign of a Product

The product is *negative* if it has an _____number of negative signs.

The product is *positive* if it has an _____number of negative signs.

Examples

Properties of Multiplication

Commutative Property:

Associative Property:

Identity Property:

Property of Zero:

Property of Opposites:

Practice

Simplify

1. $(-1)^5 \cdot (-3)$

2. $6(-8t)(-t^2)$

Evaluate when x=3

3. $-2x^2$

4. $4(-x)^2$

2.6 Distributive Property

Vocabulary

Coefficient:

Like Terms:

Constant Terms:

Simplified:

Distributive Property

$a(b + c) =$

$a(b - c) =$

Examples

Practice

Simplify the expression

1. $-x(4-x)$

2. $2y^3 + 5y + 4y^3$

3. Explain how to use the distributive property to mentally find the cost of 8 erasers at $.49 each.

2.7 Division of Real Numbers

Vocabulary

Reciprocal:

Division of Fractions

1. To divide fractions *multiply* the first fraction by the reciprocal of the second fraction.

2. To divide mixed numbers, change to improper fractions first, then follow the above rule.

Examples

Domain of a Function

The denominator of a fraction CANNOT be zero!!

Examples

Practice

Find the quotient

1. $-\frac{3}{4} \div \frac{5}{12}$

2. $3\frac{5}{9} \div 2\frac{2}{3}$

3. $\frac{1}{-\frac{5}{8}}$

4. Simplify $\frac{56x-14}{7}$

5. Evaluate $\frac{a}{-2b}$ when $a = -\frac{1}{5}$ & $b = \frac{11}{20}$

6. Find the domain of the function $y = \frac{3-x}{x-5}$

2.8 Probability and Odds

Vocabulary

Probability of an event:

Outcomes:

Favorable Outcomes:

Theoretical Probability:

Experimental Probability:

Odds:

Probability of an Event

$$P = \frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}$$

Examples

Odds of an Event

$$\text{Odds} = \frac{\text{Number of favorable outcomes}}{\text{Number of un-favorable outcomes}}$$

Examples