Pre-Algebra

1st Semester Study Guide

Vocabulary

**Chapter 1**

Numerical expression

Variable

Variable expression

Evaluate

Verbal model

Power

Base

Exponent

Order of operations

Integer

Negative integer

Postive integer

Absolute value

Opposite

Additive inverse

coordinate plane

x-axis

y-axis

Origin

Quadrant

Ordered pair

x-coordinate

y-coordinate

Scatter plot

**Chapter 2**

Additive identity

Multiplicative identity

Equivalent numerical

Equivalent variable expressions

Term

Coefficient

Constant term

Like terms

Equation

Solution of an equation

Solving an equation

Inverse operations

Equivalent equations

**Chapter 3**

Inequality

Solution of an inequality

Equivalent inequalities

**Chapter 4**

Prime number

Composite number

Prime factorization

Factor tree

Monomial

Common factor

Greatest common factor

Relatively prime

Equivalent fractions

Simplest form

Multiple

Common multiple

Least common multiple

Least common denominator

Scientific notation

Quick Review

**Chapter 1: Variables, Expressions, and Integers**

* Evaluate & write variable expressions.
* Use powers to describe repeated multiplication.
	+ Ex: 53 = 5 x 5 x 5
* Use order of operations to evaluate expressions.
	+ PEMDAS
* Compare and order integers.
	+ Integers: ...-3, -2, -1, 0, 1, 2, 3...
* Add, subtract, multiply, and divide integers.
* Identify and plot points on a coordinate plane.
	+ Ordered pairs (-3, 2), (4, -1), (2, 6)
	+ Quadrants I, II, III, IV

**Chapter 2: Solving Equations**

* Use properties of addition and multiplication.
* Solve problems involving perimeter and area.
* Use the distributive property.
	+ 3(x + 9) = 3y + 3(9) = 3y + 27
* Simplify variable expressions.
	+ Combine like terms.
* Solve equations with variables.
* Solve equations using addition, subtraction, multiplication, and division.
* Solve equations involving decimals.

**Chapter 3: Multi-Step Equations and Inequalities**

* Solve 2-step equations.
	+ Ex: 3x + 5 = 14
* Solve equations using the distributive property.
	+ Ex: 5(x + 4) = 40
* Solve equations with variables on both sides.
* Solve inequalities using addition, subtraction, multiplication, or division.
	+ Remember to flip the symbol whenever you multiply or divide by a negative.
* Solve multi-step inequalities.

**Chapter 4: Factors, Fractions, and Exponents**

* Write the prime factorization of a number.
	+ Factor trees
* Find the GCF (Greatest Common Factor) of two or more whole numbers.
* Write equivalent fractions.
* Find the LCM (Least Common Multiple) of two numbers.
* Multiply and divide powers
	+ Ex: $x^{6}∙x^{9}=x^{6+9}=x^{15}$
	+ Ex:$\frac{ x^{7}}{x^{3}}=x^{7-3}=x^{4}$
* Work with negative and zero exponents.
	+ Ex: 5-2 = 1/5-2
* Write numbers using scientific notation.
	+ Ex: 3.2 x 107 = 32,000,000
	+ Ex: 1.93 x 10-3 = 0.00193

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