Acc. Algebra I/Geometry A
Unit 1: Relationships Between Quantities & Expression

References

HMH Georgia Acc. Coordinate Algebra Text: Unit 1: Modules 1-2

Check with you teacher for online and print access:

Online website: my.hrw.com

Web Resources

- Rational & irrational https://www.illustrativemathematics.org/content-standards/tasks/608
- Simplifying radicals http://cms.gavirtualschool.org/Shared/Math/GSEAlgI16/GSEAlgI_RelationshipsandExp_Shared/GSEAlgI_RelationshipsandExp_Shared8.html#headingtaglink_1
- Unit conversions https://www.khanacademy.org/math/pre-algebra/rates-and-ratios/metric-system-tutorial/v/unit-conversion
- Polynomials http://mathbitsnotebook.com/Algebra1/Polynomials/POoutline.html
- Polynomials
- http://www.brightstorm.com/search/?k=polynomials

Dear Parents

Below you will find a list of concepts that your child will use and understand while completing Unit 1: Relationships Between Quantities & Expressions. Also included are references, vocabulary and examples that will help you assist your child at home.

Concepts Students will Use and Understand

- The structure of expressions and the meaning of their parts in context.
- Appropriateness of units of measure within context.
- Similarities between the system of polynomials and the system of integers.
- Addition, Subtraction, and Multiplication of polynomials is closed.
- Properties of rational and irrational numbers.
- Simplify and/or use the operations of addition, subtraction, and multiplication, with radicals within expressions limited to square roots.
- Visual representation of radicals.

Vocabulary

- **Binomial Expression:** An algebraic expression with two unlike terms.
- **Capacity:** The greatest volume that a container can hold.
- **Coefficient:** A number multiplied by a variable.
- **Constant Term:** A quantity that does not change its value.
- **Factor:** When two or more integers are multiplied, each integer is a factor of the product. "To factor" means to write the number or term as a product of its factors.
- **Irrational Number:** A number whose decimal form is nonterminating and nonrepeating. Irrational numbers cannot be written in the form a/b, where a and b are integers (b cannot be zero). So all numbers that are not rational are irrational.
- **Monomial Expression:** An algebraic expression with one term.
- **Polynomial function:** A *polynomial function* is defined as a function,

  $f(x) = a_o x^n + a_1 x^{n-1} + a_2 x^{n-2} + \dots + a_{n-2} x^2 + a_{n-1} x^1 + a_n$, where the coefficients are real numbers.
- **Pythagorean Theorem:** It is a theorem that states a relationship that exists in any right triangle. If the lengths of the legs in the right triangle are a and b and the length of the hypotenuse is c, we can write the theorem as the following equation: $a^2 + b^2 = c^2$
- **Radical:** The symbol, $\sqrt[b]{a}$, which is read "the bth root of a," is called a radical.
- **Radicand:** The number underneath the root symbol. So, in $\sqrt[b]{a}$, the a is called the radicand.
- **Rational Number:** A number expressible in the form a/b or $-a/b$ for some fraction a/b. The rational numbers include the integers.
- **Standard Form of a Polynomial**: To express a polynomial by putting the terms in descending exponent order.
- **Term:** A number, a variable, or a product of numbers and variables.
- **Trinomial**: An algebraic expression with three unlike terms.

Algebra 1 Unit 1 Practice Problems

Formulas

Perimeter:

all sides added together

Area:

Length x width

Example 1

A rectangle is 5m longer than it is wide. The perimeter is 38m. Find the length & width.

Example 2

Determine if $4 + \sqrt{7} = \frac{a}{b}$ is rational or irrational.

Example 3

What is the simplified form of $\sqrt{98}$?

Example 4

Find the difference. Write the answer in standard form.
$$(-6x^3 + 5x - 3) - (2x^3 + 4x^2 - 3x + 1)$$

Example 5

A rectangle has a width of $(x + 2)$ and a height of $(2x + 1)$. Find an expression that represents the area as a whole.

Answer Key

Example 1
2(w) + 2(w+5)=4w + 10; 4w + 10=38; w=7; the width is 7 and the length is 12

Example 2
Irrational

Example 3
$7\sqrt{2}$

Example 4
$-8x^3 - 4x^2 + 8x - 4$

Example 5
$2x^2 + 5x + 2$