Say It With Symbols

Glossary

Commutative property of Addition – a mathematical property that states that the order in which quantities are added does not matter. For example 5 + 7 = 7 + 5

Commutative Property of Multiplication – a mathematical property that states that the order in which quantities are multiplied does not matter. For example, 5 x 7 = 7 x 5.

Distributive Property – A mathematical property used to rewrite expressions involving addition and multiplication. For example,

$4(5 + x) = 4(5) + 4 (x) = 20 + 4x$

Expanded Form – $x^2 + 7x + 12$ and $x^2 + 2x$.

Factored Form – The form of an expression composed of products of factors rather than sums and differences of terms. The expressions (x+3)(x+4) and x(x-2) are in factored form.
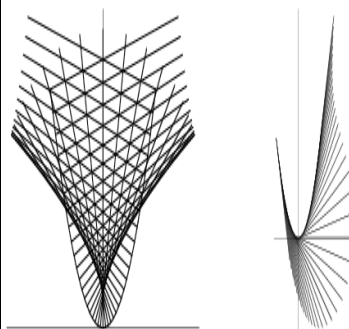
Parabola – The graph of a quadratic function

Roots – The roots of an equation are the values of x that make *y* equal 0.

Web Resources

Algebra Tiles

http://www.coe.tamu.edu/~strader/Mathematics/Algebra/AlgebraTiles/AlgebraTiles2.html

Everett Public Schools

Connected Mathematics Project

Everett Public Schools Mathematics Program

Say It With Symbols

Algebra

Unit Goals:

- Making sense of symbols
- Using the appropriate order of operations in evaluating expressions
- Writing symbolic sentences, using parentheses and properties of real numbers, to communicate effectively
- Reasoning with equivalent expressions
- Solving linear and quadratic equations
- Modeling and solving problems

Proposed Time Frame: Approximately 6 weeks

Mathematics in Investigations

Investigation 1: Order of Operations

* Make sense of symbolic expressions involving addition, subtraction, multiplication, division and exponents.

* Develop an understanding of the conventional *order of operations* rules by being attentive to the ways expressions are written and evaluated in a variety of settings

* Evaluate expressions by applying the rules of order of operations

Investigation 2: Equivalent Expressions

* Informally articulate the distributive property

* Apply the distributive property to simplify and compare expressions

* Further articulate what it means for two expressions to be equivalent

* Judge the equivalency of two or more expressions by examining the reasoning that each represents

* Determine the equivalency of two or more expressions by examining tables and graphs

Investigation 3: Some Important Properties

* Determine the impact of a negative quantity as a factor

* Use the distributive and commutative properties to show equivalence of expressions

* Solve a variety of problems using the distributive and commutative properties

Investigation 4: Solving Equations

* Apply the properties for manipulating expressions to solving linear equations

* Solve simple quadratic equations symbolically

* Connect the solutions of an equation to information about its table and graph

Investigation 5: Writing Expressions for Surface Area

* Find and compare equivalent expressions in a given context

* Evaluate expressions for a specific value of a variable

Tips for Helping at Home

Good questions and good listening will help children make sense of mathematics and build self-confidence. A good question opens up a problem and supports different ways of thinking about it. Here are some questions you might try, notice that none of them can be answered with a simple "yes" or "no".

Getting Started
* What do you need to find out?
* What do you need to know?
* What terms do you understand or not understand?

While Working
* How can you organize the information?
* Do you see any patterns or relationships that will help solve this?
* What would happen if…?

Reflecting about the Solution
* How do you know your answer is reasonable?
* Has the question been answered?
* Can you explain it another way?

At Home:
1 Talk with your child about what's going on in mathematics class.
2 Look for ways to link mathematical learning to daily activities. Encourage your child to figure out the amounts for halving a recipe, estimating gas mileage, or figuring a restaurant tip.
3 Encourage your child to schedule a regular time for homework and provide a comfortable place for their study, free from distractions.
4 Monitor your child's homework on a regular basis by looking at one problem or asking your child to briefly describe the focus of the homework. When your child asks for help, work with them instead of doing the problem for them.

At School
1 Attend Open House, Back to School Night, and after school events.
2 Join the parent-teacher organization

Connected Mathematics Project

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