

# Parent Newsletter

## Chapter 13: Expressions and Equations

### Key Terms

**Like terms** are terms that have the same variables raised to the same exponents.

An algebraic expression is in **simplest form** when it has no like terms and no parentheses.

A **linear expression** is an algebraic expression in which the exponent of the variable is 1.

When **factoring an expression**, you write the expression as a product of factors.

Two equations are **equivalent equations** if they have the same solutions.

### Students will...

Apply properties of operations to simplify algebraic expressions.

Apply properties of operations to add and subtract linear expressions.

Factor linear expressions.

Write simple equations.

Solve equations using addition or subtraction.

Solve equations using multiplication or division.

Solve two-step equations.

Solve real-life problems.

### Standards

#### **Common Core:**

**7.EE.1:** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

**7.EE.2:** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

**7.EE.4a:** Solve word problems leading to equations of the form  $px + q = r$  and  $p(x + q) = r$ , where  $p$ ,  $q$ , and  $r$  are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.

### **Key Ideas**

#### Addition Property of Equality

- Adding the same number to each side of an equation produces an equivalent equation.
- If  $a = b$ , then  $a + c = b + c$ .

#### Subtraction Property of Equality

- Subtracting the same number from each side of an equation produces an equivalent equation.
- If  $a = b$ , then  $a - c = b - c$ .

#### Multiplication Property of Equality

- Multiplying each side of an equation by the same number produces an equivalent equation.
- If  $a = b$ , then  $a \cdot c = b \cdot c$ .

#### Division Property of Equality

- Dividing each side of an equation by the same number produces an equivalent equation.
- If  $a = b$ , then  $a \div c = b \div c$ ,  $c \neq 0$ .

### Games

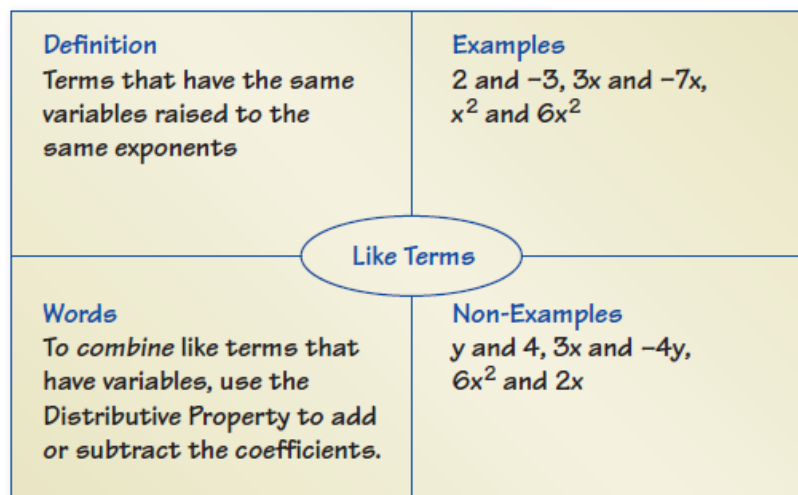
- Let's Race
- Tic-Tac-Toe

These are available online in the *Game Closet* at [www.bigideasmath.com](http://www.bigideasmath.com).



## Reference Tools

A **Four Square** can be used to organize information about a topic. Write the topic in the “bubble” in the middle of the four square. Then write concepts related to the topic in the four squares surrounding the bubble. Any concept related to the topic can be used. Encourage your student to include concepts that will help them learn the topic. Place four squares on note cards to use as a quick study reference.



## Quick Review

- Parts of an algebraic expression are called *terms*.
- Any letter can be used as a variable.
- To identify terms and like terms in an expression, first write the expression as a sum of its terms.
- The same variables must be raised to the same exponents for terms to be *like terms*.
- To *combine* like terms that have variables, use the Distributive Property to add or subtract the coefficients.
- To subtract a variable term, add the term with the opposite coefficient.
- You can use a vertical or a horizontal method to add linear expressions.
- To subtract one linear expression from another, add the opposite of each term in the expression.
- You can use the Distributive Property to factor out any rational number from an expression.
- Variables can be on either side of the equation.

## Essential Questions

How can you simplify an algebraic expression?

How can you use algebra tiles to add or subtract algebraic expressions?

How can you use algebra tiles to solve addition or subtraction equations?

How can you use multiplication or division to solve equations?

How can you use algebra tiles to solve a two-step equation?

## What's the Point?

The ability to use expressions and equations is very useful in real life for events like budgeting for a trip to the movies. Have your student figure out how many people they can take to the movies with a certain amount of money. What if everyone gets popcorn?

The STEM Videos available online show ways to use mathematics in real-life situations. The Chapter 13: Rock Climbing STEM Video is available online at [www.bigideasmath.com](http://www.bigideasmath.com).

