

Dear Family,

In this module, *Write and Solve Equations*, students will apply their prior knowledge of solving one-step equations to solving **two-step equations** and their prior knowledge of operations with fractions to solving equations with rational numbers. They will use both algebraic and arithmetic solving strategies and compare the structure of the two methods.

What Did Students Learn Previously?

In earlier grades, students used the **Order of Operations** to *simplify numeric expressions*, which they now will use to *simplify algebraic expressions*. For example, students would simplify the numeric expression $36 \div 3(5 + 7) + 2$ as follows:

STEP 1: $5 + 7 = 12$	$36 \div 3(12) + 2$	Simplify the expression inside the parentheses
STEP 2: $36 \div 3 = 12$	$12(12) + 2$	Perform multiplication and division as it occurs from left to right
STEP 3: $12(12) = 144$	$144 + 2$	Perform multiplication and division as it occurs from left to right
STEP 4: $144 + 2 = 146$	146	Perform addition and subtraction

What Will Students Learn in This Module?

Write and Solve One-Step Equations

- Students will solve equations in the form $px = r$ or $p + x = r$, where p and r represent rational numbers. For example, given $\frac{5}{9}x = 25$, students could multiply both sides of the equation by the reciprocal of $\frac{5}{9}$ to obtain $\frac{9}{5}\left(\frac{5}{9}x\right) = \frac{9}{5}(25)$. Since $\frac{9}{5} \times \frac{5}{9} = 1$, $x = \frac{9 \times 25}{5}$, or 45.

Solve Two-Step Equations by Undoing Operations in Reverse of the *Order of Operations*

- Students will write and solve equations in the form $px + q = r$, where p , q and r represent rational numbers. For example, given $\frac{2}{3}x + 5 = 8$, students will first subtract 5 from each side of the equation, resulting in $\frac{2}{3}x = 3$, and then divide each side of the equation by $\frac{2}{3}$, resulting in the answer $x = \frac{9}{2}$, or $4\frac{1}{2}$.
- Students will write and solve equations in the form $p(x + q) = r$, where p , q , and r represent rational numbers. For example, given the equation $3(x + 5) = 9$, students might first divide each side of the equation by 3, resulting in $x + 5 = 3$,

and then subtract 5 from each side to find $x = -2$. Alternatively, students might first distribute the 3, resulting in $3x + 15 = 9$, subtracted 15 from each side to find $3x = -6$, then divided each side by 3 and found the same answer, $x = -2$.

What Vocabulary Terms Will Students Use?

Term	Definition
Addition Property of Equality	When the same number is added to each side of an equation, the two sides remain equal.
defining a variable	Choosing a symbol and a quantity for a variable to represent.
Distributive Property	For any numbers a , b , and c , $a(b + c) = ab + ac$ and $a(b - c) = ab - ac$.
Division Property of Equality	When each side of an equation is divided by the same nonzero number, the two sides remain equal.
equivalent equations	Two or more equations with the same solution.
Inverse Property of Multiplication	The product of a number and its multiplicative inverse (reciprocal) is 1.
Multiplication Property of Equality	When each side of an equation is multiplied by the same number, the two sides remain equal.
Order of Operations	The rules to follow when more than one operation is used in an expression.
two-step equation	An equation that has two different operations.
variable	A letter or symbol used to represent a number in mathematical expressions.

How You Can Provide Support

- Support your child's understanding of writing and solving equations by increasing their awareness of how variables and equations are used in everyday life.
 - Variables:* Help your child notice quantities that can be represented by variables. For example, perhaps your child is selling coupon books for a club fundraiser, and the club will receive \$5.00 for each coupon book sold. Ask your child how variables could be used to represent the amount of money raised. Your child should define the variables as the number of coupon books sold and the amount of money raised. Some children may state that the variable is \$5.00. If this occurs, help your child understand that the amount of money received for each coupon book (\$5.00) does not change, so it is not a variable.
- Encourage your child to have a positive, growth-oriented attitude towards mathematics and their learning.
 - Encourage them to ask questions – both at home and in class. Sometimes, an answer to a question will generate more questions. That's how you know they are learning!
 - Encourage your child to embrace challenges and remind them that every challenge is an opportunity to learn something new.
 - Celebrate successes – both small and large.
- Contact me to arrange a time to discuss the specifics of your child's performance and how we can work together to help them succeed in this module.

Sincerely,

(Teacher's Name)

(Email/Phone)