Packet 2: Expressions and Equations 1

Dear Parents/Guardians,

Packet 2 reviews the expressions and equations work from grade 7. Students evaluate expressions using the conventions for order of operations. They work with variables and recognize that, though different variables may have the same value in an expression or equation, the same variable MUST have the same value.

Encourage your student to explore mental math strategies when solving a one- or two-step equation. This helps them determine if their solution makes sense.

Order of Operations for Simplifying Expressions

Step 1: Simplify expressions that are grouped, i.e. ( ), [ ], or —.
Step 2: Simplify expressions with exponents.
Step 3: Perform multiplication and division from **left** to **right**.
Step 4: Perform addition and subtraction from **left** to **right**.

Example

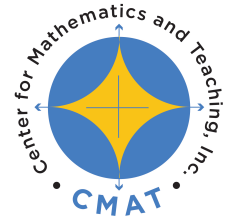
	$-27 \div (2-5)^2 \bullet 8$
First, simplify within the grouping symbols.	$= -27 \div (-3)^2 \bullet 8$
Second, simplify terms with exponents.	$= -27 \div 9 \bullet 8$
Third, perform multiplication and division left to right.	$= (-27 \div 9) \bullet 8$
Multiply.	$= -3 \bullet 8$
	$= -24$

Expressions, Equations and Inequalities

A mathematical expression is a combination of numbers, variables and operation symbols.	An equation asserts that two mathematical expressions are equivalent.	An inequality compares two expressions. Common symbols are <, ≤, ≥, >, and ≠.
$7x$, $-3y+2$, 21, and $a+b$ are all examples of expressions	$4+6 = 5\times2$ and $3x = 12$ are examples of equations	$15 > -20$ and $-10 \le 5x + 2$ are examples of inequalities

Using Mental Math Strategies to Solve Equations

One-Step Equations Use Mental Math	Two-Step Equations Use Cover Up Method
$3x = -15$ Think, *"What times 4 is -15?"* Since $3\times(-5) = -15$, the value of x is -15. $x = -15$	$3(2 + n) = 21$ Cover up what is unknown. $3(\square)$ Think, *"3 times _____ is 21?"* (7) $2 + \square = 7$ *"2 plus _____ is 7?"* (5) ***n* = 5**



By the end of the packet, your student should know…

Order of operations to simplify expressions Lesson 2.1

The difference between an expression and an equation Lesson 2.2

How to use mental math strategies to solve equations and inequalities Lesson 2.3

Additional Resources

Resource Guide (RG)
Part 1, pages 27, 35-39

http://www.mathtv.com/#
- Basic Math
- Whole Numbers
- Exponents
- Order of Operation