Unit 6: Expressions

Dear Parents/Guardians,

Unit 6 introduces students to expressions using meaningful contexts. In Lesson 1, students use the GCF and the distributive property to rewrite numerical expressions. In Lesson 2, they explore algebraic expressions using a pizza shop menu. In Lesson 3, students write algebraic and numerical expressions in words, numbers and symbols.

Rewriting Numerical Expressions

Students rewrite numerical expressions using both the distributive property and the greatest common factor (GCF). This is in preparation for evaluating variable expressions and solving equations.

The distributive property states that $a(b + c) = ab + ac$ and $(a + b)c = ac + bc$ for any numbers a, b, and c.

Rewrite 7(12) using the distributive property. Then simplify.	Rewrite 70 + 14 as a product using the GCF and the distributive property.
7(12) = 7(10 + 2) = 7(10) + 7(2) = 70 + 14 = 84	70 + 14 The GCF is 7. Divide 70 and 14 by 7 to factor. 7(10 + 2)

Order of Operations (For Simplifying Expressions)

Step 1: Simplify expressions that are grouped (i.e., ( ), [ ], or a fraction bar).
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	**$10 + 32 \div (5 - 1)^2 \bullet 8$**
First, simplify within the grouping symbols.	$10 + 32 \div (5 - 1)^2 \bullet 8$
Second, simplify terms with exponents.	$= 10 + 32 \div 4^2 \bullet 8$
Third, perform multiplication and division.	
Since the division comes first, divide.	$= 10 + 32 \div 16 \bullet 8$
Then Multiply.	$= 10 + 2 \bullet 8$
Fourth, perform addition to find the value.	$= 10 + 16 = 26$

Variable Expressions

Students represent the costs of menu items as variables. They write and evaluate orders from the menu using the distributive property and order of operations.

Cost of Menu Items	Menu Order	Expression Representing Cost of Order
Pizza (by the slice) Cheese (c) $1.00 Pepperoni (p) $1.50 Drinks Small (s) $0.75 Medium (m) $1.25 Large (L) $1.75	*I'd like two slices of cheese, a slice of pepperoni, two small drinks, and another slice of cheese.*	$2c + p + 2s + c$ $= 3c + p + 2s$ $= 3(1.00) + 1.50 + 2(0.75)$ $= 3.00 + 1.50 + 1.50 = \$6.00$
	I'd like 4 orders of a slice of cheese pizza and a medium drink.	$4(c + m)$ $= 4(1.00 + 1.25)$ $= 4(1.00) + 4(1.25)$ $= 4.00 + 5.00 = \$9.00$

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Math Links GRADE 6

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

- How to apply the distributive property to rewrite expressions [Lesson 6.1]
- How to simplify expressions containing exponents [Lesson 6.1]
- How to simplify expressions using order of operations [Lesson 6.1]
- How to use variables in expressions [Lesson 6.2]
- How to simplify and evaluate variable expressions [Lesson 6.2]
- How to translate between verbal, numerical, and algebraic expressions [Lesson 6.3]

Additional Resources

- For definitions and additional notes please refer to section 6.5.
- Whole Numbers: https://bit.ly/3ecB2ll
- Exponents and Order of Operations: https://bit.ly/2CfaRCZ
- Simplifying Expressions: https://bit.ly/2C9g9jl