Edgenuity

Warm-Up | Expressions with and without Parentheses

Lesson Question

Lesson Goals

Use algebraic expressions to model unknown number problems.

Write expressions involving _____ operations, with and without parentheses.

Evaluate _____ involving multiple operations, with and without parentheses.

Words to Know

Write the letter of the definition next to the matching word as you work through the lesson. You may use the glossary to help you.

_____ variable	A. to determine the value of
_____ order of operations	B. a letter or symbol used to represent an unknown quantity
_____ algebraic expression	C. the set of rules that are followed when simplifying numerical expressions
_____ evaluate	D. a mathematical expression that consists of variables, numbers, and operations

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Writing Algebraic Expressions with Parentheses

Write **algebraic expressions** with

[ ] in order to perform

operations in the correct [ ] following

the **order of operations**.

two times the sum of a number and ten

Evaluate within parentheses.

↓

Evaluate exponents.

↓

Multiply and divide from left to right.

↓

Add and subtract from left to right.

two times the sum of a number and ten

$$2([\ ] + 10)$$

If you're multiplying by a sum or a product or a quotient, make sure you use those [ ].

Key Words	Replace With
two	2
times	×
the sum of	(+)
a number	*n*
ten	10

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Writing Algebraic Expressions with Parentheses

four times the difference of fifteen and a number

$4(\square - \square)$

Fill in the missing symbol to complete the table.

Key Words	Replace With
four	4
times	
the difference of	(–)
fifteen	15
a number	*n*

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Writing Algebraic Expressions with Multiple Operations

two more than a number cubed decreased by four

$\square + n^3 - \square$

Fill in the missing symbols to complete the table.

Key Words	Replace With
two	2
more than	
a number	*n*
cubed	exponent of 3
decreased by	
four	4

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Writing and Evaluating Algebraic Expressions

PROCEDURE

Steps to write and **evaluate** algebraic expressions with parentheses and multiple operations:

1. Replace key words with **variables**, numbers, and operations.
2. Substitute the given value for the ☐.
3. Use order of operations to simplify.

four times the sum of one and a number

$$\square(\square + n)$$

Using Order of Operations to Simplify

four times the sum of one and a number

$$4(1 + n)$$

evaluate when $n = 5$

$$4(1 + \square)$$

$$\square(6) = \square$$

Evaluate within parentheses.

↓

Evaluate exponents.

↓

Multiply and divide from left to right.

↓

Add and subtract from left to right.

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Writing and Evaluating Algebraic Expressions

Steps to write and evaluate algebraic expressions with parentheses and multiple operations:

1. Replace key words with variables, numbers, and operations.
2. Substitute the given ☐ for the variable.
3. Use order of operations to ☐.

eight more than the quotient of fourteen and a number, decreased by three

$$8+\frac{14}{\square}-\square$$

Using Order of Operations to Simplify

eight more than the quotient of fourteen and a number, decreased by three

$$8+\frac{14}{n}-3$$

evaluate when $n = 2$

$$8+\frac{\square}{(2)}-3$$

$$8+\square-3=15-3=\square$$

Evaluate within parentheses.

↓

Evaluate exponents.

↓

Multiply and divide from left to right.

↓

Add and subtract from left to right.

Summary

Expressions with and without Parentheses

Lesson Question	How do you represent algebraic expressions with and without parentheses?

Answer

Use this space to write any questions or thoughts about this lesson.