Section Overview

Professional Development

Using the Order of Operations — *Lesson 1-4*

Why? The order of operations ensures that everyone gets the same answer.

Order of Operations

1. Parentheses
2. Exponents
3. Multiply/Divide
4. Add/Subtract

Evaluate $9 \div (1 + 2) \times 4^2 - 5$.

$9 \div (1 + 2) \times 4^2 - 5$	*Perform operations within parentheses.*
$9 \div 3 \times 4^2 - 5$	*Find the values of numbers with exponents.*
$9 \div 3 \times 16 - 5$	*Divide.*
$3 \times 16 - 5$	*Multiply.*
$48 - 5$	*Subtract.*
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Using Number Properties — *Lesson 1-5*

Why? Number properties can help you perform calculations mentally.

Commutative Property

Addition: $2 + 3 = 3 + 2$
Multiplication: $2 \times 3 = 3 \times 2$

Associative Property

Addition: $(3 + 5) + 4 = 3 + (5 + 4)$
Multiplication: $(3 \times 5) \times 4 = 3 \times (5 \times 4)$

Distributive Property

$4 \times (8 + 2) = (4 \times 8) + (4 \times 2)$
and
$4 \times (8 - 2) = (4 \times 8) - (4 - 2)$

Use number properties to evaluate mentally.

$14 + 22 + 16 + 28 = 14 + \mathbf{16} + \mathbf{22} + 28$ ***Commutative Property***
$= (14 + 16) + (22 + 28)$ ***Associative Property***
$= 30 + 50$
$= 80$

$7 \times 64 = 7 \times (60 + 4)$
$= (7 \times 60) + (7 \times 4)$ ***Distributive Property***
$= 420 + 28$
$= 448$

Extending Patterns in Sequences — *Lessons 1-6, 1-7*

Why? By recognizing and extending number patterns, you can make predictions and solve problems involving function relationships.

A **sequence** is an ordered set of numbers.

$\times 2 \quad \times 2 \quad \times 2 \quad \times 2$

1, 2, 4, 8, 16, . . .

Each number in a sequence is called a **term**.

Multiply by 2 to get the next term.
The next three terms are as follows:

$16 \times 2 = \mathbf{32}$
$36 \times 2 = \mathbf{64}$
$64 \times 2 = \mathbf{128}$

Note: Some students may find different rules or patterns for the same sequence. There will always be many rules that will give rise to a given sequence.