Order of Operations

Notes

Name: _____

Date: _____

Keepin' it Real

Vivian is creating party packages for her catering business. Each package has different amounts of each of her items and her profit is ¾ of the total cost. She needs to find the total costs, her profit and profit per customer for each party package to help her decide which to promote. To do so, Vivian needs to use the order of operations.

Vocabulary

Write the definition of the term and include an image or example that represents it.

Term	Definition	Example
Sum		
Difference		
Product		
Quotient		
Exponent		
Grouping Symbols		
PEMDAS		

Key Concept (a)

PEMDAS - The Order of Operations

Step 1	
Step 2	
Step 3	
Step 4	

Skill Practice #1

Expressions with 2 Operations	Notes
$9 + 3 \cdot 2$	

Skill Practice #2

Expressions with 3 Operations & Parentheses	Notes
$36 \div (3 \cdot 2) - 3$	

Key Concept (b)

Multiplication or Division First? Addition or Subtraction First?	The Conceptualizer!
What is the value of… $4 - 3 + 6$ Is it 7 or is it -5? The answer is 7 because since addition and subtraction are on the same level of PEMDAS, **you work the problem from LEFT to RIGHT.** #fakenews *Many remember PEMDAS so well they think Multiplication always comes before Division and Addition always comes before Subtraction. They are SO TOTALLY, LIKE SO INCREDIBLY WRONG!*	

Skill Practice #3

Expressions with 3 Operations of the same group	Notes
$24 \cdot 3 \div 2 \div 4$	

Key Concept (c)

What are Nested Parentheses?	The Conceptualizer!
Grouping symbols are symbols used in pairs to group part of an expression together. Nested parentheses is a term used when one set of grouping symbols is found inside another set of grouping symbols. The grouping symbols generally are used in this way… Parentheses ( ) group the innermost part of the expression. Square brackets [ ] are used to enclose one or more pairs of parentheses. Curly braces { } enclose one or more pairs of square brackets and/or parentheses.	

How to Evaluate an Expressions with Nested Parentheses	The Conceptualizer!
The rule of thumb for evaluating an expression with nested parentheses is to evaluate the innermost set of parentheses first. So, we work our way "out" from the innermost parentheses.	

Skill Practice #4

Expressions with Nested Parentheses	Notes
$9 + [(12 - 8) \cdot 3]$	

#Observations

Do these problems actually get harder?
Harder problems just mean adding more steps. They are longer. You will reach a point where if you follow the order of operations, no one problem is any harder than another. Fine tune that algorithm in your brain!

Skill Practice #5

Expressions with Nested Parentheses	Notes
$[7 - (2 + 13) \div 5] - 17$	

Skill Practice #6

Expressions with Nested Parentheses	Notes
$36 \div \left\{5 - \left[12 - (2+1)^2\right]\right\}$	

Last Check

Write examples where the first operation in an order of operations problem is either addition, subtraction, multiplication, division or exponent in each box.

Addition	Subtraction	Multiplication	Division	Exponent

Applications

On a trip, Willie bought 5 magnets for $1.50 each; 3 keychains for $2.25 each and a statue for $6.25. How much did Willie spend?

Ronda bought 5 pizzas. Each cost $11.95. He paid with a $100 bill. He wanted the driver to keep $10 for a tip. How much change should Ronda get back?

Dwayne bought six notebooks at $1.75 each and three pens at $0.75 each. He was charged 6% sales tax. What was the total cost?