lesson seven - student resource sheet

Lesson Objective: Evaluate an expression involving more than one operation.

Vocabulary Box

expression — A mathematical phrase that combines operations with constants or variables, or both. Examples: $5 + 3^2$, and $14 – 2 \bullet 5$

evaluate — To find the value of a numerical expression. Example: $5 + 12 = 17$

order of operations — The rules for performing operations in expressions with more than one operation. Example: In the expression $8 + 10 \bullet 2$, the multiplication is performed first.

The order of operations:

P _____ E_____ MD_____ AS_____

Other Notes:

Guided Practice

Please complete the following practice problems with your partner. Then your teacher will review the answers. Make sure that you show all important work.

Directions: Simplify each expression.

1. $40 – 8 \div 4$

2. $12 – 4 + 8$

3. $48 \div 6 \bullet 4$

4. $(13 – 9) \bullet 5$

5. $5 \bullet (9 – 4)^2 \div (7 – 18 \div 3^2)$

Summary/Closure

A. Vocabulary Words

Directions: Match each term with its definition.

1. evaluate
2. expression
3. order of operations

A. a mathematical phrase that combines operations and numbers

B. to find the value of a numerical expression

C. the rules for performing operations in expressions with more than one operation

B. Summarize What We Learned Today

Directions: Write three expressions and simplify them using the order of operations. Then write a few sentences about simplifying expressions using the order of operations. You will use this explanation as a personal reminder.

lesson eight - student resource sheet

Lesson Objective: Evaluate an expression involving more than one operation.

Vocabulary Box

expression — A mathematical phrase that combines operations with constants or variables, or both. Examples: $5 + 3^2$, and $14 – 2 \bullet 5$.

evaluate — To find the value of a numerical expression. Example: 5 + 12 = 17.

order of operations — The rules for performing operations in expressions with more than one operation. Example: In the expression 8 + 10 ● 2, the multiplication is performed first.

Please complete the following practice problems on your own. Your teacher will review the answers. Make sure that you show all of your work.

Directions: Simplify each expression.

1. 5 + 7 ● 5
2. (5 + 7) ● 5
3. 54 – 27 ÷ 3
4. (54 – 27) ÷ 3
5. 19 – 4 + 5
6. 19 – (4 + 5)
7. 100 ÷ 4 ● 5
8. 100 ÷ (4 ● 5)

9. $6 + 4^3$

10. $(6 + 4)^3$

11. $18 – 4 \bullet 3^2 \div (2 \bullet 6)$

12. $8 + 4 \bullet (9 – 3 \bullet 2)$

Directions: Simplify each expression.

1. $–6 – 56 \div (2)$

2. $(7 – (–8)) \bullet (–4 – 2)$

3. $63 – (17 – (4 – (2 – 9)))$

Problem Solving

Directions: In each empty box, write one of the following signs so that all horizontal and vertical statements are correct: **+**, **–**, **●**, **÷**, **=**

			18		48					
		24		12		6		22		
			12		4					
		15		12		3		19		
			4		2					
			10		6		4		34	
					10		6			
				3		27		9		9
			14		2		2			
		15		8		6		1		
			6		3		12			
1		2		4		9				
			2		17					
			2							

Directions: Simplify each expression.

1. $16 - 14 + 30 \div 3 \bullet 5$

2. $6 \bullet 9 - 3 \bullet 4^2$

3. $27 - (17 - 5 \bullet 3)^3 \bullet 3$

lesson nine - student resource sheet

Lesson Objective: Find products and quotients, using rules for exponents.

Vocabulary Box

exponent or **power** — A number that indicates the operation of repeated multiplication. Example: 5 in 3^5.

Guided Practice

Directions: Complete the following practice problems with your partner. Your teacher will review the answers. Make sure that you show all important work.

Rewrite the following expressions, using a single base. Then simplify each expression.

1. $2^5 \bullet 2^5$

2. $3^2 \bullet 3^4$

3. $\frac{8^8}{8^5}$

4. $\frac{3^4}{3}$

5. $\frac{12^4}{12^6}$

6. $\frac{17^9}{17^9}$

Summary/Closure

A. Vocabulary Words

1. What two words describe a number that indicates repeated multiplication?

2. Write an exponential expression, and identify the number that is the exponent.

3. Write your exponential expression as repeated multiplication.

B. Summarize What We Learned Today

Directions: Write three exponential expressions and simplify them. One expression should be a product, and two should be quotients, with one of the quotients having a greater number in the denominator. Then write a few sentences about simplifying exponential expressions using the rules we learned today. You will use this explanation as a personal reminder.