Cornell Notes

Topic: **Properties of Addition and Multiplication Lesson 3.3**

Name: _____
Date: _____
Period: _____

Essential Question: Does the order in which you perform an operation matter?

Questions/Main Ideas:	Notes:	
Vocabulary	**Equivalent expression**- making an expression = on both sides of the = sign	
	Commutative Properties- Changing the order of addends or factors does not change the sum or product.	
Examples	**Numbers**	**Algebra**
	5 + 8 = 8 + 5	a + b = b + a
	5 x 8 = 8 x 5	a x b = b x a
	Associative Properties- Changing the grouping of addends or factors does not change the sum or product.	
Examples	**Numbers**	**Algebra**
	(7 + 4) + 2 = 7 + (4 + 2)	(a + b) + c = a + (b + c)
	(7 x 4) x 2 = 7 x (4 x 2)	(a x b) x c = a x (b x c)
	Addition Property of Zero- The sum of any number and 0 is that number.	
Examples	**Numbers**	**Algebra**
	7 + 0 = 7	a + 0 = a
	Multiplication Property of Zero and One- The product of any number and 0 is 0. The product of any number and 1 is that number.	
Examples	**Number**	**Algebra**
	9 x 0 = 0	a x 0 = 0
	4 x 1 = 4	a x 1 = a

	Using Properties to Write Equivalent Expressions
	Ex. A) Simplify the expression 7 + (12 + x). 7 + (12 + x) = (7 + 12) + x = 19 + x
	Ex. B) Simplify the expression (6.1 + x) + 8.4. (6.1 + x) + 8.4 = x + (6.1 + 8.4) = x + 14.5
	Ex. C) Simplify the expression 5(11y). 5(11y) = (5 x 11)y = 55y
	Using Properties to Write Equivalent Expressions
	Ex. A) Simplify the expression 9 x 0 x p. 9 x 0 x p = (9 x 0) x p = 0 x p = 0
	Ex. B) Simplify the expression 4.5 x r x 1. 4.5 x r x 1= 4.5 x (r x 1) = 4.5 x r = 4.5r
We Do!	6.) 2 + (12 + r) = (2 + 12) + r
	8.) x + 7.5 = 7.5 + x
	10.) a x 1 = a
	Simplify the expression.
	12.) 6 + (5 + x) 14.) 6(2b)
	16.) 3.2 + (x + 5.1) 22.) (3s) x 8

Summary: **Students should write a summary reflecting the above essential question.**