

7 - CHAPTER 5: EXPRESSIONS - NOTE PACKET

NAME: _____

HOUR: _____

Lesson 5.1: Algebraic Expressions

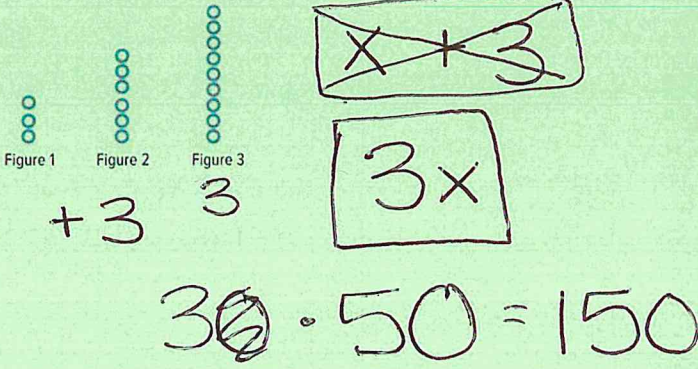
Vocabulary		
Term	Definition	Example
Algebra	Branch of mathematics that involves expressions with variables.	
Algebraic Expression	Does not have an equal sign and contains variables, numbers, & at least one operation.	$7t$ $\frac{2p}{6}$ $n+5$
Variable	Symbol that stands for an unknown value	n y x
Coefficient	The number that is multiplied with the variable	$3t$ $1p$
Constant	a number that is not multiplied with a variable	$2x + 3$

Order of Operations	$3(t - 4)$ if $t = 6$
Grouping Symbols	$3(6 - 4)$ $3(2)$ 6
Exponents	
Multiplication left to Right Division Right	
Addition Left to Right Subtraction Right	

Lesson 5.2: Sequences

Vocabulary		
Term	Definition	
Sequence	an ordered list of numbers	$1, 7, 13, \dots$
Term	Each number in a sequence	1

7 - CHAPTER 5: EXPRESSIONS - NOTE PACKET

Arithmetic Sequence	each term is found by adding the same number	1, 7, 13, ... +6 +6
Describe and Extend Sequences		Write an Algebraic Expression
<p>7, 11, 15, 19, ... +4 +4</p> <p>You add 4 to each term.</p> <p>23, 27, 31</p>		<p>If the pattern continues, what algebraic expression can be used to find the number of circles used in any figure? How many circles will be in the 50th?</p>  <p>Figure 1: 3 circles Figure 2: 6 circles Figure 3: 9 circles</p> <p>3 6 9</p> <p>$x + 3$</p> <p>$3x$</p> <p>$30 \cdot 50 = 150$</p>

Lesson 5.3: Properties of Operations

Vocabulary		
Term	Definition	Example
Property	a statement that is true for any number	
Commutative Property	the order in which numbers are added or multiplied does not change	$2 + 5 = 5 + 2$ the sum
Associative Property	the way in which numbers are grouped in $+$ / \times does not change the answer	$(2 \cdot 3) \cdot 7 = 2 \cdot (3 \cdot 7)$
Additive Identity	When 0 is added to any number, the sum is the number	$-7 + 0 = -7$ $1,254 + 0 = 1,254$
Multiplicative Identity	When 1 is multiplied to any number, the product is the number	$32 \cdot 1 = 32$ $1 \cdot -6 = -6$

7 - CHAPTER 5: EXPRESSIONS - NOTE PACKET

Multiplicative Property of Zero	When any number is multiplied by 0, the answer is 0	$72 \cdot 0 = 0$ $0 \cdot -5 = 0$
Counterexample	an example that proves a conjecture is false, the property doesn't apply.	

Lesson 5.4: The Distributive Property

Vocabulary		
Term	Definition	Example
Distributive Property	multiply each term inside the parentheses by the number outside.	$3(5+2)$ $3 \cdot 5 + 3 \cdot 2$ $15 + 6 = 21$

Lesson 5.5: Simplifying Algebraic Expressions

Vocabulary		
Term	Definition	Example
Like terms	The same variable to the same power or have no variables.	$-2x$ and $3x$ 4 and 27 $6y^2$ and $7y^2$
Identify the terms, like terms, coefficients, and constants in the expression: $3x + -5 + 2 + -x$	Write $8z + z - 5 - 9z + 2$ in simplest form.	
Terms: $3x, -5, 2, -x$ Like Terms: $3x$ and $-x, -5$ and 2 Coefficients: $3, -1$ Constants: $-5, 2$	$8z + z + (-5) + (-9z) + 2$ $(8z + z - 9z) + (-5 + 2)$ $0z + -3$ $0 + -3$ -3	

7 - CHAPTER 5: EXPRESSIONS - NOTE PACKET

Lesson 5.6: Add Linear Expressions

Vocabulary	
Term	Definition
Linear Expression	an expression where the variable is raised to the first power.
Linear Expressions $2x - 5$	Nonlinear Expressions $7x^2 + 5$
Simplify.	
$(6x + 2) + (x + 3)$ $\uparrow \quad \quad \uparrow$ $(6x + x) + (2 + 3)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $7x + 5$ </div>	$3(x - 8) + (4x - 5)$ $3x + -24 + 4x + -5$ <p style="text-align: right;">- Distributive Property</p> $\uparrow \quad \quad \uparrow$ $(3x + 4x) + (-24 + -5)$ <p style="text-align: right;">- Associative & Commutative</p> <p style="text-align: right;">* Get the buddies together</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $7x + -29$ or $7x - 29$ </div>
<div style="background-color: yellow; padding: 10px; display: inline-block;"> $x = 1x$ $-x = -1x$ </div>	

Lesson 5.7: Subtract Linear Expressions

Simplify.	
$(4x + 5) - (3x + 1)$ $4x + 5 - 1(3x + 1)$ $4x + 5 + -1(3x + 1)$ $4x + 5 + -3x + -1$ $(4x + -3x) + (5 + -1)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $1x + 4$ </div>	$2(6x + 4) + -(6x + 2)$ $(12x + -8) + (-6x + 2)$ $(12x + -6x) + (-8 + 2)$ <div style="border: 1px solid black; padding: 5px; display: inline-block;"> $6x + -6$ or $6x - 6$ </div>

7 - CHAPTER 5: EXPRESSIONS - NOTE PACKET

Lesson 5.8: Factor Linear Expressions

Vocabulary	
Term	Definition
Monomial	a number, a variable, or a product of a number and one or more variables
Monomials 2 x $3mn$	Not Monomials $4t - 7$ $2 + x$
Factor	a number that when multiplied with another number gets the answer
Greatest Common Factor	between two numbers, the largest factor in both.
Find the GCF of $48x$ and $28xy$ 48 28 24 (2) 14 (2) 12 (2) 7 (2) $2 \cdot 2 \cdot x = 4x$ 6 (2) $48x: 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot x$ 3 (2) $28xy: 2 \cdot 2 \cdot 7 \cdot x \cdot y$	Find the GCF of $12t$ and 25 12 25 6 (2) 5 (5) 3 (2) $12t = 2 \cdot 2 \cdot 3 \cdot t$ $25 = 5 \cdot 5$ No GCF
Factor $12x + 48$ 12 48 6 (2) 2 (2) 24 3 (2) 12 (2) $2 \cdot 2 \cdot 3$ $12(x + 4)$	Factor $3x - 11$ 3 11 cannot be factored

