

Name \_\_\_\_\_

Date \_\_\_\_\_ Pd. \_\_\_\_\_

### Notes: Properties

<b>Expression</b>	A _____ or combination of _____, numbers, and symbols that represents a mathematical _____.
<b>Algebraic Expression</b>	A group of numbers, symbols, and _____ that express an operation or a series of _____.

<b><u>Circle the Expressions</u></b>				
$y = 3x$	$r - 9$	$5 + 3$	$5t = 3x$	$5 - 3(3 + 1)$
$5p - 3$	$4f$	$-17$	$3e + 9$	$3e$

#### *Additive and Multiplicative Identity*

<b>Identity</b>	The number that, when combined with an operation, gives what you started with: Additive identity is ____, multiplicative identity is ____.
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#### *Multiplicative Property of Zero*

<b>Zero Property</b>	The product of any number and zero is _____.
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#### *Inverse Operations*

<b>Inverse Operations</b>	An operation that is opposite of another, such as _____ and _____ or _____ and _____.
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#### *Additive and Multiplicative Inverse*

<b>Additive Inverse</b>	The amount to be added to a number to get to _____.
<b>Multiplicative Inverse</b>	_____ of a number. When a number is multiplied by its multiplicative inverse, the product is always ____.

*Distributive Property*

<b>Distributive Property</b>	$a \cdot (b + c) = ( \_ \cdot \_ ) + ( \_ \cdot \_ )$ $a \cdot (b - c) = ( \_ \cdot \_ ) - ( \_ \cdot \_ )$
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*Commutative Property*

<b>Commutative</b>	The total (sum or product) stays the _____ when the order of the numbers is changed. $a \cdot b = b \cdot a$ $a + b = b + a$
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*Associative Property*

<b>Associative Property</b>	The total (sum or product) stays the _____ when the grouping of numbers or variables is changed. $(a + b) + c = a + (b + c)$ $(a \cdot b) \cdot c = a \cdot (b \cdot c)$
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*Coefficient, like terms, simplest form, term*

<b>Coefficient</b>	_____ factor of a term.
<b>Like Terms</b>	Terms that contain the same _____, with corresponding having the same _____.
<b>Simplest Form</b>	An expression with no _____ or _____.
<b>Term</b>	A number, a variable, or a _____ or _____ of numbers and variables.

Mental multiplication: If you had to multiply 32 by 18, how might you go about it?

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**Exit Card: Properties**

1. The state sales tax rate in Maryland is 5%. What is the total price of an item that costs  $x$  dollars?

A  $0.05x$   
B  $x + 0.05$   
C  $x + 0.05x$   
D  $0.5x$

2. The Student Government Association is planning a dance. The Association spends \$450 for supplies and will charge \$7 per ticket. The expression for profit (total sales minus total costs) is  $7x - 450$ , where  $x$  is the number of tickets that are sold. Which of these expressions represents the profit per ticket?

F  $7x^2 - 450$

G  $x(7x - 450)$

H  $\frac{x}{7x - 450}$ ,  $x \neq \frac{450}{7}$

J  $\frac{7x - 450}{x}$ ,  $x \neq 0$

3. Martha is  $x$  years old. Esteban is  $x + 7$  years old. Martha's mother is  $3x + 5$  years old. Which of these expressions represents how much older Martha's mother is than Esteban?

F  $(x + 7) - x$

G  $(3x + 5) - x$

H  $(x + 7) - (3x + 5)$

J  $(3x + 5) - (x + 7)$

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**Homework: Pages 59 – 60 (49 – 51, 57 – 60, 64, 65, 67 – 69, 73)**

49. $\frac{1}{2} \cdot 2 + 2[2 \cdot 3 - 1] =$	50. $4^2 - 2^2 - (4 - 2) =$
51. $1.2 - 0.05 + 2^3 =$	
57. $3\left(\frac{1}{3} - p\right) =$	58. $6(a + b) =$
59. $8(3x - 7y) =$	60. $4a + 9a =$
64. $2p(1 + 16r) =$	65. $9y + 3y - 5x =$
67. $7w^2 + w + 2w^2 =$	68. $3\frac{1}{2}m + \frac{1}{2}m + n =$
69. $6a + 5b + 2c + 8b =$	
73. twice the product of $p$ and $q$ increase by the product of $p$ and $q$ .	