

- 1) The fact that  $6n + -1 = 6n - 1$  is based on the definition of \_\_\_\_\_.
- 2) The property that allows you to change the order is called the \_\_\_\_\_ property.  
This property is always true for which two operations: \_\_\_\_\_ and \_\_\_\_\_.
- 3) The property that allows you to change the grouping is called the \_\_\_\_\_ property.  
This property is always true for which two operations: \_\_\_\_\_ and \_\_\_\_\_.
- 4) Which of these are equivalent? Circle them and show how you know.  
 $-9x - 1$        $-9x + -1$        $1 - 9x$        $-1 - 9x$        $-1 + -9x$
- 5)  $2(4x - 5) = 8x - 10$  is an example of the \_\_\_\_\_ property.
- 6)  $(-2)(8)(24)(0)(-5)(-1) = 0$  is an example of the \_\_\_\_\_
- 7) A) Find the next three terms in this sequence 4, 8, 12, 16, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_  
B) State the rule for the sequence. \_\_\_\_\_
- 8) The commutative property of multiplication says that  $(9)(-2) =$  \_\_\_\_\_
- 9) The identity property of multiplication says that  $( \quad )( \quad ) = 18$
- 10) If the pattern continues for this sequence 9, 18, 27, 36, 45, ...  
A) find the 1000th term  
B) Find the  $n^{\text{th}}$  term

<p>11) <u>Evaluate</u> if <math>x = -4</math> and <math>y = 3</math> SHOW ALL STEPS</p> <p>A) <math>5(x + y)</math></p> <p>B) <math>7x - 2y</math></p> <p>C) <math>x + y^2</math></p>	<p>12) Write the algebraic expression for each of the following. Let <math>n =</math> the number</p> <p>A) the sum of a number and seven</p> <p>B) four less than a number</p> <p>C) six more than twice a number</p> <p>D) the product of a number and two</p>	<p>13) It costs \$5 to rent bowling shoes and \$3 for each game bowled. Let <math>g =</math> the number of games bowled</p> <p>Write an algebraic expression to represent the total cost to bowl</p>				
<p>15) Evaluate <math>6 + -3(2 - 7)^2</math></p>	<p>16) Solve this problem two different ways. Show how to use the order of operations agreement AND the distributive property.</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center; border: none;"><u>Order of Operations</u></td> <td style="text-align: center; border: none;"><u>Distributive Property</u></td> </tr> <tr> <td style="text-align: center; border: none;"><math>-6(-9 + 2)</math></td> <td style="text-align: center; border: none;"><math>-6(-9 + 2)</math></td> </tr> </table>	<u>Order of Operations</u>	<u>Distributive Property</u>	$-6(-9 + 2)$	$-6(-9 + 2)$	<p>14) Write an algebraic expression to represent the total miles Sara ran, if on Monday she ran <math>m</math> miles, on Tuesday she ran twice what she ran Monday, and on Wednesday she ran two more miles than she ran on Monday. Then simplify the expression.</p>
<u>Order of Operations</u>	<u>Distributive Property</u>					
$-6(-9 + 2)$	$-6(-9 + 2)$					

Which property is represented by each of the following? Use the letters from the properties at the right. Note: You may use a letter more than once or not at all.

17) \_\_\_\_\_  $p + -4 = p - 4$

18) \_\_\_\_\_  $8(0) = 0$

19) \_\_\_\_\_  $8(2 + 9) = 8(2) + 8(9)$

20) \_\_\_\_\_  $9(1) = 9$

21) \_\_\_\_\_  $-5 + 7 = 7 + -5$

22) \_\_\_\_\_  $10 + 0 = 10$

23) \_\_\_\_\_  $(-5)(3) = (3)(-5)$

24) \_\_\_\_\_  $(12 + 4) + 3 = 12 + (4 + 3)$

25) \_\_\_\_\_  $(7 \times 5) \times 2 = 7 \times (5 \times 2)$

26) \_\_\_\_\_  $(x + 1) + 4 = 4 + (x + 1)$

### Properties

- A Distributive
- B Commutative (+)
- C Additive Identity
- D Multiplication Property of Zero
- E Associative (+)
- F Multiplicative Identity
- G Commutative (x)
- H Associative (x)
- J Definition of Subtraction

Simplify using the distributive property. Show all steps as shown in class.

27) $-2(x - 7)$	28) $-4x - y + 3y + x - 5y$	29) $4(-5x + 3) + 2(x + 4)$
30) $-5(-3x + 2)$	31) $7 - 8x + 4x - 10$	32) $-2(x + 5) + 4(x + 2)$

33) In the algebraic expression  $9ab - b + 2 - 8b + ab$

A) How many terms are there? \_\_\_\_\_

B) List the terms \_\_\_\_\_

C) List the like terms. \_\_\_\_\_

D) List the coefficients. \_\_\_\_\_

E) List the constants. \_\_\_\_\_

34) In the algebraic expression  $7 - 9x + 2y - 10$

A) How many terms are there? \_\_\_\_\_

B) List the terms. \_\_\_\_\_

C) List the like terms. \_\_\_\_\_

D) List the constants. \_\_\_\_\_

E) List the coefficients \_\_\_\_\_