Name _____ Date _____

Unit 5: Properties and Simplifying Expressions

Match each of the problems below with the property being illustrated.

_____1.) $671 \times 1 = 671$

_____2.) $10(2a + 5) = 20a + 50$

_____3.) $123 + 321 = 321 + 123$

_____4.) $9{,}008 + 0 = 9{,}008$

_____5.) $12 + (2 + 1) = (12 + 2) + 1$

_____6.) $4(9 \times 12) = (4 \times 9)12$

_____7.) $14 \times 3 = 3 \times 14$

A. Distributive Property
B. Identity Property of Multiplication
C. Associative Property of Addition
D. Associative Property of Multiplication
E. Identity Property of Addition
F. Commutative Property of Addition
G. Commutative Property of Multiplication

8. Which number sentence illustrates the distributive property?

A. $12(6) + 12(2) = 12(6 + 2)$
B. $12(6) + 12(2) = (12 + 12)(6 + 2)$
C. $12(6) + 12(2) = 6(2) + 12(12)$
D. $12(6) + 12(2) = 2(18)$

9. Simplify the following expression.

$5x + 20 - 3x$

A. $22x$
B. $2x - 20$
C. $2x + 20$
D. $20 - 2x$

10. Which property allows us to rewrite

$7x + 6y + 5x + 4z$
as
$7x + 5x + 6y + 4z$?

A. commutative property
B. associative property
C. additive identity property
D. distributive property

11. Andy cannot find his calculator. Which property should he use to make his computation easier?

$8(12) + 8(8) =$ _____

A. associative property of multiplication
B. identity property of multiplication
C. identity property of addition
D. distributive property

12. Which property was used in the first step of this expression?

$9d + 6(2b+3d) + 2b + 2$

Step 1: $9d + 12b + 18d + 2b + 2$
Step 2: $9d + 18d + 12b + 2b + 2$
Step 3: $27d + 20b + 2$

A. commutative property
B. associative property
C. distributive property
D. multiplicative inverse property

13. Which of the following correctly simplifies the expression?

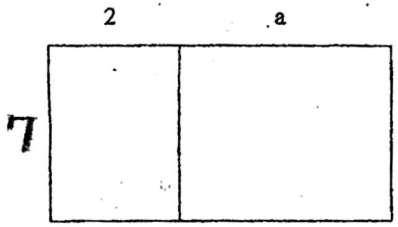
$4(10a + 4b) + 3a$

A. $43a + 16b$
B. $43a + 4b$
C. $13a + 4b$

17) **Determine whether each equation has the same value. Explain how you know.**

Equation	True or False
$5(t + 1) + 2t = 7t + 1$	
$2(p + 12) = 2p + 24$	
$x + x + x + x = x^4$	
$4(a + 1) + 4b = 4a + 4 + 4b$	

Use the Distributive Property to represent the area and simplify:



Answer: _____

20) Use algebra tiles to model the following expression (6 pts)

$2(3x + 3)$

at is the simplified form of this expression? _____

Simplifying Algebraic Expressions

Simplify the following:

1. $2a + 5(a + 3) + 9$	2. $6(5+x) + 2 \cdot 3x$
3. $3x - x + 4(8x \div 2)$	4. $3 + 2a + 5 + 5a$
5. $6x + x(3 + x)$	6. $2x + 5(x+3) + 3$
7. $3^2 + 8x \cdot 3 + 2(x+2)$	8. $\frac{24x}{2} + 3(x+8)$