NAME _____ DATE _____ PERIOD _____

1-8 Study Guide and Intervention

Algebra: Properties

Property	Arithmetic	Algebra
Distributive Property	$5(3 + 4) = 5(3) + 5(4)$	$a(b + c) = a(b) + a(c)$
Commutative Property of Addition	$5 + 3 = 3 + 5$	$a + b = b + a$
Commutative Property of Multiplication	$5 \times 3 = 3 \times 5$	$a \times b = b \times a$
Associative Property of Addition	$(2 + 3) + 4 = 2 + (3 + 4)$	$(a + b) + c = a + (b + c)$
Associative Property of Multiplication	$(4 \times 5) \times 6 = 4 \times (5 \times 6)$	$(a \times b) \times c = a \times (b \times c)$
Identity Property of Addition	$5 + 0 = 5$	$a + 0 = a$
Identity Property of Multiplication	$5 \times 1 = 5$	$a \times 1 = a$

Example 1 **Use the Distributive Property to write $6(4 + 3)$ as an equivalent expression. Then evaluate the expression.**

$6(4 + 3) = 6 \cdot 4 + 6 \cdot 3$ Apply the Distributive Property.
$= 24 + 18$ Multiply.
$= 42$ Add.

Example 2 **Name the property shown by each statement.**

$5 \times 4 = 4 \times 5$ Commutative Property of Multiplication

$12 + 0 = 12$ Identity Property of Addition

$7 + (6 + 3) = (7 + 6) + 3$ Associative Property of Addition

Exercises

Use the Distributive Property to write each expression as an equivalent expression. Then evaluate the expression.

1. $5(7 + 2)$ **5(7) + 5(2); 45** **2.** $4(9 + 1)$ **4(9) + 4(1); 40** **3.** $2(6 + 7)$ **2(6) + 2(7); 26**

Name the property shown by each statement.

4. $9 \times 1 = 9$
Identity Property (×)

5. $7 \times 3 = 3 \times 7$
Commutative Property (×)

6. $(7 + 8) + 2 = 7 + (8 + 2)$
Associative Property (+)

7. $6(3 + 2) = 6(3) + 6(2)$
Distributive Property

8. $15 + 12 = 12 + 15$
Commutative Property (+)

9. $1 \times 20 = 20$
Identity Property (×)

10. $(9 \times 5) \times 2 = 9 \times (5 \times 2)$
Associative Property (×)

11. $3 = 0 + 3$
Identity Property (+)