REVIEW: Properties of Addition and Multiplication

Name _____

Key Concept and Vocabulary

Associative Properties:

$(a + b) + c = a + (b + c)$

$(a \cdot b) \cdot c = a \cdot (b \cdot c)$

Commutative Properties:

$a + b = b + a$

$a \cdot b = b \cdot a$

Distributive Property:

$a(b + c) = ab + ac$

$a(b - c) = ab - ac$

Identity Properties:

$a + 0 = 0 + a = a$

$a \cdot 1 = 1 \cdot a = a$

Inverse Properties:

$a + (-a) = -a + a = 0$

$a \cdot \frac{1}{a} = \frac{1}{a} \cdot a = 1, a \neq 0$

Multiplication Properties of 0 and −1:

$a \cdot 0 = 0 \cdot a = 0$

$a \cdot (-1) = (-1) \cdot a = -a$

Skill Examples

Identify the property illustrated.

1. $-2 \cdot (7 \cdot 5) = -2 \cdot (5 \cdot 7)$

   Commutative Property of Multiplication

2. $(-8) \cdot 1 = -8$

   Identity Property of Multiplication

3. $3(6x + 2) = 18x + 6$

   Distributive Property

4. $(w + 3) + 7 = w + (3 + 7)$

   Associative Property of Addition

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Identify the property illustrated.

5. $(9 \cdot 4) \cdot 5 = 9 \cdot (4 \cdot 5)$

   Assoc. Prop. of Mult.

6. $(-1) \cdot (-12) = 12$

   Mult. Prop. of −1

7. $2a + (-2a) = 0$

   Inverse Prop. of Add.

8. $0 + 11c = 11c$

   Identity Prop. of Add.

9. $9m \cdot 0 = 0$

   Mult. Prop. of 0

10. $(5 - 2b) + 3 = (-2b + 5) + 3$

    Comm. Prop. of Add.

11. $7n - 4n = (7 - 4)n$

    Distributive Prop.

12. $\frac{1}{15d} \cdot 15d = 1$

    Inverse Prop. of Mult.

13. $x + (y + 6) = (x + y) + 6$

    Assoc. Prop. of Add.

14. $\left(\frac{1}{16}k\right)(-32) = (-32)\left(\frac{1}{16}k\right)$

    Comm. Prop. of Mult.