

Name _____

Date _____

Mathematical Properties

Name of Law	Comments	Examples
1) Addition Property of 0 2) Identity Property of Addition		$a + 0 = a$ $5 + 0 = 5$
Multiplication Property of 0		$a \cdot 0 = 0$ $3 \cdot 0 = 0$
1) Multiplication Property of 1 2) Identity Property of Multiplication		$a \cdot 1 = a$ $4 \cdot 1 = 4$
Associative Property of Addition		$a + (b + c) = (a + b) + c$ $2 + (3 + 4) = (2 + 3) + 4$
Associative Property of Multiplication		$a \cdot (b \cdot c) = (a \cdot b) \cdot c$ $2 \cdot (3 \cdot 4) = (2 \cdot 3) \cdot 4$
Commutative Property of Addition		$a + b = b + a$ $2 + 3 = 3 + 2$
Commutative Property of Multiplication		$a \cdot b = b \cdot a$ $2 \cdot 3 = 3 \cdot 2$
Distributive Property of multiplication over addition (or subtraction)		$a(b + c) = ab + ac$ $2(3 + 4) = 2(3) + 2(4)$ $a(b - c) = ab - ac$ $2(8 - 5) = 2(8) - 2(5)$
Additive Inverse Property		$a + (-a) = 0$ $3 + -3 = 0$
Multiplicative Inverse Property		$a \cdot \left(\frac{1}{a}\right) = 1$

Examples: Name the Mathematical Property

1. $8 \times 1 = 8$ _____
2. $4 + 0 = 4$ _____
3. $(7 + 5) + 1 = 7 + (5 + 1)$ _____
4. $(9)(10) = (10)(9)$ _____
5. $2 + 9 = 9 + 2$ _____
6. $(5 \cdot 2) \cdot 4 = 5 \cdot (2 \cdot 4)$ _____
7. $21 \cdot 0 = 0$ _____
8. $3(5 - 9) = 3(5) - 3(9)$ _____
9. $7(3+5) = 7(3) + 7(5)$ _____

The commutative property represents a(n) _____ change.

The associative property represents a(n) _____ change.

Complete this sentence using DPMA(Distributive Property): $ac + ad =$ _____

What number is the identity element in addition? _____

What number is the identity element in multiplication? _____

Numbers that act as opposites are called _____

Extra Practice: Replace the blank with a term that makes the sentence true and then name the property that is exhibited.

1. $7 + (3 + 4) = 7 + (4 + \underline{\quad})$ _____
2. $7 \cdot \underline{\quad} = 0$ _____
3. $5(7 + 4) = 5(7) + \underline{\quad}(4)$ _____
4. $5 + (1 + 2) = (5 + \underline{\quad}) + 2$ _____
5. $8(\underline{\quad}) = 8$ _____
6. $x(y + z) = (y + z)\underline{\quad}$ _____

Examples: Identify which property each one of the following represent

1) $x + 9 = 9 + x$

4) $3(x + 5) = 3x + 15$

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

5) $(xy)z = x(yz)$

3) $x + (y + 3) = (x + y) + 3$

6) $8 \cdot 9 = 9 \cdot 8$