

Number Properties

Commutative Property:

two or more numbers can be added (or multiplied) in any order without changing the sum (or product)

Examples:

Addition:

$$7 + 9 = 9 + 7$$

$$a + b = b + a$$

Multiplication:

$$8 \cdot 7 = 7 \cdot 8$$

$$xy = yx$$

Associative Property:

For three or more numbers, their sum (or product) is always the same, regardless of grouping

Examples:

Addition:

$$7 + (9 + 3) = (7 + 9) + 3$$

$$x + (y + z) = (x + y) + z$$

Multiplication:

$$2 (3 \bullet 7) = (2 \bullet 3) \bullet 7$$

$$a(bc) = (ab) \bullet c$$

Additive Identity Property:

Any number plus zero is itself

Examples:

$$5 + 0 = 5$$

$$c + 0 = c$$

Multiplicative Identity

Property:

Any number multiplied by one is itself

Examples:

$$4 \cdot 1 = 4$$

$$d \cdot 1 = d$$

Zero Property:

The product of zero and any number is zero.

Examples:

$$4 \cdot 0 = 0$$

$$b \cdot 0 = 0$$

Multiplicative Inverse

Property:

Reciprocal of a number.

Examples:

$$6 \cdot \frac{1}{6} = 1$$

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Distributive Property:

Distribute the outside number to EACH number inside the parentheses (), by multiplying.

Examples:

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

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