



Properties of Addition & Multiplication

Properties of Zero

- Addition Property of Zero
 - When zero is added to any number, the resulting sum is that number.
 $5 + 0 = 5$ $0 + 2 = 2$
- Multiplication Property of Zero
 - When zero is multiplied by any number, the resulting product is zero.
 $5 \cdot 0 = 0$ $0 \cdot 2 = 0$

Associative Properties

- Associative Property of Addition
 - When adding 3 or more numbers, changing the grouping does not change the sum.
 $(3 + 4) + 5$ $3 + (4 + 5)$
 $7 + 5 = 12$ $3 + 9 = 12$
- Associative Property of Multiplication
 - When multiplying any 3 numbers, changing the grouping does not change the product.
 $(3 \cdot 4)5$ $3(4 \cdot 5)$
 $12 \cdot 5 = 60$ $3 \cdot 20 = 60$

Commutative Properties

- Commutative Property of Addition
 - When adding any 2 or more numbers, changing the order does not change the sum.
 $3 + 4 = 4 + 3$
 $7 = 7$
- Commutative Property of Multiplication
 - When multiplying any 2 or more numbers, changing the order does not change the product. $3 \cdot 4 = 4 \cdot 3$
 $12 = 12$

Now, try the practice problems on the back of this sheet.

Answers to practice problems

1. Commutative property of addition
2. Multiplication property of 0
3. Associative property of multiplication
4. Associative property of addition
5. Addition property of 0
6. Commutative property of multiplication



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Practice Problems

Identify which property applies to each example:

1. $5 + 7 = 7 + 5$

2. $6 \cdot 0 = 0$

3. $5 \times (3 \times 2) = (5 \times 3) \times 2$

4. $(4 + 3) + 2 = 4 + (3 + 2)$

5. $8 + 0 = 8$

6. $4 \times 6 = 6 \times 4$