

Properties of Addition

There are rules regarding addition. Some of these rules are called properties of addition. Properties of addition are always true. There are different names for different properties of addition.

The Commutative Property of Addition

The Commutative Property of Addition states that addends can be added in any order without the sum changing.

For example, saying that $4 + 5 = 9$ is the same as saying $5 + 4 = 9$. The Commutative Property of Addition tells us that the sum will always be 9, no matter what order these two numbers are added in. In other words, $4 + 5 = 5 + 4$.

This property becomes even more useful when adding a long series of numbers. For example:

$$9 + 4 + 1 + 5 + 6 + 5 = 30$$

In the above example, a person may be able to more quickly add the numbers by re-writing them as:

$$9 + 1 + 4 + 6 + 5 + 5 = 30$$

The above may be easier to add because the numbers are now grouped in sets of 10. Rearranging the numbers in sets of 10 can often make it easier to find the answer to the question.

The Associative Property of Addition

The Associative Property of Addition tells us that addends can be grouped in any way without changing the sum.

For example, saying $(6 + 3) + 4 = 13$ is the same as saying $6 + (3 + 4) = 13$. The Associative Property of Addition tells us that the sum of these numbers will always be 13, no matter which of the numbers are in parentheses.

In other words, $(6 + 3) + 4 = 6 + (3 + 4)$.

The Commutative Property of Addition and the Associative Property of Addition are very similar. The difference between the two is that the Associative Property deals with addition when parentheses are present.

Name _____

Date _____

Properties of Addition Questions

Which Property of Addition is Being Used:

_____ 1. $4 + 2 = 2 + 4$

_____ 2. $7 + 5 + 3 = 5 + 7 + 3$

_____ 3. $1 + (8 + 6) = (1 + 8) + 6$

_____ 4. $9 + 13 + 4 = 13 + 9 + 4$

_____ 5. $(2 + 5) + 6 = 2 + (5 + 6)$

Multiple Choice:

6. All of the following are examples of the Commutative Property of Addition EXCEPT:

- a. $9 + 2 + 4 = 4 + 9 + 2$
- b. $9 + (2 + 4) = (9+2) + 4$
- c. $3 + 5 = 5 + 3$
- d. $7 + 6 + 5 = 5 + 7 + 6$

7. All of the following are examples of the Associative Property of Addition EXCEPT:

- a. $(9 + 5) + 7 = 9 + (5 + 7)$
- b. $7 + (4 + 4) = (7 + 4) + 4$
- c. $(5 + 5) + 5 = 5 + (5 + 5)$
- d. $3 + 7 + 9 = 7 + 3 + 9$

True or False:

____ 8. The Associative Property of Addition tells us that addends can be grouped in any way without changing the sum.

____ 9. Properties of addition are not always true.

____ 10. The Commutative Property of Addition states that addends can be added in any order without the sum changing.

____ 11. The Commutative Property and the Associative Property are not at all alike.

Name _____

Date _____

Properties of Addition Answers

Which Property of Addition is Being Used:

Commutative _____ 1. $4 + 2 = 2 + 4$

Commutative _____ 2. $7 + 5 + 3 = 5 + 7 + 3$

Associative _____ 3. $1 + (8 + 6) = (1 + 8) + 6$

Commutative _____ 4. $9 + 13 + 4 = 13 + 9 + 4$

Associative _____ 5. $(2 + 5) + 6 = 2 + (5 + 6)$

Multiple Choice:

6. All of the following are examples of the Commutative Property of Addition EXCEPT:

- a. $9 + 2 + 4 = 4 + 9 + 2$
- b. $9 + (2 + 4) = (9+2) + 4$**
- c. $3 + 5 = 5 + 3$
- d. $7 + 6 + 5 = 5 + 7 + 6$

7. All of the following are examples of the Associative Property of Addition EXCEPT:

- a. $(9 + 5) + 7 = 9 + (5 + 7)$
- b. $7 + (4 + 4) = (7 + 4) + 4$
- c. $(5 + 5) + 5 = 5 + (5 + 5)$
- d. $3 + 7 + 9 = 7 + 3 + 9$**

True or False:

T 8. The Associative Property of Addition tells us that addends can be grouped in any way without changing the sum.

F 9. Properties of addition are not always true.

T 10. The Commutative Property of Addition states that addends can be added in any order without the sum changing.

F 11. The Commutative Property and the Associative Property are not at all alike.