Associative Property

The **associative property** states that when you are adding or multiplying numbers, changing how the numbers are grouped doesn't change the result. In other words, you can change the placement of the parentheses without changing the order of the numbers.

Addition and multiplication are associative. Subtraction and division are not.

Addition	Multiplication
$a + (b + c) = (a + b) + c$	$a \cdot (b \cdot c) = (a \cdot b) \cdot c$

EXAMPLE USING ADDITION

When three or more numbers are added together, any two or more can be grouped together and the sum will be the same.

$$(14 + 6) + 7 = 14 + (6 + 7)$$
$$20 + 7 = 14 + 13$$
$$27 = 27$$

On the left, adding 14 + 6 gives us 20. Then adding 20 + 7 gives us 27.
On the right, adding 6 + 7 gives us 13. Then adding 13 + 14 gives us 27.

EXAMPLE USING MULTIPLICATION

When three or more numbers are multiplied, any two or more can be grouped together and the product will be the same.

$$(3 \cdot 5) \cdot 6 = 3 \cdot (5 \cdot 6)$$
$$15 \cdot 6 = 3 \cdot 30$$
$$90 = 90$$

On the left, multiplying $3 \cdot 5$ gives us 15. Then multiplying $15 \cdot 6$ gives us 90.
On the right, multiplying $5 \cdot 6$ gives us 30. Then multiplying $3 \cdot 30$ gives us 90.