

Name _____ Period _____

The Distributive Property

a, b, c are variables where $a(b + c) = \underline{ab + ac}$

This is known as the distributive property. It is officially the property of multiplication over addition and subtraction.

The distributive property is a rule that allows us to rewrite very specific kinds of expressions so that the parentheses go away but the value of the expression remains unchanged.

Addition: $a(b + c) = \underline{ab + ac}$

Subtraction: $a(b - c) = \underline{ab - ac}$

Let us prove this property works with whole numbers in place of the variables:

Addition over multiplication:

$$5(4 + 3) = \underline{5 \cdot 4 + 5 \cdot 3}$$

$$5(7) = \underline{20 + 15}$$

$$35 = \underline{35}$$

This same strategy will work with subtraction.

Subtraction over multiplication:

$$5(4 - 3) = \underline{5 \cdot 4 - 5 \cdot 3}$$

$$5(1) = \underline{20 - 15}$$

$$5 = \underline{5}$$

The distributive property is a way of breaking the P E M D A S rule. Because we can distribute first, before we do

What is inside parentheses.

Practice Problems:

$$4(2 + 1) = \underline{4 \cdot 2 + 4 = 12}$$

$$6(3 + 4) = \underline{18 + 24 = 42}$$

$$3(x + 4) = \underline{3x + 12}$$

$$7(y + 3) = \underline{7y + 21}$$