MasterMath

Algebra

THE DISTRIBUTIVE PROPERTY

A Postman distributes the mail to the houses in your neighborhood.

A school bus distributes you and your friends back to your neighborhoods after school.

THE DISTRIBUTIVE PROP

When you play a game of cards, the dealer distributes the cards evenly to all the players.

In algebra, we also distribute: ***The Distributive Property*** says that if a number or variable ("a") is multiplied times a bracketed sets of numbers and operands, you can distribute "a" to the numbers and variables evenly around each operand:

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

THE DISTRIBUTIVE PROP

Let's test the ***Distributive Property*** with real numbers to make sure it works:

$3(2+1) = 3(3) = 9$

or

$3(2+1) = (3\times2) + (3\times1) =$

$6 + 3 = 9$

THE DISTRIBUTIVE PROP

The ***Distributive Property*** works both ways. You can also un-distribute:

$10 + 5 = 15$

$10+5 = (2\times5) + (1\times5) = 5(2+1) =$

$5(3) = 15$

THE DISTRIBUTIVE PROP

The ***Distributive Property*** can help you with ***Mental Math***. This would be a hard problem to do in your head:

50 x 12

This problem would be easier:

50 x 12 = 50 x (10 + 2) =

(50 x 10) + (50 x 2) =

500 + 100 = 600

THE DISTRIBUTIVE PROP

You try it!

4(2 + 3)

THE DISTRIBUTIVE PROP

You try it!

4(2 + 3)

$4(2+3) = (4\times2) + (4\times3) =$

$8 + 12 = 20$

$4(2+3) = 4\times5 = 20$

THE DISTRIBUTIVE PROP

You try it!

10 x 12 =

THE DISTRIBUTIVE PROP

You try it!

10 x 12 =

10 x (10 + 2) =

(10 x 10) + (10 x 2) =

100 + 20 = 120

THE DISTRIBUTIVE PROP

REMINDER:

When you multiply a number by 10 You simply add a zero to that number!

15 x 10 = 150
236 x 10 = 2360
18 x 100 = 1800

THE DISTRIBUTIVE PROP

You try it!

Re-write this expression by un-distributing:

15 + 5 =

THE DISTRIBUTIVE PRO

You try it!

Re-write this expression by undistributing:

15 + 5 =

$15+5 = (3\cdot5)+(1\cdot5) =$

$5(3+1)$

THE DISTRIBUTIVE PRO

You try it!

Re-write this expression by undistributing:

3x + 9 =

THE DISTRIBUTIVE PROP

You try it!

Re-write this expression by undistributing:

3x + 9

"x" is a ***Variable***. A ***Variable*** is a symbol used in algebra to represent an unknown quantity. It's an unknown number. "x", "y", "z", "a", or any letter can be used as a variable.

THE DISTRIBUTIVE PROP

You try it!

Re-write this expression by undistributing:

3x + 9 =

THE DISTRIBUTIVE PROP

You try it!

Re-write this expression by undistributing:

3x + 9 =

$3x+9=(3\cdot x)+(3\cdot 3)=$

$3(x+3)$

THE DISTRIBUTIVE PROP

You try it!

You are 11 years old. Your sister is x years older. Your mother is 3 times older than your sister. Write and simplify an expression that represents your mother's age in years ("m").

THE DISTRIBUTIVE PROP

You try it!

You are 11 years old. Your sister is x years older. Your mother is 3 times older than your sister. Write and simplify and expression that represents your mother's age in years ("m").

m = mother's age
11 = your age
11 + x = Sister's age

$m = 3(11+x)$
$m = 33+3x$

THE DISTRIBUTIVE PRO

You try it!

Now, try it on your own.
Download *The Distributive Property*,
and test your skill.

THE DISTRIBUTIVE PROP