

YouTube: Algebra Basics: The Distributive Property - Math Antics
<https://www.youtube.com/watch?v=v-6MShC82ow>

PEMDAS is a convention we use to agree on how we will solve problems otherwise everyone will get different answers. We solve the equation going left to right.

Parenthesis ()

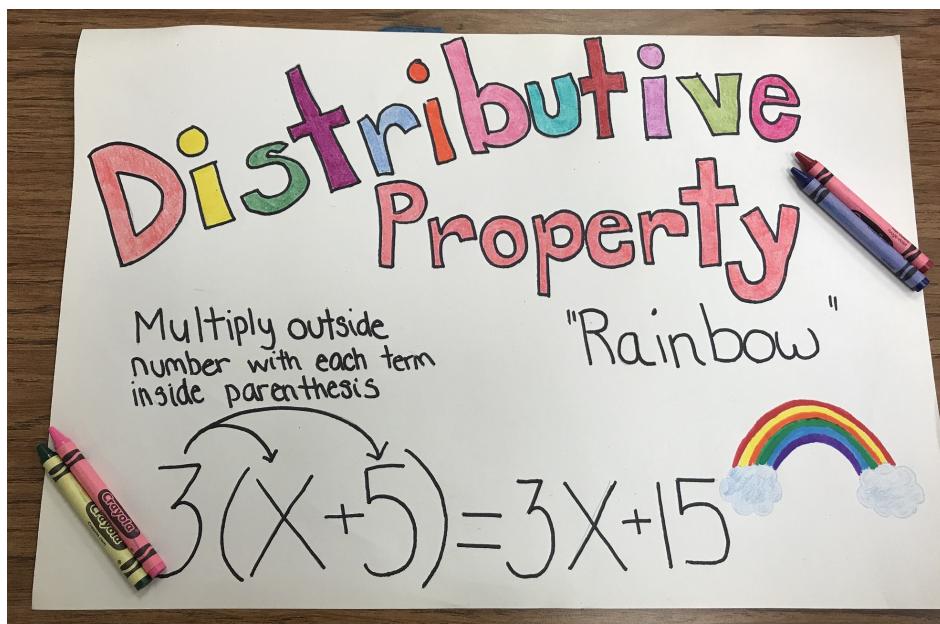
Exponents ()^?

Multiply or Divide * or /

Add or Subtract + or -

Distributive Property:

$$a(b+c) = a*b + a*c$$



PEMDAS:

3(5-8) We solve what is in **parenthesis** first $5 - 8 = -3$ (Note* if there was more than one operation inside the parenthesis we follow PEMDAS inside the parenthesis)

3(-3) Next, we **multiply** 3 by -3

-9 Solve

Distributive Property

$$3(5 - 8) = 3*5 + 3*(-8) = 15 + -24 = -9$$

Example 2

PEMDAS:

- 4(10 - 3 * 3) We start with what is inside the **parenthesis** (10 - 3 * 3). Inside the parenthesis we multiply 3*3
- 4(10 - 9) Still inside the parenthesis, we now subtract 10 - 9 = 1
- 4(1) We finished simplifying what is inside the parenthesis. We now **multiply** 4 * 1
- 4 Solve

Distributive property

$$4(10 - 3*3) = 4(10 - 9) = 40 - 36 = 4$$

Note* if we distribute to 3*3 it would become $4*3*3=4*9=36$. We tend to simplify what is inside the parenthesis before distributing to avoid any errors.

Example 3

We can go in the reverse order too.

$$8x+6y+4z$$

What factor do 8, 6, and 4 share? Answer: **2**

$$2(4x+3y+2z)$$

If we distribute 2 we will see that these two equations are equal to each other

$$2(4x+3y+2z) = 2*4x + 2*3y + 2*2z = 8x + 6y + 4z$$

This is why we spend so much time on the fundamentals (for any topic math and non-math related). We need to know how to add, multiply, add like terms, and the distributive property to do Example 3.

If you need more help check out the Youtube video listed at the top of the worksheet.

Extra

$$3 (4 + 3 * 2)^2 = 3 (4 + 6)^2 = 3 (10)^2 = 3 * 100 = 300$$