Distributive property

The distributive property is a method you can use to simplify expressions, especially when there are variables. To distribute, multiply the term outside of the parentheses by each term inside the parentheses.

Distributive Property:

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

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

Distributing removes the parentheses from the expression. When you are learning to distribute it's useful to first write out the multiplication and then simplify.

Example

Use the distributive property to expand the expression.

$$4(3 - x)$$

Multiply the outside term 4 with each term inside the parentheses.

$$4(3) - 4(x)$$

$$12 - 4x$$

Let's try another example of the distributive property.

Example

Use the distributive property to expand the expression.

$$-\frac{1}{3}(3y + 15)$$

Multiply the outside term $-1/3$ with each term inside the parentheses.

$$-\frac{1}{3}(3y) + -\frac{1}{3}(15)$$

$$-y - 5$$