

THE DISTRIBUTIVE PROPERTY

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

An algebra property which is used to multiply a single term and two or more terms inside a set of parentheses.

"GET RID OF PARENTHESES!"

$$\begin{aligned}
 a(b+c) &= a(b)+a(c) \\
 &= ab+ac
 \end{aligned}$$

Part 1: Use the Distributive Property to simplify the following expressions.

1. $5(y+8w)$

$$5y + 40w$$

3. $6(x+y)$

$$6x + 6y$$

2. $2(x+5) + 3(5x+6)$

$$2x + 10 + 15x + 18$$

$$17x + 28$$

4. $3(x+14) + 2(x+10)$

$$3x + 42 + 2x + 20$$

$$5x + 64$$

Part 2: Use the Distributive Property to write equivalent expressions.
Rewrite each expression as a product using the distributive property.

1. $18x + 24y$

$$6(3x + 4y)$$

3. $24x + 15y$

$$3(8x + 5y)$$

2. $12x + 12y$

$$6(2x + 2y)$$

4. $28 + 4y$

$$(7 + y) \cdot 4$$

Notes - Distributive Property

What do you know about distribution
- outside of math class?

What is the
distributive property?

multiply the number on the outside to every
number on the inside of the parentheses.

Ex: $\overbrace{4(a+3)} \rightarrow 4a + 12$

Ex: $\overbrace{6(4-b)} \rightarrow 24 - 6b$

$\overbrace{5(x+7)}$

$5x + 35$

$\overbrace{3(m-4)}$

$3m - 12$

$\overbrace{(y+3)^2}$

$2y + 6$

$\div 2 \overbrace{\frac{1}{2}(6a-2b)}$

$3a - b$

$\overbrace{4(a-6)}$

$4a - 24$

$\overbrace{5(8+r)}$

$40 + 5r$

$\overbrace{6(5a-2c)}$

$30a - 12c$

$\overbrace{4(3x^2+5x-9)}$

$12x^2 + 20x - 36$

$\overbrace{8(z-4)}$

$8z - 32$

$\div 2 \overbrace{\frac{1}{2}(8y+12)}$

$4y + 6$

$\overbrace{7(3x-2w-3)}$

$21x - 14w - 21$

$\overbrace{6(3j^2-5k)}$

$18j^2 - 30k$

$\overbrace{(3x-5)x}$

$3x^2 - 5x$

$\overbrace{12(2e^2 - \frac{1}{4})} \div 4$

$24e^2 - 3$

$\overbrace{0.4(2r-5)}$

$.8r - 2$

$\overbrace{3(g^2+5g-6)}$

$3g^2 + 15g - 18$