

## DISTRIBUTIVE PROPERTY

The Distributive Property shows how to express sums and products in two ways:

$a(b + c) = ab + ac$  . This can also be written  $(b + c)a = ab + ac$  .

Factored form  
 $a(b + c)$

Distributed form  
 $a(b) + a(c)$

Simplified form  
 $ab + ac$

To simplify: Multiply each term on the inside of the parentheses by the term on the outside.  
Combine terms if possible.

### Example 1

$$\begin{aligned} 2(47) &= 2(40 + 7) \\ &= (2 \cdot 40) + (2 \cdot 7) \\ &= 80 + 14 = 94 \end{aligned}$$

### Example 2

$$\begin{aligned} 3(x + 4) &= (3 \cdot x) + (3 \cdot 4) \\ &= 3x + 12 \end{aligned}$$

### Example 3

$$\begin{aligned} 4(x + 3y + 1) &= (4 \cdot x) + (4 \cdot 3y) + 4(1) \\ &= 4x + 12y + 4 \end{aligned}$$

### Problems

Simplify each expression below by applying the Distributive Property.

- $6(9 + 4)$
- $4(9 + 8)$
- $7(8 + 6)$
- $5(7 + 4)$
- $3(27) = 3(20 + 7)$
- $6(46) = 6(40 + 6)$
- $8(43)$
- $6(78)$
- $3(x + 6)$
- $5(x + 7)$
- $8(x - 4)$
- $6(x - 10)$
- $(8 + x)4$
- $(2 + x)5$
- $-7(x + 1)$
- $-4(y + 3)$
- $-3(y - 5)$
- $-5(b - 4)$
- $-(x + 6)$
- $-(x + 7)$
- $-(x - 4)$
- $-(-x - 3)$
- $x(x + 3)$
- $4x(x + 2)$
- $-x(5x - 7)$
- $-x(2x - 6)$

answers on next page...

## Answers

- $(6 \cdot 9) + (6 \cdot 4) = 54 + 24 = 78$
- $(4 \cdot 9) + (4 \cdot 8) = 36 + 32 = 68$
- $56 + 42 = 98$
- $35 + 20 = 55$
- $60 + 21 = 81$
- $240 + 36 = 276$
- $320 + 24 = 344$
- $420 + 48 = 468$
- $3x + 18$
- $5x + 35$
- $8x - 32$
- $6x - 60$
- $4x + 32$
- $5x + 10$
- $-7x - 7$
- $-4y - 12$
- $-3y + 15$
- $-5b + 20$
- $-x - 6$
- $-x - 7$
- $-x + 4$
- $x + 3$
- $x^2 + 3x$
- $4x^2 + 8x$
- $-5x^2 + 7x$
- $-2x^2 + 6x$