

$$3(199)$$

$$3(200-1)$$

$$600-3$$

Alg 1 1.4

S97

Use the distributive property to evaluate expressions

Use the distributive property to simplify expressions

term
like terms

$$5(31)$$

$$5(30+1)$$

$$5 \cdot 30 + 5 \cdot 1$$

$$150 + 5$$

$$155$$

$$8(201)$$

$$8(200+1)$$

$$1600 + 8$$

Key Concept Distributive Property



Symbol For any numbers a , b , and c ,
 $a(b + c) = ab + ac$ and $(b + c)a = ba + ca$ and
 $a(b - c) = ab - ac$ and $(b - c)a = ba - ca$.

Examples $3(2 + 5) = 3 \cdot 2 + 3 \cdot 5$
 $3(7) = 6 + 15$
 $21 = 21$

$4(9 - 7) = 4 \cdot 9 - 4 \cdot 7$
 $4(2) = 36 - 28$
 $8 = 8$

Example 3 Algebraic Expressions



Rewrite each expression using the Distributive Property. Then simplify.

a. $7(3w - 5)$

$$7(3w - 5)$$

$$7 \cdot 3w - 7 \cdot 5$$

$$21w - 35$$

$$12(a + b + 4)$$

$$12a + 12b + 48$$

Distributive property practice

$$(10+2)4\frac{1}{2} \quad 5(300+11)$$

Whiteboards

$$20(30+1)$$

$$600+20$$

$$12(4+\frac{1}{2})$$

$$48+6$$

$$45+9$$

$$5(300+10+1)$$

$$1500+50+5$$

Exercises

Use the Distributive Property to rewrite each expression. Then evaluate.

1. $20(31) = 620$

2. $12 \cdot 4\frac{1}{2} = 54$

3. $5(311) = 1555$

4. $5(4x+9)$

$$20x+45$$

5. $3(8+2x)$

$$24+6x$$

6. $12(6+\frac{1}{2}x)$

$$72+6x$$

$$7. 12\left(2 + \frac{1}{2}x\right)$$
$$24 + 6x$$

$$8. \frac{1}{4}(12 - 4t)$$
$$3 - t$$

$$9. 3(2x - y)$$

$$6x - 3y$$

$$10. 2(3x + 2y - z)$$

$$6x + 4y - 2z$$

$$11. (x - 2)y$$

$$y(x - 2)$$

$$yx - 2y$$

$$12. 2(3a - 2b + c)$$

$$6a - 4b + 2c$$

$$13. \frac{1}{4}(16x - 12y + 4z)$$

$$4x - 3y + z$$

$$14. (2 - 3x + x^2)3$$

$$3(2 - 3x + x^2)$$

$$3 \cdot 2 - 3 \cdot 3x + 3 \cdot x^2$$

$$6 - 9x + 3x^2$$

$$15. -2(2x^2 + 3x + 1)$$

$$-4x^2 - 6x - 2$$

