

1-5 Study Guide and Intervention**The Distributive Property**

Simplify Expressions A **term** is a number, a variable, or a product or quotient of numbers and variables. **Like terms** are terms that contain the same variables, with corresponding variables having the same powers. The Distributive Property and properties of equalities can be used to simplify expressions. An expression is in **simplest form** if it is replaced by an **equivalent** expression with no like terms or parentheses.

Example**Draw Arrows**

$$\begin{aligned} \text{Simplify } 4(a^2 + 3ab) - ab. \\ 4(a^2 + 3ab) - ab &= 4(a^2 + 3ab) - 1ab && \text{Multiplicative Identity} \\ &= 4a^2 + 12ab - 1ab && \text{Distributive Property} \\ &= 4a^2 + (12 - 1)ab && \text{Distributive Property} \\ &= 4a^2 + 11ab && \text{Substitution} \end{aligned}$$

A couple of these steps are shown for clarity, you would normally do them using mental math.

You may show work on this sheet if it is neat. Otherwise, use looseleaf.

Exercises

Simplify each expression. If not possible, write *simplified*.

1. $12a - a$

2. $3x + 6x$

3. $3x - 1$

4. $12g - 10g + 1$

5. $-2x - 12$

6. $4x^2 + 3x + 7$

7. $20a + 12a - 8$

8. $3x^2 + 2x^2$

9. $-6x + 3x^2 + 10x^2$

10. $2p + \frac{1}{2}q$

11. $10xy - 4(xy + xy)$

12. $21c + 18c + 31b - 3b$

13. $3x - 2x - 2y + 2y$

14. $xy - 2xy$

15. $12a - 12b + 12c$

16. $4x + \frac{1}{4}(16x - 20y)$

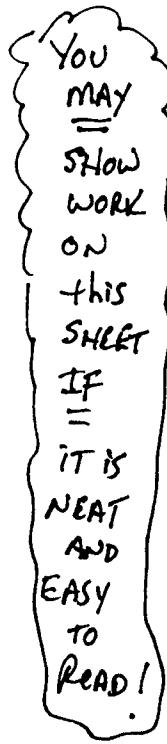
17. $2 - 1 - 6x + x^2$

18. $4x^2 + 3x^2 + 2x$

1-5 Skills Practice***The Distributive Property***

$$\textcircled{Ex} \quad 3(2+1) = 6+3 = \boxed{9}$$

Rewrite each expression using the Distributive Property. Then simplify.



1. $4(3 + 5)$

2. $2(6 + 10)$

3. $5(7 - 4)$

4. $(6 - 2)8$

5. $(a + 7)2$

6. $7(h - 10)$

7. $3(m + n)$

8. $(x - y)6$

9. $2(x - y + 1)$

10. $3(a + b - 1)$

Use the Distributive Property to find each product.

$$\textcircled{Ex} \quad 6 \cdot 43 = 6(\overbrace{40+3}) \\ = 240+18 = \boxed{258}$$

11. $5 \cdot 89$

12. $9 \cdot 99$

13. $15 \cdot 104$

14. $15\left(2\frac{1}{3}\right)$

15. $12\left(1\frac{1}{4}\right)$

16. $8\left(3\frac{1}{8}\right)$

Simplify each expression. If not possible, write *simplified*.

17. $2x + 8x$

18. $17g + g$

19. $16m - 10m$

20. $12p - 8p$

21. $2x^2 + 6x^2$

22. $7a^2 - 2a^2$

23. $3y^2 - 2y$

24. $2(n + 2n)$

25. $4(2b - b)$

26. $3q^2 + q - q^2$