

**Activity**  
**3.4****Start Thinking!**

For use before Activity 3.4

John says that  $16 \times 40$  is the same as  $8 \times 80$ .  
Is he correct? How do you know?

**Activity**  
**3.4****Warm Up**

For use before Activity 3.4

**Find the product.**

1.  $7 \times 13$

2.  $9 \times 23$

3.  $14 \times 4$

4.  $5 \times 41$

5.  $6 \times 37$

6.  $18 \times 7$

How can you relate the Distributive Property to preparing for a birthday party?

**Use the Distributive Property and mental math to find the product.**

1.  $4 \times 29$

2.  $3 \times 42$

3.  $7 \times 52$

4.  $6 \times 19$

5.  $5(48)$

6.  $8(67)$

**3.4 Practice A**

Use the Distributive Property and mental math to find the product.

1.  $5 \times 23$

2.  $6 \times 25$

3.  $9(54)$

4.  $7(59)$

Use the Distributive Property to find the product.

5.  $\frac{1}{3} \times 2\frac{3}{4}$

6.  $\frac{2}{5} \times 3\frac{1}{2}$

7.  $\frac{3}{8} \times 5\frac{2}{3}$

Use the Distributive Property to simplify the expression.

8.  $4(x + 6)$

9.  $8(c - 5)$

10.  $7(2y + 8)$

11.  $9(e - 4)$

12.  $6(4 + n)$

13.  $7(3 + x + 4)$

14. Describe and correct the error in rewriting the expression.

$\times \quad 5(x + 9) = x + 45$
----------------------------------

15. Each day you do homework for  $m$  minutes and watch TV for 30 minutes. Which expression can you use to find how many minutes you do both activities in 5 days? Explain your reasoning.

A.  $5m + 30$

B.  $5(m + 6)$

C.  $5(m + 30)$

D.  $m(5 + 30)$

16. The school office uses  $r$  reams of white paper and 3 reams of blue paper every day. Use the Distributive Property to write and simplify an expression for how much paper the school office uses in five days.

Simplify the expression.

17.  $9(w + 6) + 4$

18.  $5(3 + m) - 7$

19.  $2m + 7 + 9m$

20.  $f + 4(f - 2)$

21.  $\frac{1}{2}x + \frac{3}{8}x + x$

22.  $3.1(p - 2.7)$

23. Write and simplify expressions for the area and the perimeter of a rectangle. The rectangle has a width of 5 and a length of  $x + 2$ .

**3.4 Practice B**

Use the Distributive Property and mental math to find the product.

1.  $6 \times 24$

2.  $7 \times 89$

3.  $4 \times 99$

Use the Distributive Property to find the product.

4.  $\frac{3}{7} \times 5\frac{1}{2}$

5.  $\frac{5}{12} \times 4\frac{3}{10}$

6.  $\frac{3}{8} \times 3\frac{1}{6}$

Use the Distributive Property to simplify the expression.

7.  $8(a + 6)$

8.  $7(p - 5)$

9.  $10(9 + 2x)$

10.  $12(3f - k)$

11.  $6(2 + a + 9)$

12.  $9(x + y + 5)$

13. Describe and correct the error in rewriting the expression.

$\times \quad 6(x + 7) = 6x + 13$
-----------------------------------

14. A restaurant uses  $c$  cups of flour for baking rolls and 12 cups of flour for baking pies each day. Use the Distributive Property to write and simplify an expression for how much flour the restaurant uses in seven days.

15. You are  $y$  years old. Your sister is 3 years older than you. Your uncle is 4 times older than your sister. Write and simplify an expression that represents your uncle's age.

Simplify the expression.

16.  $4 + 3(x + 5)$

17.  $8(t + 5) + 15$

18.  $4(y + 11) - 10$

19.  $2w + 3 + 5w - 1$

20.  $3.2(d + 1.7)$

21.  $\frac{2}{3}\left(x - \frac{5}{6}\right) + 4x$

Find the value of  $x$  that makes the expressions equivalent.

22.  $3(x - 7); 33 - 21$

23.  $5(x + 4); 15 + 20$

24. Add one set of parentheses to the expression

$$8 \bullet x + 10 + 2x + 4 \bullet x + 8 - 6 \text{ so that it is equivalent to } 2(7x + 18).$$

# 3.4

## Enrichment and Extension

### Using the Distributive Property

An electronics company sells two types of headphones. The in-ear model costs \$50. The over-the-ear model costs \$100.

The table shows how many units of each model Stores A, B, and C want to buy.

	Store A	Store B	Store C
In-ear	128	192	256
Over-the-ear	96	192	160

- How can the Distributive Property and mental math be used to find the total amount the company receives from the three stores for the in-ear headphone model?
- How can the Distributive Property and mental math be used to find the total amount the company receives from the three stores for the over-the-ear headphone model?
- What is the total amount the company receives from the three stores for both models?
- Suppose each store orders twice as many of the in-ear models as the over-the-ear models. Without doing any math, explain how you know that each store will pay the same amount for each type of model.
- The steps below show that the Distributive Property

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

can be written as  $(b + c)a = ba + ca$ . Fill in each blank with a property you know to justify the steps.

$(b + c)a = a(b + c)$		<b>Property of</b>	
$= ab + ac$		<b>Property</b>	
$= ba + ca$		<b>Property of</b>	

# 3.4 Puzzle Time

## Why Was The Shoelace Told To Stay After School?

Write the letter of each answer in the box containing the exercise number.

Use the Distributive Property and mental math to find the product.

- 1.  $4 \times 22$
- 2.  $\frac{1}{3} \times 3\frac{1}{2}$
- 3.  $6(89)$
- 4.  $17 \times 51$
- 5.  $\frac{1}{9} \times 18\frac{1}{4}$
- 6.  $7(6.2)$

Use the Distributive Property to simplify the expression.

- 7.  $2(x - 8)$
- 8.  $4(x + 5)$
- 9.  $9(x - 3.2)$
- 10.  $7\left(x - \frac{4}{7}\right)$
- 11.  $6(9 + x)$
- 12.  $8\left(\frac{3}{4} + x\right)$

Simplify the expression.

- 13.  $8x + 18 - x - 9$
- 14.  $6x + 4x - 3x$
- 15.  $10(2 + x + 3)$
- 16.  $4(x + 6) - 9$
- 17.  $11 + 5(x + 3)$
- 18.  $\frac{3}{5}x + 6(x - 2)$
- 19.  $1.8(x - 4.2) + x$
- 20.  $\frac{1}{3}\left(x + \frac{1}{2}\right) + 3x$

**Answers for 1–6.**

T. 88                      K. 534

C. 43.4                    T.  $2\frac{1}{36}$

A. 867                      O.  $1\frac{1}{6}$

**Answers for 7–20.**

N.  $8x + 6$                 Y.  $4x + 20$

W.  $4x + 15$               N.  $7x$

N.  $2x - 16$                S.  $6x + 54$

C.  $2.8x - 7.56$         I.  $5x + 26$

O.  $7x + 9$                 A.  $9x - 28.8$

U.  $\frac{33}{5}x - 12$               O.  $\frac{10}{3}x + \frac{1}{6}$

T.  $7x - 4$                 T.  $10x + 50$

13	7		4	19	6	2	18	12	10		17	1		16	9	11		3	14	20	5	15	8
----	---	--	---	----	---	---	----	----	----	--	----	---	--	----	---	----	--	---	----	----	---	----	---