Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

Warm Up

1. $\frac{1}{4} \times \frac{1}{3} \times \frac{13}{3}$

2. $\frac{5}{6} \times \frac{9}{5} \times \frac{19}{10}$

3. $4\frac{1}{3} \times \frac{15}{2} \times \frac{1}{10}$

5. $11\frac{1}{2} \times \frac{1}{4} \times \frac{4}{11}$

6. $3\frac{1}{7} \times \frac{1}{2} \times 1\frac{1}{2}$

7. $1\frac{4}{7} \times \frac{7}{8} \times 1\frac{7}{9}$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

Warm Up Answers

1. $\frac{1}{4} \times \frac{1}{3} \times \frac{13}{3}$

$= \frac{13}{36}$

2. $\frac{5}{6} \times \frac{9}{5} \times \frac{19}{10}$

$= \frac{57}{20} = 2\frac{17}{20}$

3. $4\frac{1}{3} \times \frac{15}{2} \times \frac{1}{10}$

$= \frac{13}{4} = 3\frac{1}{4}$

5. $11\frac{1}{2} \times \frac{1}{4} \times \frac{4}{11}$

$= \frac{23}{22} = 1\frac{1}{22}$

6. $3\frac{1}{7} \times \frac{1}{2} \times 1\frac{1}{2}$

$= \frac{33}{14} = 2\frac{5}{14}$

7. $1\frac{4}{7} \times \frac{7}{8} \times 1\frac{7}{9}$

$= \frac{22}{9} = 2\frac{4}{9}$

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Homework Answers

3.3 Record and Practice Journal

Tell which property illustrates the statement.

1. $x \cdot 1 = x$

Multiplication Property of One

2. $4.8 + k = k + 4.8$

Commutative Property of Addition

Simplify the expression. Explain each step.

3. $8 + (7 + x)$

$15 + x$

4. $10(11a)$

$110a$

Complete the statement using the specified property.

Property	Statement
5. Addition Property of Zero	$(b + 0) + 6 = b + 6$
6. Commutative Property of Multiplication	$3 \cdot (n \cdot 5) = 3 \cdot (5 \cdot n)$

7. You earn 10 points for every coin you collect in a video game. Then you find a star that triples your score.

a. Write an expression for the number of points you earn from the coins.

$10c$

b. Write and simplify an expression for the total number of points you earn.

$3(10c) = 30c$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

Lesson 3.4   November 12, 2014

Essential Question:

How do you use mental math to multiply two numbers?

Lesson 3.4

November 12, 2014

Lesson Objective:

Students will be able to:

use the Distributive Property to multiply numbers with more than one digit.

Self-Evaluation Scale
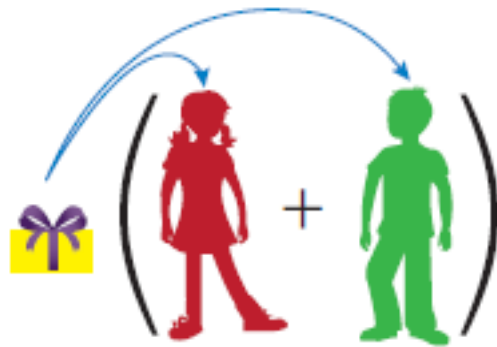
Score	Description
4	I can teach other students how to use the Distributive Property to multiply numbers with more than one digit.
3	I can use the Distributive Property to multiply numbers with more than one digit.
2	I recognize, but still need help to use the Distributive Property to multiply numbers with more than one digit.
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Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

The Meaning of a Word ● Distribute

When you **distribute** something to each person in a group,

you give that thing to each person in the group.

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

Key Idea

Distributive Property

Words   To multiply a sum or difference by a number, multiply each number in the sum or difference by the number outside the parentheses. Then evaluate.

Numbers $3(7 + 2) = 3 \times 7 + 3 \times 2$ **Algebra** $a(b + c) = ab + ac$

$3(7 - 2) = 3 \times 7 - 3 \times 2$ $a(b - c) = ab - ac$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

1 Using Mental Math

Use the Distributive Property and mental math to find 8×53.

$8 \times 53 = 8(50 + 3)$ Write 53 as $50 + 3$.

$ = 8(50) + 8(3)$ Distributive Property

$ = 400 + 24$ Multiply.

$ = 424$ Add.

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

2 **Using the Distributive Property**

Use the Distributive Property to find $\frac{1}{2} \times 2\frac{3}{4}$.

$$\frac{1}{2} \times 2\frac{3}{4} = \frac{1}{2} \times \left(2 + \frac{3}{4}\right)$$

Rewrite $2\frac{3}{4}$ as the sum $2 + \frac{3}{4}$.

$$= \left(\frac{1}{2} \times 2\right) + \left(\frac{1}{2} \times \frac{3}{4}\right)$$

Distributive Property

$$= 1 + \frac{3}{8}$$

Multiply.

$$= 1\frac{3}{8}$$

Add.

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

OYO!

Use the Distributive Property to find the product.

1. 5×41

2. 9×19

3. $6(37)$

4. $\dfrac{2}{3} \times 1\dfrac{1}{2}$

5. $\dfrac{1}{4} \times 4\dfrac{1}{5}$

6. $\dfrac{2}{7} \times 3\dfrac{3}{4}$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

OYO! Answers

1. 205   **2.** 171

3. 222   **4.** 1

5. $1\dfrac{1}{20}$ **6.** $1\dfrac{1}{14}$
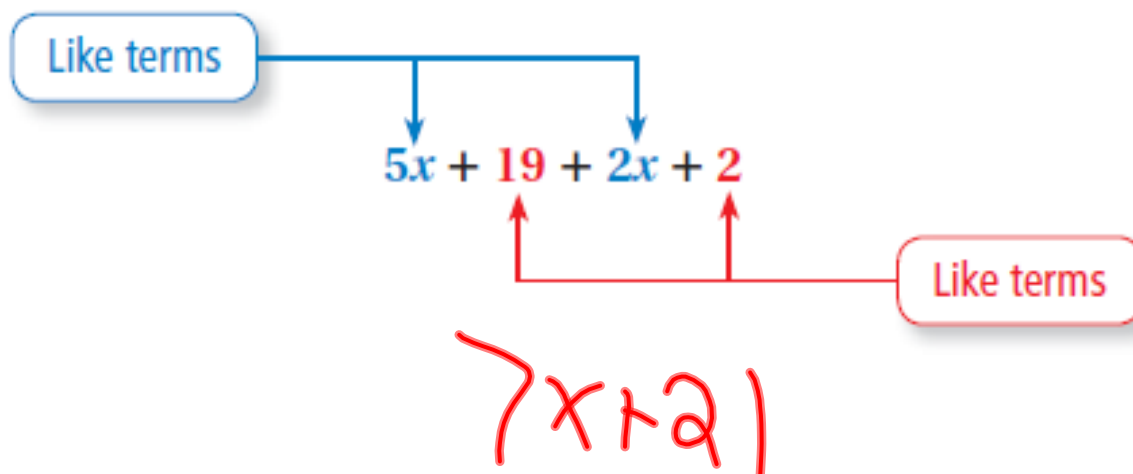
November 12, 2014 Period 4 Lesson 3.4

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

3 — Simplifying Algebraic Expressions

Use the Distributive Property to simplify the expression.

a. $4(n + 5)$

$4(n + 5) = 4(n) + 4(5)$	Distributive Property
$= 4n + 20$	Multiply.

b. $12(2y - 3)$

$12(2y - 3) = 12(2y) - 12(3)$	Distributive Property
$= 24y - 36$	Multiply.

c. $9(6 + x + 2)$

$9(6 + x + 2) = 9(6) + 9(x) + 9(2)$	Distributive Property
$= 54 + 9x + 18$	Multiply.
$= 9x + 54 + 18$	Commutative Property of Addition
$= 9x + 72$	Add 54 and 18.

$$9x + 54$$

$$63x$$

$$81$$

$$x = 1$$

$$x = 3$$

$$2y + 2y + 2y$$

$$24y$$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

In an algebraic expression, **like terms** are terms that have the same variables raised to the same exponents. Constant terms are also like terms.

Like terms

$$5x + 19 + 2x + 2$$

Like terms

$$7x + 21$$

November 12, 2014 Period 4 Lesson 3.4

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

5 Combining Like Terms

Simplify each expression.

a. $3x + 9 + 2x - 5$

$3x + 9 + 2x - 5 = 3x + 2x + 9 - 5$	Commutative Property of Addition
$= (3 + 2)x + 9 - 5$	Distributive Property
$= 5x + 4$	Simplify.

b. $y + y + y$

$y + y + y = 1y + 1y + 1y$	Multiplication Property of One
$= (1 + 1 + 1)y$	Distributive Property
$= 3y$	Add coefficients.

c. $7z + 2(z - 5y)$

$7z + 2(z - 5y) = 7z + 2(z) - 2(5y)$	Distributive Property
$= 7z + 2z - 10y$	Multiply.
$= (7 + 2)z - 10y$	Distributive Property
$= 9z - 10y$	Add coefficients.

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

OYO!

Simplify the expression.

11. $8 + 3z + z$

$$8 + 2z$$

12. $3(b + 5) + b + 2$

$$3b + 15 + b + 2$$

$$4b + 17$$

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

OYO! Answers

11. $8 + 2z$

12. $4b + 17$

November 12, 2014 Period 4 Lesson 3.4

Assignment

Complete problems 6, 8, 14, 16, 20, 22, 40, 44, 46, 60, & 64 on pages 137 - 139 in your Big Ideas Text Book.

Lesson 3.4

November 12, 2014

Essential Question:

How do you use mental math to multiply two numbers?

Lesson 3.4   November 12, 2014

Lesson Objective:

Students will be able to:

use the Distributive Property to multiply numbers with more than one digit.

Self-Evaluation Scale

Score	Description
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November 12, 2014 Period 4 Lesson 3.4

Learning Objective: Students will be able to use the Distributive Property to multiply numbers with more than one digit.

Homework

In your Big Ideas Record and Practice Journal page 72.