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. $1\frac{4}{7} \times \frac{7}{8} \times 1\frac{7}{9}$
$= \frac{22}{9} = 2\frac{4}{9}$

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

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

December 6, 2016

Essential Question:

How do you use mental math to multiply two numbers?

Lesson 3.4

December 6, 2016

Lesson Objective:

Students will be able to:

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

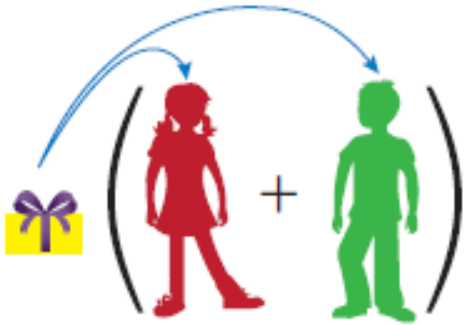
Self-Evaluation Scale

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.
1	I do not know how to use the Distributive Property to multiply numbers with more than one digit.

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 $3(7 + 2) = 3 \times 7 + 3 \times 2$

$3(7 - 2) = 3 \times 7 - 3 \times 2$

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

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

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

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. $1\frac{1}{20}$

6. $1\frac{1}{14}$

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

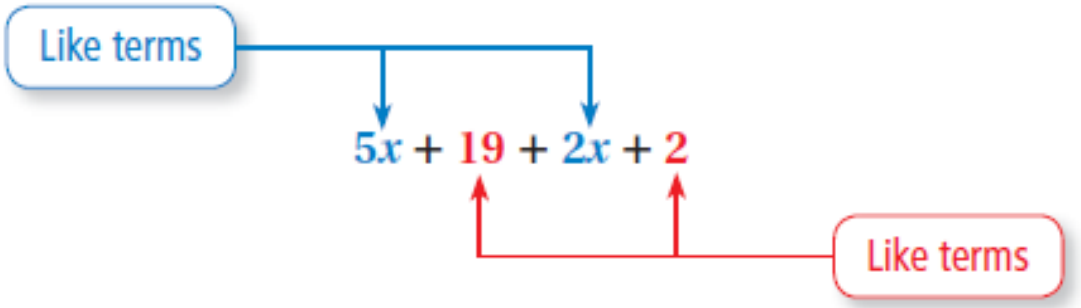
$= 54 + 9x + 18$ Multiply.

$= 9x + 54 + 18$ Commutative Property of Addition

$= 9x + 72$ Add 54 and 18.

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.



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

$$3x + 9 + 2x - 5 = 3x + 2x + 9 - 5 \quad \text{Commutative Property of Addition}$$
$$= (3 + 2)x + 9 - 5 \quad \text{Distributive Property}$$
$$= 5x + 4 \quad \text{Simplify.}$$

b. $y + y + y$

$$y + y + y = 1y + 1y + 1y \quad \text{Multiplication Property of One}$$
$$= (1 + 1 + 1)y \quad \text{Distributive Property}$$
$$= 3y \quad \text{Add coefficients.}$$

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

$$7z + 2(z - 5y) = 7z + 2(z) - 2(5y) \quad \text{Distributive Property}$$
$$= 7z + 2z - 10y \quad \text{Multiply.}$$
$$= (7 + 2)z - 10y \quad \text{Distributive Property}$$
$$= 9z - 10y \quad \text{Add coefficients.}$$

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

OYO!

Simplify the expression.

11. $8 + 3z - z$

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

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. $4b + 17$

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

Assignment

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

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

Lesson 3.4

December 6, 2016

Essential Question:

How do you use mental math to multiply two numbers?

Lesson 3.4 December 6, 2016

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.
1	I do not know how to use the Distributive Property to multiply numbers with more than one digit.

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 68.