November 12, 2015 TPA Lesson 3.4

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

Warm Up

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

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

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

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

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

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

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Warm Up Answers

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

   $= \dfrac{13}{36}$

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

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

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

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

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

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

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

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

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

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

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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.

   $3(10c) = 30c$

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Essential Question:

How do you use mental math to multiply two numbers?
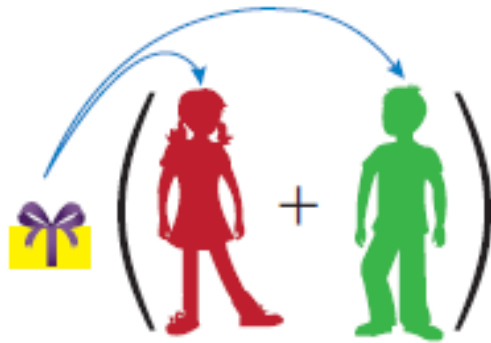
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Lesson Objective:

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.

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The Meaning of a Word ● Distribute

When you **distribute** something to each person in a group,
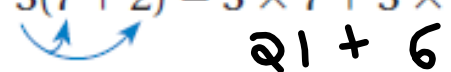
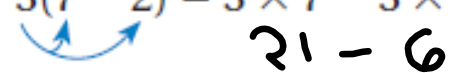you give that thing to each person in the group.
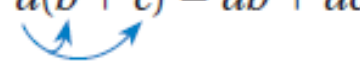
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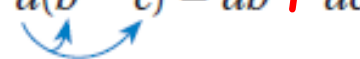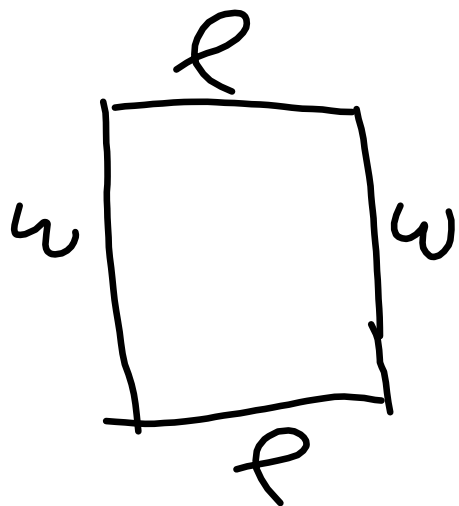
Key Idea

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

$21 + 6$

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

$21 - 6$

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

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

$$\ell + \ell + w + w$$

$$2\ell + 2w$$

$$2(\ell + w)$$

Rectangle with top and bottom sides labeled ℓ, and left and right sides labeled w.

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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.

$$6 \cdot 36$$

$$8 \cdot 71$$

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2 Using the Distributive Property

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

$$\frac{1}{2} \times 2\frac{3}{4} = \frac{1}{2} \times \left(2 + \frac{3}{4}\right) \qquad \text{Rewrite } 2\frac{3}{4} \text{ as the sum } 2 + \frac{3}{4}.$$

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

$$= 1 + \frac{3}{8} \qquad \text{Multiply.}$$

$$= 1\frac{3}{8} \qquad \text{Add.}$$

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$$9(10+9) = 9 \cdot 10 + 9 \cdot 9$$

$$9(20-1) \quad 180 - 9$$

OYO!

$$6 \cdot 30 + 6 \cdot 7$$

$$6 \cdot 40 - 6 \cdot 3$$

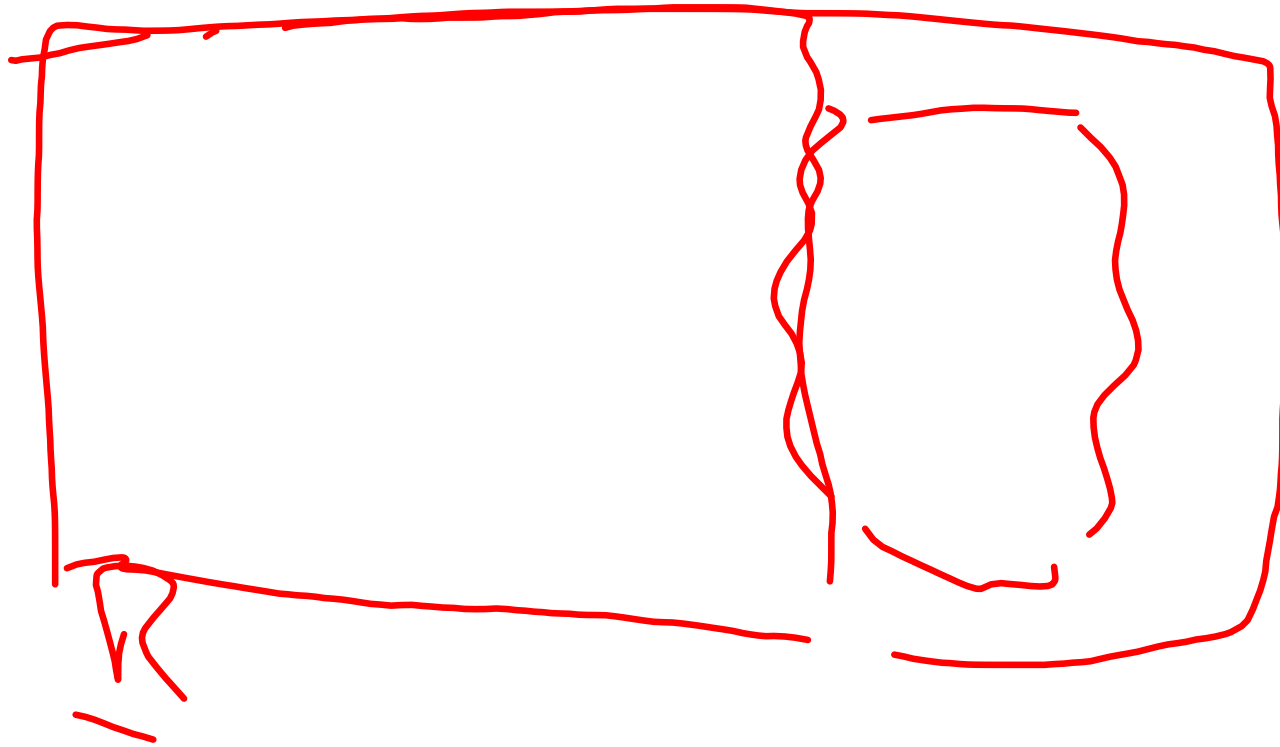## Use the Distributive Property to find the product.

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

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$$5 + 5 + 5 + 5 + 5 + 5 + 5$$

$$5 \cdot 20$$

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OYO! Answers

1. 205   **2.** 171

3. 222   **4.** 1

5. $1\frac{1}{20}$ **6.** $1\frac{1}{14}$