Name_____ Date_____

1.3 Properties of Addition and Multiplication

For use with Activity 1.3

Essential Question Does the order in which you perform an operation matter?

1 ACTIVITY: Does Order Matter?

Work with a partner. Place each statement in the correct oval.

a. Fasten 5 shirt buttons.

b. Put on a shirt and tie.

c. Fill and seal an envelope.

d. Floss your teeth.

e. Put on your shoes.

f. Chew and swallow.

Order Matters

Order Doesn't Matter

Write some math problems using the four operations where order matters and some where order doesn't matter.

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1.3 Properties of Addition and Multiplication (continued)

2 ACTIVITY: Commutative Properties

Work with a partner.

a. Circle the statements that are true.

$3 + 5 \stackrel{?}{=} 5 + 3$ $\qquad$ $3 - 5 \stackrel{?}{=} 5 - 3$

$9 \times 3 \stackrel{?}{=} 3 \times 9$ $\qquad$ $9 \div 3 \stackrel{?}{=} 3 \div 9$

b. The true equations show the Commutative Properties of Addition and Multiplication. Why are they called "commutative?" Write the properties.

3 ACTIVITY: Associative Properties

Work with a partner.

a. Circle the statements that are true.

$8 + (3 + 1) \stackrel{?}{=} (8 + 3) + 1$ $\qquad$ $8 - (3 - 1) \stackrel{?}{=} (8 - 3) - 1$

$12 \times (6 \times 2) \stackrel{?}{=} (12 \times 6) \times 2$ $\qquad$ $12 \div (6 \div 2) \stackrel{?}{=} (12 \div 6) \div 2$

b. The true equations show the Associative Properties of Addition and Multiplication. Why are they called "associative?" Write the properties.

What Is Your Answer?

4. IN YOUR OWN WORDS Does the order in which you perform an operation matter?

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1.3 Properties of Addition and Multiplication (continued)

5. **MENTAL MATH** Explain how you can use the Commutative and Associative Properties of Addition to add the sum in your head.

   $11 + 7 + 12 + 13 + 8 + 9$

6. **SECRET CODE** The creatures on a distant planet use the symbols ■, ◆, ★, and ● for the four operations.

   a. Use the codes to decide which symbol represents addition and which symbol represents multiplication. Explain your reasoning.

   3 ● 4 = 4 ● 3

   3 ★ 4 = 4 ★ 3

   2 ● (5 ● 3) = (2 ● 5) ● 3

   2 ★ (5 ★ 3) = (2 ★ 5) ★ 3

   0 ● 4 = 0

   0 ★ 4 = 4

   b. Make up your own symbols for addition and multiplication. Write codes using your symbols. Trade codes with a classmate. Decide which symbol represents addition and which symbol represents multiplication.

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1.3 Practice

For use after Lesson 1.3

Tell which property is illustrated by the statement.

1. $x \bullet 1 = x$

2. $4.8 + k = k + 4.8$

Simplify the expression. Explain each step.

3. $8 + (7 + x)$

4. $10(11a)$

5. $0 \bullet v \bullet 12$

Complete the statement using the specified property.

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

8. The expression $10 \bullet x \bullet 15$ represents the volume of a swimming pool. Simplify the expression.

9. 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.

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

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