SOL 7.3

Janie wants to further explore the distributive property. Which formula should she use to plug in numbers and prove this property's validity?

A $a \cdot (b - c) = (a + b + c)$

B $a \cdot (b - c) = (a \cdot b) + (a \cdot c)$

C $a \cdot (b + c) = (a \cdot b) - (a \cdot c)$

D $a \cdot (b - c) = (a \cdot b) - (a \cdot c)$

Which property of operations is displayed in the problem below?

$$12 \cdot (4 \cdot 3) = (12 \cdot 4) \cdot 3$$

A multiplicative identity property

B distributive property

C associative property for multiplication

D commutative property for multiplication

Which problem below is an example of the associative property of addition?

A $5 + (4 + 1) = (5 + 4) + 1$

B $5 + 4 + 1 = 6 + 2 + 2$

C $(5 + 4) + 1 = (5 + 4) + 1$

D $10 + 0 = 5 + (4 + 1)$

Roxanne's teacher gave her the following problem for homework.

$$3 \cdot (2 + 6) = (3 \cdot 2) + (3 \cdot 6)$$

What property of operations is represented by the problem?

additive inverse property

distributive property

associative property for addition

commutative property for addition

Randall is testing the validity of the additive identity property. He will plug in numbers to be sure the property proves to be true. Which formula below will he use?

$a + 0 = a$

$a \cdot 0 = a$

$a + 0 = 0$

$a - 0 = 0$

Jack wants to test the multiplicative property of zero. He will plug in numbers to be sure the property proves to be true. Which formula below will he use?

$c \cdot 0 = c$

$c \cdot 0 = 0$

$c \cdot 0 = 1$

$0 \cdot c = c$

Which set of numbers below shows the multiplicative inverse property?

$12 \cdot 2 = 24$

$16 \cdot 4 = 64$

$2 \cdot \frac{1}{2} = 1$

$2 \cdot \frac{2}{2} = 2$

Which set of numbers below represents the multiplicative identity property?

A $5 \cdot 1 = 5$

B $5 \cdot 1 = 1$

C $5 \cdot 1 = 0$

D $5 \cdot 1 = 6$

Which set of numbers below represents the additive identity property?

A $6 + 1 = 7$

B $6 + 0 = 6$

C $6 + 0 = 0$

D $6 \cdot 0 = 6$

Look at the problem below.

$142 \cdot 0 = 0$

Which property of operations is represented in the problem?

A multiplicative property of zero

B associative property for multiplication

C multiplicative identity property

D commutative property for multiplication

Which is equivalent to the following?

$7 \cdot 3 + 4 \cdot 6$

A $7 \cdot 3 + 6 \cdot 4$

B $7 \cdot 4 + 3 \cdot 6$

C $25 \cdot 6$

D $7 \cdot 42$

$$\frac{1}{7} \cdot y = \frac{1}{7}$$

If the number sentence is true, then y is the —

additive identity

additive inverse

multiplicative identity

multiplicative inverse

Look at the equation below.

$8 + (^-8) = 0$

Which property of operations does this equation demonstrate?

A commutative property of addition

B associative property for addition

C additive inverse property

D additive identity property

Which number sentence illustrates the commutative property of multiplication?

A $14 + (13 \cdot 7) = 14 + (7 \cdot 13)$

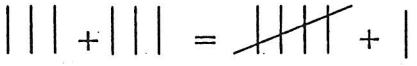
B $14 + (13 \cdot 7) = 13 + (14 \cdot 7)$

C $14 + (13 \cdot 7) = 14 \cdot 13 + 14 \cdot 7$

D $14 + (13 \cdot 7) = (14 + 13) \cdot 7$

Darren used sticks to explore the property below.

$3 + (2 + 1) = (3 + 2) + 1$



Which property of operations does this prove?

distributive property

additive identity property

additive inverse property

associative property for addition

Which is an example of the associative property of multiplication?

$7 \cdot 0 \cdot 9 = 0$

$4 \cdot (7 \cdot ^-3) = 4 \cdot (^-3 \cdot 7)$

$\left(6 \cdot \frac{1}{6}\right) \cdot 3 = 3$

$5 \cdot (3 \cdot ^-8) = (5 \cdot 3) \cdot ^-8$

Which set of numbers below represents the distributive property?

$4 \cdot (7 - 2) = (4 \cdot 7) - (4 \cdot 2)$

$5 + 4 + 3 = 5 + 4 + 3$

$4 \cdot (7 - 2) = (4 + 7 + 2)$

$4 \cdot (7 - 2) = (4 + 7) - (4 \cdot 2)$

Which problem below is an example of the commutative property of multiplication?

$6 + 3 = 3 + 6$

$6 \cdot 3 = 3 \cdot 6$

$6 \cdot 3 = 2 \cdot 9$

$6 \cdot 3 = 6 \cdot 3$

Which problem below is an example of the associative property of multiplication?

A $(3 \cdot 2) - 6 = (3 \cdot 2) + 6$

B $(3 \cdot 2) \cdot 6 = 3 \cdot (2 \cdot 6)$

C $(3 + 2) \cdot 6 = (3 - 2) \cdot 6$

D $3 + (2 \cdot 6) = 3 \cdot (2 \cdot 6)$

Properties- SOL 7.3

Name_____

Property	Description	Examples
Commutative	Changing the order of the _____ or factors does _____ change the _____ or _____.	1+7= 7+1 8 x 3= 3 x 8
Associative	Changing the _____ of numbers does _____ change a _____ or _____.	(9+3) + 7= 9+(3+7) (6 x 2) x 5 = 6x(2 x 5)
Identity	The _____ of zero and any number is that _____. _____ is called the identity for addition. The _____ of 1 and any number is that _____. _____ is called the identity for multiplication.	9 + 0 = 9 0 + a = a 3 x 1 = 3 1 x a = a
Zero property of multiplication	The _____ of any nonzero _____ and zero is zero.	3 x 0 = 0 0 x a = 0
Distributive	Numbers _____ or _____ within a set of parentheses can be _____ by a number outside the _____.	7 x (3 +4) = (7 x 3) + (7x 4) 5 x (12-1)= (5x12) – (5x1)
Inverse	The _____ of a number and its additive_____, or opposite is _____. The _____ of a nonzero _____ and its _____ inverse , or reciprocal, is _____.	2 + (-2) = 0 4 x ¼ = 1

Review of Properties

After Lesson 10-3

Properties of numbers help you find sums, differences, and products mentally.

Property	Description	Examples
Commutative	Changing the order of the addends or factors does not change the sum or product.	$1 + 7 = 7 + 1$ $8 \times 3 = 3 \times 8$
Associative	Changing the grouping of numbers does not change a sum or product.	$(9 + 3) + 7 = 9 + (3 + 7)$ $(6 \times 2) \times 5 = 6 \times (2 \times 5)$
Identity	The sum of 0 and any number is that number. Zero is called the identity for addition. The product of 1 and any number is that number. One is called the identity for multiplication.	$9 + 0 = 9$ $0 + a = a$ $3 \times 1 = 3$ $1 \times a = a$
Zero property of multiplication	The product of any nonzero number and 0 is 0.	$3 \times 0 = 0$ $0 \times a = 0$
Distributive	Numbers added or subtracted within a set of parentheses can be multiplied by a number outside the parentheses.	$7 \times (3 + 4) = (7 \times 3) + (7 \times 4)$ $5 \times (12 - 1) = (5 \times 12) - (5 \times 1)$
Inverse	The sum of a number and its additive inverse, or opposite, is 0. The product of a nonzero number and its multiplicative inverse, or reciprocal, is 1.	$2 + (-2) = 0$ $4 \times \frac{1}{4} = 1$

Associative Property

Commutative Property

Distributive Property

Identity Property

Inverse Property

Multiplicative Property of Zero

$(24+10)+3 = 24+(10+3)$

$6 \times (9 \times 3) = (6 \times 9) \times 3$

Numbers can be regrouped and I still get the same answer. (For × and +)

$2+16+9 = 9+2+16$

$6 \times 7 \times 3 = 7 \times 6 \times 3$

The order of the numbers can change and I still get the same answer. (For × and +)

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

$6(8-3) = (6 \cdot 8)-(6 \cdot 3)$

The number outside the parentheses is multiplied with both values inside the parentheses.

$17 \cdot 1 = 17$ $\quad \frac{1}{2}y \cdot 1 = \frac{1}{2}y$

Any value multiplied by 1 is the same value.

$9+0=9$ $\quad (a \cdot b)+0 = (a \cdot b)$

Any value plus Ø is the same value.

$7 \cdot \frac{1}{7} = 1$ $\quad \frac{5}{6} \cdot \frac{6}{5} = 1$

Any value multiplied by its opposite (reciprocal) is 1.

$-2+2 = \emptyset$ $\quad \frac{3}{4}+(-\frac{3}{4}) = \emptyset$

Any value added to its opposite (inverse) is Ø.

$5 \cdot 0 = 0$ $\quad (x \cdot y) \cdot 0 = 0$

$\frac{1}{2} \cdot 0 = 0$ $\quad (3a+1) \cdot 0 = 0$

Any value multiplied by Ø is equal to Ø.