Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Warm Up

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

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

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

5. $\frac{1}{2} \times 3\frac{3}{4} \times \frac{17}{5}$

6. $\frac{1}{3} \times 1\frac{2}{3} \times \frac{12}{7}$

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

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Warm Up Answers

1. $2\frac{1}{6} \times \frac{3}{5} \times \frac{5}{6}$
$= \frac{13}{12} = 1\frac{1}{12}$

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

3. $1\frac{1}{6} \times \frac{2}{3} \times 2\frac{1}{5}$
$= \frac{77}{45} = 1\frac{32}{45}$

5. $\frac{1}{2} \times 3\frac{3}{4} \times \frac{17}{5}$
$= \frac{51}{8} = 6\frac{3}{8}$

6. $\frac{1}{3} \times 1\frac{2}{3} \times \frac{12}{7}$
$= \frac{20}{21}$

7. $\frac{2}{3} \times 3\frac{3}{7} \times 1\frac{1}{2}$
$= \frac{24}{7} = 3\frac{3}{7}$

Lesson 3.3

November 7, 2016

Lesson Objective:

Students will be able to:

use properties to show that expressions are equivalent.

Self-Evaluation Scale

Score	Description
4	I can teach other students how to use properties to show that expressions are equivalent.
3	I can use properties to show that expressions are equivalent.
2	I recognize, but still need help to use properties to show that expressions are equivalent.
1	I do not know how to use properties to show that expressions are equivalent.

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

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

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Equivalent Expressions

Expressions with the same value

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

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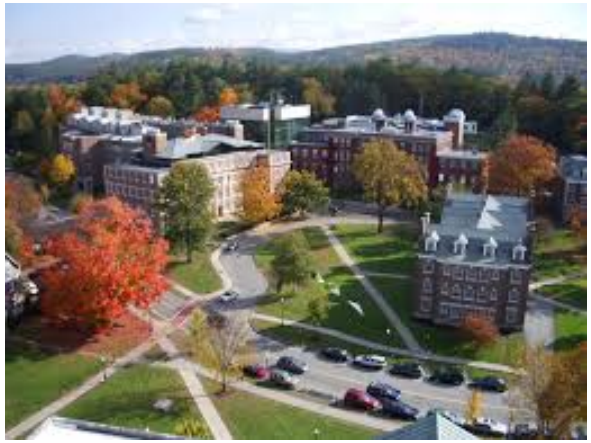
November 7, 2016 Lesson 3.3

Learning Objective: Students will be able to use properties to show that expressions are equivalent.



Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Commutative Properties

Words Changing the order of addends or factors does not change the sum or product.

Numbers $5 + 8 = 8 + 5$

$5 \cdot 8 = 8 \cdot 5$

Algebra $a + b = b + a$

$a \cdot b = b \cdot a$

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Law Offices of Tomei, Tomei, and Associates

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

$(7+4)+2=(4+2)+7$

Associative Properties

Words Changing the grouping of addends or factors does not change the sum or product.

Numbers $(7 + 4) + 2 = 7 + (4 + 2)$

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

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

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

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

1 Using Properties to Write Equivalent Expressions

a. Simplify the expression $7 + (12 + x)$.

$$7 + (12 + x) = (7 + 12) + x \qquad \text{Associative Property of Addition}$$
$$= 19 + x \qquad \text{Add 7 and 12.}$$

b. Simplify the expression $(6.1 + x) + 8.4$.

$$(6.1 + x) + 8.4 = (x + 6.1) + 8.4 \qquad \text{Commutative Property of Addition}$$
$$= x + (6.1 + 8.4) \qquad \text{Associative Property of Addition}$$
$$= x + 14.5 \qquad \text{Add 6.1 and 8.4.}$$

c. Simplify the expression $5(11y)$.

$$5(11y) = (5 \cdot 11)y \qquad \text{Associative Property of Multiplication}$$
$$= 55y \qquad \text{Multiply 5 and 11.}$$

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Additive Identity Prop.

Key Ideas

Addition Property of Zero

Words The sum of any number and 0 is that number.

Numbers $7 + 0 = 7$ **Algebra** $a + 0 = a$

Multiplication Properties of Zero and One

Words The product of any number and 0 is 0.

The product of any number and 1 is that number.

Numbers $9 \cdot 0 = 0$ **Algebra** $a \cdot 0 = 0$

$4 \cdot 1 = 4$ $a \cdot 1 = a$

Multiplicative Identity Prop.

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

2 Using Properties to Write Equivalent Expressions

a. Simplify the expression $9 \cdot 0 \cdot p$.

$9 \cdot 0 \cdot p = (9 \cdot 0) \cdot p$ Associative Property of Multiplication

$= 0 \cdot p = 0$ Multiplication Property of Zero

b. Simplify the expression $4.5 \cdot r \cdot 1$.

$4.5 \cdot r \cdot 1 = 4.5 \cdot (r \cdot 1)$ Associative Property of Multiplication

$= 4.5 \cdot r$ Multiplication Property of One

$= 4.5r$

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Assignment

Complete problems 6, 8, 10, 14, 20, 22, 26, 28, & 34 on pages 130 - 131 in your Big Ideas Text Book.

Learning Objective: Students will be able to use properties to show that expressions are equivalent.

Lesson 3.3

November 7, 2014

Essential Question:

Does the order in which you perform an operation matter?

Lesson 3.3

November 7, 2014

Lesson Objective:

Students will be able to:

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Self-Evaluation Scale

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Homework

In your Big Ideas Record and Practice Journal page 68.