Math 7H - Unit 1a

Day 2 - Addition Properties

Lesson Objectives:

- I can recognize the different addition properties.
- I can apply the addition properties to evaluate expressions with whole numbers.

Josey has 14 marbles and Beth has 8 marbles. Josey counts all the marbles by starting with her marbles, then adding on Beth's marbles. Beth counts all the marbles by starting with her marbles, then adding on Josey's marbles.

If they added correctly, will Josey and Beth find the same number of marbles? In your notes, draw a picture to justify your answer.

Does this relationship ALWAYS exist?
How do we know?
Does this relationship have a name?
Have we seen this relationship before?
How can we write the relationship in such a way that it will ALWAYS apply to any whole number?

* You should write ALL of this in your notes! *

The Commutative Property of Addition

Words: Changing the order of addends does not change the sum.

Symbols: For any real numbers a and b, $a + b = b + a$.

Example: $2 + 8 = 8 + 2$

Abbreviation: comm prop (+)

Identify which equations are examples of the commutative property of addition.

$6 + 5 = 3 + 8$ $4 + 9 = 9 + 4$ $3 - 8 = 8 - 3$ $-5 \neq 5$ $c + d = d + c$

Use the commutative property of addition to evaluate each expression.

$2 + 57 + 28$ $30 + 57 = 87$

$23 + 9 + 7 + 41$ $30 + 50 = 80$

$422 + 36 + 24$ $422 + 60$ 482

A freight train has 19 cars with lumber, 25 with corn, 15 with wheat, and 11 with oats. How many cars are there in all?

$19 + 11 = 30$ $15 + 25 = 40$ 70

Do your answers make sense?

In America football, a touchdown is worth 7 points, a field goal is worth 3 points, and a safety is worth 2 points. In the first quarter between the Eagles and the Cowboys, the Eagles score a field goal, then score a touchdown, while the Cowboys only score a field goal. In the second quarter of the game, the Cowboys score a touchdown and a safety, while the Eagles only score a safety.

1. How many points does each team score in the first quarter?
2. How many points does each team score in the second quarter?
3. Who is winning at the end of the second quarter? How do you know?

$3 + 7 = 10$ $(3 + 7) + 2$ 12

3 $3 + (7 + 2)$ 12

* You should write ALL of this in your notes! *

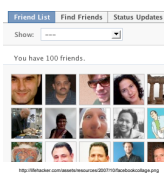
The Associative Property of Addition

Words: Changing the grouping of addends does not change the sum.

Symbols: For any real numbers a, b, and c, $(a + b) + c = a + (b + c)$.

Example: $(3 + 4) + 5 = 3 + (4 + 5)$

Abbreviation: assoc. prop (+)



Identify which equations are examples of the associative property of addition.

(24 + 17) + 3 = 24 + (17 + 3) (4 + 5) + 8 = 8 + (5 + 4) c + (d + e) = (c + d) + e

Use the associative property of addition to rewrite an equivalent expression.

1 + (8 + 5) (77 + 2) + 3 9 + (20 + 19)

Bill, Ted, and Mary have some sugary sweets that will make you hyper active, rot your teeth out and cause adult onset diabetes if you eat too many of them.

- Together Bill and Ted have Five.
- All together Bill, Ted and Mary have six.
- Together Ted and Mary have four.
- All together Bill, Ted and Mary still have six.

How many sickly sugary sweets do each of them have?

Do your answers make sense?

* You should write ALL of this in your notes! *

The Additive Identity Property of 0

Words: The sum of an addend and zero is the addend.

Symbols: For any real number a, a + 0 = 0 + a = a

Example: 5 + 0 = 0 + 5 = 5

Abbreviation: ident. prop (+)

Identify which equations are examples of the additive identity property of zero.

3 + 0 = 3 0 x 7 = 0 0 + 12 = 0 c x 1 = c

Use the additive identity property of zero to evaluate each expression.

15 + 0 0 + 259 1,423,856 + 0

When might it be helpful to use the additive identity property of zero?

Do your answers make sense?

The Commutative Property is true for addition. For example, 7 + 2 = 2 + 7. Does the Commutative Property apply to subtraction? Is 7 - 2 equal to 2 - 7? Explain. Use pictures to help justify your answer.

Using the Associative Property, 9 + (6 + 3) = (9 + 6) + 3. Is 9 - (6 - 3) equal to (9 - 6) - 3? Explain. Use pictures to help justify your answer.

* Do our answers make sense? *

Homework

Addition Properties WKS

Individual Think Time

What to do if you get stuck...

1. Reread the problem. Did you write it down correctly?
2. Reread your notes. Is there a problem similar that we did together in class?
3. Find a problem similar in your book. Try this one to see if it helps.
4. Skip the problem until the end of Individual Think Time. Then ask an "educated" question of a neighbor or Mrs. Call.

Today we are working by...