Math 7 - Unit 2a

Day 2 -Adding & Subtracting Linear Expressions

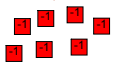
Lesson Objectives:

- I can combine like terms in expressions.
- I can apply properties of operations as strategies to add and subtract linear expressions with rational coefficients.

As a review, how do we model the following integers with algebra tiles?

4

-7

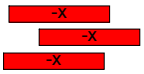


We can add, subtract, multiply, and divide integers. (Meaning that we can model these operations with algebra tiles, too.)

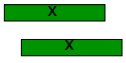
What happens when I pair a positive unit with a negative unit? This is called a zero pair.

How do we model the following variables with algebra tiles?

-3x

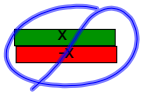


2x



We can add, subtract, multiply, and divide variables. (Meaning that we can model these operations with algebra tiles, too.)

What happens when I pair a positive variable with a negative variable?



Sometimes we have units and variables in the same problem. What happens then?

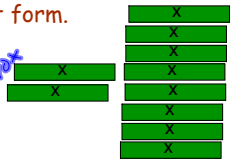
2x + 5 + x + 3 = 3x + 8

We can only add the same shapes together. This is called **combining like terms**.

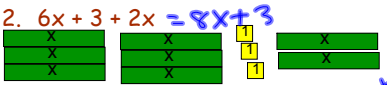
An algebraic expression is in **simplest form** when it has no like terms and no parentheses.

Model each expression with algebra tiles. Then write it in simplest form.

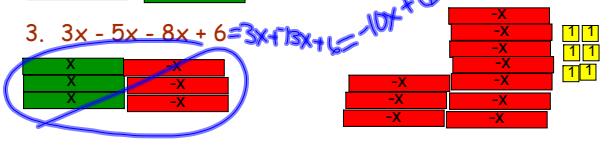
1. 2x + 8x = 10x



2. 6x + 3 + 2x = 8x + 3



3. 3x - 5x - 8x + 6 = 3x + 13x + 6 = -10x + 6



Definition	Facts/Characteristics
an algebraic expression in which the variable is raised to the first power	it has a variable it has at least one operation can contain numbers no exponent other than 1
linear expression	
Examples	**Non-examples**
3x+4 5x-1 4x+3 6x-2+5x	2x³+1 5xy+3 5x²+3x-5 2

We can add linear expressions with or without models.

Model each expression. Then simplify. 

4. (2x + 3) + (x + 4)

3x+7

5. (2x - 1) + (x - 5)

6. (3x + 5) + (-2x - 3)

1x+2

x+2

7. (x - 4) + (-2x + 1)

Model each expression. Then simplify. 

4. (6x + 3) - (2x + 2)

4x+1

5. (2x - 3) + (x + 2)

x-1

6. (3x + 2) + (5x + 4)

8x+6

7. (4x - 4) + (2x - 1)

6x-5

When subtracting integers, add the opposite, or the additive inverse. The same process is used when subtracting linear expressions.

We can simplify linear expressions with rational exponents.

12. (0.5x + 15) + (8.2x + 16.6)

13. $\left(\frac{1}{3}x+6\right)-\left(\frac{1}{6}x-2\right)$

Homework

Adding & Subtracting Linear Expressions 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're working by...