Lesson 9: Writing Addition and Subtraction Expressions

Classwork

**Example 1**

Create a bar diagram to show plus .

How would this look if you were asked to show plus ?

Are these two expressions equivalent?

**Example 2**

How can we show a number increased by ?

Can you prove this using a model? If so, draw the model.

**Example 3**

Write an expression to show the sum of and .

Which property can be used in Examples 1–3 to show that both expressions given are equivalent?

**Example 4**

How can we show minus ?

* Draw a bar diagram to model this expression.
* What expression would represent this model?
* Could we also use ?

**Example 5**

How can we write an expression to show less than a number?

* Start by drawing a diagram to model the subtraction. Are we taking away from the or the unknown number?
* What expression would represent this model?

**Example 6**

How would we write an expression to show the number being subtracted from the sum of and ?

* Start by writing an expression for “the sum of and .”
* Now, show being subtracted from the sum.

**Example 7**

Write an expression to show the number minus the sum of and .

Why are the parentheses necessary in this example and not the others?

Replace the variables with numbers to see if is the same as .

Drag the expression cards to their matching sentence, then record the information on the organizer below.

|  |  |  |
| --- | --- | --- |
| **Verbal** | **Expression 1** | **Expression 2 –**  **if possible!** |
| the sum of and |  |  |
| increased by |  |  |
| the sum of , , and |  |  |
| less than |  |  |
| decreased by the sum of and |  |  |
| the sum of and reduced by |  |  |
| more than the sum of and |  |  |
| w decreased by |  |  |
| less than the sum of and |  |  |
| the difference of and |  |  |

What do you notice about the sentences that don’t have two expressions? Why do you think that is?

Problem Set

1. Write two expressions to show a number increased by . Then, draw models to prove that both expressions represent the same thing.
2. Write an expression to show the sum of and .
3. Write an expression to show less than .
4. Write an expression to show the sum of and reduced by .
5. Write an expression to show less than , plus .
6. Write the following expressions in words.