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 .

Exercises

1. Write an expression to show the sum of and .
2. Write two expressions to show increased by . Then draw models to prove that both expressions represent the same thing.
3. Write an expression to show the sum of , , and .
4. Write an expression and a model showing less than .
5. Write an expression to show the difference of and .
6. Write an expression to show less than the sum of and .
7. Write an expression to show decreased by the sum of and .
8. Should Exercises 6 and 7 have different expressions? Why or why not?

Problem Set

1. Write two expressions to show a number decreased 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 decreased by .
4. Write an expression to show less than .
5. Write an expression to show the sum of and reduced by .
6. Write an expression to show less than , plus .
7. Write an expression to show less than the sum of and .