Lesson 9: Writing Addition and Subtraction Expressions

Classwork

Example 1

Create a bar diagram to show 3 plus 5.

How would this look if you were asked to show 5 plus 3?

Are these two expressions equivalent?

Example 2

How can we show a number increased by 2?

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

Example 3

Write an expression to show the sum of m and k.

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

Example 4

How can we show 10 minus 6?

- Draw a bar diagram to model this expression.
- What expression would represent this model?
- Could we also use $6 - 10$?

Example 5

How can we write an expression to show 3 less than a number?

- Start by drawing a diagram to model the subtraction. Are we taking away from the 3 or the unknown number?
- What expression would represent this model?

Example 6

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

- Start by writing an expression for "the sum of a and b."

- Now show c being subtracted from the sum.

Example 7

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

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

Replace the variables with numbers to see if $c - (a + b)$ is the same as $c - a + b$.

Exercises

1. Write an expression to show the sum of 7 and 1.5.

2. Write two expressions to show w increased by 4. Then draw models to prove that both expressions represent the same thing.

3. Write an expression to show the sum of a, b, and c.

4. Write an expression and a model showing 3 less than p.

5. Write an expression to show the difference of 3 and p.

6. Write an expression to show 4 less than the sum of g and 5.

7. Write an expression to show 4 decreased by the sum of g and 5.

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 11. Then draw models to prove that both expressions represent the same thing.

2. Write an expression to show the sum of x and y.

3. Write an expression to show h decreased by 13.

4. Write an expression to show k less than 3.5.

5. Write an expression to show the sum of g and h reduced by 11.

6. Write an expression to show 5 less than y, plus g.

7. Write an expression to show 5 less than the sum of y and g.