Topic 3 L.3: Factoring Expressions

Student Outcomes

* Students model and write equivalent expressions using the distributive property. They move from expanded form to factored form of an expression.

Warm-Up

1. **Use the model to answer the following questions.**

How many fives are in the model?

How many threes are in the model?

What expression could we write to represent the model?

1. Use the new model and the previous model to answer the next set of questions.

How many fives are in the model?

How many threes are in the model?

What expression could we write to represent the model?

or

1. Now, we will take a look at an example with variables. Discuss the questions with your partner.

What does mean?

means that there are 's or .

How many 's are in the model? How many ’are in the model?

and

What expression could we write to represent the model?

1. How many 's are in the expression? How many 's are in the expression?

and

What expression could we write to represent the model?

Are the two expressions equivalent?

Yes, both models include 'and’Therefore,

Guided Practice

1. What is the Greatest Common Factor (Divisor)?

The greatest factor that divides two numbers

1. What is the GCF of 18 and 9?

9

Use GCF and the distributive property to write equivalent expressions in factored form. Use the distributive property to check your answers.



What is the GCF in Problem 1?

How can we use the GCF to write this expression is factored form?

goes on the outside and will go inside the parentheses.



What is the GCF in Problem 2?

The GCF is .

How can we use the GCF to write this expression is factored form?

I will factor out the from both terms and place it in front of the parentheses. I will place what is left in the terms inside the parentheses: .



Is there a greatest common factor in Problem 3?

Yes, when I expand I can see that each term has a common factor .

How can we use the GCF to write this expression is factored form?



Is there a GCF in Problem 3?

***Yes, when I expand I can see that each term has a common factor 8***

How can we use the GCF to write this expression is factored form?

Teacher Note: Explain to students why there is a 1 in the parentheses.

When I factor out a number, I am leaving behind the other factor that multiplies to make the original number. In this case, when I factor out an from , I am left with a because .

Find the missing value that makes the two expressions equivalent.



Independent Practice

* + - 1. Write equivalent expressions by factoring. Use the distributive property to check your answers.

Lesson Summary

An Expression in Factored Form: An expressionthat is a product of two or more expressions is said to be in *factored form*.

Homework

1. Use models to prove that is equivalent to .
2. Use greatest common factor and the distributive property to write equivalent expressions in factored form for the following expressions.

or