



Core Focus

- Reviewing common fractions and mixed numbers (number line model, equivalent fractions with related and different denominators, and converting between mixed numbers and improper fractions)
- Order of operations (focus on use of parentheses)

Adding Common Fractions

- Students rewrite fractions so they have the same denominator. This is particularly important when they add, subtract, or compare fractions. To figure out a “common” denominator, students think about multiples of both denominators.

Step In Working with Equivalent Common Fractions (Related Denominators)

Sara's dad has a rectangular garden bed split into equal parts. The shaded part of this diagram shows how much of the garden has been planted.



What fraction of the garden has been planted?

Sara's dad decided to split the garden bed into a different number of equal parts. The same amount of the garden has been planted.

Look at this diagram. How did he split the garden bed?



Write the fraction of the garden that is planted.

What do you notice about the two fractions you wrote?

I can see that the value of the denominator in the second fraction is double the value of the denominator in the first fraction. The value of the numerator is also double.

Fractions are **equivalent** if they cover the same area of each shape.

In this lesson, students use area models to help add fractions with different but related denominators.

- Students rewrite **improper fractions** as **mixed numbers**, and mixed numbers as improper fractions.

Step In Converting Improper Fractions to Mixed Numbers

A recipe uses $\frac{3}{4}$ cup of milk to make one batch of 8 pancakes. Benjamin wants to make 6 batches of pancakes so he will need $\frac{18}{4}$ cups of milk.



How many **whole cups** of milk will he need?
What fraction of a whole cup of milk will he need?
How could you figure it out?

I know that 4 one-fourths makes one whole, and 8 one-fourths makes two wholes. I need to find out how many wholes I can make with 18 one-fourths.

I think there might be some whole cups and a remainder.

A **proper fraction** has a numerator that is less than its denominator.
An **improper fraction** has a numerator that is equal to or greater than its denominator.

How do you write the total as a mixed number?

In this lesson, students think about how many unit fractions (fractions with a numerator of 1) are needed to make one whole to convert between improper fractions and mixed numbers.

Ideas for Home

- Cooking provides an opportunity to talk about and use equivalent fractions. If a recipe requires $1\frac{1}{2}$ cups of flour, ask your child about different ways to measure it. They might suggest using a 1-cup measure and half-cup measure, or as $\frac{3}{2}$ using a half-cup measure 3 times.
- Fractions are part of meal time, too. Say, “The pizza is cut into eighths, what fraction would you like?” Or, “How can I give one-half to your brother and one-fourth to you? How many slices would that be? How do you know?”

Glossary

- Fractions where the top number (numerator) is larger than the bottom number (denominator), such as $\frac{8}{3}$, are always greater than one, and are known as **improper fractions**.
- **Mixed numbers** have a whole number plus a fraction. $2\frac{2}{3}$ is an example of a mixed number that is equivalent to the improper fraction $\frac{8}{3}$.

Order of Operations

- Students learn to write and evaluate mathematical expressions written horizontally, such as $5 \times 3 + 2 = 17$. Students connect the expressions to real-world situations such as, “We bought five sandwiches for \$3 each, and one bag of chips that cost \$2. How much did we spend in all?”
- Students learn that without context it is not always possible to know what steps to follow without some conventions for working with operations and using parentheses.
- Students learn that the order of numbers is not important for addition or multiplication but will change the answer for equations involving subtraction and division.
- Students learn that parentheses can be used to clarify which operation to do first, and that sometimes this can make a big difference.
- Students learn that without parentheses there is an order that should be followed for using operations in an equation.

Step In Exploring the Order of Operations

Abraham has \$16 and buys one of each meal deal.
How much money does he have left?



Deal A
\$4



Deal B
\$7

Hailey wrote this number sentence to figure it out.

$16 - 4 - 7 = \square$

Jennifer wrote this number sentence.

$16 - 4 + 7 = \square$

What are their answers?
What do you notice?
What should Jennifer do to make it clear that the 4 and 7 must be added first?
Parentheses help make it clear what to do first or what parts of the sentence should be done together.

If there is **one** type of operation in a sentence, work left to right.

If there is **more than one** type of operation, work left to right in this order:

1. Perform any operation inside parentheses
2. Multiply or divide pairs of numbers
3. Add or subtract pairs of numbers

In this lesson, students learn how parentheses can help indicate the order in which operations should be completed.

Ideas for Home

- Remove the picture cards from a deck of cards, give your child three of the remaining cards and ask them to write an expression that is as close to 25 as possible (over or under). E.g. with the numbers 3, 5, and 7, a possible expression is $3 \times 5 + 7 = 22$. They can use any combination of the four operations: addition, subtraction, multiplication, and division.
- Create different stories with your child that can be represented with an expression. An expression to match the story, “I read for 25 minutes three times this week, then I read for 40 minutes one day” is $3 \times 25 + 40$.

Glossary

- ▶ If there is one type of operation in a sentence, work left to right. If there are two or more types of operation, work left to right in this order:
 1. perform any operation inside parentheses
 2. multiply or divide pairs of numbers
 3. add or subtract pairs of numbers.
- ▶ An **expression** is a combination of numbers and operations that do not show a relationship, e.g. 5×8 , or $40 + 3$.