

Core Focus

- Subtracting common fractions and mixed numbers (same, related, and different denominators)
- Solving problems involving subtraction of common fractions and mixed numbers
- Measurement conversions involving inches, feet, yards, and miles
- Constructing and interpreting a line plot



Subtracting Common Fractions

- Students build on what they already know about equivalent fractions and strategies for adding fractions to work with subtracting fractions and mixed numbers.
- Area models, such as rectangles, and length models, such as number lines, help students make sense of fraction subtraction.
- When fractions have different denominators, visual models help students identify which fraction needs to be rewritten so the denominators will be the same.

13 **Step In** **Subtracting Common Fractions (Unrelated Denominators)**

Some parts of these pizzas have been eaten.

Which pizza has the least left over? Which pizza has the most left over? How do you know?

What are some subtraction stories you could make up about the pizzas?

What equations could you write to match your stories?

What do you notice about the denominators of the fractions you wrote?

In this lesson, students use area models to subtract fractions with unrelated denominators.

- Just as with addition, the denominators need to be made the same before students can subtract. For example, students could rewrite $2\frac{3}{4} - 1\frac{1}{12}$ as $2\frac{9}{12} - 1\frac{1}{12}$.
- Students choose whether to subtract the whole numbers and the fractions separately, or to change the mixed numbers to improper fractions before subtracting.

14 **Step In** **Subtracting Mixed Numbers (Related Denominators)**

Jason bought these two strips of wood for a picture frame.

How could you figure out the difference in length?

Look at these students' methods.

<p>Victoria subtracted using improper fractions.</p> $\frac{15}{2} - \frac{21}{4} = \boxed{}$	<p>Deana subtracted the whole numbers and then subtracted the fractions.</p> $7 - 5 = \boxed{} \quad \frac{1}{2} - \frac{1}{4} = \boxed{}$ $\boxed{} + \boxed{} = \boxed{}$	<p>Marcelo subtracted by writing one mixed number below the other.</p> $\begin{array}{r} 7\frac{1}{2} \\ - 5\frac{1}{4} \\ \hline \end{array}$
---	---	--

In this lesson, students describe strategies for subtracting mixed numbers.

Ideas for Home

- Continue to work with your child on their basic multiplication facts. They use their multiplication skills when converting mixed numbers to improper fractions and when rewriting fractions, using a common denominator. Have your child solve $4\frac{2}{5} - 1\frac{8}{10}$ using one of the strategies shown in this letter. Ask them to describe each step as they work.

Glossary

Subtract whole numbers and fractions

$$\begin{aligned} 2\frac{3}{4} - 1\frac{1}{12} \\ 2\frac{9}{12} - 1\frac{1}{12} \\ (2 - 1) + \left(\frac{9}{12} - \frac{1}{12}\right) \\ = 1\frac{8}{12} \end{aligned}$$

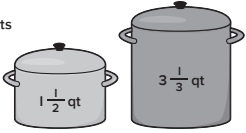
Subtract improper fractions

$$\begin{aligned} 2\frac{3}{4} - 1\frac{1}{12} \\ 2\frac{9}{12} - 1\frac{1}{12} \\ \frac{33}{12} - \frac{13}{12} \\ = \frac{20}{12} \end{aligned}$$

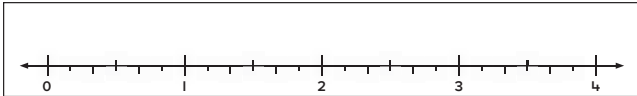
- Students encounter a new challenge in subtracting mixed numbers that they did not experience with addition. Sometimes, students cannot subtract the whole numbers and fractions separately because the first fraction is smaller than the second.
- One strategy is to rewrite the first mixed number so its fraction part is larger (by using 1 from the whole number and putting it in fraction form).
- Another strategy is to convert both mixed numbers to improper fractions.

7.I **Step In** **Subtracting Mixed Numbers (Unrelated Denominators and Decomposing Whole Numbers)**

How could you figure out the difference between the amounts in these two pots?
Why is it necessary to rewrite the fractions?

$$3\frac{1}{3} - 1\frac{1}{2} = 3\frac{2}{6} - 1\frac{3}{6} = \boxed{}$$


Try to subtract the fractions first. What do you notice?
What could you do so you can subtract? How could you use this number line to help?



In this lesson, students solve subtraction problems involving mixed numbers.

Customary Measurement

- It is important that your child has a general sense of how big each customary unit of length is, as well as knowing the formal relationships (for example, that there are 12 inches in 1 foot).
- Students convert lengths that involve fractions. They find that 18 inches is the same as $1\frac{1}{2}$ feet, or that a length of 6 inches can also be described as being a half foot long. This language matches how measurement is often used in real-life situations.

Ideas for Home

- Talk about which unit of measure would be most appropriate for different situations (e.g. measuring a piece of paper, a length of cloth, the length and width of a room, or the distance from home to school).

Glossary


Customary Units of Length		Metric Units of Length	
12 inches	1 foot	10 millimeters	1 centimeter
3 feet	1 yard	100 centimeters	1 meter
1,760 yards	1 mile	1,000 meters	1 kilometer

7.II

12 inches	is the same as	1 ft.
6 inches	is the same as	$\frac{1}{2}$ ft. or 0.5 ft.
3 inches	is the same as	$\frac{1}{4}$ ft. or 0.25 ft.
9 inches	is the same as	$\frac{3}{4}$ ft. or 0.75 ft.


7.III **Step In** **Converting between Feet and Yards**

Two friends play a game of golf. At the first hole, Ramon's ball stops 4 yards from the hole. Alison's ball stops 15 feet from the hole.
Whose ball is closer to the hole? How do you know?



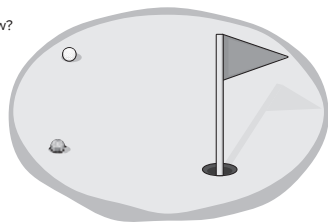
I know there are 3 feet in 1 yard.

Ramon misses his first putt.
His ball is now $2\frac{1}{3}$ yards from the hole.
How could you say this distance in feet?



Think about how you converted the distance from yards into feet. What expression could you write to show what you did?

Alison also misses her first putt. Her ball is now 5 feet from the hole.
How could you convert this distance into yards?



In this lesson, students convert feet to yards, and yards to feet.