




A Plan for Problem Solving

Summer Camp ▶

There are about 12,000 summer camps in the United States with yearly attendance of about 6 million.

NGSSS

 **Reinforcement of MA.5.A.1.4** Divide multi-digit whole numbers fluently, including solving real-world problems, demonstrating understanding of the standard algorithm and checking the reasonableness of results.



CAMP At a summer camp, there are 180 campers divided equally into 15 cabins. How many campers are in each cabin?

In mathematics, there is a *four-step problem-solving plan* you can use to help you solve any problem.

- Understand**
- Read the problem carefully.
 - What facts do you know?
 - What do you need to find?
- Plan**
- How do the facts relate to each other?
 - Plan a strategy for solving the problem.
 - Estimate the answer.
- Solve**
- Use your plan to solve the problem.
 - If your plan does not work, revise it or make a new plan.
 - What is the solution?
- Check**
- Does the answer fit the facts given in the problem?
 - Is the answer close to your estimate?
 - Does the answer make sense?
 - If not, solve the problem another way.

Problems can be solved using many different operations or strategies.

Concept Summary

guess, check, and revise
look for a pattern
make an organized list
draw a diagram
act it out

Problem Solving Strategies

solve a simpler problem
work backward
eliminate possibilities
use logical reasoning
make a model

Real-World EXAMPLE Use the Four-Step Plan

- 1 **CAMP** Refer to the information on the previous page. How many campers are in each cabin?

Understand You know 180 campers are divided equally into 15 cabins. You need to find how many campers are in each cabin.

Plan Divide 180 by 15. Before you calculate, estimate.

Estimate $200 \div 20 = 10$

Solve

$$\begin{array}{r} 12 \\ 15 \overline{)180} \\ \underline{-15} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

There are 12 campers in each cabin.

Check Check by multiplying. Since $12 \times 15 = 180$, the answer is correct.

✓ CHECK Your Progress

- a. **BABYSITTING** Ali babysat 143 hours over the 11-week summer break. If she babysat the same number of hours each week, how many hours did Ali babysit each week?

- b. **ALLOWANCE** The table shows Kaylee's weekly allowance. If the pattern continues, how much allowance will Kaylee earn when she is 13 years old?

Age	10	11	12	13
Weekly Allowance	\$2	\$4	\$6	■



Real-World Link

Thirty-one percent of children surveyed said they get a regular weekly allowance. Another 33% said they earn cash by doing chores around the house.

Practice and Problem Solving

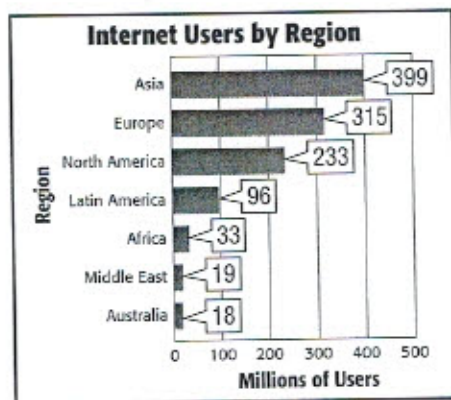
Use the four-step plan to solve each problem.

- BEARS** An adult male brown bear weighs about 1,380 pounds. An adult female brown bear weighs about 630 pounds. How much less does an adult female brown bear weigh than an adult male brown bear?
- POOLS** The table shows the total amount of water in a swimming pool that is being filled. At this rate, how much water will be in the swimming pool after 30 minutes?

Time (min)	5	10	15	20	25	30
Water (gal)	75	150	225	300	■	■

- GAS MILEAGE** Mr. Vasil drove 405 miles on 15 gallons of gas. How many miles can he drive with 1 gallon?

- ANALYZE GRAPHS** The graph shows the number of millions of Internet users in different regions of the world.



- How many times as many Internet users are there in Asia than in the Middle East?
- About how many times as many Internet users are there in North America than in Africa?

- MONEY** The Eddingtons are buying a new car. They made an initial payment of \$2,000 and will pay \$350 per month for 4 years. How much will they spend in all for the car?

- PATTERNS** Complete the pattern 5, 11, 17, 23, ■, ■, ■.

- WALKING** Megan uses a pedometer to find how many steps she takes each school day. She took 32,410 steps over the course of 5 days. If she took the same number of steps each day, how many did she take on Monday?

Read Math

Remainder Recall that a remainder is the number left after a quotient is found.

- SPORTS EQUIPMENT** Mrs. Dimas has \$130 to buy basketballs for Edison Middle School. How many can she buy at \$15 each? Interpret the remainder.



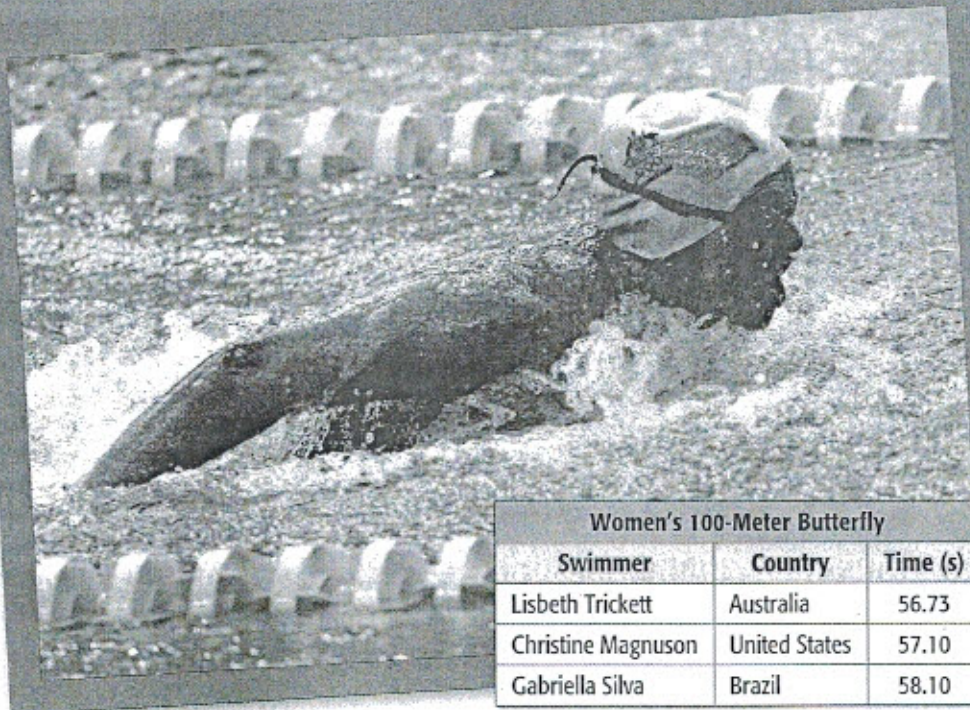
Add and Subtract Decimals

Olympics ▶

The five interlocking Olympic rings represent the five major regions of the world: Africa, the Americas, Asia, Europe, and Oceania.

NGSSS

Reinforcement of MA.5.A.2.2 Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations.



Swimmer	Country	Time (s)
Lisbeth Trickett	Australia	56.73
Christine Magnuson	United States	57.10
Gabriella Silva	Brazil	58.10

To add or subtract decimals, line up the decimal points. Then, add or subtract digits in the same place-value position.

Real-World EXAMPLE

- 1 **OLYMPICS** Refer to the table above. What is the difference between Lisbeth Trickett's time and Gabriella Silva's time?

Estimate $58.10 - 56.73 \approx 58 - 57$ or 1

$$\begin{array}{r} 58.10 \\ - 56.73 \\ \hline 1.37 \end{array}$$

Line up the decimal points.

Subtract as with whole numbers.

Check for Reasonableness $1.37 \approx 1$ ✓

The difference is 1.37 seconds.

✓ CHECK Your Progress

- a. **OLYMPICS** What is the difference between Lisbeth Trickett's time and Christine Magnuson's time?

EXAMPLES Add and Subtract Decimals

- 2 Find the sum of 23.1 and 5.8.

Estimate $23.1 + 5.8 \approx 23 + 6$ or 29

23.1 Line up the decimal points.

$$\begin{array}{r} 23.1 \\ + 5.8 \\ \hline \end{array}$$

28.9 Add as with whole numbers.

Check for Reasonableness $28.9 \approx 29$ ✓

The sum of 23.1 and 5.8 is 28.9.

- 3 Find the difference of 5.774 and 2.371.

Estimate $5.774 - 2.371 \approx 6 - 2$ or 4

5.774 Line up the decimal points.

$$\begin{array}{r} 5.774 \\ - 2.371 \\ \hline \end{array}$$

3.403 Subtract as with whole numbers.

Check for Reasonableness $3.403 \approx 4$ ✓

So, $5.774 - 2.371 = 3.403$.

CHECK Your Progress

Find each sum or difference.

b. $54.7 + 21.4$

c. $14.2 + 23.5$

d. $17.3 + 33.5$

e. $9.543 - 3.671$

f. $18.4 - 12.9$

g. $\$50.62 - \39.81

Vocabulary Link

Everyday Use

Annex to add something

Math Use

Annex to annex a zero means to place a zero at the beginning or end of a decimal

EXAMPLE Annex Zeros

- 4 Find $6 - 4.78$.

Estimate $6 - 4.78 \approx 6 - 5$ or 1

6.00 Annex zeros so that both numbers have the same number of decimal places.

$$\begin{array}{r} 6.00 \\ - 4.78 \\ \hline \end{array}$$

1.22

Check for Reasonableness $1.22 \approx 1$ ✓

So, $6 - 4.78 = 1.22$.

CHECK Your Progress

Find each difference.

h. $2 - 1.78$

i. $14 - 9.09$

j. $23 - 4.216$

Practice and Problem Solving

Find each sum.

1. $7.2 + 9.5$

2. $4.9 + 3.0$

3. $1.34 + 2$

4. $0.796 + 13$

5. $54.5 + 48.51$

6. $15.63 + 24.36$

Find each difference.

7. $5.6 - 3.5$

8. $19.86 - 4.94$

9. $97 - 16.98$

10. $82 - 67.18$

11. $58.67 - 28.72$

12. $14.39 - 12.16$

13. **RODEO** The table shows the top three finishers in barrel racing. What is the time difference between Nicolas and Sancho?

Barrel Racing Results	
Rider	Time (s)
Nicolas	14.67
Becki	15.98
Sancho	16.40

14. **MONEY** A hat costs \$10.95 and a T-shirt costs \$14.20. How much change will you receive if you pay for both items with a \$50 bill?

Use the order of operations to find each value.

Key Concept

Order of Operations

The order of operations states which operation to perform first.

1. Simplify grouping symbols.
2. Simplify powers.
3. Multiply and divide from left to right.
4. Add and subtract from left to right.

15. $2 \times 6 + 0.073$

16. $3.4 + 5 \times 3$

17. $6 - 4.304 + 2.5$

18. $11.8 - (22 \div 11)$

19. $8 + (6.3 - 3.9)$

20. $4 \times 2 - 1.67$

21. **FINANCIAL LITERACY** The current balance of Tami's checking account is \$237.80. Find the new balance after Tami writes a check for \$29.95.

22. **FIND THE ERROR** Luis is finding $8.9 - 3.72$. Find his mistake and correct it.

$$\begin{array}{r} 8.9 \\ - 3.72 \\ \hline 5.22 \end{array}$$

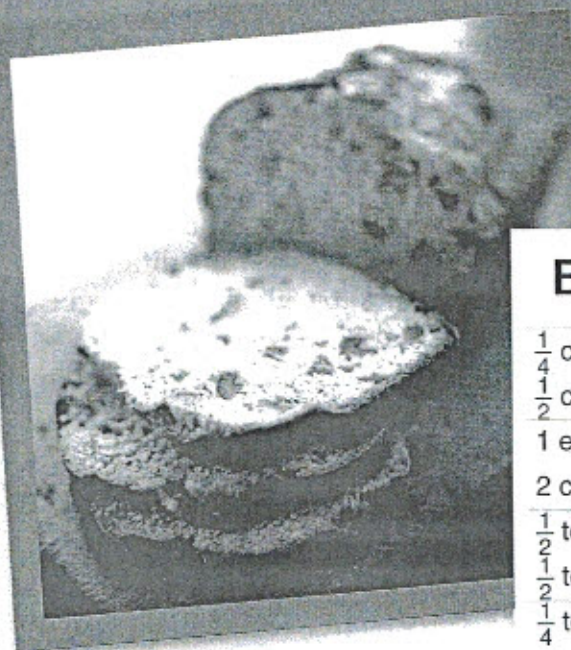




Add and Subtract Fractions with Like Denominators

Food ▶

Each person in the United States consumes about 25 pounds of bananas annually.



Easy Banana Bread

$\frac{1}{4}$ cup butter

$\frac{1}{2}$ cup sugar

1 egg

2 cups flour

$\frac{1}{2}$ teaspoon baking soda

$\frac{1}{2}$ teaspoon baking powder


$\frac{1}{4}$ teaspoon salt

3 tablespoons yogurt or buttermilk

3 ripe bananas, mashed



NGSSS

 **Reinforcement of MA.5.A.2.2** Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations.

FOOD A recipe for banana bread is shown. If you double the recipe, how much butter is needed?

Fractions with the same denominator are called *like fractions*. When you add and subtract like fractions, the denominator names the units being added or subtracted.

Key Concept

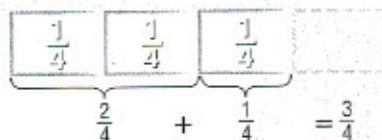
Add Like Fractions

Words To add fractions with the same denominators, add the numerators. Use the same denominator in the sum. For example, *2 fourths plus 1 fourth equals 3 fourths*.

Examples

Model

Numbers



$$\frac{2}{4} + \frac{1}{4} = \frac{2+1}{4} = \frac{3}{4}$$

Real-World EXAMPLE Add Like Fractions

- 1 **BAKING** Refer to the information on page 14. To find how much butter is needed, add $\frac{1}{4}$ and $\frac{1}{4}$.

$$\begin{aligned}\frac{1}{4} + \frac{1}{4} &= \frac{1+1}{4} && \text{Add the numerators.} \\ &= \frac{2}{4} \text{ or } \frac{1}{2} && \text{Simplify.}\end{aligned}$$

Check 1 fourth plus 1 fourth equals 2 fourths ✓

So, $\frac{1}{2}$ cup of butter is needed.

QUICK Review**Simplest Form**

A fraction is in simplest form when the GCF of the numerator and denominator is 1.

CHECK Your Progress

Add. Write in simplest form.

a. $\frac{2}{7} + \frac{3}{7}$

b. $\frac{1}{6} + \frac{2}{6}$

c. $\frac{4}{9} + \frac{1}{9}$

Subtracting fractions is similar to adding fractions.

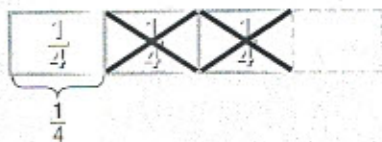
Key Concept Subtract Like Fractions

Words To subtract fractions with the same denominators, subtract the numerators. Use the same denominator in the sum. For example, 3 fourths minus 2 fourths equals 1 fourth.

Examples

Model

Numbers

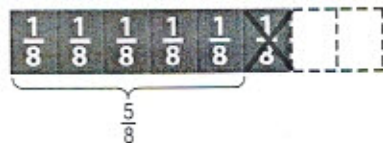


$$\begin{aligned}\frac{3}{4} - \frac{2}{4} &= \frac{3-2}{4} \\ &= \frac{1}{4}\end{aligned}$$

EXAMPLE Subtract Like Fractions

- 2 Subtract $\frac{6}{8} - \frac{1}{8}$. Write in simplest form.

$$\begin{aligned}\frac{6}{8} - \frac{1}{8} &= \frac{6-1}{8} && \text{Subtract the numerators.} \\ &= \frac{5}{8} && \text{Simplify.}\end{aligned}$$

**CHECK Your Progress**

Subtract. Write in simplest form.

d. $\frac{3}{9} - \frac{1}{9}$

e. $\frac{5}{6} - \frac{3}{6}$

f. $\frac{4}{5} - \frac{2}{5}$

Practice and Problem Solving

Add or subtract. Write in simplest form.

1. $\frac{1}{3} + \frac{1}{3}$

2. $\frac{3}{5} + \frac{4}{5}$

3. $\frac{2}{9} + \frac{3}{9}$

4. $\frac{5}{6} + \frac{1}{6}$

5. $\frac{1}{7} + \frac{5}{7}$

6. $\frac{2}{10} + \frac{3}{10}$

7. $\frac{7}{8} - \frac{5}{8}$

8. $\frac{9}{10} - \frac{6}{10}$

9. $\frac{13}{14} - \frac{6}{14}$

10. $\frac{5}{13} - \frac{2}{13}$

11. $\frac{7}{14} - \frac{3}{14}$

12. $\frac{11}{12} - \frac{4}{12}$

13. **DRINK** A pitcher contains $\frac{2}{4}$ -quart carbonated lemon-lime drink. One-fourth quart cranberry juice was added to make punch. How many total quarts of punch are in the pitcher?

14. **HOMEWORK** The table shows the fraction of an hour that Analisa spent doing homework for different subjects.

Subject	Time (h)
Math	$\frac{4}{6}$
Spelling	$\frac{1}{6}$
Science	$\frac{1}{6}$

- a. How much more time did she spend doing math homework than spelling?
 b. How much time did she spend doing homework in all?

15. **CRAFTS** Eli cut $\frac{1}{8}$ inch off the top of a photo and $\frac{2}{8}$ inch off the side. How much more did he cut off the side of the photo than the top?

Find the value of x that makes a true sentence.

16. $\frac{8}{9} - \frac{x}{9} = \frac{2}{9}$

17. $\frac{x}{7} - \frac{1}{7} = \frac{2}{7}$

18. $\frac{10}{11} - \frac{x}{11} = \frac{4}{11}$

19. **WALKING** Nick lives $\frac{6}{10}$ mile from school. He has already walked $\frac{4}{10}$ mile. How much farther does Nick have to walk?

20. **TARANTULAS** Known for their very large size, tarantulas are a group of hairy spiders. The body length is about $\frac{7}{24}$ foot and the leg span is $\frac{19}{24}$ foot. What is the total length of a tarantula?

Write an addition or subtraction sentence for each model.




Real-World Link
 The goliath bird eater is considered the largest spider in the world. These spiders can have up to 12-inch-long leg spans and fangs up to an inch long.

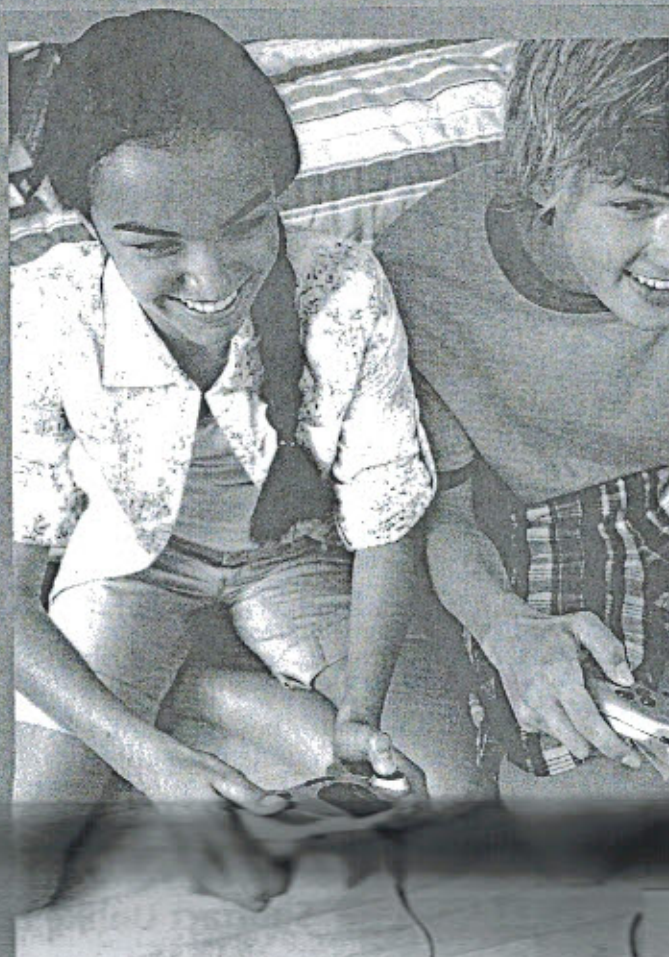


Add and Subtract Fractions with Unlike Denominators

Video Games ▶
Thirty-eight percent of American homes have a video game console.

NGSSS

 **Reinforcement of MA.5.A.2.2** Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations.



What is your favorite type of video game?

Type	Fraction of Students
Educational	$\frac{1}{6}$
Fantasy	$\frac{1}{4}$
Sports	$\frac{1}{3}$
Strategy	$\frac{1}{6}$
Other	$\frac{1}{12}$

SURVEYS The table shows the results of a survey about favorite video games. What fraction of the students said they like sports or educational video games?

Before you can add two *unlike fractions*, or fractions with different denominators, one or both of the fractions must be renamed. They should have a common denominator.

Key Concept

Add or Subtract Unlike Fractions

To add or subtract fractions with different denominators:


- Rename the fractions using the least common denominator (LCD).
- Add or subtract as with like fractions.
- If necessary, simplify the sum or difference.



Add and Subtract Fractions with Unlike Denominators

Video Games ▶
Thirty-eight percent of American homes have a video game console.

NGSSS

 **Reinforcement of MA.5.A.2.2** Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations.



What is your favorite type of video game?

Type	Fraction of Students
Educational	$\frac{1}{6}$
Fantasy	$\frac{1}{4}$
Sports	$\frac{1}{3}$
Strategy	$\frac{1}{6}$
Other	$\frac{1}{12}$

SURVEYS The table shows the results of a survey about favorite video games. What fraction of the students said they like sports or educational video games?

Before you can add two *unlike fractions*, or fractions with different denominators, one or both of the fractions must be renamed. They should have a common denominator.

Key Concept

Add or Subtract Unlike Fractions

To add or subtract fractions with different denominators:

- Rename the fractions using the least common denominator (LCD).
- Add or subtract as with like fractions.
- If necessary, simplify the sum or difference.

Real-World EXAMPLE Add Unlike Fractions

- 1 **SURVEYS** Refer to the table on page 17. Add $\frac{1}{3}$ and $\frac{1}{6}$ to find the fraction of the students that said they like sports or educational video games.

Write the problem.	Rename using the LCD.	Add the like fractions.	
$\frac{1}{3}$	$\rightarrow \frac{1 \times 2}{3 \times 2} = \frac{2}{6}$	$\rightarrow \frac{2}{6}$	
$+\frac{1}{6}$	$\rightarrow +\frac{1 \times 1}{6 \times 1} = \frac{1}{6}$	$\rightarrow +\frac{1}{6}$	
		$\frac{3}{6}$ or $\frac{1}{2}$	

So, $\frac{1}{2}$ of the students said they like sports or educational video games.

CHECK Your Progress

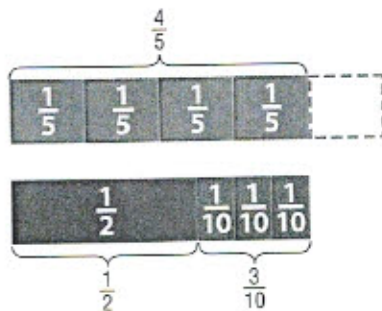
- a. **SURVEYS** Refer to the table on page 17. What fraction of students said they like fantasy or strategy video games?

EXAMPLE Subtract Unlike Fractions

- 1 Find $\frac{4}{5} - \frac{1}{2}$. Write in simplest form.

Estimate $\frac{4}{5} - \frac{1}{2} \approx 1 - \frac{1}{2}$ or $\frac{1}{2}$

Write the problem.	Rename using the LCD.	Subtract the like fractions.
$\frac{4}{5}$	$\frac{4 \times 2}{5 \times 2}$	$\frac{8}{10}$
$-\frac{1}{2}$	$-\frac{1 \times 5}{2 \times 5}$	$-\frac{5}{10}$
		$\frac{3}{10}$



Check for Reasonableness $\frac{3}{10} \approx \frac{1}{2} \checkmark$

Study Tip

Check by Adding You can always check a subtraction problem by adding.

$$\frac{3}{10} + \frac{1}{2} = \frac{3}{10} + \frac{5}{10} = \frac{8}{10} \text{ or } \frac{4}{5} \checkmark$$

CHECK Your Progress

Subtract. Write in simplest form.

b. $\frac{1}{2} - \frac{1}{4}$

c. $\frac{7}{10} - \frac{1}{5}$

d. $\frac{2}{3} - \frac{1}{4}$

Practice and Problem Solving

Add or subtract. Write in simplest form.

1. $\frac{1}{2} + \frac{3}{4}$

2. $\frac{2}{3} + \frac{1}{4}$

3. $\frac{5}{6} + \frac{1}{4}$

4. $\frac{3}{5} + \frac{1}{2}$

5. $\frac{6}{7} + \frac{1}{3}$

6. $\frac{5}{12} + \frac{5}{10}$

7. $\frac{3}{9} - \frac{1}{4}$

8. $\frac{5}{6} - \frac{1}{9}$

9. $\frac{4}{5} - \frac{1}{6}$

10. $\frac{7}{8} - \frac{4}{5}$

11. $\frac{8}{9} - \frac{2}{3}$

12. $\frac{9}{10} - \frac{3}{5}$

13. **HOMEWORK** Elio finished $\frac{3}{4}$ of his homework. Tyra finished $\frac{2}{3}$ of her homework. What fraction more of his homework did Elio finish than Tyra?

14. **HIKING** Jerome is hiking a trail that is $\frac{9}{10}$ mile long. After hiking $\frac{1}{2}$ mile, he stops to rest. How much farther must he hike to finish the trail?

15. **WEATHER** Use the information at the left. A hail storm in Jacksonville, Florida, produced hail $\frac{7}{8}$ inch larger than the smallest hail produced by severe thunderstorms. What was the size of the hail that fell in Jacksonville, Florida?

16. **FOOD** At a sandwich shop, $\frac{1}{4}$ of the customers order ham subs, while $\frac{1}{6}$ of the customers order turkey subs. What fraction of the customers order either ham or turkey subs?

17. **FUNDRAISING** The table shows the fraction of total coupon book sales of four students in a class.

- What is the difference between Jabar's and Corey's fraction of total sales?
- What part of the total sales did Billy and Domanick have altogether?

Coupon Book Sales	
Student	Fraction of Total Sales
Corey	$\frac{1}{12}$
Billy	$\frac{3}{40}$
Domanick	$\frac{1}{3}$
Jabar	$\frac{2}{15}$

18. **FIND THE ERROR** Pilar is finding $\frac{3}{9} + \frac{1}{6}$. Find her mistake and correct it.

$$\frac{3}{9} + \frac{1}{6} = \frac{3+1}{9+6} = \frac{4}{15}$$



Real-World Link . . .

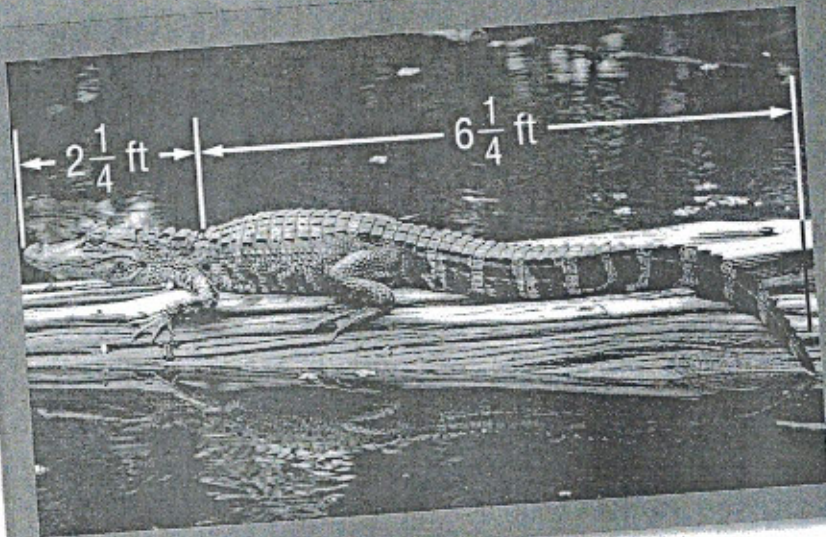
Severe thunderstorms can produce hail $\frac{3}{4}$ inch in diameter or larger.



Add and Subtract Mixed Numbers

Reptiles ▶

The largest recorded American Alligator is 19 feet 2 inches long.



NGSSS

Reinforcement of MA.5.A.2.2 Add and subtract fractions and decimals fluently and verify the reasonableness of results, including in problem situations.

REPTILES The diagram shows the lengths of parts of an alligator's body. What is the total length of the alligator?

To find the total length, add the mixed numbers.

Real-World EXAMPLE Add Mixed Numbers

1 REPTILES What is the total length of the alligator shown above?

Estimate $6\frac{1}{4} + 2\frac{1}{4} \approx 6 + 2$ or 8

Add the fractions.

$$\begin{array}{r} 6\frac{1}{4} \\ + 2\frac{1}{4} \\ \hline 2\frac{2}{4} \end{array}$$

Add the whole numbers.

$$\begin{array}{r} 6\frac{1}{4} \\ + 2\frac{1}{4} \\ \hline 8\frac{2}{4} \text{ or } 8\frac{1}{2} \end{array}$$

Check for Reasonableness $8\frac{1}{2} \approx 8$ ✓

The total length of the alligator is $8\frac{1}{2}$ feet.

CHECK Your Progress

a. **REPTILES** Suppose an alligator's tail and body are each $5\frac{3}{4}$ feet long. What is the total length of the alligator?

EXAMPLE**Subtract Mixed Numbers**

- 2 Find $4\frac{1}{3} - 1\frac{1}{6}$. Write in simplest form.

Estimate $4\frac{1}{3} - 1\frac{1}{6} \approx 4 - 1$ or 3

Write the problem.

Rename using the LCD, 6.

Subtract the fractions. Then subtract the whole numbers.

$$\begin{array}{r} 4\frac{1}{3} \rightarrow 4\frac{1 \times 2}{3 \times 2} \rightarrow 4\frac{2}{6} \\ -1\frac{1}{6} \rightarrow -1\frac{1 \times 1}{6 \times 1} \rightarrow -1\frac{1}{6} \\ \hline 3\frac{1}{6} \end{array}$$

Check for Reasonableness $3\frac{1}{6} \approx 3$ ✓

**CHECK Your Progress**

Subtract. Write in simplest form.

b. $3\frac{1}{2} - 1\frac{1}{3}$

c. $5\frac{5}{6} - 2\frac{1}{4}$

d. $3\frac{4}{5} - 1\frac{1}{2}$

- e. **CRAFTS** A photo that was originally $4\frac{7}{8}$ inches long had $1\frac{1}{4}$ inch cropped from its length. What is the length of the photo after cropping?

Study Tip

Mental Math
You can calculate

$4 - 2\frac{1}{3}$ mentally.

Think $4 - 2 = 2$
 $2 - \frac{1}{3} = 1\frac{2}{3}$

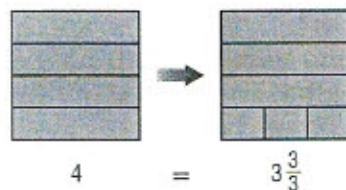
So, $4 - 2\frac{1}{3} = 1\frac{2}{3}$.

EXAMPLE**Rename Mixed Numbers to Subtract**

- 3 Find $4 - 2\frac{1}{3}$. Write in simplest form.

Estimate $4 - 2\frac{1}{3} \approx 4 - 2$ or 2

$$\begin{array}{r} 4 \quad 3\frac{3}{3} \quad \text{Rename 4 as } 3\frac{3}{3}. \\ -2\frac{1}{3} \quad -2\frac{1}{3} \\ \hline 1\frac{2}{3} \quad \text{Subtract.} \end{array}$$



Check for Reasonableness $1\frac{2}{3} \approx 2$ ✓

**CHECK Your Progress**

Subtract. Write in simplest form.

f. $7 - 4\frac{1}{2}$

g. $10 - 3\frac{4}{5}$

h. $4\frac{1}{5} - 2\frac{3}{4}$

- i. **FOOD** If you use $1\frac{1}{4}$ pounds of a 3-pound package of ground beef and freeze the rest, how much ground beef do you freeze?

Practice and Problem Solving

Add or subtract. Write in simplest form.

1. $6\frac{3}{5} + 2\frac{1}{3}$

2. $3\frac{1}{6} + 7\frac{1}{5}$

3. $5\frac{3}{8} + 9\frac{1}{2}$

4. $9\frac{5}{7} - 3\frac{1}{6}$

5. $12\frac{7}{9} - 6\frac{1}{4}$

6. $15\frac{9}{10} - 4\frac{2}{5}$

7. $16 - 5\frac{2}{3}$

8. $19 - 12\frac{14}{15}$

9. $24 - 8\frac{4}{9}$

10. **CRAFTS** Vittoria crocheted a belt with a length of $27\frac{1}{4}$ inches. If she adds $\frac{5}{8}$ inch to the belt, how long will it be?

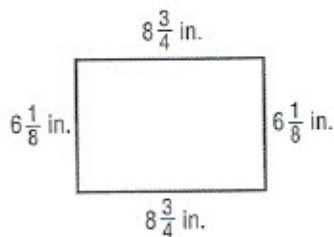
11. **DELI** Caroline bought $2\frac{1}{4}$ pounds of turkey and $1\frac{2}{3}$ pounds of roast beef. How many pounds of meat did Caroline buy?

12. **HEIGHT** Mei Lei is $5\frac{1}{4}$ feet tall. Bill is $5\frac{5}{8}$ feet tall. How much taller is Bill?

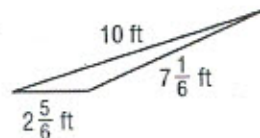
13. **FOOD** Tito bought $2\frac{1}{2}$ pounds of tomatoes and $1\frac{3}{4}$ pounds of peppers. How many more pounds of tomatoes than peppers did Tito buy?

MEASUREMENT Find the perimeter of each figure by adding the length of each side.

14.



15.



16. **MEASUREMENT** Mr. Garner's kitchen measures $13\frac{1}{4}$ feet long by $11\frac{2}{3}$ feet wide. How much greater is the length than the width of the kitchen?

Add or subtract. Write in simplest form.

17. $1\frac{1}{5} + 3\frac{2}{5} + 4\frac{1}{5}$

18. $5\frac{2}{7} + 2\frac{3}{14} + 3\frac{1}{2}$

19. $2\frac{2}{3} + 4\frac{1}{9} - 5$

20. **SPORTS** The table shows how long Will spent at soccer practice each day. How many hours did Will spend at soccer practice in all?

Soccer Practice	
Day	Time (h)
Wednesday	$2\frac{1}{2}$
Friday	$1\frac{2}{3}$
Saturday	$3\frac{1}{4}$

1. **SWIMMING** Robbie can swim 8 laps in 4 minutes. At this rate, how long will it take him to swim 40 laps?
2. Find the next three numbers in the pattern below.

57, 49, 41, 33, ...

3. **CRAFTS** Michelle is making 8 identical necklaces by stringing beads together. To make one necklace, she will repeat the pattern of beads shown four times. How many purple and yellow beads will be needed to make all eight necklaces?



Add or subtract.

4. $6.2 + 3.6$
5. $25.67 + 14.92$
6. $3.82 - 1.88$
7. $19 - 13.7$

8. **POPULATION** Use the table to find how many more people there are per square mile in Iowa than in Colorado.

Population Density	
State	People per Square Mile
Colorado	41.5
Iowa	52.4
Arkansas	51.3
Oklahoma	50.3

Add or subtract. Write in simplest form.

9. $\frac{2}{5} + \frac{1}{5}$
10. $\frac{5}{8} - \frac{2}{8}$

11. **COOKING** A recipe calls for $\frac{3}{4}$ cup flour and $\frac{1}{4}$ cup milk. How much more flour is needed than milk?

Add or subtract. Write in simplest form.

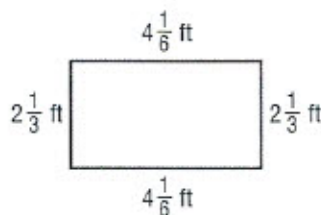
12. $\frac{5}{6} + \frac{1}{12}$
13. $\frac{15}{16} - \frac{1}{4}$
14. $\frac{11}{12} - \frac{5}{6}$
15. $\frac{9}{14} + \frac{2}{7}$

16. **HOMEWORK** On Monday, Santos spent $\frac{1}{3}$ hour studying. On Tuesday, he spent $\frac{3}{10}$ hour studying. How much more time did Santos spend studying on Monday than on Tuesday?

Add or subtract. Write in simplest form.

17. $1\frac{1}{4} + \frac{5}{12}$
18. $9\frac{7}{8} - 4\frac{1}{2}$
19. $10\frac{8}{9} - 5\frac{2}{3}$
20. $5\frac{1}{5} + 3\frac{3}{10}$

21. **MEASUREMENT** Find the perimeter of the rectangle by adding the lengths of the sides.



22. **FOOD** Cheri bought $2\frac{1}{2}$ pounds of ham and $1\frac{3}{4}$ pounds of cheese at the deli. How many pounds of ham and cheese did she buy?

Skills Practice*Multiply Decimals***Multiply.**

1. $1.4 \times 2.7 =$ _____ 2. $0.32 \times 0.3 =$ _____ 3. $9.1 \times 0.5 =$ _____

4. $0.08 \times 6.4 =$ _____ 5. $5.5 \times 8.2 =$ _____ 6. $7.16 \times 2.1 =$ _____

7. $6.06 \times 0.13 =$ _____ 8. $0.05 \times 0.5 =$ _____ 9. $3.57 \times 8.1 =$ _____

10. $5.8 \times 0.74 =$ _____ 11. $0.03 \times 4.3 =$ _____ 12. $5.2 \times 1.12 =$ _____

13. $1.7 \times 3.9 =$ _____ 14. $4.26 \times 5.6 =$ _____ 15. $6.4 \times 0.8 =$ _____

16. $1.6 \times 2.2 =$ _____ 17. $0.7 \times 4.6 =$ _____ 18. $0.75 \times 7.1 =$ _____

19. $2.4 \times 3.54 =$ _____ 20. $3.2 \times 0.05 =$ _____ 21. $0.9 \times 2.57 =$ _____

22. $0.25 \times 0.13 =$ _____ 23. $3.16 \times 8.2 =$ _____ 24. $0.8 \times 0.4 =$ _____

25. $1.4 \times 5.4 =$ _____ 26. $0.3 \times 6.7 =$ _____ 27. $0.91 \times 9.2 =$ _____

28. Alicia buys 2.5 pounds of bananas for \$1.20 per pound. How much does Alicia pay for the bananas?

29. Carlton buys 1.5 pounds of walnuts at \$1.34 per pound. How much does Carlton pay for the walnuts?

Skills Practice*Divide Decimals by Whole Numbers***Divide. Round to the nearest tenth if necessary.**

1. $6 \overline{)28.92}$

2. $4 \overline{)92.8}$

3. $7 \overline{)4.97}$

4. $15 \overline{)181.5}$

5. $12 \overline{)147.4}$

6. $19 \overline{)80.56}$

7. $3 \overline{)56.22}$

8. $6 \overline{)9.9}$

9. $4 \overline{)6.52}$

10. $12 \overline{)154.6}$

11. $15 \overline{)11.25}$

12. $14 \overline{)85.7}$

13. $11 \overline{)68.2}$

14. $13 \overline{)17.56}$

15. $16 \overline{)38.15}$

16. $6.4 \div 8 =$ _____

17. $98.7 \div 14 =$ _____

18. $76.25 \div 5 =$ _____

19. $39.23 \div 4 =$ _____

20. $9.8 \div 2 =$ _____

21. $8.54 \div 3 =$ _____

22. $117.8 \div 11 =$ _____

23. $24.3 \div 12 =$ _____

24. $59.22 \div 5 =$ _____

25. $9.9 \div 3 =$ _____

26. $6.63 \div 4 =$ _____

27. $186.2 \div 16 =$ _____

28. Esther buys a bag of 19 oranges for \$2.85. What is the cost of one orange?
_____29. William pays \$4.14 for 3 pounds of grapes. How much do the grapes cost per pound?

Reteach*Multiply Mixed Numbers*

To multiply mixed numbers, write the mixed numbers as improper fractions and then multiply numerators and multiply denominators.

Find $3\frac{1}{3} \times 3\frac{3}{4}$. Write in simplest form.

$$3\frac{1}{3} \times 3\frac{3}{4} = \frac{10}{3} \times \frac{15}{4}$$

$$\begin{array}{r} 5 \quad 5 \\ \frac{10 \times 15}{\cancel{3} \times \cancel{4}} = \frac{25}{2} \\ 1 \quad 2 \end{array}$$

$$\frac{25}{2} = 12\frac{1}{2}$$

$$\text{Estimate } 3\frac{1}{3} \times 3\frac{3}{4} \rightarrow 3 \times 4 = 12$$

Write $3\frac{1}{3}$ as $\frac{10}{3}$ and $3\frac{3}{4}$ as $\frac{15}{4}$.

Divide 10 and 4 by their GCF, 2.

Divide 15 and 3 by their GCF, 3

Simplify.

Check: $12\frac{1}{2} \approx 12 \checkmark$

$$\text{So, } 3\frac{1}{3} \times 3\frac{3}{4} = 12\frac{1}{2}.$$

Multiply. Write in simplest form.

1. $\frac{5}{6} \times 3\frac{1}{2} =$ _____

2. $\frac{1}{4} \times 9\frac{2}{5} =$ _____

3. $\frac{2}{3} \times 4\frac{1}{3} =$ _____

4. $\frac{5}{9} \times 4\frac{1}{2} =$ _____

5. $2\frac{7}{8} \times \frac{3}{4} =$ _____

6. $4\frac{1}{5} \times 4\frac{3}{8} =$ _____

7. $\frac{5}{9} \times 3\frac{1}{2} =$ _____

8. $\frac{1}{8} \times 3\frac{2}{5} =$ _____

9. $\frac{2}{5} \times 1\frac{1}{3} =$ _____

10. $\frac{5}{7} \times 4\frac{1}{7} =$ _____

11. $3\frac{7}{8} \times \frac{1}{4} =$ _____

12. $4\frac{1}{3} \times 2\frac{3}{8} =$ _____

Skills Practice*Multiply Mixed Numbers***Multiply. Write in simplest form.**

1. $1\frac{1}{2} \times \frac{3}{4} =$ _____

2. $2\frac{1}{2} \times 2\frac{3}{4} =$ _____

3. $2\frac{1}{2} \times \frac{1}{3} =$ _____

4. $4\frac{1}{2} \times 2\frac{3}{4} =$ _____

5. $2\frac{2}{3} \times \frac{1}{4} =$ _____

6. $4\frac{1}{3} \times 1\frac{2}{3} =$ _____

7. $4\frac{1}{3} \times \frac{3}{5} =$ _____

8. $2\frac{2}{3} \times 1\frac{1}{3} =$ _____

9. $\frac{3}{5} \times 4\frac{2}{3} =$ _____

10. $1\frac{3}{5} \times 3\frac{3}{4} =$ _____

11. $\frac{1}{4} \times 2\frac{1}{3} =$ _____

12. $4\frac{2}{5} \times 3\frac{1}{3} =$ _____

13. $2\frac{1}{6} \times \frac{1}{4} =$ _____

14. $1\frac{1}{6} \times 3\frac{1}{2} =$ _____

15. $3\frac{3}{4} \times \frac{3}{4} =$ _____

16. $1\frac{1}{4} \times 4\frac{2}{3} =$ _____

17. $1\frac{5}{6} \times \frac{1}{2} =$ _____

18. $\frac{4}{7} \times 2\frac{1}{3} =$ _____

19. $3\frac{5}{9} \times 1\frac{3}{4} =$ _____

20. $\frac{1}{9} \times 1\frac{1}{4} =$ _____

21. $\frac{2}{3} \times 2\frac{3}{4} =$ _____

22. $4\frac{5}{6} \times \frac{2}{4} =$ _____

23. $2\frac{3}{9} \times 1\frac{3}{8} =$ _____

24. $\frac{1}{6} \times 4\frac{1}{3} =$ _____

25. $\frac{4}{5} \times 3\frac{2}{7} =$ _____

26. $\frac{3}{10} \times 2\frac{2}{9} =$ _____

Reteach*Divide Mixed Numbers*

To divide mixed numbers, write the mixed numbers as improper fractions. Then divide as with fractions.

Find $2\frac{3}{4} \div 1\frac{3}{8}$.

Estimate $3 \div 1 = 3$

$$2\frac{3}{4} \div 1\frac{3}{8} = \frac{11}{4} \div \frac{11}{8}$$

Write mixed numbers as improper fractions.

$$= \frac{11}{4} \times \frac{8}{11}$$

Multiply by the reciprocal.

$$= \frac{\overset{1}{\cancel{11}}}{\underset{1}{4}} \times \frac{\overset{2}{\cancel{8}}}{\overset{1}{\cancel{11}}}$$

Divide 11 and 11 by the GCF, 11.

Divide 4 and 8 by the GCF, 4.

$$= \frac{2}{1} \text{ or } 2$$

Simplify.

So, $2\frac{3}{4} \div 1\frac{3}{8} = 2$.

Divide. Write in simplest form.

1. $2\frac{1}{8} \div 1\frac{1}{4} =$ _____

2. $4\frac{4}{5} \div 1\frac{1}{5} =$ _____

3. $3\frac{3}{8} \div 2\frac{1}{4} =$ _____

4. $1\frac{3}{7} \div 1\frac{1}{5} =$ _____

5. $4\frac{5}{9} \div 1\frac{3}{6} =$ _____

6. $2\frac{7}{8} \div 1\frac{2}{6} =$ _____

7. $3\frac{7}{9} \div 1\frac{1}{8} =$ _____

8. $5\frac{2}{12} \div 2\frac{1}{5} =$ _____

9. $3\frac{6}{7} \div 1\frac{1}{4} =$ _____

10. $6\frac{2}{3} \div 2\frac{1}{8} =$ _____

11. $4\frac{2}{5} \div 2\frac{2}{8} =$ _____

12. $2\frac{3}{8} \div 1\frac{2}{3} =$ _____

Skills Practice*Divide Mixed Numbers***Divide. Write in simplest form.**

1. $2\frac{3}{4} \div 1\frac{1}{2} =$ _____

2. $4\frac{1}{3} \div 2\frac{3}{4} =$ _____

3. $4\frac{6}{8} \div 2\frac{3}{4} =$ _____

4. $5\frac{1}{2} \div 1\frac{1}{5} =$ _____

5. $3\frac{5}{9} \div 1\frac{2}{3} =$ _____

6. $4\frac{1}{6} \div 2\frac{2}{6} =$ _____

7. $1\frac{7}{9} \div \frac{2}{9} =$ _____

8. $3\frac{1}{2} \div 1\frac{1}{5} =$ _____

9. $3\frac{3}{8} \div 2\frac{1}{4} =$ _____

10. $3\frac{2}{3} \div 1\frac{1}{8} =$ _____

11. $5\frac{2}{5} \div 2\frac{2}{8} =$ _____

12. $6\frac{6}{8} \div 2\frac{1}{4} =$ _____

13. $3\frac{4}{5} \div 1\frac{2}{5} =$ _____

14. $3\frac{3}{4} \div 2\frac{7}{8} =$ _____

15. $5\frac{3}{5} \div 2\frac{1}{3} =$ _____

16. $6\frac{3}{4} \div 2\frac{1}{8} =$ _____

17. $3\frac{3}{4} \div 1\frac{1}{2} =$ _____

18. $5\frac{1}{3} \div 2\frac{3}{4} =$ _____

19. $8\frac{6}{8} \div 2\frac{3}{4} =$ _____

20. $4\frac{1}{2} \div 1\frac{1}{5} =$ _____

21. $5\frac{5}{9} \div 1\frac{2}{3} =$ _____

22. $3\frac{1}{6} \div 2\frac{2}{6} =$ _____

23. $6\frac{7}{9} \div \frac{2}{9} =$ _____

24. $5\frac{1}{2} \div 1\frac{1}{5} =$ _____