# Grade 3 Chapter 12
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Teacher’s Guide to Using the
Chapter 12 Resource Masters

The Chapter 12 Resource Masters includes the core materials needed for Chapter 12. These materials include worksheets, extensions, and assessment options. The answers for these pages appear at the back of this booklet.

All of the materials found in this booklet are included for viewing and printing on the TeacherWorks Plus™ CD-ROM.

Chapter Resources

**Graphic Organizer** (page 1) This master is a tool designed to assist students with comprehension of grade-level concepts. While the content and layout of these tools vary, their goal is to assist students by providing a visual representation from which they can learn new concepts.

**Student Glossary** (page 2) This master is a study tool that presents the key vocabulary terms from the chapter. You may suggest that students highlight or star the terms they do not understand. Give this list to students before beginning Lesson 12–1. Remind them to add these pages to their mathematics study notebooks.

**Anticipation Guide** (page 6) This master is a survey designed for use before beginning the chapter. You can use this survey to highlight what students may or may not know about the concepts in the chapter. There is space for recording how well students answer the questions before they complete the chapter. You may find it helpful to interview students a second time, after completing the chapter, to determine their progress.

**Game** (page 7) A game is provided to reinforce chapter concepts and may be used at appropriate times throughout the chapter.

Resources for Computational Lessons

**Reteach** Each lesson has an associated Reteach worksheet. In general, the Reteach worksheet focuses on the same lesson content but uses a different approach, learning style, or modality than that used in the Student Edition. The Reteach worksheet closes with computational practice of the concept.

**Skills Practice** The Skills Practice worksheet for each lesson focuses on the computational aspect of the lesson. The Skills Practice worksheet may be helpful in providing additional practice of the skill taught in the lesson.

**Homework Practice** The Homework Practice worksheet provides an opportunity for additional computational practice. The Homework Practice worksheet includes word problems that address the skill taught in the lesson.

**Problem-Solving Practice** The Problem-Solving Practice worksheet presents additional reinforcement in solving word problems that apply both the concepts of the lesson and some review concepts.

**Enrich** The Enrich worksheet presents activities that extend the concepts of the lesson. Some Enrich materials are designed to widen students’ perspectives on the mathematics they are learning. These worksheets are written for use with all levels of students.

Resources for Problem-Solving Strategy and Problem-Solving Investigation Lessons

In recognition of the importance of problem-solving strategies, worksheets for problem-solving lessons follow a slightly different format. For problem-solving lessons, a two-page Reteach worksheet offers a complete model for choosing a problem-solving strategy. For each Problem-Solving Strategy lesson, Reteach and Homework Practice worksheets offer reinforcement of the strategy taught in the Student Edition lesson. In contrast, the Problem-Solving
Investigation worksheets include a model strategy on the Reteach worksheets and provide problems requiring several alternate strategies on the Homework Practice and Skills Practice worksheets.

**Assessment Options** The assessment masters in the *Chapter 12 Resource Masters* offer a wide variety of assessment tools for monitoring progress as well as final assessment.

**Individual Progress Checklist** This checklist explains the chapter’s goals or objectives. Teachers can record whether a student’s mastery of each objective is beginning (B), developing (D), or mastered (M). The checklist includes space to record notes to parents as well as other pertinent observations.

**Chapter Diagnostic Assessment** This one-page test assesses students’ grasp of skills that are needed for success in the chapter.

**Chapter Pretest** This one-page quick check of the chapter’s concepts is useful for determining pacing. Performance on the pretest can help you determine which concepts can be covered quickly and which specific concepts may need additional time.

**Mid-Chapter Review** This one-page chapter test provides an option to assess the first half of the chapter. It includes both multiple-choice and free-response questions.

**Quizzes** Three free-response quizzes offer quick assessment opportunities at appropriate intervals in the chapter.

**Vocabulary Test** This one-page test focuses on chapter vocabulary. It is suitable for all students. It includes a list of vocabulary words and questions to assess students’ knowledge of the words.

**Oral Assessment** This two-page test consists of one page for teacher directions and questions and a second page for recording responses. Although this assessment is designed to be used with all students, the interview format focuses on assessing chapter content assimilated by ELL students.

**Chapter Project Rubric** This one-page rubric is designed for use in assessing the chapter project. You may want to distribute copies of the rubric when you assign the project and use the rubric to record each student’s chapter project score.

**Foldables Rubric** This one-page rubric is designed to assess the Foldables graphic organizer. The rubric is written to the students, telling them what you will be looking for as you evaluate their completed Foldables graphic organizer.

**Leveled Chapter Tests**

- **Form 1** assesses basic chapter concepts through multiple-choice questions and is designed for use with on-level students.
- **Form 2A** is designed for on-level students and is primarily for those who may have missed the Form 1 test. It may be used as a retest for students who received additional instruction following the Form 1 test.
- **Form 2B** is designed for students with a below-level command of the English language.
- **Form 2C** is a free-response test designed for on-level students.
- **Form 2D** is written for students with a below-level command of the English language.
- **Form 3** is a free-response test written for above-level students.
- **Extended-Response Test** is an extended response test for on-level students.

**Student Recording Sheet** This one-page recording sheet is for the standardized test in the Student Edition.

**Cumulative Standardized Test Practice** This three-page test, aimed at on-level students, offers multiple-choice questions and free-response questions.

**Answers**

The answers for the Anticipation Guide and Lesson Resources are provided as reduced pages with answers appearing in black. Full size line-up answer keys are provided for the Assessment Masters.
Use this graphic organizer to take notes on **Chapter 12: Fractions**. Fill in the missing information.

<table>
<thead>
<tr>
<th>Write</th>
<th>Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{5} )</td>
<td>two-thirds</td>
</tr>
<tr>
<td>( \frac{1}{8} )</td>
<td>five-tenths</td>
</tr>
<tr>
<td>( \frac{2}{8} )</td>
<td></td>
</tr>
</tbody>
</table>
This is an alphabetical list of new vocabulary terms you will learn in **Chapter 12: Fractions**. As you study the chapter, complete each term’s definition or description. Remember to add the page number where you found the term. Add this page to your math study notebook to review vocabulary at the end of the chapter.

<table>
<thead>
<tr>
<th>Vocabulary Term</th>
<th>Found on Page</th>
<th>Definition/Description/Example</th>
</tr>
</thead>
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<td>denominator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>equivalent fractions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>fraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>is greater than (&gt;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>is less than (&lt;)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-----------------</td>
<td>-------</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>numerator</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Family,

Today my class started Chapter 12: Fractions. I will be learning to identify, read, and write fractions. I will also be learning to add and subtract fractions. Here are my vocabulary words and an activity that we can do together.

Love, ______________________

Key Vocabulary

**fraction** A number that represents part of a whole or part of a set. $\frac{1}{2}$, $\frac{3}{4}$, $\frac{5}{6}$.

**numerator** The top number in a fraction. In $\frac{1}{2}$, 1 is the numerator.

**denominator** The bottom number in a fraction. In $\frac{1}{2}$, 2 is the denominator.

**equivalent fractions** Fractions that have the same value. $\frac{1}{2}$ and $\frac{2}{4}$.

**is greater than** (> ) A symbol to show that the first number is greater than the second.

**is less than** (< ) A symbol to show that the first number is less than the second.

**Activity**

Use construction paper to cut out 4 circles. With a pencil or a marker, draw lines to divide the circle into equal parts. Divide each circle into a different amount of equal parts. After you have divided the circles, shade in as many areas as you choose on each circle. Finally, on the back side of the circle, record the fraction that represents the amount of shaded areas.

**Books to Read:**

*Fraction Fun*  
by David Adler

*The Fraction Family Moves West*  
by Marti Dryk

*Piece=Part=Portion*  
by Scott Gifford
Estimada familia:

Hoy mi clase comenzó el Capítulo 12: Las fracciones. Aprenderé a identificar, a leer y a escribir fracciones y también a sumarlas y a restarlas. A continuación, están mis palabras de vocabulario y una actividad que podemos hacer juntos.

Cariños, _____________

Vocabulario clave

**fracción** Número que representa parte de un todo o parte de un conjunto. $\frac{1}{2}, \frac{3}{4}, \frac{5}{6}$

**numerador** Número superior en una fracción. In $\frac{1}{2}$, 1 es el numerador.

**denominador** El número inferior en una fracción. In $\frac{1}{2}$, 2 es el denominador.

**fracciones equivalentes** Fracciones que tienen el mismo valor. $\frac{1}{2}$ y $\frac{2}{4}$.

**es mayor que (>)** Símbolo que muestra que el primer número es mayor que el segundo.

**es menor que (<)** Símbolo que muestra que el primer número es menor que el segundo.

Libros recomendados:

*Fraction Fun*
de David Adler

*The Fraction Family Moves West*
de Marti Dryk

*Piece=Part=Portion*
de Scott Gifford

Actividad

Usen cartulina para recortar 4 círculos. Con un lápiz o marcador, tracen rectas que dividan el círculo en partes iguales. Dívidan cada círculo en una cantidad diferente de partes iguales. Después, sombreen cuantas áreas quieran en cada círculo. Al finalizar, anoten en la parte posterior del círculo la fracción que representa la cantidad de áreas sombreadas.
**Anticipation Guide**

*Fractions*

**STEP 1**

**Before you begin Chapter 12**

- Read each statement.
- Decide whether you agree (A) or disagree (D) with the statement.
- Write A or D in the first column OR if you are not sure whether you agree or disagree, write NS (not sure).

<table>
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<tr>
<th>STEP 1</th>
<th>Statement</th>
<th>STEP 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A, D, or NS</strong></td>
<td><strong>Statement</strong></td>
<td><strong>A or D</strong></td>
</tr>
<tr>
<td>1.</td>
<td>A fraction is a number that represents part of a whole or part of a set.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>$\frac{3}{4}$ is an example of a fraction.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>The numerator is the bottom number in a fraction.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The denominator is the top number in a fraction.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>In $\frac{5}{6}$, 5 is the numerator.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>In $\frac{10}{15}$, 15 is the denominator.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Equivalent fractions are fractions that have the same value.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>$\frac{1}{2}$ and $\frac{2}{4}$ are equivalent fractions.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>$\frac{2}{3}$ and $\frac{1}{2}$ are equivalent fractions.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>All fractions are equivalent.</td>
<td></td>
</tr>
</tbody>
</table>

**STEP 2**

**After you complete Chapter 12**

- Reread each statement and complete the last column by entering an A (agree) or a D (disagree).
- Did any of your opinions about the statements change from the first column?
- For those statements that you mark with a D, use a separate sheet of paper to explain why you disagree. Use examples, if possible.
You will need:
24 index cards
Colored pencils or markers

Work with a partner and write different fractions on 12 index cards. Then on the remaining 12 cards, draw a picture to match each fraction like the cards pictured above.

1. Place the cards facedown and shuffle.
2. Trade your deck of cards with another set of partners.
3. Working with your partner, shuffle the cards given to you and arrange them facedown.
4. Take turns matching the fraction with the card that illustrates the fraction.
5. After you finish matching all of the pairs, trade the deck with another set of partners until you have played Fraction Match with two different decks of cards.
A fraction can name part of a whole. To write a fraction, each part of the whole must be the same size.

1 part shaded
4 parts in all, $\frac{1}{4}$ is shaded.

2 parts shaded
3 parts in all, $\frac{2}{3}$ is shaded.

4 unequal parts
You cannot write a fraction.

3 unequal parts
You cannot write a fraction.

Write the fraction for the part that is shaded.

1. 
   _____ parts shaded
   _____ parts in all
   fraction ______

2. 
   _____ parts shaded
   _____ parts in all
   fraction ______

3. 
   _____ parts shaded
   _____ parts in all
   fraction ______

4. 

5. 

3NS3.1
Skills Practice

Parts of a Whole

Write a fraction for the part that is shaded.

1. 

2. 

3. 

4. 

5. 

6. 

Draw a picture for each fraction. Shade the fraction.

7. \( \frac{2}{5} \)

8. \( \frac{1}{2} \)

9. \( \frac{3}{4} \)

10. \( \frac{5}{8} \)

11. \( \frac{2}{3} \)

12. \( \frac{4}{5} \)
Draw a picture for each fraction. Shade the fraction.

1. two-sixths  
2. one-seventh  
3. five-eighths  
4. $\frac{1}{5}$  
5. $\frac{2}{4}$  
6. $\frac{1}{3}$

What fraction is shaded?

7.  
8.  
9.  
10.  

Spiral Review

The tally chart shows the results of picking a name out of a hat 25 times and then replacing it each time.

<table>
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<tbody>
<tr>
<td>Outcome</td>
<td>Tally</td>
<td>Total</td>
</tr>
<tr>
<td>Ali</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Kate</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Devin</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Aisha</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

11. What name is most likely to be pulled next? Why?

   

12. What two names are equally likely to be picked? Explain.

   

Problem-Solving Practice

Parts of a Whole

Solve.

1. One half of the wall is blue and one half is yellow. What fraction shows the part of the wall that is blue?

2. A muffin is cut up into 3 equal parts. One of the parts has been eaten. What fraction of the muffin has been eaten?

3. Betty baked a meatloaf. She cut it into 5 equal slices. The family ate 3 of the slices. What fraction of the meatloaf did they eat?

4. Tom baked an apple pie and cut it into equal pieces. Tom ate one piece, which was \( \frac{1}{6} \) of the pie. How many pieces did he cut the pie into?

5. Tony’s Pizzeria cuts their 8-inch pizzas into 4 equal slices. Martelli’s Pizzeria cuts their 8-inch pizzas into 6 equal slices. Andre had a slice of pizza at both pizzerias. At which pizzeria did Andre eat more pizza? Explain.

6. A loaf of bread is cut into 8 equal slices. How much of the bread is left after 6 slices have been used for sandwiches?
Read the pizza clues and answer the questions.

1. Manuel ate 2 pieces of this pizza. He gave Marco and Sam each the same number of pieces he ate. There was one piece left. Which pizza did they eat? Name the fraction that was left.

2. Brenda divided this pizza equally among her 3 friends and herself. Each person had 3 pieces. Which pizza did they eat? Name the fraction that Brenda ate.

3. Carlos and Derek decided to share their pizza with James, Stan, and Evan. If the pizza was cut into large equal pieces and each boy ate one piece, which pizza did they eat? Name the fraction each person ate.
Choose the best strategy

Danny and Drew were playing cards. Danny had two cards in his hand that equaled 8 and the difference was 2. Drew held two cards that equaled six and the difference was 4. Do you know which cards they were holding?

Let’s start with Danny’s cards.

Understand: Danny had two cards. The sum of the cards was 8. The difference was 2. What were the cards?

Plan: Think about the different ways you can make the number 8. Think... $0 + 8 = \_\_, 1 + 7 = \_\_$. 

Solve: To arrive at 8, we can add lots of numbers, but if the difference between the two addends is two, Danny must have a 3 and a 5 in his hand. $5 + 3 = 8$, and $5 - 3 = 2$.

Check: Look back at the problem. $5 + 3 = 8$, and $5 - 3 = 2$. The difference is 2. We are correct.

Using the same strategy, we can see that Drew is holding a 1 and a 5.
Problem-Solving Investigation  (continued)

Solve.

<table>
<thead>
<tr>
<th>Items</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>$1.25 per lb</td>
</tr>
<tr>
<td>Bananas</td>
<td>$0.75 per lb</td>
</tr>
<tr>
<td>Oranges</td>
<td>3 for $1</td>
</tr>
<tr>
<td>Pears</td>
<td>$1.49 per lb</td>
</tr>
</tbody>
</table>

1. Teresa went to the store to buy some fruit. She spent $5 and bought apples, bananas, and 3 oranges. She didn’t buy any pears. What did Teresa buy? __________

2. Dana bought some fruit, too. She spent less than $3 and didn’t buy any bananas or oranges. What did she buy? __________

<table>
<thead>
<tr>
<th>Boat Rentals</th>
</tr>
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<tbody>
<tr>
<td>1–3 hours $3 per hour</td>
</tr>
<tr>
<td>4–6 hours $2 per hour</td>
</tr>
<tr>
<td>All day $15</td>
</tr>
</tbody>
</table>

3. Use the table above. Carmen and Bernice rented a boat from 9 A.M. to 2 P.M. How much did it cost? __________

4. Fernando’s lunch totaled $5.65. He gave the waitress a ten dollar bill. How much change did he receive? __________

5. Would you rather find six dimes, four nickels, and eight pennies in the couch or eight nickels, two quarters, and three pennies? __________

6. Dana loves to go to the community pool. Admission is $2 per day. She likes to buy a snack while she’s there. She usually buys a bag of chips for 65 cents, and a soda for 95 cents. If Dana goes to the pool five days a week, how much does she spend? __________
Skills Practice

Problem-Solving Investigation

For Exercises 1-3, use the table below to solve.

<table>
<thead>
<tr>
<th></th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walk dog</td>
<td>Al</td>
<td>Juan</td>
<td>Carla</td>
<td>Al</td>
<td>Juan</td>
</tr>
<tr>
<td>Set table</td>
<td>Juan</td>
<td>Carla</td>
<td>Al</td>
<td>Juan</td>
<td>Carla</td>
</tr>
<tr>
<td>Feed fish</td>
<td>Carla</td>
<td>Al</td>
<td>Juan</td>
<td>Carla</td>
<td>Al</td>
</tr>
</tbody>
</table>

1. Who will walk the dog on Tuesday and Friday?

2. Who will feed the fish on Monday and Wednesday?

3. Janice, Pat, and Madison each have a pet. One has fish. One has a cat, and the other has a bird. Pat and Madison have pets that do not live underwater. Madison’s pet can fly. Who has the cat?

4. It took 55 minutes for the hairdresser to cut Laura’s hair. If Laura left the hairdresser’s shop at 2:30 P.M., what time did the hairdresser begin?

5. Flowers cost $12 for 12 or $0.75 each. How much money can you save by buying 12 flowers individually?

6. Carla’s mom drives her to school and back home every day. The trip is 8 miles roundtrip. How many miles do Carla and her mom travel in one week?
Problem Solving Investigation

Use any strategy shown below to solve.

- look for a pattern
- make a table
- draw a picture
- guess and check
- work backward

1. Marisela walks to and from school each day. It takes her 13 minutes to walk to school. How much time does Marisela spend walking to and from school each week?

2. There are two numbers whose sum is 9 and the difference is five. What are the two numbers?

3. Paul has 4 red crayons, 2 blue crayons, and 15 green crayons in a bag. Which crayon color is he likely to pick?

4. A round trip ticket to Dallas costs $325. A one-way ticket costs $89. How much money can be saved by buying two one-way tickets instead of 1 round trip ticket?

Spiral Review

Draw a picture for each fraction. Shade the fraction. (Lesson 12–1)

5. \( \frac{3}{4} \)
6. \( \frac{1}{3} \)
7. \( \frac{2}{3} \)
8. \( \frac{4}{7} \)
9. \( \frac{3}{5} \)
10. \( \frac{7}{8} \)
Enrich

Problem-Solving Investigation

Shade what comes next. Write a rule beneath the pattern.

1. Rule: _____

2. Rule: _____

3. Rule: _____

Complete each pattern. Write the rule beneath.

4. $1 \frac{2}{4}, 1 \frac{1}{4}, 1, \frac{3}{4}, \ldots$  
   Rule: _____

5. $\frac{1}{10}, \frac{4}{10}, \frac{7}{10}, \ldots, 1 \frac{3}{10}$  
   Rule: _____

6. Create your own pattern using both a drawing and numerical fractions. Tell what the rule is.
Find Equivalent Fractions

Equivalent fractions are different fractions that name the same amount.

\[
\frac{3}{4} \quad \rightarrow \quad \frac{1}{4} \quad \rightarrow \quad \frac{1}{4} \quad \rightarrow \quad \frac{1}{4}
\]

\[
\frac{6}{8} \quad \rightarrow \quad \frac{1}{8} \quad \rightarrow \quad \frac{1}{8} \quad \rightarrow \quad \frac{1}{8} \quad \rightarrow \quad \frac{1}{8} \quad \rightarrow \quad \frac{1}{8} \quad \rightarrow \quad \frac{1}{8}
\]

\[
\frac{9}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12} \quad \rightarrow \quad \frac{1}{12}
\]

\[\frac{3}{4}, \quad \frac{6}{8}, \quad \text{and} \quad \frac{9}{12}\] are equivalent fractions.

Complete each number sentence to find equivalent fractions.

1. \[\frac{1}{2} = \frac{\square}{4}\]
2. \[\frac{1}{3} = \frac{\square}{6}\]
3. \[\frac{2}{5} = \frac{\square}{10}\]
4. \[\frac{1}{4} = \frac{\square}{8}\]
5. \[\frac{3}{4} = \frac{\square}{8}\]
6. \[\frac{3}{6} = \frac{\square}{12}\]
7. \[\frac{3}{12} = \frac{\square}{4}\]
8. \[\frac{1}{2} = \frac{\square}{12}\]
9. \[\frac{4}{5} = \frac{\square}{10}\]
10. \[\frac{2}{8} = \frac{\square}{4}\]
11. \[\frac{8}{12} = \frac{\square}{3}\]
Skills Practice
Find Equivalent Fractions

Complete each number sentence to find equivalent fractions.

1. \[
\frac{2}{8} = \frac{}{}
\]

2. \[
\frac{3}{9} = \frac{}{}
\]

3. \[
\frac{5}{10} = \frac{}{}
\]

Write another fraction that names each fraction.

4. \[
\frac{1}{3} \quad \frac{2}{6}
\]

5. \[
\frac{3}{8} \quad \frac{6}{16}
\]

6. \[
\frac{2}{5} \quad \frac{4}{10}
\]

7. \[
\frac{4}{8} \quad \frac{2}{4}
\]

8. \[
\frac{1}{6} \quad \frac{2}{12}
\]

9. \[
\frac{4}{12} \quad \frac{2}{3}
\]

10. \[
\frac{2}{10} \quad \frac{1}{5}
\]

11. \[
\frac{3}{5} \quad \frac{6}{10}
\]

12. \[
\frac{3}{6} \quad \frac{1}{2}
\]

13. \[
\frac{2}{8} \quad \frac{1}{4}
\]

14. \[
\frac{4}{5} \quad \frac{8}{10}
\]

15. \[
\frac{6}{8} \quad \frac{3}{4}
\]
12–3

Homework Practice

Find Equivalent Fractions

Draw an equivalent fraction for the following fractions.

1. \(\frac{3}{6}\)  
2. \(\frac{2}{8}\)  
3. \(\frac{3}{9}\)  
4. \(\frac{2}{4}\)  
5. \(\frac{5}{10}\)  
6. \(\frac{6}{8}\)

Write another fraction that names each fraction. Sample answers are given.

7. two-sixths _____  
8. eight-tenths _____

9. four-eighths _____  
10. six-ninths _____

Solve.

11. Fred offered three-fourths of the pizza or nine-twelfths of the pizza. Did he offer equal portions? _____

12. Alfonso needed help mowing the lawn. Danny offered to mow one-fourth and Hector offered to mow one-sixth. Who offered to mow \(\frac{2}{8}\) of the lawn? ________________

Spiral Review

Use any strategy to solve. (Lesson 12-2)

13. Gregoria needs to be to school by 8:15. It takes her 20 minutes to walk and about 30 minutes to get ready in the morning. What time should Gregoria wake up each morning? _____

14. There are two numbers whose sum is 10 and the difference is 2. What is the number? _____

15. Augusto’s school supplies totaled $11.82. He gave the clerk three five-dollar bills. How much change did he receive? _____

16. Ramon has four brothers; two older and two younger. They are each two years apart. If Ramon is nine, how old is his oldest brother? ___________________________
Problem-Solving Practice

Find Equivalent Fractions

Solve.

1. Lenny colored $\frac{1}{2}$ of his picture. What is another fraction that tells the part of the picture he colored?

2. A painter has painted $\frac{2}{8}$ of a ceiling. What is an equivalent fraction for this?

3. Phillip has a box that is divided into 4 equal sections. He fills 2 of the sections with sand. Write two equivalent fractions that tell how much of the box is filled.

4. A granola bar is cut into 3 equal parts. Grace eats one part. Write two equivalent fractions that tell how much of the bar she ate.

5. A circular tablecloth has 8 equal sections. Two sections are white, two are red, two are blue, and two are black. What part of the tablecloth is not white?

6. A spinner is divided into 6 equal sections. The sections are numbered in order from 1 through 6. What part of the spinner has even numbers on it?

7. Dennis finished half of his homework. Christine finished one third of her homework. Have they completed the same amount of work?

8. Olivia drank half a cup of milk. Her brother drank $\frac{5}{10}$ of a cup of milk. Did they drink the same amount?
Find Equivalent Fractions

Equivalent fractions are those that name the same amount.

Shade the amount shown next to each block. Write yes if the two fractions are equivalent and no if they are not.

1. \( \frac{1}{2} \) and \( \frac{6}{12} \)

2. \( \frac{2}{5} \) and \( \frac{3}{6} \)

3. \( \frac{1}{4} \) and \( \frac{2}{8} \)

4. \( \frac{2}{3} \) and \( \frac{4}{9} \)
Reteach

Problem-Solving Strategy

Draw a Picture

An amusement park has 4 roller coasters. Each roller coaster has 6 cars. Each car has 2 wheels. How many wheels are there in all?

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Make sure that you understand the problem.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand</td>
<td>• What do you know?</td>
</tr>
<tr>
<td></td>
<td>An amusement park has _____ roller coasters.</td>
</tr>
<tr>
<td></td>
<td>Each roller coaster has _____ cars.</td>
</tr>
<tr>
<td></td>
<td>Each car has _____ wheels.</td>
</tr>
<tr>
<td></td>
<td>• What do you need to find?</td>
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<tr>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>Figure out a plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan</td>
<td>You can draw a picture to show what you know and what you need to find out.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Carry out your plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve</td>
<td>Draw 4 roller coasters.</td>
</tr>
<tr>
<td></td>
<td>Draw 6 cars on each roller coaster.</td>
</tr>
<tr>
<td></td>
<td>Draw 2 wheels on each car.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Count the number of wheels.</td>
</tr>
<tr>
<td></td>
<td>There are _____ wheels.</td>
</tr>
</tbody>
</table>

3MR1.1, 3NS3.1
Draw a Picture

<table>
<thead>
<tr>
<th>Step 4</th>
<th>Is the solution reasonable?</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How can you use your picture to check your answer?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Solve. Use the **draw a picture** strategy.

1. There are 3 rows of 5 mini pizzas on a tray. Each mini pizza has 2 pepper slices on it. How many pepper slices are there in all?

2. Reshma baked 3 batches of banana bread. Each batch had 4 loaves. Each loaf had 12 nuts in it. How many nuts did Reshma use in all?

3. The quesadilla was cut into six pieces. Christina ate one third, Luis ate one third, and Mario ate one piece. How many pieces were left?

4. The pencil cup needed to be cleaned out. There were 25 pencils in the cup. 12 were broken, 5 didn’t have any erasers, and the rest were able to be sharpened and used. How many pencils were put back in the cup?
12–4
Skills Practice
Problem-Solving Strategy

Solve. Use the **draw a picture** strategy.

1. A minibus has 5 rows of seats. Each row has 2 seats. How many people can travel in 5 minibuses?

2. Alicia made 3 bead bracelets. She put 4 different types of beads on each bracelet. She used 2 beads of each type. How many beads did she use?

3. Eric works on his homework for 2 hours a day. He does his homework 4 days a week. How much time does he spend on his homework in 4 weeks?

4. A muffin pan holds 6 muffins. Leilani uses 2 pans for each batch of muffins. How many muffins does she make in 4 batches?

5. There are eight pieces of fruit in the bowl. There are 2 bananas, 2 apples, and the rest are kiwi. How many kiwi are in the bowl of fruit?

6. There are three students in line. Carrie is behind Ernesto and in front of Roger. In what order are the students standing in line?

Use any strategy to solve.

7. Darin got home at 8:00 P.M. He was traveling for 1 hour and 15 minutes. At what time did he start traveling?

8. Karen spent $325 for a plane ticket and $190 on a rental car. How much money did she spend altogether?
Solve. Use the **draw a picture** strategy.

1. Lorena opened up her top drawer. She had twelve pairs of socks in the drawer. Three pairs were patterned, six were colored, and the rest were white. How many pairs of socks were white?

2. Rafael was sorting his two dozen model cars. He had 8 red cars, 5 green vans, 6 pickup trucks, and the rest were one of a kind cars. How many one of a kind cars did Rafael have?

3. Five cats are sitting on the fence. The black cat is second. The orange cat is next to the grey cat, and the striped cat is on the end. If the grey cat is fourth, where is the white cat?

4. Dora took a dozen crackers out of the oven. Kenny ate three and Marcos ate five. How many are left?

5. There are six pairs of shoes in the closet. There is one pair of sneakers, two pairs of flip flops, and one pair of dress shoes. The rest do not fit. How many pairs of shoes do not fit?

6. Watson is 3 miles directly south of Panera. Caribou is 2 miles directly west of Watson. Wells is 3 miles directly north of Panera. Is that possible? Explain.

**Spiral Review**

Complete each number sentence to find equivalent fractions. (Lesson 12-3)

7. \( \frac{3}{4} = \quad \frac{12}{\underline{16}} \)

8. \( \frac{1}{8} = \quad \frac{\underline{16}}{16} \)

9. \( \frac{2}{5} = \quad \frac{\underline{10}}{10} \)

10. \( \frac{5}{7} = \quad \frac{\underline{21}}{21} \)

11. \( \frac{\underline{6}}{4} = \quad \frac{6}{6} \)

12. \( \frac{\underline{32}}{32} = \quad \frac{2}{16} \)

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Solve the problems about the fraction patterns. Follow the directions for coloring the triangles. Colors should not overlap.

Color $\frac{1}{2}$ of the triangles red. Color $\frac{1}{4}$ of the triangles blue. The remainder of the triangles should be white.

1. What fraction describes how many triangles are red or white?

Color $\frac{1}{6}$ of the triangles orange. Color $\frac{1}{2}$ of the triangles yellow. The remainder of the triangles should be green.

2. What fraction describes how many triangles are green?

3. Could each of these patterns be colored with equal parts of blue, green, purple, and red? Why or why not?

4. Which pattern could be colored with 12 different colors and have the same number triangles of each color?
Reteach

Compare Fractions

You can use fraction strips to compare fractions.

\[ \frac{1}{8} \text{ is less than } \frac{3}{8} \]

\[ \frac{1}{8} < \frac{3}{8} \]

\[ \frac{5}{6} \text{ is greater than } \frac{1}{2} \]

\[ \frac{5}{6} > \frac{1}{2} \]

You can use a number line to tell if a fraction is closer to 0 or 1.

\[ \frac{1}{8} \text{ is closer to 0.} \]

\[ \frac{3}{4} \text{ is closer to 1.} \]

Compare. Write >, <, or =.

1. \[ \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{3} \]
   \[ \frac{2}{6} \quad \frac{1}{3} \]

2. \[ \frac{1}{2} \quad \frac{1}{5} \]
   \[ \frac{1}{2} \quad \frac{1}{5} \]

3. \[ \frac{4}{8} \quad \frac{7}{8} \]

4. \[ \frac{1}{4} \quad \frac{1}{8} \]

5. \[ \frac{3}{4} \quad \frac{1}{2} \]

6. \[ \frac{3}{8} \quad \frac{1}{4} \]
Skills Practice

Compare Fractions

Compare. Write >, <, or =.

1. \[ \frac{1}{6} \bigcirc \frac{3}{6} \]

2. \[ \frac{4}{8} \bigcirc \frac{1}{2} \]

3. \[ \frac{1}{5} \bigcirc \frac{3}{10} \]

4. \[ \frac{3}{4} \bigcirc \frac{1}{2} \]

5. \[ \frac{2}{4} \bigcirc \frac{3}{6} \]

6. \[ \frac{7}{10} \bigcirc \frac{2}{5} \]

7. \[ \frac{1}{4} \bigcirc \frac{3}{4} \]

8. \[ \frac{2}{6} \bigcirc \frac{1}{6} \]

9. \[ \frac{3}{5} \bigcirc \frac{6}{10} \]

10. \[ \frac{3}{3} \bigcirc \frac{1}{6} \]

11. \[ \frac{3}{8} \bigcirc \frac{1}{2} \]

12. \[ \frac{5}{10} \bigcirc \frac{1}{2} \]

13. \[ \frac{2}{3} \bigcirc \frac{3}{6} \]

14. \[ \frac{3}{10} \bigcirc \frac{1}{5} \]

15. \[ \frac{5}{10} \bigcirc \frac{7}{10} \]

16. \[ \frac{2}{6} \bigcirc \frac{6}{12} \]

17. \[ \frac{2}{8} \bigcirc \frac{1}{4} \]

18. \[ \frac{2}{3} \bigcirc \frac{3}{4} \]

19. \[ \frac{1}{5} \bigcirc \frac{1}{6} \]

20. \[ \frac{5}{8} \bigcirc \frac{3}{8} \]

21. \[ \frac{4}{5} \bigcirc \frac{1}{5} \]

22. \[ \frac{6}{8} \bigcirc \frac{7}{8} \]
12–5
Homework Practice

Compare Fractions

Compare. Write >, <, or =. Use fraction strips, a number line, or a drawing if needed.

1. $\frac{1}{2}$ $\bigcirc$ $\frac{3}{4}$
2. $\frac{3}{5}$ $\bigcirc$ $\frac{2}{5}$
3. $\frac{1}{6}$ $\bigcirc$ $\frac{2}{6}$
4. $\frac{1}{4}$ $\bigcirc$ $\frac{1}{8}$
5. $\frac{2}{6}$ $\bigcirc$ $\frac{1}{4}$
6. $\frac{3}{8}$ $\bigcirc$ $\frac{1}{4}$
7. $\frac{2}{5}$ $\bigcirc$ $\frac{7}{8}$
8. $\frac{2}{8}$ $\bigcirc$ $\frac{2}{3}$
9. $\frac{2}{3}$ $\bigcirc$ $\frac{3}{8}$
10. $\frac{1}{3}$ $\bigcirc$ $\frac{2}{6}$
11. $\frac{3}{7}$ $\bigcirc$ $\frac{2}{5}$
12. $\frac{3}{4}$ $\bigcirc$ $\frac{5}{8}$
13. $\frac{1}{2}$ $\bigcirc$ $\frac{1}{3}$
14. $\frac{1}{4}$ $\bigcirc$ $\frac{2}{8}$

Solve.

15. Callie ate $\frac{3}{4}$ of a cup of dog food and Spirit ate $\frac{7}{8}$ of a cup of cat food. Who ate more? ______

16. Alonso finished $\frac{2}{3}$ of his homework before dinner and Ana finished $\frac{5}{6}$. Who has less homework to finish after dinner? ______

Spiral Review

Solve. Use the draw a picture strategy. (Lesson 12–4)

17. Carolina walked west one block, south one block, east one block, and south one block. Did she make a complete square? ______

18. Six lunch boxes sat on the ledge. Half were plain, and the rest had cartoon characters on them. How many were plain? ____________

19. There were twelve flowers in the vase. Three were red, four were orange, and the rest were yellow. How many yellow flowers were in the vase? ________________

20. There were 15 houses on the block. Eight of them hung the flag out to fly. Did more than half the houses fly the flag? ______
1. Pete and Sal share a bag of chips. Pete eats $\frac{1}{4}$ of the chips and Sal eats $\frac{3}{4}$ of the chips. Who eats more?

2. If $\frac{2}{5}$ of the class are boys and $\frac{3}{5}$ are girls, are there more boys or girls?

3. It takes $\frac{3}{4}$ of an hour for Randy to walk from home to school. It takes $\frac{1}{2}$ hour for him to walk from home to the mall. Does Randy live closer to school or to the mall?

4. Alice has finished $\frac{2}{3}$ of her homework. Sam has finished $\frac{1}{2}$ of his homework. Who has more homework left to do, Alice or Sam?

5. In a recipe for fruit salad, Marta adds $\frac{1}{2}$ pound of apples, $\frac{3}{4}$ pound of grapes, and $\frac{1}{3}$ pound of cherries. Which fruit did she use the most?

6. Jack and Sandra each have $100 in savings. Jack spent $\frac{1}{2}$ of his savings on a new coat and $\frac{3}{8}$ of the savings on a new pair of sneakers. Sandra spent $\frac{2}{5}$ of her savings on a new coat. Who spent more money on a coat?

7. Two loaves of bread are the same size. One is cut into 8 pieces. The other is cut into 10 pieces. Which has the largest pieces?

8. Which weighs more: $\frac{1}{3}$ lb of lead or $\frac{1}{2}$ lb of feathers?
Enrich

Fraction Riddles

Here’s a reminder: the numerator is how many equal parts are used
the denominator is how many total equal parts.

Use the chart to answer the riddles.

<table>
<thead>
<tr>
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<th>1/1</th>
<th>1/3</th>
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<tbody>
<tr>
<td>1/6</td>
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</tbody>
</table>

1. I am a fraction that is equal to \( \frac{1}{6} \). What am I? ______
2. I am the greater of these two: \( \frac{2}{3} \) or \( \frac{2}{4} \). What fraction am I? ______
3. I may seem greater but I am the lesser of these
two: \( \frac{1}{2} \) and \( \frac{1}{12} \). What am I? ______
4. I am greater than \( \frac{1}{2} \). There is a one in my numerator. What am I? ______
5. I am slightly less than \( \frac{3}{4} \). There is a 6 in my denominator.
   What am I? ______
6. I am less than \( \frac{1}{2} \). I have a 5 in my numerator. What am I? ______
7. There are three other fractions that are equal to me. They are \( \frac{3}{6} \), \( \frac{2}{4} \), and \( \frac{6}{12} \). What am I? ______
8. Explain why your answer to Riddle 7 has three fractions that are equal to itself.

______________________________
Reteach

Add Like Fractions

You can use fraction models to add fractions.

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

\[
\begin{array}{c}
\frac{1}{6} & \frac{1}{6} & \frac{1}{6} \\
\frac{1}{6} & \frac{1}{6}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{6} & \frac{1}{6}
\end{array}
\]

\[
\frac{3}{6} + \frac{2}{6} = \frac{5}{6}
\]

Add.

1. \[
\begin{array}{c}
\frac{1}{4} & \frac{1}{4} & \frac{1}{4}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{4}
\end{array}
\]

\[
\frac{1}{4} + \frac{2}{4} = \frac{3}{4}
\]

2. \[
\begin{array}{c}
\frac{1}{8} & \frac{1}{8} & \frac{1}{8} & \frac{1}{8}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{8} & \frac{1}{8}
\end{array}
\]

\[
\frac{1}{8} + \frac{4}{8} = \frac{5}{8}
\]

3. \[
\begin{array}{c}
\frac{1}{6} & \frac{1}{6} & \frac{1}{6} & \frac{1}{6} & \frac{1}{6}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{6}
\end{array}
\]

\[
\frac{1}{6} + \frac{4}{6} = \frac{5}{6}
\]

4. \[
\begin{array}{c}
\frac{1}{12} & \frac{1}{12} & \frac{1}{12}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{12} & \frac{1}{12} & \frac{1}{12}
\end{array}
\]

\[
\frac{2}{12} + \frac{3}{12} = \frac{5}{12}
\]

5. \[
\begin{array}{c}
\frac{1}{3}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{3}
\end{array}
\]

\[
\frac{1}{3} + \frac{1}{3} = \frac{2}{3}
\]

6. \[
\begin{array}{c}
\frac{1}{10} & \frac{1}{10} & \frac{1}{10}
\end{array}
\quad + \quad
\begin{array}{c}
\frac{1}{10} & \frac{1}{10} & \frac{1}{10} & \frac{1}{10}
\end{array}
\]

\[
\frac{3}{10} + \frac{4}{10} = \frac{7}{10}
\]

Add. Use fraction strips if needed.

7. \[
\frac{1}{8} + \frac{6}{8} = \frac{7}{8}
\]

8. \[
\frac{1}{7} + \frac{4}{7} = \frac{5}{7}
\]

9. \[
\frac{5}{12} + \frac{4}{12} = \frac{9}{12}
\]

10. \[
\frac{1}{5} + \frac{2}{5} = \frac{3}{5}
\]

11. \[
\frac{1}{4} + \frac{3}{4} = \frac{4}{4}
\]

12. \[
\frac{2}{9} + \frac{3}{9} = \frac{5}{9}
\]
Add Like Fractions

Add.

1. \( \frac{1}{4} + \frac{2}{4} = \) _____

2. \( \frac{2}{6} + \frac{3}{6} = \) _____

3. \( \frac{3}{8} + \frac{2}{8} = \) _____

4. \( \frac{1}{12} + \frac{4}{12} = \) _____

5. \( \frac{2}{10} + \frac{7}{10} = \) _____

6. \( \frac{3}{5} + \frac{1}{5} = \) _____

Add. Use fraction strips if needed.

7. \( \frac{2}{5} + \frac{2}{5} = \) _____

8. \( \frac{3}{12} + \frac{4}{12} = \) _____

9. \( \frac{1}{3} + \frac{1}{3} = \) _____

10. \( \frac{6}{8} + \frac{1}{8} = \) _____

11. \( \frac{1}{8} + \frac{2}{8} = \) _____

12. \( \frac{1}{5} + \frac{1}{5} = \) _____

13. \( \frac{1}{6} + \frac{4}{6} = \) _____

14. \( \frac{2}{9} + \frac{2}{9} = \) _____

15. \( \frac{2}{10} + \frac{5}{10} = \) _____

16. \( \frac{3}{6} + \frac{2}{6} = \) _____

17. \( \frac{2}{10} + \frac{7}{10} = \) _____

18. \( \frac{3}{5} + \frac{1}{5} = \) _____

19. \( \frac{1}{4} + \frac{1}{4} = \) _____

20. \( \frac{2}{5} + \frac{3}{5} = \) _____
Add Like Fractions

Add. Use fraction strips if needed.

1. \( \frac{1}{7} + \frac{5}{7} \) _____
2. \( \frac{1}{5} + \frac{3}{5} \) _____
3. \( \frac{1}{3} + \frac{1}{3} \) _____
4. \( \frac{2}{4} + \frac{1}{4} \) _____
5. \( \frac{1}{4} + \frac{1}{4} \) _____
6. \( \frac{2}{6} + \frac{2}{6} \) _____
7. \( \frac{1}{8} + \frac{1}{8} \) _____
8. \( \frac{3}{10} + \frac{2}{10} \) _____
9. \( \frac{2}{8} + \frac{6}{8} \) _____
10. \( \frac{4}{9} + \frac{3}{9} \) _____
11. \( \frac{3}{4} + \frac{1}{4} \) _____
12. \( \frac{7}{11} + \frac{3}{11} \) _____

Solve.

13. Dan walked \( \frac{3}{10} \) of a mile then ran \( \frac{5}{10} \) of a mile. How far did he go?

14. A recipe calls for \( \frac{3}{4} \) of a cup white sugar and \( \frac{1}{4} \) of a cup dark brown sugar. How much sugar will be used for the recipe?

15. Manuel has soccer practice 3 days a week and baseball practice 2 days a week. What fraction of the week does Manuel have practice?

Spiral Review

Compare. Write <, >, = . (Lesson 12-5)

16. \( \frac{2}{4} \bigcirc \frac{1}{3} \)
17. \( \frac{3}{10} \bigcirc \frac{3}{11} \)
18. \( \frac{4}{9} \bigcirc \frac{3}{10} \)
19. \( \frac{3}{5} \bigcirc \frac{3}{4} \)
20. \( \frac{1}{4} \bigcirc \frac{3}{9} \)
21. \( \frac{1}{8} \bigcirc \frac{1}{7} \)
Problem-Solving Practice
Add Like Fractions

Solve. Use fraction models if needed.

1. Kitty the cat ate \( \frac{1}{6} \) of her food in the morning and \( \frac{2}{6} \) in the afternoon. How much of her food did Kitty eat so far?

2. A plant grew \( \frac{1}{5} \) of an inch during the first week and \( \frac{3}{5} \) of an inch the next week. How much did the plant grow in the two weeks?

3. A model car storage box is divided into 8 equal sections. \( \frac{3}{8} \) of the sections have model sports cars and \( \frac{2}{8} \) have model trucks. The rest of the box is empty. What fraction of the box is filled so far?

4. Of the dozen eggs in a box, \( \frac{4}{12} \) have been colored pink and \( \frac{3}{12} \) have been colored blue. The other eggs have not been colored. What fraction of the eggs have been colored?

5. Ricky paints \( \frac{1}{8} \) of his room on Monday, \( \frac{3}{8} \) on Tuesday, and \( \frac{2}{8} \) on Wednesday. What fraction of his room did Ricky paint by the end of the day on Wednesday?

6. There are 12 apples in a bag. Everett eats \( \frac{1}{6} \) of them and Lilly eats \( \frac{2}{6} \) of them. What fraction of the apples have been eaten so far?

How many apples are left in the bag?
Add and Color the Fractions

Solve each addition problem. Then use the answer key to color the drawing.

**Answer Key**

- $\frac{6}{9} = \text{yellow}$
- $\frac{8}{9} = \text{orange}$
- $\frac{5}{7} = \text{light blue}$
- $\frac{3}{4} = \text{blue-green}$
- $\frac{3}{3} = \text{green}$
- $\frac{5}{6} = \text{red}$
- $\frac{2}{8} = \text{gray}$
- $\frac{4}{5} = \text{dark blue}$
Reteach
Subtract Like Fractions

You can use fraction models to subtract fractions.

Find $\frac{7}{10} - \frac{6}{10}$.

Subtract.

1. $\frac{6}{8} - \frac{3}{8} = \underline{\phantom{0}}$

2. $\frac{10}{12} - \frac{3}{12} = \underline{\phantom{0}}$

3. $\frac{5}{6} - \frac{4}{6} = \underline{\phantom{0}}$

4. $\frac{8}{9} - \frac{6}{9} = \underline{\phantom{0}}$

5. $\frac{7}{10} - \frac{4}{10} = \underline{\phantom{0}}$

6. $\frac{9}{12} - \frac{2}{12} = \underline{\phantom{0}}$

Subtract. Use fraction strips if needed.

7. $\frac{5}{7} - \frac{3}{7} = \underline{\phantom{0}}$

8. $\frac{8}{11} - \frac{4}{11} = \underline{\phantom{0}}$

9. $\frac{3}{4} - \frac{1}{4} = \underline{\phantom{0}}$

10. $\frac{4}{5} - \frac{4}{5} = \underline{\phantom{0}}$
Skills Practice

Subtract Like Fractions

Subtract.

1. \( \frac{3}{4} - \frac{2}{4} = \) ____________

\[
\begin{array}{ccc}
\frac{1}{4} & \frac{1}{4} & \frac{1}{4}
\end{array}
\]

2. \( \frac{5}{12} - \frac{4}{12} = \) ____________

\[
\begin{array}{cccc}
\frac{1}{12} & \frac{1}{12} & \frac{1}{12} & \frac{1}{12}
\end{array}
\]

3. \( \frac{7}{8} - \frac{2}{8} = \) ____________

\[
\begin{array}{cccc}
\frac{1}{8} & \frac{1}{8} & \frac{1}{8} & \frac{1}{8}
\end{array}
\]

4. \( \frac{7}{9} - \frac{3}{9} = \) ____________

\[
\begin{array}{cccc}
\frac{1}{9} & \frac{1}{9} & \frac{1}{9} & \frac{1}{9}
\end{array}
\]

5. \( \frac{7}{10} - \frac{4}{10} = \) ____________

\[
\begin{array}{cccc}
\frac{1}{10} & \frac{1}{10} & \frac{1}{10} & \frac{1}{10}
\end{array}
\]

6. \( \frac{4}{5} - \frac{2}{5} = \) ____________

\[
\begin{array}{cccc}
\frac{1}{5} & \frac{1}{5} & \frac{1}{5} & \frac{1}{5}
\end{array}
\]

Subtract. Use fraction strips if needed.

7. \( \frac{5}{7} - \frac{2}{7} = \) ____________

8. \( \frac{6}{8} - \frac{1}{8} = \) ____________

9. \( \frac{7}{12} - \frac{2}{12} = \) ____________

10. \( \frac{9}{10} - \frac{8}{10} = \) ____________

11. \( \frac{4}{5} - \frac{1}{5} = \) ____________

12. \( \frac{10}{12} - \frac{3}{12} = \) ____________

13. \( \frac{6}{8} - \frac{3}{8} = \) ____________

14. \( \frac{2}{3} - \frac{1}{3} = \) ____________

15. \( \frac{8}{9} - \frac{3}{9} = \) ____________

16. \( \frac{6}{8} - \frac{5}{8} = \) ____________

17. \( \frac{3}{7} - \frac{1}{7} = \) ____________

18. \( \frac{9}{10} - \frac{2}{10} = \) ____________

19. \( \frac{3}{12} - \frac{2}{12} = \) ____________

20. \( \frac{5}{8} - \frac{2}{8} = \) ____________

21. \( \frac{8}{10} - \frac{5}{10} = \) ____________

22. \( \frac{4}{9} - \frac{2}{9} = \) ____________
Subtract Like Fractions

Subtract. Use fraction strips if needed.

1. \( \frac{3}{4} - \frac{2}{4} = \) _____
2. \( \frac{4}{6} - \frac{1}{6} = \) _____
3. \( \frac{4}{5} - \frac{3}{5} = \) _____
4. \( \frac{6}{7} - \frac{5}{7} = \) _____
5. \( 1 - \frac{1}{2} = \) _____
6. \( \frac{6}{6} - \frac{4}{6} = \) _____
7. \( \frac{8}{9} - \frac{4}{9} = \) _____
8. \( \frac{7}{8} - \frac{5}{8} = \) _____
9. \( \frac{8}{11} - \frac{4}{11} = \) _____
10. \( \frac{9}{10} - \frac{4}{10} = \) _____
11. \( 1 - \frac{1}{4} = \) _____
12. \( \frac{2}{3} - \frac{1}{3} = \) _____

Solve.

13. The bathtub is filled up \( \frac{5}{6} \) of the way. After Tom gives the dog a bath, it’s filled \( \frac{3}{6} \) of the way. How much water did the dog splash out of the tub?

14. There were a dozen ice pops in the box. Juan ate \( \frac{2}{12} \) of the box. How much was left?

15. The gallon of milk was \( \frac{3}{4} \) full. Rosa drank \( \frac{2}{4} \) of the gallon. How much was left?

Spiral Review

Add. Use fraction models if needed. (Lesson 12-6)

16. \( \frac{3}{12} + \frac{3}{12} = \) _____
17. \( \frac{4}{10} + \frac{5}{10} = \) _____
18. \( \frac{2}{8} + \frac{5}{8} = \) _____
19. \( \frac{1}{2} + \frac{1}{2} = \) _____
20. \( \frac{5}{7} + \frac{1}{7} = \) _____
21. \( \frac{1}{3} + \frac{2}{3} = \) _____
**Problem-Solving Practice**

*Subtract Like Fractions*

**Solve.**

1. Lorrie found $\frac{3}{4}$ of an apple pie in the refrigerator. She ate $\frac{2}{4}$ of the pie. What fraction of the pie was left?

   $\frac{1}{4}$ of the pie

2. There is $\frac{7}{8}$ of a quart of milk in a bottle. Brianne pours $\frac{2}{8}$ of a quart of milk into a glass. How much milk is left in the bottle?

   $\frac{1}{8}$ of a quart

3. A box of crayons fell on the floor. If $\frac{7}{12}$ of the crayons fell out, what fraction of the crayons are still in the box?

   $\frac{5}{12}$ are still in the box

4. Alex ran $\frac{8}{12}$ of a mile. Rhea ran $\frac{5}{12}$ of a mile. How much farther did Alex run than Rhea?

   $\frac{3}{12}$ of a mile farther

5. Ben found $\frac{7}{10}$ of a pound of flour in the pantry. He needed to use $\frac{3}{10}$ of a pound of flour for bread that he was baking. His mom said that she needed $\frac{3}{10}$ of a pound of flour for dinner. After Ben and his mom use the flour, how much will be left in the bag?

   $\frac{1}{5}$ of a pound

6. Mea baked a peach pie and an apple pie. At the end of the day, $\frac{7}{8}$ of the peach pie was left and $\frac{3}{8}$ of the apple pie was left. How much more peach pie was left than apple pie?

   $\frac{4}{8}$ of a pie
Choose fractions with like denominators to solve the problems. Make each sentence a true subtraction sentence. You will need to use some of the fractions more than once.

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>3/5</td>
<td>2/8</td>
<td>1/4</td>
<td>2/12</td>
<td>6/12</td>
</tr>
<tr>
<td>3/9</td>
<td>7/8</td>
<td>4/12</td>
<td>4/5</td>
<td>1/5</td>
</tr>
</tbody>
</table>

1. _____ – _____ = 5/12
2. _____ – 1/4 = _____
3. 6/9 – _____ = _____
4. 3/4 – _____ = 2/4
5. _____ – _____ = 3/12
6. 6/6 – _____ = 4/6
7. _____ – 5/8 = 1/8
8. _____ – 1/5 = _____
9. _____ – _____ = 2/5
10. 4/8 – _____ = _____

How did you go about solving the problems?

________________________________________________________________________

________________________________________________________________________

What do you notice about the numerator and the denominator when you subtract fractions with like denominators?
# Individual Progress Checklist

<table>
<thead>
<tr>
<th>B</th>
<th>D</th>
<th>M</th>
<th>Goal</th>
<th>Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>identify, read, and write fractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>find equivalent fractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>compare fractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>add and subtract fractions</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>use skills and strategies to solve problems</td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

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---
Write the number of parts. Then tell whether each figure shows equal or not equal parts.

1.  

2.  

3.  

4.  

5.  

Add or subtract.

6. $1 + 6 = \square$

7. $7 - 5 = \square$

8. $9 - 3 = \square$

9. $9 + 5 = \square$

10. There are nine pieces of pineapple in Karen's lunch. She eats 6 pieces. How many pieces are there now?

10. _______________
Write the fraction for the part that is shaded.

1. 2/3

2. 1/2

Complete each number sentence to find equivalent fractions.

3. \(\frac{2}{4} = \frac{2}{2}\)

4. \(\frac{?}{12} = \frac{1}{3}\)

5. \(\frac{6}{10} = \frac{?}{5}\)

6. \(\frac{?}{8} = \frac{3}{4}\)

Compare the fractions. Write >, <, or =.

7. \(\frac{1}{2} \bigcirc \frac{6}{12}\)

8. \(\frac{2}{5} \bigcirc \frac{3}{10}\)

9. \(\frac{1}{3} \bigcirc \frac{4}{6}\)

10. \(\frac{7}{8} \bigcirc \frac{3}{4}\)

Add or subtract.

11. \(\frac{1}{9} + \frac{6}{9}\)

12. \(\frac{4}{5} - \frac{1}{5}\)

13. \(\frac{2}{11} + \frac{7}{11}\)

14. \(\frac{9}{10} - \frac{5}{10}\)
Write the fraction for the shaded part.

1. 

2. 

3. 

Solve.

4. Four students are standing in a line. Alice is ahead of Ken. David is behind Ken. Alice is behind Nan. In what order are the students standing?

5. There are some pencils on a desk. One-fourth are red. Draw a picture to show one-fourth.

6. Three-fourths of the bananas are green. Draw a picture to show three-fourths.
Complete each number sentence to find equivalent fractions.

1. \( \frac{1}{2} = \_ \)
2. \( \frac{2}{3} = \_ \)
3. \( \frac{4}{5} = \_ \)
4. \( \frac{3}{6} = \_ \)

Write another fraction that names each fraction.

5. Three-fourths
6. Two-thirds
7. Two-sixths

Solve.

<table>
<thead>
<tr>
<th>Item</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BBQ sandwich</td>
<td>$4.99</td>
</tr>
<tr>
<td>Chicken wrap</td>
<td>$3.99</td>
</tr>
<tr>
<td>Fruit salad</td>
<td>$2.79</td>
</tr>
<tr>
<td>Spinach salad</td>
<td>$2.59</td>
</tr>
<tr>
<td>Sweet potato fries</td>
<td>$1.39</td>
</tr>
<tr>
<td>Carrot cake</td>
<td>$1.89</td>
</tr>
</tbody>
</table>

8. Jorge took his mom out to lunch. They ordered two BBQ sandwiches, one order of fries, and a piece of carrot cake. How much did they spend?

9. Juanita and her mom ordered two spinach salads and one order of fruit. They paid with a $10-bill. How much change did they receive?
Write $T$ for true, $F$ for false.

1. When comparing fractions, the more pieces an object or set is divided into, the larger the denominator.  
   1. __________

2. If two fractions have the same denominator, but the numerators are different, then the larger numerator is the larger piece.  
   2. __________

3. If you are adding fractions, you add the numerator and the denominator straight across.  
   3. __________

4. If you are subtracting fractions and the denominators are different, you only subtract the numerators.  
   4. __________

5. Subtracting fractions is like adding fractions. When you subtract fractions you subtract the denominators.  
   5. __________

6. When you compare fractions, you should be sure the wholes or groups are the same size.  
   6. __________

Solve.

7. Tommy ate $\frac{3}{8}$ of the cake while Brendan ate $\frac{1}{4}$ of the cake. Who ate more cake?  
   7. __________

8. Juanita made a big pitcher of lemonade. She gave Jim $\frac{1}{3}$ of the pitcher and Teresa $\frac{1}{6}$ of the pitcher. How much was left?  
   8. __________
Mid-Chapter Review (Lessons 12-1 through 12-5)

Choose the best answer.

1. The top number of a fraction is called the
   A. numerator  B. denominator  C. equivalent  D. greater number  1. _____________

2. The bottom number of a fraction is called the
   F. numerator  G. denominator  H. equivalent  J. lesser number  2. _____________

3. An equivalent fraction for $\frac{2}{3}$ could be
   A. $\frac{1}{3}$  B. $\frac{4}{5}$  C. $\frac{4}{6}$  D. $\frac{6}{8}$  3. _____________

4. An equivalent fraction for $\frac{1}{2}$ could be
   F. $\frac{1}{4}$  G. $\frac{7}{8}$  H. $\frac{4}{8}$  J. $\frac{3}{5}$  4. _____________

5. There are 24 students in the class. Half of them have brown eyes, and 14 of them have brown hair. How many students in the class do not have brown hair?  5. _____________

6. There are 36 bows in a package. Eight are green, 5 are purple, 6 are red, 3 are silver, and the rest are gold. How many gold bows are there in the bag?  6. _____________

7. There are 22 students in Miss Jones’ class. She would like to reward them for their hard work with a pizza party. Each pizza has 8 slices, and each student may have two pieces. How many pizzas will she need to order?  7. _____________

8. Apples are 75 cents and bananas are 50 cents. How many bananas and apples can Pedro buy with exactly $2?  8. _____________
Match each word to its definition. Write your answers on the lines provided.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. fraction</td>
<td>A. A symbol to show that the first number is less than the second.</td>
</tr>
<tr>
<td>2. numerator</td>
<td>B. The bottom number in a fraction.</td>
</tr>
<tr>
<td>3. denominator</td>
<td>C. A number that represents part of a whole or part of a set.</td>
</tr>
<tr>
<td>4. equivalent fractions</td>
<td>D. The top number in a fraction.</td>
</tr>
<tr>
<td>5. is greater than (&gt; )</td>
<td>E. Fractions that have the same value.</td>
</tr>
<tr>
<td>6. is less than (&lt; )</td>
<td>F. A symbol to show that the first number is greater than the second.</td>
</tr>
</tbody>
</table>
Use construction paper to draw a pizza pie with 8 individual slices. Cut out each individual slice and then place the pizza pie on a plate.

Read each question aloud to the student. Then write the student’s answers on the lines below the question.

1. Take 2 slices of pizza away, how many pieces are left?

2. What fraction represents how many slices of pizza were taken away?

3. What is an equivalent form of that fraction?

4. Tell how you got your answer.

5. Take 5 slices of pizza away from the full pie. How many slices are left?

6. What fraction represents how many slices of pizza were taken away?

7. What is an equivalent form of that fraction?
8. Explain your answer.

________________________________________________________________________

9. Samantha counts 100 vehicles in a parking lot. What number in the chart represents the amount of mini-vans? _____

<table>
<thead>
<tr>
<th>Parking Lot Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
</tr>
<tr>
<td>cars</td>
</tr>
<tr>
<td>mini-vans</td>
</tr>
<tr>
<td>trucks</td>
</tr>
</tbody>
</table>

10. What is the fraction for that amount in simplest form?

________________________________________________________________________

11. What number represents the amount of trucks?

________________________________________________________________________

12. What is the fraction form for that amount in simplest form?

________________________________________________________________________

13. Tell how you got your answer.

________________________________________________________________________
# Chapter Project Rubric

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| **3** | Student successfully completed the chapter project.  
Student demonstrated appropriate use of chapter information in completing the chapter project. |
| **2** | Student completed the chapter project with partial success.  
Student partially demonstrated appropriate use of chapter information in completing the chapter project. |
| **1** | Student did not complete the chapter project or completed it with little success.  
Student demonstrated very little appropriate use of chapter information in completing the chapter project. |
| **0** | Student did not complete the chapter project.  
Student demonstrated inappropriate use of chapter information in completing the chapter project. |
## Foldables Rubric

### Fractions

**Layered Look Foldables**

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| **3** | Student properly assembled Foldables graphic organizer according to instructions.  
Student recorded information related to the chapter in the manner directed by the Foldables graphic organizer.  
Student used the Foldables graphic organizer as a study guide and organizational tool. |
| **2** | Student exhibited partial understanding of proper Foldables graphic organizer assembly.  
Student recorded most but not all information related to the chapter in the manner directed by the Foldables graphic organizer.  
Student demonstrated partial use of the Foldables graphic organizer as a study guide and organizational tool. |
| **1** | Student showed little understanding of proper Foldables graphic organizer assembly.  
Student recorded only some information related to the chapter in the manner directed by the Foldables graphic organizer.  
Student demonstrated little use of the Foldables graphic organizer as a study guide and organizational tool. |
| **0** | Student did not assemble Foldables graphic organizer according to instructions.  
Student recorded little or no information related to the chapter in the manner directed by the Foldables graphic organizer.  
Student did not use the Foldables graphic organizer as a study guide and organizational tool. |
Chapter Test, Form 1

Read each question carefully. Write your answer on the line provided.

Write the fraction for the part that is shaded.

1. [Diagram with three shaded parts out of five]
   - A. \( \frac{2}{3} \)
   - B. \( \frac{3}{4} \)
   - C. \( \frac{2}{5} \)
   - D. \( \frac{3}{5} \)
   - 1. _____

2. [Diagram of a circle divided into four parts, with one part shaded]
   - F. \( \frac{1}{5} \)
   - G. \( \frac{1}{4} \)
   - H. \( \frac{1}{3} \)
   - J. \( \frac{1}{2} \)
   - 2. _____

3. [Diagram of a grid with three shaded parts out of four]
   - A. \( \frac{3}{4} \)
   - B. \( \frac{3}{5} \)
   - C. \( \frac{5}{8} \)
   - D. \( \frac{7}{8} \)
   - 3. _____

4. Which shows three fourths?
   - F. [Diagram with three shaded parts out of four]
   - G. [Diagram with all parts shaded]
   - H. [Diagram of a circle divided into two parts, with one part shaded]
   - J. [Diagram of a triangle divided into three parts, with one part shaded]
   - 4. _____

5. Which fraction is equivalent to \( \frac{1}{2} \)?
   - A. \( \frac{1}{4} \)
   - B. \( \frac{3}{6} \)
   - C. \( \frac{2}{3} \)
   - D. \( \frac{5}{8} \)
   - 5. _____

6. Which fraction is equivalent to \( \frac{1}{4} \)?
   - F. \( \frac{2}{4} \)
   - G. \( \frac{2}{6} \)
   - H. \( \frac{2}{8} \)
   - J. \( \frac{2}{10} \)
   - 6. _____

7. Which fraction is equivalent to \( \frac{1}{3} \)?
   - A. \( \frac{1}{2} \)
   - B. \( \frac{1}{4} \)
   - C. \( \frac{3}{5} \)
   - D. \( \frac{2}{6} \)
   - 7. _____

Compare. Write >, <, or =.

8. \( \frac{2}{4} \) _____ \( \frac{1}{2} \)
   - F. >
   - G. <
   - H. =
   - 8. _____

Grade 3
Chapter Test, Form 1  (continued)

9. \( \frac{5}{8} \) \( \bigcirc \) \( \frac{7}{8} \)
   A. >  B. <  C. =

9. _____

10. \( \frac{3}{8} \) \( \bigcirc \) \( \frac{3}{4} \)
    F. >  G. <  H. =

10. _____

11. Find the missing number.
    \( \frac{6}{8} - \square = \frac{3}{8} \)
    A. 5  B. 4  C. 3  D. 2

11. _____

12. \( \frac{1}{3} + \frac{1}{3} = \)
    F. \( \frac{2}{6} \)  G. \( \frac{2}{3} \)  H. \( \frac{1}{3} \)  J. \( \frac{1}{6} \)

12. _____

13. \( \frac{5}{8} - \frac{3}{8} = \)
    A. \( \frac{6}{8} \)  B. \( \frac{7}{8} \)  C. \( \frac{2}{8} \)  D. 1

13. _____

Solve.

14. There are 4 oranges and 6 tangerines in a basket. Which fraction describes the part of the basket that is oranges?
    F. \( \frac{4}{6} \)  G. \( \frac{4}{10} \)  H. \( \frac{6}{10} \)  J. \( \frac{10}{12} \)

14. _____

15. Juanita bought some lemons. She used \( \frac{2}{3} \) of them to make lemonade. What fraction of the lemons did not get used?
    A. \( \frac{3}{3} \)  B. \( \frac{2}{2} \)  C. \( \frac{1}{3} \)  D. \( \frac{1}{2} \)

15. _____

16. Robyn had some apples. She ate \( \frac{3}{8} \) of them. What fraction of the apples was not eaten?
    F. \( \frac{3}{8} \)  G. \( \frac{4}{8} \)  H. \( \frac{5}{8} \)  J. \( \frac{6}{8} \)

16. _____
Read each question carefully. Write your answer on the line provided.

Write the fraction for the part that is shaded.

1. [Diagram]
   A. $\frac{1}{3}$   B. $\frac{2}{3}$   C. $\frac{1}{5}$   D. $\frac{2}{5}$   1. _____

2. [Diagram]
   F. $\frac{8}{3}$   G. $\frac{8}{5}$   H. $\frac{3}{8}$   J. $\frac{5}{8}$   2. _____

3. [Diagram]
   A. $\frac{2}{3}$   B. $\frac{3}{1}$   C. $\frac{3}{4}$   D. $\frac{1}{4}$   3. _____

4. Which shows one-third?

5. Which fraction is equivalent to $\frac{1}{5}$?
   A. $\frac{1}{10}$   B. $\frac{2}{5}$   C. $\frac{2}{12}$   D. $\frac{2}{10}$   5. _____

6. Which fraction is equivalent to $\frac{2}{3}$?
   F. $\frac{4}{6}$   G. $\frac{3}{4}$   H. $\frac{3}{6}$   J. $\frac{4}{5}$   6. _____

7. Which fraction is equivalent to $\frac{3}{4}$?
   A. $\frac{4}{8}$   B. $\frac{6}{8}$   C. $\frac{4}{6}$   D. $\frac{5}{6}$   7. _____
Compare. Write >, <, or =.

8. \( \frac{3}{5} \) \( \bigcirc \) \( \frac{2}{5} \)
   F. \( > \)  G. \( < \)  H. \( = \)  8. ______

9. \( \frac{3}{6} \) \( \bigcirc \) \( \frac{1}{2} \)
   A. \( > \)  B. \( < \)  C. \( = \)  9. ______

10. \( \frac{5}{7} \) \( \bigcirc \) \( \frac{5}{6} \)
    F. \( > \)  G. \( < \)  H. \( = \)  10. ______

11. Find the missing number.
    \( \frac{5}{7} - \square = \frac{3}{7} \)
    A. 4  B. 3  C. 2  D. 1  11. ______

12. \( \frac{1}{5} + \frac{1}{5} = \)
    F. \( \frac{2}{10} \)  G. \( \frac{2}{5} \)  H. \( \frac{1}{5} \)  J. \( \frac{1}{10} \)  12. ______

13. \( \frac{4}{6} - \frac{2}{6} = \)
    A. \( \frac{5}{6} \)  B. \( \frac{2}{6} \)  C. \( \frac{3}{6} \)  D. 1  13. ______

Solve.
14. Last week it was sunny for 2 days and rainy for 5 days. Which fraction describes the part of the week that was sunny?
   F. \( \frac{2}{7} \)  G. \( \frac{2}{5} \)  H. \( \frac{5}{7} \)  J. 1  14. ______

15. Aaron’s science quiz has 10 questions. He answers 8 of the questions correctly. What fraction of the questions did Aaron answer correctly?
   A. \( \frac{5}{10} \)  B. \( \frac{6}{10} \)  C. \( \frac{7}{10} \)  D. \( \frac{8}{10} \)  15. ______

16. There are some players on Sarah’s softball team. \( \frac{1}{4} \) missed yesterday’s practice. What fraction of the team did not miss practice?
   F. \( \frac{1}{4} \)  G. \( \frac{2}{4} \)  H. \( \frac{3}{4} \)  J. \( \frac{4}{4} \)  16. ______
Chapter Test, Form 2B

Read each question carefully. Write your answer on the line provided.

Write the fraction for the shaded part.

1. [Diagram of shaded part]
   - A. $\frac{2}{3}$
   - B. $\frac{3}{4}$
   - C. $\frac{1}{4}$
   1. _____

2. [Diagram of shaded part]
   - F. $\frac{8}{5}$
   - G. $\frac{3}{8}$
   - H. $\frac{5}{8}$
   2. _____

3. [Diagram of shaded part]
   - A. $\frac{1}{3}$
   - B. $\frac{2}{3}$
   - C. $\frac{3}{3}$
   3. _____

4. Which shows one fourth?
   - F.
   - G.
   - H.
   4. _____

5. Which fraction equals $\frac{3}{4}$?
   - A. $\frac{4}{8}$
   - B. $\frac{6}{8}$
   - C. $\frac{4}{6}$
   5. _____

6. Which fraction equals $\frac{1}{5}$?
   - F. $\frac{1}{10}$
   - G. $\frac{2}{5}$
   - H. $\frac{2}{10}$
   6. _____

7. Which fraction equals $\frac{2}{3}$?
   - A. $\frac{4}{6}$
   - B. $\frac{3}{6}$
   - C. $\frac{4}{5}$
   7. _____
Compare. Write $>$, $<$, or $=$.

8. \[ \frac{3}{6} \quad \circ \quad \frac{1}{2} \]
   - F. $>$
   - G. $<$
   - H. $=$

9. \[ \frac{5}{7} \quad \circ \quad \frac{5}{6} \]
   - A. $>$
   - B. $<$
   - C. $=$

10. \[ \frac{3}{5} \quad \circ \quad \frac{2}{5} \]
    - F. $>$
    - G. $<$
    - H. $=$

11. \[ \frac{1}{5} + \frac{1}{5} = \]
   - A. $\frac{2}{5}$
   - B. $\frac{2}{10}$
   - C. $\frac{1}{10}$

12. Find the missing number.
   \[ \frac{5}{7} - \square = \frac{3}{7} \]
   - F. $3$
   - G. $2$
   - H. $1$

13. \[ \frac{4}{6} - \frac{2}{6} = \]
   - A. $\frac{5}{6}$
   - B. $\frac{2}{6}$
   - C. $1$

Solve.

14. Last week, it was sunny for 2 days and rainy for 5 days. Which fraction shows the number of sunny days?
   - F. $\frac{2}{7}$
   - G. $\frac{2}{5}$
   - H. $\frac{5}{7}$

15. There are some players on a softball team. $\frac{1}{4}$ missed practice. What fraction of the team went to practice?
   - A. $\frac{1}{4}$
   - B. $\frac{2}{4}$
   - C. $\frac{3}{4}$

16. A quiz has some questions. Aaron gets $\frac{4}{5}$ of the questions right. What fraction of the quiz did he answer incorrectly?
   - F. $\frac{3}{5}$
   - G. $\frac{2}{5}$
   - H. $\frac{1}{5}$

Chapter 12
Read each question carefully. Write your answer on the line provided.

Write the fraction for the shaded part.

1. \[
\begin{array}{c}
\text{\includegraphics[width=0.5in]{fraction-1.png}}
\end{array}
\]

2. \[
\begin{array}{c}
\text{\includegraphics[width=0.5in]{fraction-2.png}}
\end{array}
\]

3. \[
\begin{array}{c}
\text{\includegraphics[width=0.5in]{fraction-3.png}}
\end{array}
\]

4. Write a fraction that is equivalent to \( \frac{3}{4} \).

5. Write a fraction that is equivalent to \( \frac{2}{3} \).

6. Write a fraction that is equivalent to \( \frac{1}{5} \).

Compare. Write \( > \), \( < \), or \( = \).

7. \( \frac{3}{5} \) \( \bigcirc \) \( \frac{2}{5} \)

8. \( \frac{5}{7} \) \( \bigcirc \) \( \frac{5}{6} \)

9. \( \frac{3}{6} \) \( \bigcirc \) \( \frac{1}{2} \)
10. Order from **greatest** to **least**.

\[
\frac{3}{8}, \frac{7}{8}, \frac{5}{8}
\]

11. \[\frac{2}{6} + \frac{4}{6} = \]

12. \[\frac{1}{2} \text{ of } 8\]

13. \[\frac{1}{5} + \frac{1}{5} = \]

14. \[\frac{8}{10} - \frac{5}{10} = \]

15. Find the value of the missing number.

\[
\frac{5}{7} - \square = \frac{3}{7}
\]

16. \[\frac{2}{3} \text{ of } 6\]

---

**Solve.**

17. Deena’s family orders a pizza for dinner. Deena eats \(\frac{1}{4}\) of the pizza. Write a fraction to describe the part of the pizza that is left.

18. Aaron’s science quiz has some questions. He answers \(\frac{4}{5}\) of the questions correctly. What fraction of the quiz did Aaron answer incorrectly?

19. Sarah and Jenna play softball. Their team had 12 practices. Sarah missed \(\frac{1}{4}\) of the practices. Jenna missed 4 practices. Who missed more practices, Sarah or Jenna?

20. Last week it was sunny for 2 days and rainy for 5 days. Write a fraction to describe the part of the week that was sunny.
Read each question carefully. Write your answer on the line provided.

Write a fraction for the shaded part.

1. [Diagram of 4 equal parts, 3 shaded]
2. [Diagram of 3 equal parts, 1 shaded]
3. [Diagram of 8 equal parts, 3 shaded]
4. Write a fraction that equals \( \frac{5}{6} \).
5. Write a fraction that equals \( \frac{1}{3} \).
6. Write a fraction that equals \( \frac{3}{5} \).

Compare. Write >, <, or =.

7. \( \frac{3}{5} \) \( \frac{1}{5} \)
8. \( \frac{3}{6} \) \( \frac{1}{3} \)
9. \( \frac{5}{8} \) \( \frac{5}{6} \)

10. Order from greatest to least.
    \( \frac{5}{6} \) \( \frac{1}{6} \) \( \frac{4}{6} \)
11. Find the missing number.

\[
\frac{5}{7} - \square = \frac{3}{7}
\]

12. \(\frac{1}{2}\) of 8

13. \(\frac{8}{10} - \frac{5}{10} = \)

14. \(\frac{2}{3}\) of 6

15. \(\frac{1}{5} + \frac{1}{5} = \)

16. \(\frac{2}{6} + \frac{4}{6} = \)

17. Last week, it was sunny for 2 days and rainy for 5 days. Write a fraction to show the sunny part of the week.

18. Deena eats \(\frac{1}{4}\) of a pizza. Write a fraction to show the part of the pizza that is left.

A quiz has 10 questions. Use this information for questions 19 and 20.

19. Aaron gets \(\frac{4}{5}\) of the questions right. How many questions did Aaron get right?

20. Sarah got \(\frac{2}{5}\) of the questions wrong. Jenna got 6 questions wrong. Who got more questions wrong, Sarah or Jenna?
Chapter Test, Form 3

Read each question carefully. Write your answer on the line provided.

Write a fraction to represent the shaded part.

1.

2.

3. What fraction of the letters in the word *banana* are vowels?

Add.

4. Write a fraction that is equivalent to \( \frac{3}{5} \).

5. Write a fraction that is equivalent to \( \frac{6}{9} \).

6. Write a fraction that is equivalent to \( \frac{7}{10} \).

Compare. Write >, <, or =.

7. \( \frac{10}{11} \) \( \bigcirc \) \( \frac{8}{11} \)

8. \( \frac{3}{8} \) \( \bigcirc \) \( \frac{3}{7} \)

9. \( \frac{3}{9} \) \( \bigcirc \) \( \frac{1}{3} \)
10. Arrange the fractions from greatest to least.
\[
\frac{1}{2}, \frac{6}{8}, \frac{1}{4}
\]

11. \[\frac{6}{7} + \frac{1}{7} = \]

12. \[\frac{1}{4} \text{ of 8} \]

13. \[\frac{3}{10} + \frac{3}{10} = \]

14. \[\frac{7}{19} - \frac{2}{19} = \]

15. Determine the value of the missing number.
\[
\frac{\square}{6} - \frac{4}{6} = \frac{2}{6}
\]

16. \[\frac{3}{5} \text{ of 10} \]

17. Nadia and her sister Grace share a pizza. After each sister eats \(\frac{1}{8}\) of the pizza, they put the rest in the refrigerator to save for later. Write a fraction to describe the part of the pizza that Nadia and Grace put in the refrigerator.

18. Alyssa’s math quiz has 10 questions. She answered \(\frac{4}{5}\) of the questions correctly. If Alyssa earned 2 points for every correct answer, how many points did she earn?

19. Julia is packing a suitcase for a trip. She fills \(\frac{1}{6}\) of the suitcase with pants, \(\frac{2}{6}\) with shirts, and \(\frac{1}{6}\) with sweaters. What fraction of Julia’s suitcase is not filled with pants, shirts, or sweaters?

20. Francisco bakes a pan of muffins for the class bake sale. He leaves them in the kitchen to cool overnight. When he checks on the muffins in the morning, only \(\frac{5}{8}\) of the muffins are left! What fraction of Francisco’s muffins were eaten?
Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem. If necessary, record your answer on another piece of paper.

1. What is a fraction? Provide a figure to show how you write a fraction to describe the shaded part of a whole.

2. There are 10 questions on the pop quiz. Julio finished 4 of them and Patrice finished 3 of them. What fraction of the test do they each still have to do?
   
   a. What is a numerator? What are the numerators of the fractions in the problem above?
   
   b. What is a denominator? What are the denominators of the fractions in the problem above?

3. Explain what equivalent fractions are. Provide an example of equivalent fractions and then draw a figure that proves that those fractions are equivalent.

4. Explain the draw a picture method to solve a word problem and provide an example of how to use the strategy.
Use this recording sheet with pages 546–547 of the Student Edition.

Read each question. Then fill in the correct answer.

1. A B C D

2. F G H J

3. A B C D

4. F G H J

5. A B C D

6. F G H J

7. A B C D

8. F G H J

9. A B C D

10. F G H J
Test Example

A box is divided into sixths. Reynaldo fills \( \frac{1}{6} \) of the container with raisins, \( \frac{2}{6} \) with peanuts, and \( \frac{2}{6} \) with pretzels. What fraction of the box is empty?

A. \( \frac{1}{6} \)  
B. \( \frac{2}{6} \)  
C. \( \frac{4}{6} \)  
D. \( \frac{5}{6} \)

Read the Question

You need to find the fraction of the box that is empty.

Solve the Question

Step 1

Draw a picture to help you understand the question.

Step 2

Add the fractions of the raisins, peanuts, and pretzels.

\[
\frac{1}{6} + \frac{2}{6} + \frac{2}{6} = \frac{5}{6}
\]

Step 3

So, \( \frac{1}{6} \) of the box is empty.

The answer is A.

Read each question carefully. Write your answer on the line provided.

1. If \( \frac{1}{3} \) of a fruit tart has been eaten, what fraction of the tart has not been eaten?

A. \( \frac{1}{3} \)  
B. \( \frac{2}{3} \)  
C. \( \frac{4}{3} \)  
D. \( \frac{1}{4} \)
2. Fiona cut up a piece of paper into 10 equal rectangles. She colored $\frac{1}{2}$ of the rectangles. How many rectangles are shaded?

F. 2  G. 3  H. 4  J. 5  2. ______

3. Which fraction represents the same part of the whole as $\frac{3}{12}$?

A. $\frac{1}{2}$  B. $\frac{1}{3}$  C. $\frac{1}{4}$  D. $\frac{1}{5}$  3. ______

4. Ellen has $70. She spends $34 on books and school supplies. How much does she have left?

F. $46$  G. $40$  H. $36$  J. $24$  4. ______

5. A living room carpet has a width of 5 feet and a length of 8 feet. What is the perimeter of the rug?

A. 26 feet  B. 28 feet  C. 30 feet  D. 32 feet  5. ______

6. There are 1,000 meters in 1 kilometer. How many meters are in 8 kilometers?

F. 1,000 meters  G. 2,000 meters  H. 8,000 meters  J. 800 meters  6. ______

7. What is the fraction for the part that is shaded?

A. $\frac{1}{5}$  B. $\frac{2}{5}$  C. $\frac{3}{5}$  D. $\frac{4}{5}$  7. ______

8. If $4 \times 5 \times 6 = 120$, then what is $5 \times 6 \times 4$?

F. 500  G. 320  H. 200  J. 120  8. ______

9. An elephant weighs 16,784 pounds. What is the weight rounded to the nearest hundred?

A. 16,000  B. 16,800  C. 17,000  D. 17,800  9. ______
10. What number makes this number sentence true?

\[ 14 + 4 = ? \times 9 \]

F. 1  G. 2  H. 3  J. 4  10. _____

Write an equivalent fraction.

11. \( \frac{2}{7} \)  11. _____

12. \( \frac{1}{8} \)  12. _____

13. \( \frac{5}{12} \)  13. _____

Add or subtract.

14. \( \frac{4}{9} - \frac{1}{9} \)  14. _____

15. \( \frac{4}{7} + \frac{1}{7} \)  15. _____

16. \( \frac{9}{10} - \frac{8}{10} \)  16. _____

17. \( \frac{1}{3} + \frac{1}{3} \)  17. _____

Solve.

18. There are 20 questions on the science test. Julio finished 18 of them. What fraction of the test does he still have to do? 18. _____

19. A pizza is cut into 8 slices. If Veronica ate 2 slices and Leonard ate 3 slices, what fraction of the pizza did they eat in all? 19. _____

20. A recipe for fruit salad calls for \( \frac{1}{3} \) cup of diced apples. How many cups would you need if you doubled the recipe? 20. _____
**Anticipation Guide**

**Fractions**

**STEP 1** Before you begin Chapter 12

- Read each statement.
- Decide whether you agree (A) or disagree (D) with the statement.
- Write A or D in the first column OR if you are not sure whether you agree or disagree, write NS (not sure).

<table>
<thead>
<tr>
<th>Write</th>
<th>Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{1}{5} )</td>
<td>one-fifth</td>
</tr>
<tr>
<td>( \frac{2}{3} )</td>
<td>two-thirds</td>
</tr>
<tr>
<td>( \frac{1}{8} )</td>
<td>one-eighth</td>
</tr>
<tr>
<td>( \frac{5}{10} )</td>
<td>five-tenths</td>
</tr>
<tr>
<td>( \frac{2}{8} )</td>
<td>two-eights</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A, D, or NS</th>
<th>Statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1. A fraction is a number that represents part of a whole or part of a set.</td>
</tr>
<tr>
<td>A</td>
<td>2. ( \frac{3}{4} ) is an example of a fraction.</td>
</tr>
<tr>
<td>D</td>
<td>3. The numerator is the bottom number in a fraction.</td>
</tr>
<tr>
<td>A</td>
<td>4. The denominator is the top number in a fraction.</td>
</tr>
<tr>
<td>A</td>
<td>5. In ( \frac{3}{5} ), 5 is the numerator.</td>
</tr>
<tr>
<td>A</td>
<td>6. In ( \frac{10}{15} ), 15 is the denominator.</td>
</tr>
<tr>
<td>A</td>
<td>7. Equivalent fractions are fractions that have the same value.</td>
</tr>
<tr>
<td>A</td>
<td>8. ( \frac{1}{2} ) and ( \frac{2}{4} ) are equivalent fractions.</td>
</tr>
<tr>
<td>D</td>
<td>9. ( \frac{2}{3} ) and ( \frac{1}{2} ) are equivalent fractions.</td>
</tr>
<tr>
<td>D</td>
<td>10. All fractions are equivalent.</td>
</tr>
</tbody>
</table>

**STEP 2** After you complete Chapter 12

- Reread each statement and complete the last column by entering an A (agree) or a D (disagree).
- Did any of your opinions about the statements change from the first column?
- For those statements that you mark with a D, use a separate sheet of paper to explain why you disagree. Use examples, if possible.
A fraction can name part of a whole. To write a fraction, each part of the whole much be the same size.

1 part shaded
4 parts in all, \( \frac{1}{4} \) is shaded.

2 parts shaded
3 parts in all, \( \frac{2}{3} \) is shaded.

4 unequal parts
You cannot write a fraction.

3 unequal parts
You cannot write a fraction.

Write the fraction for the part that is shaded.

1. \( \frac{1}{4} \) parts shaded
   \( \frac{4}{4} \) parts in all
   \( \frac{1}{4} \) fraction

2. \( \frac{3}{4} \) parts shaded
   \( \frac{4}{4} \) parts in all
   \( \frac{3}{4} \) fraction

3. \( \frac{2}{5} \) parts shaded
   \( \frac{5}{5} \) parts in all
   \( \frac{2}{5} \) fraction

4. \( \frac{2}{3} \)

5. \( \frac{5}{8} \)

Draw a picture for each fraction. Shade the fraction. 7–12. Sample drawings shown.

7. \( \frac{2}{5} \)

8. \( \frac{1}{2} \)

9. \( \frac{3}{4} \)

10. \( \frac{5}{8} \)

11. \( \frac{2}{3} \)

12. \( \frac{4}{5} \)
**Homework Practice**

**Parts of a Whole**

Draw a picture for each fraction. Shade the fraction.

1. two-sixths
2. one-seventh
3. five-eighths
4. \( \frac{1}{5} \)
5. \( \frac{2}{4} \)
6. \( \frac{1}{3} \)

Check students' work.

What fraction is shaded?

7. \( \frac{5}{8} \)
8. \( \frac{1}{4} \)
9. \( \frac{2}{3} \)
10. \( \frac{2}{5} \)

**Spiral Review**

The tally chart shows the results of picking a name out of a hat 25 times and then replacing it each time.

<table>
<thead>
<tr>
<th>Pick a Name</th>
<th>Outcome</th>
<th>Tally</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ali</td>
<td>IIIIII</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Kate</td>
<td>IIIII</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Devin</td>
<td>IIII</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Aisha</td>
<td>I</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

11. What name is most likely to be pulled next? Why?

Accept reasonable answers.

12. What two names are equally likely to be picked? Explain.

Accept reasonable answers.

**Problem-Solving Practice**

**Parts of a Whole**

Solve.

1. One half of the wall is blue and one half is yellow. What fraction shows the part of the wall that is blue?

\( \frac{1}{2} \) of the wall

2. A muffin is cut up into 3 equal parts. One of the parts has been eaten. What fraction of the muffin has been eaten?

\( \frac{1}{3} \) of the muffin

3. Betty baked a meatloaf. She cut it into 5 equal slices. The family ate 3 of the slices. What fraction of the meatloaf did they eat?

\( \frac{3}{5} \) of the meatloaf

4. Tom baked an apple pie and cut it into \( \frac{1}{4} \) of the pie. Tom ate one piece, which was \( \frac{1}{4} \) of the pie. How many pieces did he cut the pie into?

6 pieces

5. Tony's Pizzeria cuts their 8-inch pizzas into 4 equal slices. Martelli's Pizzeria cuts their 8-inch pizzas into 6 equal slices. Andre had a slice of pizza at both pizzerias. At which pizzeria did Andre eat more pizza? Explain.

Tony's: Possible answer: fourths are bigger than sixths.

6. A loaf of bread is cut into 8 equal slices. How much of the bread is left after 6 slices have been used for sandwiches?

\( \frac{2}{8} \) or \( \frac{1}{4} \) of the bread is left
Enrich

Pizza Party Puzzlers

“sausage and cheese”      “pepperoni”

“bbq chicken”      “pepperoni and onion”       “supreme”

Read the pizza clues and answer the questions.

1. Manuel ate 2 pieces of this pizza. He gave Marco and Sam each the same number of pieces he ate. There was one piece left. Which pizza did they eat? Name the fraction that was left.
   
   pepperoni: \( \frac{1}{7} \)

2. Brenda divided this pizza equally among her 3 friends and herself. Each person had 3 pieces. Which pizza did they eat? Name the fraction that Brenda ate.
   
   sausage and cheese: \( \frac{3}{12} \) or \( \frac{1}{4} \)

3. Carlos and Derek decided to share their pizza with James, Stan, and Evan. If the pizza was cut into large equal pieces and each boy ate one piece, which pizza did they eat? Name the fraction each person ate.
   
   pepperoni and onion: \( \frac{1}{5} \)

Choose the best strategy

Danny and Drew were playing cards. Danny had two cards in his hand that equaled 8 and the difference was 2. Drew held two cards that equaled six and the difference was 4. Do you know which cards they were holding?

Let’s start with Danny’s cards.

**Understand:** Danny had two cards. The sum of the cards was 8. The difference was 2. What were the cards?

**Plan:** Think about the different ways you can make the number 8. Think... \( 0 + 8 = 8 \), \( 1 + 7 = 8 \).

**Solve:** To arrive at 8, we can add lots of numbers, but if the difference between the two addends is two, Danny must have a 3 and a 5 in his hand.
\( 5 + 3 = 8 \), and \( 5 - 3 = 2 \).

**Check:** Look back at the problem. \( 5 + 3 = 8 \), and \( 5 - 3 = 2 \). The difference is 2. We are correct.

Using the same strategy, we can see that Drew is holding a 1 and a 5.
1. Teresa went to the store to buy some fruit. She spent $5 and bought apples, bananas, and 3 oranges. She didn't buy any pears. What did Teresa buy?

2 lbs apples, 2 lbs bananas, 3 oranges

2. Dana bought some fruit, too. She spent less than $3 and didn't buy any bananas or oranges. What did she buy?

1 lb of pears and 1 lb of apples

3. Use the table above. Carmen and Bernice rented a boat from 9 A.M. to 2 P.M. How much did it cost?

Boat Rentals

<table>
<thead>
<tr>
<th>Hours</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3 hours</td>
<td>$3</td>
</tr>
<tr>
<td>4–6 hours</td>
<td>$2</td>
</tr>
<tr>
<td>All day</td>
<td>$15</td>
</tr>
</tbody>
</table>

4. Fernando's lunch totaled $5.65. He gave the waitress a ten dollar bill. How much change did he receive?

$4.35

5. Would you rather find six dimes, four nickels, and eight pennies in the couch or eight nickels, two quarters, and three pennies?

8 nickels, 2 quarters, and 3 pennies

6. Dana loves to go to the community pool. Admission is $2 per day. She likes to buy a snack while she's there. She usually buys a bag of chips for 65 cents, and a soda for 95 cents. If Dana goes to the pool five days a week, how much does she spend?

$18
Name ______________________ Date ____________

12–2

**Homework Practice**

Problem Solving Investigation

Use any strategy shown below to solve.

- look for a pattern
- make a table
- draw a picture
- guess and check
- work backward

1. Marisela walks to and from school each day. It takes her 13 minutes to walk to school. How much time does Marisela spend walking to and from school each week?

   **130 minutes**

2. There are two numbers whose sum is 9 and the difference is five. What are the two numbers?

   **7 and 2**

3. Paul has 4 red crayons, 2 blue crayons, and 15 green crayons in a bag. Which crayon color is he likely to pick?

   **green**

4. A round trip ticket to Dallas costs $325. A one-way ticket costs $89. How much money can be saved by buying two one-way tickets instead of 1 round trip ticket?

   **$147**

**Spiral Review**

Draw a picture for each fraction. Shade the fraction. (Lesson 12–1)

5. \( \frac{3}{4} \)
6. \( \frac{1}{3} \)
7. \( \frac{2}{3} \)  
   **check students’ work**
8. \( \frac{4}{7} \)
9. \( \frac{3}{5} \)
10. \( \frac{7}{8} \)

Grade 3  16  Chapter 12

12–2

**Enrich**

Problem-Solving Investigation

Shade what comes next. Write a rule beneath the pattern.

1.  
   **student should shade in \( \frac{3}{8} \)**
   
   **Rule:** Add \( \frac{1}{8} \)

2.  
   **student should leave blank**
   
   **Rule:** Subtract \( \frac{2}{6} \)

3.  
   **student should shade \( \frac{2}{7} \)**
   
   **Rule:** Subtract \( \frac{1}{7} \)

4. \( 1 \frac{2}{4}, 1 \frac{3}{4}, \frac{2}{4} \)
5. \( \frac{1}{10}, \frac{7}{10}, 1 \frac{3}{10}, \frac{10}{10}, \frac{1}{10} \)

   **Rule:** Subtract \( \frac{1}{4} \)

6. Create your own pattern using both a drawing and numerical fractions. Tell what the rule is.

   **Check students’ work**

Grade 3  17  Chapter 12
Find Equivalent Fractions

**Equivalent fractions** are different fractions that name the same amount.

\[
\begin{align*}
\frac{3}{4} & \rightarrow \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \quad \frac{1}{4} \\
\frac{6}{8} & \rightarrow \frac{1}{8} \quad \frac{1}{8} \quad \frac{1}{8} \quad \frac{1}{8} \quad \frac{1}{8} \quad \frac{1}{8} \\
\frac{9}{12} & \rightarrow \frac{1}{12} \quad \frac{1}{12} \quad \frac{1}{12} \quad \frac{1}{12} \quad \frac{1}{12} \\
\end{align*}
\]

\(\frac{3}{4}\), \(\frac{6}{8}\), and \(\frac{9}{12}\) are equivalent fractions.

Complete each number sentence to find equivalent fractions.

1. \(\frac{1}{2} = \frac{2}{4}\)
2. \(\frac{1}{3} = \frac{2}{6}\)
3. \(\frac{2}{5} = \frac{4}{10}\)
4. \(\frac{1}{4} = \frac{2}{8}\)
5. \(\frac{3}{4} = \frac{6}{8}\)
6. \(\frac{3}{6} = \frac{6}{12}\)
7. \(\frac{3}{12} = \frac{1}{4}\)
8. \(\frac{1}{2} = \frac{6}{12}\)
9. \(\frac{4}{5} = \frac{8}{10}\)
10. \(\frac{2}{8} = \frac{1}{4}\)
11. \(\frac{8}{12} = \frac{2}{3}\)
12. \(\frac{3}{6} = \frac{6}{12}\)
13. \(\frac{2}{8} = \frac{1}{4}\)
14. \(\frac{4}{5} = \frac{8}{10}\)
15. \(\frac{6}{8} = \frac{3}{4}\)

Write another fraction that names each fraction.

4. \(\frac{1}{3} = \frac{2}{6}\)
5. \(\frac{3}{8} = \frac{6}{16}\)
6. \(\frac{2}{5} = \frac{4}{10}\)
7. \(\frac{4}{8} = \frac{1}{2}\)
8. \(\frac{1}{6} = \frac{2}{12}\)
9. \(\frac{4}{12} = \frac{1}{3}\)
10. \(\frac{2}{10} = \frac{1}{5}\)
11. \(\frac{3}{5} = \frac{6}{10}\)
12. \(\frac{3}{6} = \frac{6}{12}\)
13. \(\frac{2}{8} = \frac{1}{4}\)
14. \(\frac{4}{5} = \frac{8}{10}\)
15. \(\frac{6}{8} = \frac{3}{4}\)
**12–3**

**Homework Practice**

*Find Equivalent Fractions*

**Draw an equivalent fraction for the following fractions.**

1. \(\frac{3}{6}\)
2. \(\frac{7}{8}\)
3. \(\frac{3}{9}\)
4. \(\frac{2}{4}\)
5. \(\frac{5}{10}\)
6. \(\frac{6}{8}\)

**Check students' work**

**Write another fraction that names each fraction. Sample answers are given.**

7. two-sixths \(\frac{1}{3}\)
8. eight-tenths \(\frac{4}{5}\)
9. four-eighths \(\frac{1}{2}\)
10. six-ninths \(\frac{2}{3}\)

**Solve.**

11. Fred offered three-fourths of the pizza or nine-twelfths of the pizza. Did he offer equal portions? **Yes**
12. Alfonso needed help mowing the lawn. Danny offered to mow one-fourth and Hector offered to mow one-sixth. Who offered to mow \(\frac{1}{2}\) of the lawn? **Danny**

**Spiral Review**

**Use any strategy to solve. (Lesson 12–2)**

13. Gregoria needs to be to school by 8:15. It takes her 20 minutes to walk and about 30 minutes to get ready in the morning. What time should Gregoria wake up each morning? **7:25**
14. There are two numbers whose sum is 10 and the difference is 2. What is the number? **6 and 4**
15. Augusto's school supplies totaled $11.82. He gave the clerk three five-dollar bills. How much change did he receive? **$3.18**
16. Ramon has four brothers; two older and two younger. They are each two years apart. If Ramon is nine, how old is his oldest brother? **13 years old**

**Problem-Solving Practice**

*Find Equivalent Fractions*

**Solve.**

1. Lenny colored \(\frac{1}{2}\) of his picture. What is another fraction that tells the part of the picture he colored? **Possible answer: \(\frac{2}{4}\)**

2. A painter has painted \(\frac{3}{8}\) of a ceiling. What is an equivalent fraction for this? **Possible answer: \(\frac{1}{4}\)**

3. Phillip has a box that is divided into 4 equal sections. He fills 2 of the sections with sand. Write two equivalent fractions that tell how much of the box is filled. **Possible answer: \(\frac{1}{2}\) and \(\frac{2}{4}\)**

4. A granola bar is cut into 3 equal parts. Grace eats one part. Write two equivalent fractions that tell how much of the bar she ate. **Possible answer: \(\frac{1}{3}\) and \(\frac{2}{6}\)**

5. A circular tablecloth has 8 equal sections. Two sections are white, two are red, two are blue, and two are black. What part of the tablecloth is not white? **Possible answer: \(\frac{6}{8}\)**

6. A spinner is divided into 6 equal sections. The sections are numbered in order from 1 through 6. What part of the spinner has even numbers on it? **Possible answer: \(\frac{3}{6}\)**

7. Dennis finished half of his homework. Christine finished one third of her homework. Have they completed the same amount of work? **No**

8. Olivia drank half a cup of milk. Her brother drank \(\frac{5}{10}\) of a cup of milk. Did they drink the same amount? **Yes**
Answers

Grade 3  A9

Chapter 12

12–3 Enrich
Find Equivalent Fractions

Equivalent fractions are those that name the same amount.

Shade the amount shown next to each block. Write yes if the two fractions are equivalent and no if they are not.

1. \(\frac{1}{2}\) and \(\frac{6}{12}\)

\[\begin{array}{c|c|c|c}
\hline
& & & \\
\hline
\frac{1}{2} & & & \\
\hline
\frac{6}{12} & & & \\
\hline
\end{array}\]

yes

2. \(\frac{2}{5}\) and \(\frac{3}{6}\)

\[\begin{array}{c|c|c|c}
\hline
& & & \\
\hline
\frac{2}{5} & & & \\
\hline
\frac{3}{6} & & & \\
\hline
\end{array}\]

no

3. \(\frac{1}{4}\) and \(\frac{2}{8}\)

\[\begin{array}{c|c|c|c}
\hline
& & & \\
\hline
\frac{1}{4} & & & \\
\hline
\frac{2}{8} & & & \\
\hline
\end{array}\]

yes

4. \(\frac{2}{3}\) and \(\frac{4}{9}\)

\[\begin{array}{c|c|c|c}
\hline
& & & \\
\hline
\frac{2}{3} & & & \\
\hline
\frac{4}{9} & & & \\
\hline
\end{array}\]

no

12–4 Reteach
Problem-Solving Strategy

Draw a Picture

An amusement park has 4 roller coasters. Each roller coaster has 6 cars. Each car has 2 wheels. How many wheels are there in all?

Step 1 Understand

Make sure that you understand the problem.

- What do you know?
  
  An amusement park has \(4\) roller coasters. Each roller coaster has \(\frac{6}{6}\) cars. Each car has \(2\) wheels.

- What do you need to find?

  How many wheels are there in all?

Step 2 Plan

- Draw a Picture or Diagram

You can draw a picture to show what you know and what you need to find out.

Step 3 Solve

- Carry out your plan.

  Draw 4 roller coasters. Draw 6 cars on each roller coaster. Draw 2 wheels on each car.

  Check students’ drawings.

  Count the number of wheels. There are \(48\) wheels.
Problem-Solving Strategy

Draw a Picture

Step 4 Check

Is the solution reasonable? Yes No

How can you use your picture to check your answer?

Possible answer: Make sure that my picture matches the information in the problem, and count the wheels.

Solve. Use the draw a picture strategy.

1. There are 3 rows of 5 mini pizzas on a tray. Each mini pizza has 2 pepper slices on it. How many pepper slices are there in all?

   30 pepper slices

2. Reshma baked 3 batches of banana bread. Each batch had 4 loaves. Each loaf had 12 nuts in it. How many nuts did Reshma use in all?

   144 nuts

3. The quesadilla was cut into six pieces. Christina ate one third, Luis ate one third, and Mario ate one piece. How many pieces were left?

   1 piece

4. The pencil cup needed to be cleaned out. There were 25 pencils in the cup. 12 were broken, 5 didn’t have any erasers, and the rest were able to be sharpened and used. How many pencils were put back in the cup?

   8 pencils

5. There are eight pieces of fruit in the bowl. There are 2 bananas, 2 apples, and the rest are kiwi. How many kiwi are in the bowl of fruit?

   4 kiwi

6. There are three students in line. Carrie is behind Ernesto and in front of Roger. In what order are the students standing in line?

   Ernesto, Carrie, Roger

Use any strategy to solve.

7. Darin got home at 8:00 P.M. He was traveling for 1 hour and 15 minutes. At what time did he start traveling?

   6:45 P.M.

8. Karen spent $325 for a plane ticket and $190 on a rental car. How much money did she spend altogether?

   $515
**Homework Practice**

**Problem Solving Strategy**

Solve. Use the draw a picture strategy.

1. Lorena opened up her top drawer. She had twelve pairs of socks in the drawer. Three pairs were patterned, six were colored, and the rest were white. How many pairs of socks were white?

   \(3\) pairs

2. Rafael was sorting his two dozen model cars. He had 8 red cars, 5 green vans, 6 pickup trucks, and the rest were one of a kind cars. How many one of a kind cars did Rafael have?

   \(5\) cars

3. Five cats are sitting on the fence. The black cat is second. The orange cat is next to the grey cat, and the striped cat is on the end. If the grey cat is fourth, where is the white cat?

   first

4. Dora took a dozen crackers out of the oven. Kenny ate three and Marcos ate five. How many are left?

   4 cookies

5. There are six pairs of shoes in the closet. There is one pair of sneakers, two pairs of flip flops, and one pair of dress shoes. The rest do not fit. How many pairs of shoes do not fit?

   2 pairs

6. Watson is 3 miles directly south of Panera. Canbou is 2 miles directly west of Watson. Wells is 3 miles directly north of Panera. Is that possible? Explain.

   Yes, Panera is between Wells and Watson

**Enrich**

**Fraction Patterns**

Solve the problems about the fraction patterns. Follow the directions for coloring the triangles. Colors should not overlap.

Color \(\frac{1}{2}\) of the triangles red. Color \(\frac{1}{4}\) of the triangles blue. The remainder of the triangles should be white.

1. What fraction describes how many triangles are red or white?

   \(\frac{3}{4}\) are red or white.

2. What fraction describes how many triangles are green?

   \(\frac{2}{6}\) or \(\frac{1}{3}\) are green.

3. Could each of these patterns be colored with equal parts of blue, green, purple, and red? Why or why not?

   Yes; because they can both be divided evenly by 4

4. Which pattern could be colored with 12 different colors and have the same number triangles of each color?

   Pattern B

---

**Spiral Review**

Complete each number sentence to find equivalent fractions. (Lesson 12-3)

7. \(\frac{3}{4} = \frac{9}{12}\)

8. \(\frac{1}{6} = \frac{2}{16}\)

9. \(\frac{2}{5} = \frac{4}{10}\)

10. \(\frac{5}{7} = \frac{2}{6}\)

11. \(\frac{4}{32} = \frac{2}{16}\)

---

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Reteach

Compare Fractions

You can use fraction strips to compare fractions.

\[ \frac{1}{8} \text{ is less than } \frac{3}{8} \]

1/8 < 3/8

\[ \frac{5}{6} \text{ is greater than } \frac{1}{2} \]

5/6 > 1/2

You can use a number line to tell if a fraction is closer to 0 or 1.

\[ \frac{1}{3} \text{ is closer to } 0 \]

\[ \frac{1}{2} \text{ is closer to } 1 \]

Compare. Write >, <, or =.

1. \[ \frac{1}{6} \text{ } \frac{1}{6} \]

2. \[ \frac{1}{2} \]

3. \[ \frac{4}{8} \text{ } \frac{7}{8} \]

4. \[ \frac{1}{4} \text{ } \frac{1}{8} \]

5. \[ \frac{3}{4} \text{ } \frac{1}{2} \]

6. \[ \frac{3}{8} \text{ } \frac{1}{4} \]
12–5
Homework Practice
Compare Fractions

Compare. Write >, <, or =. Use fraction strips, a number line, or a drawing if needed.

1. \(\frac{1}{2} < \frac{3}{4}\)  2. \(\frac{3}{5} > \frac{2}{5}\)  3. \(\frac{1}{6} < \frac{2}{6}\)
4. \(\frac{1}{4} > \frac{1}{8}\)  5. \(\frac{2}{6} > \frac{1}{4}\)  6. \(\frac{3}{8} > \frac{1}{4}\)
7. \(\frac{5}{6} = \frac{5}{6}\)  8. \(\frac{3}{2} > \frac{2}{3}\)  9. \(\frac{2}{3} > \frac{1}{2}\)
10. \(\frac{1}{3} = \frac{2}{6}\)  11. \(\frac{3}{7} > \frac{2}{5}\)  12. \(\frac{3}{4} > \frac{5}{8}\)
13. \(\frac{1}{2} > \frac{1}{3}\)  14. \(\frac{1}{4} = \frac{2}{8}\)

Solve.

15. Callie ate \(\frac{3}{4}\) of a cup of dog food and Spirit ate \(\frac{7}{8}\) of a cup of cat food. Who ate more? Spirit

16. Alonso finished \(\frac{2}{3}\) of his homework before dinner and Ana finished \(\frac{3}{4}\). Who has less homework to finish after dinner? Ana

Spiral Review

Solve. Use the draw a picture strategy. (Lesson 12–4)

17. Carolina walked west one block, south one block, east one block, and south one block. Did she make a complete square? no
18. Six lunch boxes sat on the ledge. Half were plain, and the rest had cartoon characters on them. How many were plain? 3 lunch boxes
19. There were twelve flowers in the vase. Three were red, four were orange, and the rest were yellow. How many yellow flowers were in the vase? 5 yellow flowers
20. There were 15 houses on the block. Eight of them hung the flag out to fly. Did more than half the houses fly the flag? yes

12–5
Problem-Solving Practice
Compare Fractions

Solve.

1. Pete and Sal share a bag of chips. Pete eats \(\frac{1}{4}\) of the chips and Sal eats \(\frac{3}{4}\) of the chips. Who eats more? Sal

2. If \(\frac{2}{3}\) of the class are boys and \(\frac{3}{5}\) are girls, are there more boys or girls? girls

3. It takes \(\frac{3}{4}\) of an hour for Randy to walk from home to school. It takes \(\frac{1}{2}\) hour for him to walk from home to the mall. Does Randy live closer to school or to the mall? the mall

4. Alice has finished \(\frac{2}{3}\) of her homework. Sam has finished \(\frac{1}{2}\) of his homework. Who has more homework left to do, Alice or Sam? Sam

5. In a recipe for fruit salad, Marta adds \(\frac{1}{2}\) pound of apples, \(\frac{3}{4}\) pound of grapes, and \(\frac{1}{4}\) pound of cherries. Which fruit did she use the most? grapes

6. Jack and Sandra each have \$100 in savings. Jack spent \(\frac{1}{2}\) of his savings on a new coat and \(\frac{3}{8}\) of the savings on a new pair of sneakers. Sandra spent \(\frac{2}{5}\) of her savings on a new coat. Who spent more money on a coat? Jack spent more.

7. Two loaves of bread are the same size. One is cut into 8 pieces. The other is cut into 10 pieces. Which has the largest pieces? the 8 piece loaf

8. Which weighs more: \(\frac{1}{2}\) lb of lead or \(\frac{1}{3}\) lb of feathers? \(\frac{1}{2}\) lb of feathers
Grade 3

**12–5**

**Enrich**

**Fraction Riddles**

Here’s a reminder: the **numerator** is how many equal parts are used
the **denominator** is how many total equal parts

Use the chart to answer the riddles.

<table>
<thead>
<tr>
<th></th>
<th>1/3</th>
<th>1/1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6</td>
<td>1/6</td>
<td>1/6</td>
</tr>
<tr>
<td>1/12</td>
<td>1/12</td>
<td>1/12</td>
</tr>
</tbody>
</table>

1. I am a fraction that is equal to $\frac{1}{3}$. What am I? $\frac{2}{6}$
2. I am the greater of these two: $\frac{2}{3}$ or $\frac{2}{4}$. What fraction am I? $\frac{2}{3}$
3. I may seem greater but I am the lesser of these two: $\frac{1}{2}$ and $\frac{1}{12}$. What am I? $\frac{1}{12}$
4. I am greater than $\frac{1}{2}$. There is a one in my numerator. What am I? $\frac{1}{2}$
5. I am slightly less than $\frac{3}{4}$. There is a 6 in my denominator. What am I? $\frac{4}{6}$
6. I am less than $\frac{1}{2}$. I have a 5 in my numerator. What am I? $\frac{5}{12}$
7. There are three other fractions that are equal to me. They are $\frac{1}{3}$, $\frac{1}{4}$, and $\frac{5}{12}$. What am I? $\frac{1}{3}$
8. Explain why your answer to Riddle 7 has three fractions that are equal to itself.

**Answers may vary; Sample answer:** Each of these fractions one half of the whole; if you find the greatest common factor of each fraction and reduce them, they are all equal to $\frac{1}{2}$.

**12–6**

**Reteach**

**Add Fractions**

You can use fraction models to add fractions.

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

[Add fraction models]

$\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$

### Add.

1. $\frac{1}{6} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{2}{6}$

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

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

4. $\frac{1}{12} + \frac{1}{12} + \frac{1}{12} + \frac{1}{12} = \frac{5}{12}$

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

6. $\frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} + \frac{1}{10} = \frac{5}{10}$

### Add. Use fraction strips if needed.

7. $\frac{1}{6} + \frac{6}{8} = \frac{5}{6}$

8. $\frac{1}{7} + \frac{4}{7} = \frac{5}{7}$

9. $\frac{5}{12} + \frac{2}{12} = \frac{7}{12}$

10. $\frac{1}{5} + \frac{2}{5} = \frac{3}{5}$

11. $\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

12. $\frac{2}{9} + \frac{3}{9} = \frac{5}{9}$
Skills Practice

Add Like Fractions

Add.

1. \( \frac{1}{4} + \frac{2}{4} = \frac{3}{4} \)

2. \( \frac{2}{6} + \frac{3}{6} = \frac{5}{6} \)

3. \( \frac{3}{8} + \frac{2}{8} = \frac{5}{8} \)

4. \( \frac{1}{12} + \frac{4}{12} = \frac{5}{12} \)

5. \( \frac{2}{10} + \frac{7}{10} = \frac{9}{10} \)

6. \( \frac{3}{5} + \frac{1}{5} = \frac{4}{5} \)

Add. Use fraction strips if needed.

7. \( \frac{2}{5} + \frac{2}{5} = \frac{4}{5} \)

8. \( \frac{3}{12} + \frac{4}{12} = \frac{7}{12} \)

9. \( \frac{1}{3} + \frac{1}{3} = \frac{2}{3} \)

10. \( \frac{6}{8} + \frac{1}{8} = \frac{7}{8} \)

11. \( \frac{1}{8} + \frac{2}{8} = \frac{3}{8} \)

12. \( \frac{1}{5} + \frac{1}{5} = \frac{2}{5} \)

13. \( \frac{1}{6} + \frac{4}{6} = \frac{5}{6} \)

14. \( \frac{2}{9} + \frac{2}{9} = \frac{4}{9} \)

15. \( \frac{2}{10} + \frac{5}{10} = \frac{7}{10} \)

16. \( \frac{3}{6} + \frac{2}{6} = \frac{5}{6} \)

17. \( \frac{2}{7} + \frac{7}{10} = \frac{9}{10} \)

18. \( \frac{3}{5} + \frac{1}{5} = \frac{4}{5} \)

19. \( \frac{1}{4} + \frac{1}{4} = \frac{2}{4} \)

20. \( \frac{2}{5} + \frac{3}{5} = \frac{5}{5} \)

21. A recipe calls for \( \frac{3}{8} \) of a cup white sugar and \( \frac{1}{2} \) of a cup dark brown sugar. How much sugar will be used for the recipe?

22. \( \frac{4}{9} \) cup

23. Manuel has soccer practice 3 days a week and baseball practice 2 days a week. What fraction of the week does Manuel have practice?

24. \( \frac{5}{7} \) of the week

Spiral Review

Compare. Write <, >, or =. (Lesson 12-5)

16. \( \frac{2}{4} \) \( \frac{1}{3} \)

17. \( \frac{3}{10} \) \( \frac{3}{11} \)

18. \( \frac{4}{9} \) \( \frac{3}{10} \)

19. \( \frac{3}{5} \) \( \frac{3}{4} \)

20. \( \frac{1}{4} \) \( \frac{3}{9} \)

21. \( \frac{1}{8} \) \( \frac{1}{7} \)
**Problem-Solving Practice**

Add Like Fractions

Solve. Use fraction models if needed.

1. Kitty the cat ate \( \frac{1}{6} \) of her food in the morning and \( \frac{2}{6} \) in the afternoon. How much of her food did Kitty eat so far?

\[ \frac{3}{6} \text{ of her food} \]

2. A plant grew \( \frac{1}{4} \) of an inch during the first week and \( \frac{3}{4} \) of an inch the next week. How much did the plant grow in the two weeks?

\[ \frac{4}{5} \text{ of an inch} \]

3. A model car storage box is divided into 8 equal sections. \( \frac{3}{8} \) of the sections have model sports cars and \( \frac{5}{8} \) have model trucks. The rest of the box is empty. What fraction of the box is filled so far?

\[ \frac{7}{12} \text{ of the box} \]

4. Of the dozen eggs in a box, \( \frac{4}{12} \) have been colored pink and \( \frac{3}{12} \) have been colored blue. The other eggs have not been colored. What fraction of the eggs have been colored?

\[ \frac{7}{12} \text{ of the eggs} \]

5. Ricky paints \( \frac{1}{8} \) of his room on Monday, \( \frac{3}{8} \) on Tuesday, and \( \frac{2}{8} \) on Wednesday. What fraction of his room did Ricky paint by the end of the day on Wednesday?

\[ \frac{5}{8} \text{ of the room} \]

6. There are 12 apples in a bag. Everett eats \( \frac{1}{6} \) of them and Lilly eats \( \frac{2}{6} \) of them. What fraction of the apples have been eaten so far?

\[ \frac{3}{6} \text{ of the apples} \]

How many apples are left in the bag?

\[ 6 \text{ left} \]
Subtract Like Fractions

You can use fraction models to subtract fractions.

Find \( \frac{7}{10} - \frac{6}{10} \).

\[
\begin{array}{c}
\frac{7}{10} - \frac{6}{10} = \frac{1}{10}
\end{array}
\]

1. \( \frac{7}{10} - \frac{6}{10} = \frac{1}{10} \)

2. \( \frac{1}{10} - \frac{1}{10} = 0 \)

3. \( \frac{7}{12} - \frac{4}{12} = \frac{3}{12} \)

4. \( \frac{5}{6} - \frac{4}{6} = \frac{1}{6} \)

5. \( \frac{7}{10} - \frac{4}{10} = \frac{3}{10} \)

6. \( \frac{9}{12} - \frac{2}{12} = \frac{7}{12} \)

Subtract. Use fraction strips if needed.

7. \( \frac{5}{7} - \frac{3}{7} = \frac{2}{7} \)

8. \( \frac{8}{11} - \frac{4}{11} = \frac{4}{11} \)

9. \( \frac{3}{4} - \frac{1}{4} = \frac{2}{4} \)

10. \( \frac{4}{5} - \frac{4}{5} = 0 \)

11. \( \frac{5}{12} - \frac{1}{12} = \frac{4}{12} \)

12. \( \frac{9}{10} - \frac{8}{10} = \frac{1}{10} \)

13. \( \frac{3}{8} - \frac{3}{8} = 0 \)

14. \( \frac{2}{3} - \frac{1}{3} = \frac{1}{3} \)

15. \( \frac{5}{8} - \frac{3}{8} = \frac{2}{8} \)

16. \( \frac{5}{8} - \frac{3}{8} = \frac{2}{8} \)

17. \( \frac{7}{10} - \frac{2}{10} = \frac{5}{10} \)

18. \( \frac{3}{10} - \frac{2}{10} = \frac{1}{10} \)

19. \( \frac{1}{12} - \frac{2}{12} = \frac{1}{12} \)

20. \( \frac{5}{8} - \frac{2}{8} = \frac{3}{8} \)

21. \( \frac{8}{10} - \frac{5}{10} = \frac{3}{10} \)

22. \( \frac{4}{9} - \frac{2}{9} = \frac{2}{9} \)
Homework Practice

Subtract Like Fractions

Subtract. Use fraction strips if needed.

1. \( \frac{3}{4} - \frac{2}{4} = \frac{1}{4} \)
2. \( \frac{4}{6} - \frac{1}{6} = \frac{3}{6} or \frac{1}{2} \)
3. \( \frac{4}{5} - \frac{3}{5} = \frac{1}{5} \)
4. \( \frac{6}{7} - \frac{5}{7} = \frac{1}{7} \)
5. \( \frac{1}{2} - \frac{1}{2} = \frac{1}{2} \)
6. \( \frac{6}{8} - \frac{4}{8} = \frac{2}{8} or \frac{1}{4} \)
7. \( \frac{8}{9} - \frac{4}{9} = \frac{4}{9} \)
8. \( \frac{7}{8} - \frac{5}{8} = \frac{2}{8} or \frac{1}{4} \)
9. \( \frac{8}{11} - \frac{4}{11} = \frac{4}{11} \)
10. \( \frac{9}{10} - \frac{4}{10} = \frac{5}{10} \)
11. \( \frac{1}{3} - \frac{1}{4} = \frac{3}{4} \)
12. \( \frac{2}{3} - \frac{1}{3} = \frac{1}{3} \)

Solve.

13. The bathtub is filled up \( \frac{5}{6} \) of the way. After Tom gives the dog a bath, it’s filled \( \frac{2}{3} \) of the way. How much water did the dog splash out of the tub?

\( \frac{2}{6} or \frac{1}{3} \) of the water

14. There were a dozen ice pops in the box. Juan ate \( \frac{2}{3} \) of the box. How much was left?

\( \frac{10}{12} \) of the box

15. The gallon of milk was \( \frac{3}{4} \) full. Rosa drank \( \frac{3}{4} \) of the gallon. How much was left?

\( \frac{1}{4} \) of the gallon

Spiral Review

Add. Use fraction models if needed. (Lesson 12-6)

16. \( \frac{3}{12} + \frac{3}{12} = \frac{6}{12} or \frac{1}{2} \)
17. \( \frac{4}{10} + \frac{5}{10} = \frac{9}{10} \)
18. \( \frac{2}{8} + \frac{5}{8} = \frac{7}{8} \)
19. \( \frac{1}{2} + \frac{1}{2} = \frac{2}{2} or 1 \)
20. \( \frac{5}{7} + \frac{1}{7} = \frac{6}{7} \)
21. \( \frac{1}{3} + \frac{2}{3} = \frac{3}{3} or 1 \)

Answers

1. Lorrie found \( \frac{3}{4} \) of an apple pie in the refrigerator. She ate \( \frac{2}{3} \) of the pie. What fraction of the pie was left?

\( \frac{1}{4} \) of the pie

2. There is \( \frac{7}{8} \) of a quart of milk in a bottle. Brianne pours \( \frac{2}{8} \) of a quart of milk into a glass. How much milk is left in the bottle?

\( \frac{5}{8} \) of a quart

3. A box of crayons fell on the floor. If \( \frac{7}{12} \) of the crayons fell out, what fraction of the crayons are still in the box?

\( \frac{5}{12} \) are still in the box

4. Alex ran \( \frac{8}{12} \) of a mile. Rhea ran \( \frac{5}{12} \) of a mile. How much farther did Alex run than Rhea?

\( \frac{3}{12} \) of a mile farther

5. Ben found \( \frac{7}{10} \) of a pound of flour in the pantry. He needed to use \( \frac{3}{10} \) of a pound of flour for bread that he was baking. His mom said that she needed \( \frac{5}{10} \) of a pound of flour for dinner. After Ben and his mom use the flour, how much will be left in the bag?

\( \frac{1}{10} \) of a pound

6. Mea baked a peach pie and an apple pie. At the end of the day, \( \frac{7}{8} \) of the peach pie was left and \( \frac{3}{8} \) of the apple pie was left. How much more peach pie was left than apple pie?

\( \frac{4}{8} \) of a pie
**Enrich**

**Subtract-a-Fraction**

Choose fractions with like denominators to solve the problems. Make each sentence a true subtraction sentence. You will need to use some of the fractions more than once.

| 1. \(\frac{7}{12} - \frac{3}{12} = \frac{5}{12}\) | 2. \(\frac{2}{4} - \frac{1}{4} = \frac{1}{4}\) |
| 3. \(\frac{6}{9} - \frac{3}{9} = \frac{3}{9}\) | 4. \(\frac{3}{4} - \frac{1}{4} = \frac{2}{4}\) |
| 5. \(\frac{7}{12} - \frac{4}{12} = \frac{3}{12}\) | 6. \(\frac{6}{6} - \frac{2}{6} = \frac{4}{6}\) |
| 7. \(\frac{6}{8} - \frac{5}{8} - \frac{1}{8}\) | 8. \(\frac{4}{5} - \frac{1}{5} = \frac{3}{5}\) |
| 9. \(\frac{3}{5} - \frac{1}{5} = \frac{2}{5}\) | 10. \(\frac{4}{8} - \frac{2}{8} = \frac{2}{8}\) |

How did you go about solving the problems?

*Answers may vary; accept reasonable answers; sample answers: I looked at the denominators then found the ones that matched in the box and tried them; I put the fractions with like denominators in order then figured out which one(s) went with each problem; I looked at the numerators to see which ones made sense in the problem, then I checked to see if they had matching denominators.*

What do you notice about the numerator and the denominator when you subtract fractions with like denominators?

*Answers may vary; sample answer: the numerator changes but the denominator stays the same.*

---

**Vocabulary Test**

Match each word to its definition. Write your answers on the lines provided.

| 1. fraction | A. A symbol to show that the first number is less than the second. |
| 2. numerator | B. The bottom number in a fraction. |
| 3. denominator | C. A number that represents part of a whole or part of a set. |
| 4. equivalent fractions | D. The top number in a fraction. |
| 5. is greater than (>) | E. Fractions that have the same value. |
| 6. is less than (<) | F. A symbol to show that the first number is greater than the second. |

---

*Answers* (Lesson 12–7 and Vocabulary Test)
Use construction paper to draw a pizza pie with 8 individual slices. Cut out each individual slice and then place the pizza pie on a plate.

Read each question aloud to the student. Then write the student’s answers on the lines below the question.

1. Take 2 slices of pizza away, how many pieces are left? 6

2. What fraction represents how many slices of pizza were taken away? 2/8

3. What is an equivalent form of that fraction? Answers may vary; sample answer: 1/4

4. Tell how you got your answer. Answers may vary; sample answer: I reduced 2/8 to its simplest form.

5. Take 5 slices of pizza away from the full pie. How many slices are left? 3

6. What fraction represents how many slices of pizza were taken away? 5/8

7. What is an equivalent form of that fraction? Answers may vary; sample answer: 10/16

8. Explain your answer. Answers may vary; Sample answer: I multiplied the numerator and denominator by 2 to find an equivalent fraction.

9. Samantha counts 100 vehicles in a parking lot. What number in the chart represents the amount of mini-vans? 48

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<tr>
<th>Parking Lot Vehicles</th>
<th>Type</th>
<th>Amount</th>
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<tr>
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<tr>
<td>mini-vans</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>trucks</td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

10. What is the fraction for that amount in simplest form? 12/25

11. What number represents the amount of trucks? 24

12. What is the fraction form for that amount in simplest form? 6/25

13. Tell how you got your answer. I took the fractions and divided the numerators and denominators by 2 until I got the simplest form.
### Chapter 12 Assessment Answer Key

#### Diagnostic Assessment
Page 44

1. \( \frac{3}{5} \); equal

2. \( \frac{2}{4} \); not equal

3. \( \frac{1}{1} \); equal

4. \( \frac{3}{3} \); equal

5. \( \frac{4}{4} \); equal

6. \( \frac{7}{7} \)

7. \( \frac{2}{2} \)

8. \( \frac{6}{6} \)

9. \( \frac{14}{14} \)

10. \( \frac{3}{3} \)

#### Chapter Pretest
Page 45

1. \( \frac{3}{5} \)

2. \( \frac{2}{4} \)

3. \( \frac{1}{1} \)

4. \( \frac{3}{3} \)

5. \( \frac{4}{4} \)

6. \( \frac{6}{6} \)

7. \( = \)

8. \( > \)

9. \( < \)

10. \( > \)

11. \( \frac{7}{9} \)

12. \( \frac{3}{5} \)

13. \( \frac{9}{11} \)

14. \( \frac{4}{10} \)

#### Quiz 1 (12–1 through 12–3)
Page 46

1. three-fourths

2. two-fifths

3. one half

4. Nan, Alice, Ken, David

5. See students' drawings.

6. See students' drawings.
Chapter 12 Assessment Answer Key

Quiz 2 (12–4 through 12–6)  
Page 47

1. ______ 2
2. ______ 9
3. ______ 10
4. ______ 6
5. ______ \( \frac{6}{8} \)
6. ______ \( \frac{6}{9} \)
7. ______ \( \frac{4}{12} \)

Quiz 3 (12–7 through 12–8)  
Page 48

1. ______ T
2. ______ T
3. ______ F
4. ______ F
5. ______ F
6. ______ T

7. Tommy
8. \( \frac{1}{2} \) pitcher

Mid-Chapter Review  
Page 49

1. ______ A
2. ______ G
3. ______ C
4. ______ H
5. ______ 10
6. ______ 14
7. 6 pizzas
8. 2 apples and 1 banana

8. ______ $13.26
9. ______ $2.03
## Chapter 12 Assessment Answer Key

### Chapter Test, Form 1

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# Chapter 12 Assessment Answer Key

## Chapter Test, Form 2C
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Answers may vary; sample answer: $\frac{6}{8}$

## Chapter Test, Form 2D
Page 62

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Answers may vary; sample answer: $\frac{10}{12}$

## Chapter Test, Form 3C
Page 63

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Answers may vary; sample answer: $\frac{10}{10}$

## Chapter Test, Form 3D
Page 64

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Answers may vary; sample answer: $\frac{6}{10}$

**Jenna**

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Answers may vary; sample answer: $\frac{2}{7}$

(continued on the next page)
### Chapter 12 Assessment Answer Key

#### Chapter Test, Form 2D

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#### Chapter Test, Form 3

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</table>

**Answers may vary; sample answer:**

4. \( \frac{3}{4} \)
5. \( \frac{14}{20} \)
6. \( \frac{6}{8} \) or \( \frac{3}{4} \)
7. \( > \)
8. \( < \)
9. \( = \)
**Chapter 12 Assessment Answer Key**

Page 67, Extended-Response Test

**Scoring Rubric**

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<th>Specific Criteria</th>
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<td>4</td>
<td>The student demonstrates a <strong>thorough understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student has responded correctly to the task, used mathematically sound procedures, and provided clear and complete explanations and interpretations. The response may contain minor flaws that do not detract from the demonstration of a thorough understanding.</td>
</tr>
<tr>
<td>3</td>
<td>The student demonstrates an <strong>understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student’s response to the task is essentially correct with the mathematical procedures used and the explanations and interpretations provided demonstrating an essential but less than thorough understanding. The response may contain minor errors that reflect inattentive execution of the mathematical procedures or indications of some misunderstanding of the underlying mathematics concepts and/or procedures.</td>
</tr>
<tr>
<td>2</td>
<td>The student has demonstrated only a <strong>partial understanding</strong> of the mathematics concepts and/or procedures embodied in the task. Although the student may have used the correct approach to obtaining a solution or may have provided a correct solution, the student’s work lacks an essential understanding of the underlying mathematical concepts. The response contains errors related to misunderstanding important aspects of the task, misuse of mathematical procedures, or faulty interpretations of results.</td>
</tr>
<tr>
<td>1</td>
<td>The student has demonstrated a <strong>very limited understanding</strong> of the mathematics concepts and/or procedures embodied in the task. The student’s response to the task is incomplete and exhibits many flaws. Although the student has addressed some of the conditions of the task, the student reached an inadequate conclusion and/or provided reasoning that was faulty or incomplete. The response exhibits many errors or may be incomplete.</td>
</tr>
<tr>
<td>0</td>
<td>The student has provided a <strong>completely incorrect</strong> solution or uninterpretable response, or no response at all.</td>
</tr>
</tbody>
</table>
Chapter 12 Assessment Answer Key
Page 67, Extended-Response Test
Sample Answers

In addition to the scoring rubric found on page A28, the following sample answers may be used as guidance in evaluating open-ended assessment items.

1. A fraction is a number that names part of a whole. \( \frac{3}{4} \) is a fraction. The following figure is an example of \( \frac{3}{4} \).

![Fraction Example](image)

Since 3 of the 4 parts are shaded, the fraction is \( \frac{3}{4} \).

2. Julio has \( \frac{6}{10} \) of the questions left and Patrice has \( \frac{7}{10} \) of the questions left.

   a. A numerator is the top number in a fraction. The numerators in this problem are 6 and 7.

   b. A denominator is the bottom number in a fraction. The denominator for both fractions in the problem is 10.

3. When two or more different fractions name the same amount, they are equivalent. The following figure is an example of equivalent fractions.

![Equivalent Fractions](image)

This figure proves that \( \frac{6}{10} \) is equivalent to \( \frac{3}{5} \).

4. For the draw a picture strategy, you can use the information you know to draw a picture to help you solve the problem. For example, if you know that there are 10 kittens total and that half are brown, 2 are white, and the rest are black you can draw a picture to help figure out how many are black.

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You can see from the drawing that there are 3 squares left, which means that 3 of the kittens are black.
Chapter 12 Assessment Answer Key

Cumulative Standardized Test Practice
Page 69

1. **B**
2. **J**
3. **C**
4. **H**
5. **A**
6. **H**
7. **C**
8. **J**
9. **B**

10. **G**

3\( \frac{4}{14} \)
11. **2\( \frac{2}{16} \)**
12. **10\( \frac{10}{24} \)**
13. **3\( \frac{3}{9} \)**
14. **5\( \frac{5}{7} \)**
15. **1\( \frac{1}{10} \)**
16. **2\( \frac{2}{3} \)**
17. **2\( \frac{2}{20} \) or 1\( \frac{1}{1} \)**
18. **10\( \frac{10}{5} \)**
19. **8\( \frac{8}{8} \)**
20. **3\( \frac{3}{3} \)**