Chapter 13
Resource Masters

Includes:

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- Student-Built Glossary
- Family Letter
- Anticipation Guide
- Game

Leveled Lesson Resources
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- Skills Practice
- Homework Practice
- Problem-Solving Practice
- Enrich

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All Answers Included
Grade 4 Chapter 13
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Teacher’s Guide to Using the
Chapter 13 Resource Masters

The Chapter 13 Resource Masters includes the core materials needed for Chapter 13. 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. You can use this graphic organizer in coordination with the appropriate lesson. 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 13-1. 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. If feasible, interview students in small groups, asking them the interview questions in the guide. 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 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. It also contains word problems that cover the skill. Spaces for students’ answers are provided on the worksheet.

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. Spaces for students’ answers are provided on the worksheet.

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

Enrich The Enrich worksheet presents activities that extend the concepts of the lesson or offer a historical or multicultural look at the lesson’s concepts. Some Enrich materials are designed to widen students’ perspectives on the mathematics they are learning.

Resources for Problem-Solving 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 practice worksheets.

**Assessment Options**

The assessment masters in the Chapter 13 *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.

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

**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.

**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. The variety of approaches includes solving problems using manipulatives as well as pencil and paper.

**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 13: Fractions**. Fill in the missing information.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>fraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>numerator</td>
<td></td>
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<tr>
<td>denominator</td>
<td></td>
<td></td>
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<tr>
<td>equivalent fraction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mixed number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>factor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>simplest form</td>
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</tbody>
</table>
This is an alphabetical list of new vocabulary terms you will learn in **Chapter 13: 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>
<tbody>
<tr>
<td>denominator</td>
<td></td>
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<tr>
<td>equivalent fractions</td>
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<tr>
<td>factor</td>
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<td>fraction</td>
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<td>mixed number</td>
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<tr>
<td>numerator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>simplest form</td>
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<td></td>
</tr>
</tbody>
</table>
Dear Family,

Today my class started Chapter 13: Fractions. I will be learning to identify, read, and write fractions. I will also be learning to add and subtract fractions with common denominators. Here are my vocabulary words and an activity that we can do together.

Love, ________________

Key Vocabulary

denominator The bottom number in a fraction. In \( \frac{5}{6} \), 6 is the denominator. It tells you how many parts in all.

equivalent fractions Fractions that represent the same number. \( \frac{3}{4} \) and \( \frac{6}{8} \)

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

mixed number A number that has a whole number part and a fraction part. \( 2\frac{3}{4} \)

numerator The top number in a fraction. In \( \frac{5}{6} \), 5 is the numerator.

factor A number that divides into a whole number evenly. Also a number that is multiplied by another number.

simplest form A fraction in which the numerator and the denominator have no common factor greater than 1. \( \frac{5}{12} \)

Activity

Collect 10 counters or cubes. Count the number of each color you have. Write each amount in the form of a fraction. Example: If you have 3 red counters out of 10 total counters, what would the fraction form of that statement be?

Books to Read

*Fraction Fun* by David Adler

*The Fraction Family Moves West* by Marti Dryk

*The Doorbell Rang* by Pat Hutchins
Estimada familia:

Hoy mi clase comenzó el Capítulo 13: Las fracciones. Aprenderé a identificar, a leer y a escribir fracciones y también a sumar y a restar fracciones con denominadores comunes. A continuación, están mis palabras de vocabulario y una actividad que podemos hacer juntos.

Cariños, ________________

Vocabulario clave

denominador El número inferior en una fracción. \( \frac{5}{6} \), 6 es el denominador

fracciones equivalentes Fracciones que representan el mismo número. \( \frac{3}{4} \) y \( \frac{6}{8} \)

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

número mixto Número compuesto por una parte entera y una parte fraccionaria. \( 2 \frac{3}{4} \)

numerador El número que está encima de la barra de fracción. \( \frac{5}{6}, 5 \) es el numerador

factor Número que divide exactamente a otro número entero. También es un número multiplicado por otro número

forma reducida Fracción en la cual el numerador y el denominador no tienen un factor común mayor que 1. \( \frac{5}{12} \)

Actividad

Reúnan 10 monedas. Cuenten el número de cada moneda que tienen. Escriban cada cantidad en forma de fracción. Ejemplo: Si tienen 3 monedas de 10¢ de un total de 10 monedas, ¿cuál sería la forma de fracción de ese enunciado?

Libros recomendados:

*Fraction Fun* de David Adler

*The Fraction Family Moves West* de Marti Dryk

*The Doorbell Rang* de Pat Hutchins
Anticipation Guide

Fractions

**STEP 1**

*Before you begin Chapter 13*

- 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).

**STEP 2**

*After you complete Chapter 13*

- 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.

<table>
<thead>
<tr>
<th>STEP 1 A, D, or NS</th>
<th>Statement</th>
<th>STEP 2 A or D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The bottom number in a fraction is the denominator.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Fractions that represent the same number are equivalent.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>All fractions represent the same number.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>A fraction is a number that represents part of a whole or part of a set.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>A mixed number is a number that has a whole number part and a fraction part.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>$6\frac{2}{3}$ is a mixed number.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>12 is a mixed number.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>The top number in a fraction is the numerator.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>In $\frac{9}{10}$, 10 is the numerator.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>$\frac{1}{3}$ is in simplest form.</td>
<td></td>
</tr>
</tbody>
</table>
Chapter 13 Game

Fraction Pairs

You will need:
- 40 index cards
- Pen or pencil

Separate the index cards into 4 sets of 10. Number each set from 1–10, one number on each card.

Shuffle the cards. Give 6 cards to each player.

Set the rest of the cards facedown.

Form a pair of equivalent fractions from the cards in your hand. The first player to form an equivalent fraction earns 2 points. If a player has a pair of equivalent fractions, the round ends. If no player has equivalent fractions, player 1 picks a card from the top of the stack and places it into her or his hand of cards. If he or she can form 2 equivalent fractions using 4 of the cards, the round ends.

If the player cannot form 2 equivalent fractions, he or she discards a card faceup into a discard pile. Player 2 then chooses a card either from the discard pile or the facedown stack.

Continue until one player can form a pair of equivalent fractions from the cards in their hand.

Reshuffle the cards and give out again to start Round 2. The first player to earn 10 points wins.
Reteach
Parts of a Whole

You can use models to show fractions.

This model shows 1.

This model shows 1 divided into 10 equal parts. You can shade the model to show \( \frac{1}{10} \).

This model shows 1 divided into 100 equal parts. You can shade the model to show \( \frac{1}{100} \).

Circle the fraction for the shaded part.

1. \( \frac{4}{10} \)
2. \( \frac{4}{100} \)
3. \( \frac{7}{10} \)
4. \( \frac{7}{100} \)
5. \( \frac{52}{100} \)
6. \( \frac{5}{10} \)
7. \( \frac{8}{10} \)
8. \( \frac{8}{100} \)

Write a fraction for each shaded part.

5.
6.
7.
8.
Skills Practice
Parts of a Whole

Write the fraction that names part of the whole.

1. [Rectangle with 8 parts, 5 shaded]
2. [Shape with 6 parts, 3 shaded]
3. [Pie chart divided into 6 parts, 2 shaded]
4. [Grid of 4x4, 3 shaded]
5. [Grid of 2x3, 1 shaded]
6. [Shape with 8 parts, 3 shaded]
7. [Rectangle with 4 parts, 3 shaded]
8. [Grid of 4x3, 6 shaded]

Draw a rectangle and shade part of it to show the fraction.

9. $\frac{1}{3}$
10. $\frac{5}{7}$
11. $\frac{4}{9}$
12. $\frac{4}{5}$
13. $\frac{4}{8}$
14. $\frac{5}{6}$
Name ______________________ Date __________________

13–1

Homework Practice

Parts of a Whole

Draw a picture and shade part of it to show a fraction.

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

Solve.

10. A pizza is cut in 8 pieces. Maria ate two of the pieces. Her friends ate the remaining pieces. What fraction of the pizza did Maria eat?

11. A recipe to bake biscuits calls for 2 cups of milk and 4 cups of flour. What fraction of the ingredients is milk?

12. A recipe for crunchy treats calls for 1 cup of chocolate and 3 cups of crunchy cereal. What fraction of the ingredients is chocolate?

Spiral Review

Use any strategy to solve. (Lesson 12–7)

13. Mr. Benson spends $48 on two tickets to the concert. At this rate, how much would 12 tickets cost? ______

14. Marcus downloads 17 songs on his computer. He downloads two additional songs each day for a week. How many more songs does he need to download to have 50 songs? ____________

15. Jaclyn has a collection of books. She has two mystery books for every science-fiction book. She has three times as many adventure books as mystery books. Jaclyn has four mystery books. How many science-fiction and adventure books does she have?
Solve.

1. Tony lost a button off his shirt. He measures one of the remaining buttons to find out what size button to buy to replace the one he lost.

Find the width of Tony’s button and write a fraction for the part of an inch.

2. Ciro has finished 1 part of his homework assignment. There are 3 parts to the assignment. What fraction of his assignment has he completed?
   Use grid paper to draw a rectangle and shade it to show how much of the assignment Ciro has finished.

3. Diallo baked a pumpkin pie. He sliced it into 6 pieces. His family ate 5 of the pieces. Write a fraction to show what part of the pie the family ate.

   ____ of a pie
   Write a fraction to show how much of the pie is left.

   ____ of a pie

4. Megan has read 4 chapters of a book about electricity. There are 8 chapters in the book. Use grid paper to draw a rectangle and shade it to show how much of the book Megan has read. If she reads two more chapters, what fraction of the book will she have read?

   ____ of the book

5. Alani has a pizza that is cut into 8 slices. After she and her friends finish eating, there are 3 slices left. Write a fraction that names the part of the pizza that is left.

   ____ of a pizza

6. Jesse has a block of cheddar cheese. He cuts it into 12 equal chunks and puts toothpicks into them to serve at a party. After the party, Jesse discovers that 11 cheese chunks have been eaten. Write a fraction to show what part of the block of cheese was eaten.

   ____ of the cheese
An artist decided to use stained glass panes in his front door. Read all the color clues first. Then use a colored pencil or a crayon to color the panes.

**Color Clues**

- One-eighth of the panes are red.
- Four-eighths of the panes are blue, and none of them are in the top half.
- Two-eighths of the panes are yellow. They have no sides in common.
- The whole door contains eight stained glass panes: red, yellow, green, or blue.
Reteach

Parts of a Set

Pat has three shirts. Two of the shirts are blue and one of them is red.

What you know:

There is a total of 3 things in the set.

One of the 3 things is red.

Two of the 3 things are blue.

To use a fraction to name a part of the whole:

Make the denominator the whole, the total number of things in the set. The numerators are the different parts of the set.

Pat has a total of 3 shirts and 1 of the shirts is red. What fraction of the shirts is red?

\[
\frac{1}{3} \text{ or 1 out of 3 shirts is red.}
\]

\[
\frac{2}{3} \text{ or 2 of the 3 shirts are blue.}
\]

Write the fraction that names the part of each set of objects.

1. 5 hornets in a set of 8 flying insects ______

2. 2 black widow spiders in a set of 5 spiders ______

3. 6 red roses in a set of 12 roses ______

4. 4 colored pencils in a case of 8 pencils ______

5. 10 math books on a shelf with a total of 30 books ______
Skills Practice

Parts of a Set

Write the fraction that names the part that is shaded.

1. [Diagram: 1/4 shaded]

2. [Diagram: 3/4 shaded]

3. [Diagram: 2/3 shaded]

4. [Diagram: 1/3 shaded]

5. [Diagram: 1/2 shaded]

Draw a picture and then write the fraction that names the part of each set of objects.

7. Six of eleven balloons are blue.

8. Four of seven hats have stars.

9. All of five kittens are smiling.

10. One of four animals is a monkey.

Solve.

11. Five of 12 students are in the school chorus. What part of the students are in the chorus? ______

12. Twenty of 25 students voted for class president. What part of the class did not vote for president? _________
Homework Practice

Parts of a Set

Draw a picture to show each set.

1. \(\frac{3}{4}\) of a set of shapes are circles.
2. \(\frac{7}{8}\) of a set of shapes are squares.
3. \(\frac{5}{6}\) of a set of shapes are rectangles.
4. \(\frac{3}{7}\) of a set of lines are zigzag.
5. \(\frac{7}{10}\) of a group of whales are grownups, \(\frac{3}{10}\) of the group are babies.

Solve.

6. Miguel’s mom brought home a bag of 15 hats for his birthday party. 6 of the hats are pointed shiny red hats. What fraction of the hats are pointed hats?
7. The other hats are striped and have bells. What fraction of the 15 hats are striped hats?
8. Miguel’s mom also has a bag of 16 toys. 9 of the toys are balls. What fraction of toys are balls?
9. There are also 7 whistles in the bag of toys. What fraction of 16 toys are whistles?
10. The last bag Miguel’s mom brought home has 18 noisemakers. Miguel took 3 of the blowers out of the bag and started using them before the party. What fraction of the noisemakers are left for the party guests?

Spiral Review

Draw a picture and shade part of it to show a fraction. (Lesson 13-1)

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

17. Look back over the page. Circle every fraction that shows more than one half.
Problem-Solving Practice

Parts of a Set

Solve.

1. Lara saw 3 snowmen on her way to school. She noticed that 2 of the three snowmen were smiling. On a separate sheet of paper, draw a picture of the snowmen that Lara saw. Then write a fraction that describes the number of snowmen who are smiling.

2. Ali has a group of 9 game pieces. Some of them are white and some of them are not.

   ![Game pieces]

   Write a fraction that shows the part of Ali’s game pieces that are white.

3. Diane has laid out 12 game cards. She put 7 of the cards face up and 5 of the cards face down. Write a fraction that names the part of Diane’s cards that are face up.

4. James spends 2 hours a day doing homework. What fraction of the day does James spend on homework?

5. There are 8 students in the chess club. Only 7 of the members attended the last meeting. Write a fraction that tells what part of the chess club missed the meeting.

6. There are 32 bottles of milk on the grocery store shelf. Carrie buys 5 of the bottles and Heather buys 11 of them. What fraction of the original number of milk bottles is left after Carrie and Heather make their purchases?
Write the fraction represented by each idea below. For example, two stars on the American flag is \( \frac{2}{50} \) or \( \frac{1}{25} \).

1. One day a week
2. Three months in a year
3. Eight toes on two feet
4. Two legs on a spider
5. Ten minutes in an hour
6. The left shoe of a pair
7. One flat tire on a car
8. Twelve inches of a yard
9. Three arms on an octopus
10. The color yellow on a traffic light
Reteach

Problem-Solving Strategy

Draw a Picture

Len took a survey among his classmates to find which type of movie they liked best. He surveyed 24 students. He showed his results on a circle graph. How many students chose mystery as their favorite type of movie?

Interpret a Circle Graph

A circle graph shows data as part of a circle. You can interpret the circle graph to solve the problem.

Step 1 What part of this whole chose mystery? What does the circle graph show? The part for Mystery is marked $\frac{1}{6}$.

Step 2 Draw 24 circles to show the 24 students surveyed. Since $\frac{1}{6}$ of the students chose mystery, place the circles in 6 equal groups.

There are 4 circles in each group. So, 4 out of 24 students chose mystery.

Solve. Use the draw a picture strategy.

Use the graph to answer these questions.

1. If 20 campers were surveyed about their favorite camp activity, how many chose swimming?
   
   ____________

2. How many chose boating?
   
   ____________

3. How many chose hiking?
   
   ____________
4. **Write About It** Suppose you did not know the number of campers surveyed about their favorite activity. Would you be able to order the activities from most to least favorite? Tell why or why not.


5. There are 15 students in Mr. Black’s class. One-fifth of them forgot to bring lunch on the class trip. Six of them forgot to bring a drink. The rest of them have both lunch and a drink. How many students will have to buy either a drink or lunch and a drink?


6. There are 12 glasses in the cabinet. If one fourth of the glasses are red, how many are some other color?


7. There are 4 boys. The second oldest is 12. The youngest is 3. The youngest is \( \frac{1}{5} \) the age of the oldest. The second oldest is twice the age of the second youngest. How old is each boy?

Use the table to answer question 8.

<table>
<thead>
<tr>
<th>Name</th>
<th>Time Spent Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joaquin</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Benjamin</td>
<td>( \frac{1}{4} ) of an hour</td>
</tr>
<tr>
<td>Petrus</td>
<td>( \frac{2}{5} ) of an hour</td>
</tr>
</tbody>
</table>

8. Which of the students spent the most time reading?
Solve. Use the draw a picture strategy.

1. There are 24 puppies at the pet store. One-third are brown. One-half are black. The rest are some other color, or combination of colors. How many puppies are some other color or combination of colors?

2. Keanu bought his sister 12 tulips for her graduation. \(\frac{1}{3}\) of the tulips were yellow. The rest are red. Which color were there the most of? How many tulips were that color?

3. Rosalyn has 24 CDs. One-fourth are classical. One-third are blues. The rest are techno. How many are techno CDs?

4. Monica spent \(3\frac{1}{2}\) hours swimming in the lake. Cynthia swam in the lake for 190 minutes. Who swam longer? How much longer?

5. Julia has three sizes of fish in her aquarium. The first type of fish is 4 inches long. The second type is \(\frac{1}{2}\) as long as the first. The third type is 1 inch longer than the second type. How long are the second and third types of fish?

6. Write a problem that you can solve by drawing a picture. Solve your problem. Then ask a classmate to solve the problem.
Solve. Use the **draw a picture** strategy.

1. Janice bought her mother a bunch of 12 flowers. 2 of the flowers are daisies. The others look like big cotton balls. Which flower are there the most of?

2. There are 6 books on the table. $\frac{1}{2}$ of them are reading books. 1 of them is a math book and the rest are science books. How many are science books?

3. Mrs. Jones has 6 pine trees in her backyard. The tree closest to the house is $\frac{1}{2}$ as tall as the trees against the fence. The height of each of the 5 trees against the fence is 12 feet. How tall is the tree near the house?

4. Marty’s friend Eugene lives 3 streets north of Marty’s street. Marty walked over to Eugene’s street and together they walked to school. The school is 6 streets to the east of Eugene’s street. What directions can the boys follow to return to Marty’s street?

**Spiral Review**

Draw a picture to show each set.

(Lesson 13-2)

5. $\frac{5}{6}$ of a set of shapes are rectangles.

6. $\frac{3}{7}$ of a set of lines are zigzag.

7. $\frac{7}{10}$ of a group of elephants are grownups, $\frac{3}{10}$ of the group are babies.

Solve.

8. Andrew’s dad brought home a group of 25 parts to build boxcars. 4 of the parts are steering wheels. What fraction of the parts are steering wheels? ____

9. Andrew’s dad also had 16 small tires. What fraction of the group of 25 parts are tires? ____
Use the information to answer the questions.

– An eagle can fly 40 miles to her home in the woods in one hour.
– A robin can cover a quarter of the distance in the same amount of time.
– An eagle flies $\frac{2}{3}$ as fast as a falcon.
– A falcon flies at twice the speed of an owl.
– A crow covers $\frac{3}{4}$ as much distance as an eagle does in one hour.

1. How far can a robin fly in sixty minutes? ____________

2. Which two birds travel at half the speed of a falcon? ______________

3. How fast does the falcon fly? __________________________

4. How many miles can a crow fly in half an hour? ___________

5. What fraction tells how fast the robin flies compared to the crow? ___
Equivalent Fractions

Equivalent fractions name the same part. To find an equivalent fraction, multiply the numerator and denominator by the same number.

Find fractions equivalent to \( \frac{1}{3} \).

\[
\begin{align*}
\frac{1 \times 2}{3 \times 2} &= \frac{2}{6} \\
\frac{1 \times 3}{3 \times 3} &= \frac{3}{9} \\
\frac{1 \times 4}{3 \times 4} &= \frac{4}{12}
\end{align*}
\]

So, \( \frac{1}{3} \), \( \frac{2}{6} \), \( \frac{3}{9} \), and \( \frac{4}{12} \) are equivalent fractions.

Complete to find equivalent fractions.

1. \( \frac{3}{4} \) = \( \frac{\_}{8} \)

2. \( \frac{3}{6} \) = \( \frac{\_}{12} \)

3. \( \frac{3}{5} \) = \( \frac{\_}{10} \)

4. \( \frac{4}{8} \) = \( \frac{\_}{\_} \)

5. \( \frac{2}{10} \) = \( \frac{\_}{\_} \)

6. \( \frac{4}{12} \) = \( \frac{\_}{\_} \)

7. \( \frac{3}{5} \) = \( \frac{3 \times \_}{5 \times \_} \)

8. \( \frac{3}{4} \) = \( \frac{3 \times \_}{4 \times \_} \)

9. \( \frac{3}{6} \) = \( \frac{3 \times \_}{6 \times \_} \)
Skills Practice
Equivalent Fractions

Complete to find equivalent fractions.

1. \( \frac{4}{10} \div \square = \frac{2}{\square} \)
2. \( \frac{1}{2} \times \frac{1}{8} = \frac{\square}{16} \)
3. \( \frac{2}{8} \div \square = \frac{1}{\square} \)
4. \( \frac{4}{5} = \frac{\square}{10} \)
5. \( \frac{1}{2} = \frac{6}{\square} \)
6. \( \frac{4}{\square} = \frac{1}{4} \)

Name an equivalent fraction for each.

7. \( \frac{3}{7} = \quad \) 11. \( \frac{4}{10} = \quad \)
8. \( \frac{4}{5} = \quad \) 12. \( \frac{6}{12} = \quad \)
9. \( \frac{6}{15} = \quad \) 13. \( \frac{3}{18} = \quad \)
10. \( \frac{4}{12} = \quad \)
14. \( \frac{8}{12} = \quad \)
15. \( \frac{3}{21} = \quad \)
16. \( \frac{10}{30} = \quad \)
17. \( \frac{5}{15} = \quad \)
18. \( \frac{9}{24} = \quad \)

ALGEBRA Complete the pattern of equivalent fractions.

19. \( \frac{1}{4} = \frac{8}{\square} = \frac{12}{\square} = \frac{16}{\square} = \frac{20}{\square} = \frac{24}{\square} \)
20. \( \frac{1}{3} = \frac{6}{\square} = \frac{9}{\square} = \frac{12}{\square} = \frac{15}{\square} = \frac{18}{\square} \)

Solve.

21. A box contains 6 red pencils and 8 black pencils. What fraction of the pencils are red? \( \quad \)
22. Paul caught 9 bass and 3 trout. What fraction of the fish were trout? \( \quad \)
Find an equivalent fraction for each fraction.

1. $\frac{3}{4}$
2. $\frac{3}{5}$
3. $\frac{2}{5}$
4. $\frac{4}{6}$
5. $\frac{6}{12}$
6. $\frac{8}{16}$
7. $\frac{7}{8}$
8. $\frac{3}{9}$

Solve.

9. A Ferris wheel has 10 seats. 5 of the seats are red. Write two fractions that describe the part of the cars that are red.

Solve. Use the draw a picture strategy. (Lesson 13-3)

10. There are 16 dolphins in the aquarium. $\frac{1}{2}$ are fully trained. 3 are in training. The rest will be trained in the spring. How many dolphins will be trained in the spring?

11. The bus that brings Lisa to school stops 12 times. $\frac{1}{3}$ of the stops are made before the bus gets to Lisa. After the bus stops to pick up Lisa, how many more stops are there?

12. Look back over the page and circle every fraction that is equal to one half.
Problem-Solving Practice

Equivalent Fractions

Solve.

1. Ms. Andrews has an umbrella that is gray and white. Look at the top of her umbrella.

   What fractional part of the umbrella is gray?

   Write an equivalent fraction.

   

4. There are 32 students in Mr. Simon’s class. Four of the students are on the soccer team. Write the fraction that shows how many of Mr. Simon’s students are on the team.

   

5. Ms. Ashton’s class set 9 major goals for their school year. They have reached 6 of their goals. Write a fraction that names the goals that have been reached.

   Then write 2 equivalent fractions.

6. There are 72 players in the soccer league and 54 of the players are new this year. Write a fraction that shows the number of players who are new this year.

   


Write a fraction that names the shaded part of each figure. Draw lines to connect the equivalent fractions.
Reteach

Simplest Form

Marty ate 2 of 4 muffins. You can also say that Marty ate \( \frac{1}{2} \) of the muffins. \( \frac{1}{2} \) is the simplest form of \( \frac{2}{4} \). \( \frac{1}{2} \) is the simplest form because its numerator and denominator have no common factor other than 1.

You can use division to write \( \frac{3}{15} \) in simplest form.

**Step 1.** Find the common factors.

Factors of 3: 1, 3

Factors of 15: 1, 3, 5, 15

The common factor is 3.

**Step 2.** Divide by the greatest common factor.

\[
\frac{3}{15} \quad \text{3 divided by 3 = 1}
\]

\[
\text{15 divided by 3 = 5}
\]

The simplest form of \( \frac{3}{15} \) is \( \frac{1}{5} \).

Write each fraction in simplest form. If it is already in simplest form, write simplest form.

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

2. \( \frac{1}{15} \)

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

4. \( \frac{9}{12} \)

5. \( \frac{2}{10} \)

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

7. \( \frac{2}{8} \)
Skills Practice

Simplest Form

Write each fraction in simplest form. If it is in simplest form, write simplest form.

1. \( \frac{18}{48} \)
2. \( \frac{5}{55} \)
3. \( \frac{9}{15} \)
4. \( \frac{24}{48} \)
5. \( \frac{5}{35} \)
6. \( \frac{8}{64} \)
7. \( \frac{2}{16} \)
8. \( \frac{3}{7} \)
9. \( \frac{8}{40} \)
10. \( \frac{4}{32} \)

ALGEBRA Find the value of \( x \) to simplify each fraction.

11. \( \frac{6}{48} = \frac{x}{8} \)
12. \( \frac{9}{63} = \frac{x}{7} \)
13. \( \frac{32}{40} = \frac{4}{x} \)
14. \( \frac{40}{60} = \frac{2}{x} \)
15. \( \frac{30}{36} = \frac{5}{x} \)
16. \( \frac{7}{21} = \frac{x}{3} \)

Write as a fraction in simplest form.

17. 6 eggs in a dozen _____
18. 4 days of the week _____
19. 3 months in a year _____
20. vowels in the alphabet _____
Write each fraction in simplest form. If it is in simplest form, write simplest form.

1. \( \frac{3}{9} \) ____
2. \( \frac{5}{15} \) ____
3. \( \frac{1}{3} \) ____
4. \( \frac{24}{36} \) ____
5. \( \frac{7}{35} \) ____
6. \( \frac{6}{48} \) ____
7. \( \frac{20}{25} \) ____
8. \( \frac{7}{49} \) ____
9. \( \frac{15}{30} \) ____
10. \( \frac{16}{40} \) ____

ALGEBRA Find the value of \( x \) to simplify each fraction.

11. \( \frac{9}{27} = \frac{x}{3} \) ____
12. \( \frac{7}{63} = \frac{x}{9} \) ____
13. \( \frac{15}{50} = \frac{3}{x} \) ____

Write as a fraction in simplest form.

14. Six of the 12 muffins in a bag are blueberry. What fraction of muffins are blueberry? ____________

Spiral Review

Find an equivalent fraction for each fraction. (Lesson 13-4)

15. \( \frac{9}{18} \) ____
16. \( \frac{6}{16} \) ____
17. \( \frac{12}{18} \) ____
18. \( \frac{2}{6} \) ____
19. \( \frac{5}{20} \) ____
20. \( \frac{3}{9} \) ____
21. \( \frac{4}{28} \) ____
22. \( \frac{4}{8} \) ____
Problem-Solving Practice

Simplest Form

Solve.

1. Ryan has 8 kittens. 2 of the kittens are white. Write a fraction for the number of kittens Ryan has that are not white in simplest form.

2. Laura has 10 marbles. After she gives 2 of them to Emma, she has \( \frac{8}{10} \) of her marbles left. Write a fraction for the number of marbles Laura gave away in simplest form.

3. Aidan likes to build with his 12 blocks. He used 8 blocks to build a house. Write a fraction in simplest form that tells what fraction of Aidan’s blocks were used in the house.

4. Ellen has 6 cousins. 2 of her cousins live nearby. Write a fraction for the number of cousins that do not live near Ellen in simplest form.

5. Nick wants to run 9 miles in a week. So far he has run 3 miles. Write a fraction in simplest form that names how many Nick has run.
Look at the fractions in each square. Cross out the fraction that does not belong. Then write a fraction that does belong.

1. \[
\begin{array}{ccc}
\frac{3}{8} & \frac{5}{8} & \frac{6}{7} \\
\frac{7}{8} & \frac{8}{7} & \frac{8}{8}
\end{array}
\]

2. \[
\begin{array}{ccc}
\frac{1}{3} & \frac{2}{7} & \frac{5}{6} \\
\frac{3}{12} & \frac{11}{2} & \frac{12}{6}
\end{array}
\]

3. \[
\begin{array}{ccc}
\frac{1}{2} & \frac{5}{9} & \frac{4}{3} \\
\frac{8}{6} & \frac{3}{8} & \frac{2}{9}
\end{array}
\]

4. \[
\begin{array}{ccc}
\frac{2}{8} & \frac{3}{12} & \frac{4}{5} \\
\frac{8}{16} & \frac{25}{5} & \frac{16}{25}
\end{array}
\]

5. \[
\begin{array}{ccc}
\frac{2}{3} & \frac{6}{9} & \frac{4}{8} \\
\frac{3}{7} & \frac{9}{12} & \frac{7}{12}
\end{array}
\]

6. \[
\begin{array}{ccc}
\frac{6}{9} & \frac{8}{12} & \frac{10}{3} \\
\frac{3}{16} & \frac{4}{4} & \frac{16}{4}
\end{array}
\]

7. \[
\begin{array}{ccc}
\frac{5}{3} & \frac{3}{5} & \frac{4}{5} \\
\frac{9}{12} & \frac{5}{5} & \frac{16}{25}
\end{array}
\]

8. \[
\begin{array}{ccc}
\frac{2}{5} & \frac{3}{9} & \frac{8}{1} \\
\frac{5}{5} & \frac{1}{1} & \frac{1}{8}
\end{array}
\]

9. \[
\begin{array}{ccc}
\frac{1}{3} & \frac{3}{7} & \frac{4}{5} \\
\frac{3}{6} & \frac{5}{8} & \frac{16}{4}
\end{array}
\]

Cross out each fraction in simplest form and the letter below it.

\[
\begin{array}{cccccccccccccccc}
\frac{1}{3} & \frac{4}{6} & \frac{3}{7} & \frac{6}{9} & \frac{8}{10} & \frac{5}{8} & \frac{3}{20} & \frac{10}{13} & \frac{2}{12} & \frac{8}{16} & \frac{5}{6} & \frac{9}{12} & \frac{15}{30} & \frac{8}{15}
\end{array}
\]

BENXCKELPLETNTY

Write the letters that are left.

____  ____  ____  ____  ____  ____  ____  ____
Choose a Strategy

28 students are studying in the library on Thursday afternoon. \( \frac{1}{4} \) of them are studying for a history test. 5 students are studying grammar. The rest of the students are studying for a math test. How many students are studying for a math test?

<table>
<thead>
<tr>
<th>Step 1 Understand</th>
<th>Make sure you understand the problem.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>What do you know?</td>
</tr>
<tr>
<td></td>
<td>There are ____ students. ____ are studying history.</td>
</tr>
<tr>
<td></td>
<td>____ are studying grammar.</td>
</tr>
<tr>
<td></td>
<td>What do you need to find out?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2 Plan</th>
<th>Make a plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Choose a Strategy.</td>
</tr>
<tr>
<td></td>
<td>You can use logical reasoning to solve.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3 Solve</th>
<th>Carry out your plan.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Find out the number that equals ( \frac{1}{4} ) of 28.</td>
</tr>
<tr>
<td></td>
<td>( \frac{1}{4} ) of 28 = _____.</td>
</tr>
<tr>
<td></td>
<td>7 students are studying history. 5 are studying grammar.</td>
</tr>
<tr>
<td></td>
<td>7 + 5 = _____.</td>
</tr>
<tr>
<td></td>
<td>12 students are studying grammar or history. Subtract 12 from 28.</td>
</tr>
<tr>
<td></td>
<td>____ students are studying math.</td>
</tr>
</tbody>
</table>
### Problem-Solving Investigation

#### Step 4 Check

<table>
<thead>
<tr>
<th>Step 4 Check</th>
<th>Is the solution reasonable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reread the problem.</td>
</tr>
<tr>
<td></td>
<td>Does your answer make sense?</td>
</tr>
<tr>
<td></td>
<td>Did you answer the question?</td>
</tr>
</tbody>
</table>

#### Use any strategy shown below to solve.

- Guess and check.
- Look for a pattern.
- Solve a simpler problem.
- Use logical reasoning.
- Draw a picture.

#### Choose the correct answer.

1. A group of 18 students goes to the amusement park. Of these students, \( \frac{5}{6} \) go on the bumper cars. How many students go on the bumper cars? ____________

2. Amiri has 9 cousins. Of these cousins, \( \frac{1}{3} \) live in the same town as Amiri. How many of his cousins live someplace else? ____________

3. Angie has $35. She wants to spend three-sevenths of her money on a new pair of jeans. How much money will she have left over? ____________

4. Marge exercises for 45 minutes twice a day. If she keeps up this schedule for 15 days, how many minutes will she exercise in all? ____________

5. Neil has some coins. He has 2 times as many pennies as quarters. He has 4 more nickels than pennies. If he has 4 quarters, how much money does he have? ____________

6. Sadie wants to spend 15 minutes every day this week practicing her piano recital piece. Each week until the recital, she wants to double the amount of time she spends playing each day. How many minutes will Sadie spend playing during the entire fourth week? ____________
Skills Practice

Problem-Solving Investigation

Use any strategy shown below to solve.

- Guess and check.
- Look for a pattern.
- Solve a simpler problem.
- Use logical reasoning.
- Draw a picture.

Solve.

1. There are 32 rides at an amusement park. Norman goes on \( \frac{3}{8} \) of the rides. How many rides does he go on? ____________

2. Donna went on 18 rides over 3 hours. If she spent half her time on \( \frac{1}{3} \) of the rides, on how many rides did she spend the last half of her time?

3. Ashley puts 45 stamps in an album. She puts the same number of stamps on each page, and 3 stamps on the last page. There are 2 more pages in the album than the number of stamps on each page. How many pages are in the album? How many stamps are on each page? ____________

4. The orchestra is composed of 54 students. One third of the students play string instruments. Nine students play percussion. If one more student plays a woodwind instrument than a brass instrument, how many students play each instrument?

5. Molly’s uncle is cooking a 7-pound beef roast for dinner. It takes 25 minutes per pound to cook. What time should Molly’s uncle begin cooking the roast if he wants to serve dinner at 7 P.M.?

6. Marcus exercises for 45 minutes 4 times a week. During a 10-week period, he had a cold one week and did not get to exercise. How many total minutes did Marcus spend exercising during this 10-week period? ________________
Homework Practice

Problem-Solving Investigation

Choose a Strategy

Use any strategy shown below to solve.

- Use Logical Reasoning
- Look for a Pattern
- Solve a Simpler Problem

1. Mark has some coins. He has 2 more quarters than nickels and 4 more dimes than quarters. If he has 6 nickels, how much money does he have? ________

2. Jerry owns 30 sports posters. $\frac{1}{2}$ of them are small posters. $\frac{1}{3}$ are medium posters. The rest are large posters. How many are large posters? ________________

3. Linda bought 5 new jerseys. The long sleeved ones cost $15, and the striped ones cost $10. She spent a total of $60. How many of each type of shirt did she buy?

Spiral Review

Write each fraction in simplest form. If it is in simplest form, write simplest form. (Lesson 13-5)

4. $\frac{10}{20}$ __________ 5. $\frac{42}{54}$ __________ 6. $\frac{14}{28}$ __________

7. $\frac{3}{21}$ __________ 8. $\frac{8}{40}$ __________ 9. $\frac{28}{49}$ __________

10. $\frac{24}{32}$ __________ 11. $\frac{15}{30}$ __________ 12. $\frac{7}{10}$ __________

13. $\frac{18}{81}$ __________ 14. $\frac{25}{55}$ __________ 15. $\frac{3}{4}$ __________

ALGEBRA Find the value of $x$ to simplify each fraction.

16. $\frac{8}{56} = \frac{x}{7}$ ___ 17. $\frac{6}{9} = \frac{x}{3}$ ___

18. $\frac{6}{54} = \frac{x}{9}$ ___ 19. $\frac{16}{20} = \frac{x}{5}$ ___
There are 48 fourth graders at Holt Crossing Elementary School. Read all the clues first. Then figure out the number of students for each fraction. Write the number in the circle.

1. One-fourth of the boys play basketball.
2. Two-thirds of the students are boys.
3. Half of the students wear tennis shoes every day.
4. One-fourth of the girls wear their hair in braids.
5. One-third of the students who aren’t wearing tennis shoes are wearing boots.
6. One-eighth of the girls are blonde.
7. Three-eighths of the girls play soccer.
8. Three-fourths of the students love math.
9. One-fourth of the students wore red socks last Tuesday.
10. When 8 students were sick, one-fifth of the remaining students sent cards to them.
**Reteach**

**Compare and Order Fractions**

You can use models to compare and order fractions. Order the numbers from *least* to *greatest*.

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

**Compare the fractions.**

\[ \frac{1}{4} < \frac{1}{2} \text{ and } \frac{3}{4} \]

\[ \frac{1}{2} < \frac{3}{4} \]

**Order the decimals.**

Think: \( \frac{1}{4} < \frac{1}{2} < \frac{3}{4} \).

The order from *least* to *greatest* is \( \frac{1}{4}, \frac{1}{2}, \frac{3}{4} \).

**Compare. Write >, <, or =.**

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

**Order from *least* to *greatest*.**

4. \( \frac{7}{10}, \frac{6}{10}, \frac{4}{5} \)

5. \( \frac{6}{12}, \frac{3}{4}, \frac{8}{12} \)

6. \( \frac{5}{6}, \frac{1}{6}, \frac{2}{3} \)

7. \( \frac{3}{8}, \frac{2}{4}, \frac{1}{8} \)
Skills Practice

Compare and Order Fractions

Complete. Write >, <, or =.

1. \( \frac{1}{2} \) \( \bigcirc \) \( \frac{1}{3} \)
2. \( \frac{2}{5} \) \( \bigcirc \) \( \frac{2}{7} \)
3. \( \frac{4}{9} \) \( \bigcirc \) \( \frac{2}{3} \)
4. \( \frac{2}{5} \) \( \bigcirc \) \( \frac{3}{4} \)
5. \( \frac{7}{10} \) \( \bigcirc \) \( \frac{4}{5} \)
6. \( \frac{3}{4} \) \( \bigcirc \) \( \frac{2}{3} \)
7. \( \frac{4}{5} \) \( \bigcirc \) \( \frac{12}{15} \)
8. \( \frac{1}{3} \) \( \bigcirc \) \( \frac{4}{20} \)
9. \( \frac{1}{5} \) \( \bigcirc \) \( \frac{2}{15} \)
10. \( \frac{5}{12} \) \( \bigcirc \) \( \frac{1}{4} \)
11. \( \frac{3}{4} \) \( \bigcirc \) \( \frac{13}{16} \)
12. \( \frac{8}{9} \) \( \bigcirc \) \( \frac{7}{8} \)
13. \( \frac{7}{12} \) \( \bigcirc \) \( \frac{5}{6} \)
14. \( \frac{3}{10} \) \( \bigcirc \) \( \frac{4}{9} \)
15. \( \frac{7}{8} \) \( \bigcirc \) \( \frac{3}{4} \)
16. \( \frac{9}{10} \) \( \bigcirc \) \( \frac{4}{5} \)
17. \( \frac{1}{4} \) \( \bigcirc \) \( \frac{5}{16} \)
18. \( \frac{3}{5} \) \( \bigcirc \) \( \frac{7}{10} \)

Order from least to greatest.

19. \( \frac{1}{4}, \frac{1}{2}, \frac{1}{5} \) ______, ______, ______
20. \( \frac{7}{8}, \frac{3}{4}, \frac{3}{8} \) ______, ______, ______

Order from greatest to least.

21. \( \frac{5}{7}, \frac{1}{7}, \frac{9}{21} \) ______, ______, ______
22. \( \frac{4}{9}, \frac{1}{3}, \frac{2}{3} \) ______, ______, ______

Solve.

27. Sandra eats \( \frac{1}{6} \) of a cake. Pat eats \( \frac{1}{3} \) of the same cake. Who eats more cake? Explain.

28. Karl eats \( \frac{1}{2} \) of a pizza. Tim eats \( \frac{2}{3} \) of a pizza. Chris eats \( \frac{3}{4} \) of a pizza. Order the amounts from greatest to least.
Homework Practice

Compare and Order Fractions

Compare. Write >, <, or =.

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

Order from least to greatest.

11. $\frac{5}{10}$, $\frac{8}{12}$, $\frac{1}{3}$
12. $\frac{1}{3}$, $\frac{8}{11}$, $\frac{5}{11}$

13. $\frac{4}{9}$, $\frac{7}{11}$, $\frac{2}{8}$

Solve.

14. Joe worked on his woodworking project for $\frac{3}{4}$ of an hour Monday evening. Tuesday evening, he worked for $\frac{7}{8}$ of an hour. Which day did he work longer? __________

15. Jack and Frank shared the cost of renting a boat. It cost $20 an hour and they used it 5 hours. How much did each friend pay? __________

16. Janice leaves to walk to her friend’s house at 3:30. She arrives at her friend’s house at 3:45. How many minutes did it take her to walk to her friend’s? __________

17. Look back over the page and circle all the fractions with a denominator of 9.
Problem-Solving Practice

Compare and Order Fractions

Solve.

1. Lon can have \(\frac{2}{3}\) cup of orange juice or \(\frac{3}{4}\) cup of milk. Which amount is more?

2. Patti has three glue sticks that are partially used. One has \(\frac{1}{5}\) left, one has \(\frac{3}{5}\) left, and one has \(\frac{3}{10}\) left. Order the fractions from least to greatest.

3. Eduardo has three cans of paint. One can is \(\frac{3}{8}\) full, one is \(\frac{3}{4}\) full, and one is \(\frac{2}{16}\) full. Order the cans from greatest to least amounts of paint.

4. Samuel is making bread and needs \(\frac{5}{8}\) cup of flour. Jason is making a different kind of bread and needs \(\frac{3}{4}\) cup of flour. Who needs the greater amount of flour?

5. Lola measures three buttons to find one which will fit the buttonhole on the shirt she is making. One is \(\frac{3}{16}\) inch, one is \(\frac{3}{8}\) inch, and one is \(\frac{1}{4}\) inch. Order the button sizes from largest to smallest.

6. Jerilyn has finished \(\frac{27}{32}\) of her math problems. Matt has finished \(\frac{7}{8}\) of his math problems. Who has finished the greatest number of math problems?
Enrich

Just Five

Use only the numbers 1, 2, 3, 4 and 5 to fill in as many circles as you can to make each number sentence true.

1. \( \bigcirc \) \( < \) \( \bigcirc \)

4. \( \bigcirc \) \( > \) \( \bigcirc \)

2. \( \bigcirc \) \( = \) \( \bigcirc \)

5. \( \bigcirc \) \( > \) \( \bigcirc \)

3. \( \bigcirc \) \( = \) \( \bigcirc \)

6. \( \bigcirc \) \( < \) \( \bigcirc \)
Reteach
Add and Subtract Like Fractions

You can use fraction models to add fractions with like denominators.

\[
\begin{array}{c}
\frac{1}{6} + \frac{1}{6} = \frac{2}{6} \\
\frac{1}{3} + \frac{1}{3} = \frac{2}{3}
\end{array}
\]

\[
\frac{2}{6} + \frac{2}{6} = \frac{4}{6} = \frac{2}{3}
\]

You can also use fraction models to subtract fractions with like denominators.

\[
\frac{4}{5} - \frac{3}{5} = \frac{1}{5}
\]

Find each sum or difference. Write in simplest form.

1. \[
\frac{1}{8} + \frac{3}{8} = ___
\]
2. \[
\frac{1}{4} + \frac{2}{4} = ___
\]
3. \[
\frac{2}{3} + \frac{1}{3} = ___
\]
4. \[
\frac{4}{6} - \frac{1}{6} = ___
\]
5. \[
\frac{2}{4} - \frac{1}{4} = ___
\]
6. \[
\frac{7}{8} - \frac{5}{8} = ___
\]
Skills Practice

Add and Subtract Like Fractions

Find each sum or difference. Write in simplest form.

1. \(\frac{7}{8} - \frac{2}{8} = \) ___

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

3. \(\frac{6}{10} + \frac{1}{10} = \) ___

4. \(\frac{8}{9} - \frac{7}{9} = \) ___

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

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

7. \(\frac{5}{10} + \frac{3}{10} = \) ___

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

9. \(\frac{6}{7} - \frac{5}{7} = \) ___

10. \(\frac{8}{9} - \frac{4}{9} = \) ___

11. \(\frac{5}{8} - \frac{2}{8} = \) ___

12. \(\frac{1}{3} + \frac{1}{3} = \) ___

13. \(\frac{1}{2} + \frac{1}{2} = \) ___

14. \(\frac{9}{12} - \frac{4}{12} = \) ___

15. \(\frac{4}{5} - \frac{2}{5} = \) ___

16. \(\frac{5}{7} - \frac{1}{7} = \) ___

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

18. \(\frac{3}{9} + \frac{4}{9} = \) ___

Solve.

19. Mario works at a snack bar near the beach for 2 hours each Saturday. One Saturday, he started with 30 bottles of juice and sold \(\frac{5}{10}\) of the juice in the first hour. When he finished work, he had \(\frac{2}{10}\) of the juice left. What fraction did he sell in the second hour?

---

20. Another Saturday when Mario was working at the snack bar, he and his boss sold all the juice they had. If Mario sold \(\frac{7}{12}\) of the juice, what fraction did his boss sell?
Find each sum or difference. Write in simplest form.

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

Solve.

13. Summer watched \( \frac{3}{6} \) of a movie. Then, she watched another \( \frac{2}{6} \). What fraction of the movie does she have left to watch?

14. John is hitting baseballs at a batting cage. He used \( \frac{5}{12} \) of the baseballs the first time he batted. Then, he used \( \frac{3}{12} \) more. What fraction of the baseballs does he have left?

Compare. Write >, <, or =.

(Lesson 13-7)

15. \( \frac{3}{4} \) \( \bigcirc \) \( \frac{2}{4} \) 
16. \( \frac{1}{2} \) \( \bigcirc \) \( \frac{6}{12} \) 
17. \( \frac{3}{5} \) \( \bigcirc \) \( \frac{7}{10} \)

Order from least to greatest.

18. \( \frac{2}{3}, \frac{3}{12}, \frac{5}{6} \) 
19. \( \frac{4}{5}, \frac{7}{10}, \frac{1}{2} \)

Solve. Write the result in simplest form.

1. Sam has a set of 6 wildcat animal cards. The set of cards is made up of $\frac{2}{6}$ tigers, $\frac{1}{6}$ pumas, and $\frac{3}{6}$ lions. If Sam gave away the tiger and puma cards, how many cards would he have left?

2. Amber sliced a watermelon into 12 wedges. She ate 1 wedge, her brother ate 2 wedges, and her uncle ate 3 wedges. What fraction of the melon did they eat?

3. There are 8 pieces of fruit in a bowl. If you removed $\frac{1}{4}$ of the fruit, how many pieces would remain?

4. There are 6 students in a group. One student wrote a science report on animals. One student wrote a science report on trees. Four students wrote social studies reports. What fraction of the group wrote science reports?

5. Rachel baked a blueberry pie. She ate $\frac{1}{6}$. How much pie is left for her family?

6. Brice and his younger sister, Carla, share 21 chores each week. They do 3 chores each day. What fraction of the week’s chores do Brice and Carla do on 2 days?
Add and Subtract Fractions with Like Denominators

In this triangle, the number in each blank circle is equal to the sum of the fractions in the two circles above it.

Add to find the missing fractions to complete the triangle. Do not write your answers in simplest form.

How many fractions less than 1 can you simplify in the triangle?

Write the fractions in simplest form.

How many fractions in the triangle are greater than 1?

Write the fractions in simplest form.
Mixed Numbers

A mixed number is made up of a whole and a part of a whole. You can use models to help you write mixed numbers.

Mixed number: \(1 \frac{7}{10}\)
Read: one and seven tenths

Mixed number: \(2 \frac{36}{100}\)
Read: two and thirty-six hundredths

Write a mixed number for each model.

1. 

2. 

Write out the mixed number.

3. \(1 \frac{9}{10}\)

4. \(3 \frac{5}{100}\)

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

6. \(1 \frac{17}{100}\)
Skills Practice

Mixed Numbers

Write each as an improper fraction or a mixed number.

1. \( \frac{9}{7} = \) ____
2. \( \frac{36}{8} = \) ____
3. \( 6\frac{1}{2} = \) ____
4. \( \frac{3}{2} = \) ____
5. \( 3\frac{1}{5} = \) ____
6. \( 3\frac{1}{3} = \) ____
7. \( \frac{7}{4} = \) ____
8. \( 1\frac{3}{7} = \) ____
9. \( \frac{30}{4} = \) ____
10. \( \frac{6}{3} = \) ____
11. \( \frac{24}{10} = \) ____
12. \( 8\frac{3}{4} = \) ____
13. \( 6\frac{1}{3} = \) ____
14. \( \frac{21}{5} = \) ____
15. \( \frac{4}{2} = \) ____

ALGEBRA Use the number line to compare. Write >, <, or =.

\[
\begin{array}{cccccccccccc}
0 & 1 & \frac{1}{8} & 1 & \frac{1}{4} & 1 & \frac{3}{8} & 1 & \frac{5}{8} & 1 & \frac{7}{8} & 2
\end{array}
\]

16. \( 1\frac{1}{6} \bigcirc 1 \)
17. \( 2 \bigcirc \frac{16}{8} \)
18. \( 2 \bigcirc 1\frac{7}{8} \)

19. \( 1 \bigcirc 1\frac{5}{8} \)
20. \( 1\frac{1}{8} \bigcirc 1\frac{1}{2} \)
21. \( 1\frac{3}{4} \bigcirc 1\frac{7}{8} \)

Solve.

22. Adam drinks \( 11 \) one-fourths of a cup of milk each day. What is this as a mixed number?

23. John read \( \frac{1}{2} \) of his book. Bridget read \( \frac{1}{3} \) of her book. Who read more of their book? Explain.

24. Jared drank \( \frac{7}{4} \) cups of juice. Aida drank \( \frac{9}{6} \) cups. Who drank more juice? Explain.
Identify the points on the number line below. Write each point as a mixed number.

1. A ______
   1 2 3 4 5
2. B ______
   1 2 3 4 5

Identify the points on the number line below. Write each point as an improper fraction.

3. C ______
4. D ______

Write each mixed number as an improper fraction.

5. \(2\frac{3}{4}\)  
6. \(5\frac{3}{5}\)  
7. \(6\frac{2}{3}\)

Write each improper fraction as a mixed number.

8. \(\frac{15}{2}\)  
9. \(\frac{16}{5}\)  
10. \(\frac{23}{7}\)

Find each sum or difference. Write in simplest form. (Lesson 13-8)

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

Solve.

19. Angie used \(\frac{3}{4}\) of the paints in her paint set. Her sister used \(\frac{1}{4}\) of Angie’s paints. How much of the paints did they use in all? ________________
**Problem-Solving Practice**

**Mixed Numbers**

**Solve.**

1. Ana has 13 crayons that are only \( \frac{1}{3} \) as long as they used to be. Rename \( \frac{13}{3} \) as a mixed number in simplest form.

2. Vic needs \( 1 \frac{1}{2} \) cups of flour to bake bread. How many halves is that?

3. Pedro uses \( \frac{1}{9} \) of a sheet of art paper to make one paper crane. He makes 75 cranes. How many sheets of art paper does Pedro use to make the cranes? Rename \( \frac{75}{9} \) as a mixed number in simplest form.

4. Jenny needs \( 3 \frac{2}{3} \) cups of flour to bake bread. How many thirds is that?

5. The hardware company uses \( \frac{1}{8} \) of a roll of wire to make a hook. The company made 338 hooks on Tuesday. How many rolls of wire did they use? Write your answer as a mixed number in simplest form.

6. Tamika uses \( \frac{1}{4} \) of a block of wax to make a candle. How many blocks of wax does she use to make 22 candles? Write your answer as a mixed number in simplest form.
Enrich
Math Communications

• Mixed numbers are whole numbers and fractions.

• Improper fractions have numerators that are equal to or greater than their denominators.

1. In the space below, draw a picture of some kind of food to show that \(2\frac{1}{2} = \frac{5}{2}\).

2. In the space below, explain how you know that \(\frac{20}{6} = 3\frac{1}{3}\). (You may want to use pictures or some of the terms above.)
# 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>Identify and find equivalent fractions.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Compare and order fractions on a number line.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Add and subtract fractions with common denominators.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Solve problems by drawing a picture.</td>
<td></td>
</tr>
</tbody>
</table>

## Notes

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
____________________________________________________________________
Write the word that names the equal parts in each whole. Choose from halves, thirds, fourths, and fifths.

1. __________
2. __________
3. __________
4. __________

Divide.

5. \(24 \div 4 = \) __________
6. \(81 \div 9 = \) __________
7. \(24 \div 2 = \) __________
8. \(30 \div 5 = \) __________
9. \(28 \div 4 = \) __________
10. \(45 \div 5 = \) __________
11. \(18 \div 3 = \) __________
12. \(36 \div 4 = \) __________
13. \(56 \div 7 = \) __________

14. Tyrone read 120 pages in 10 days. He read the same number of pages each day. How many pages did he read each day?

List the factors of each number.

15. 18 __________
16. 20 __________
17. 24 __________
18. 30 __________

19. Write the factor of 21 that is missing from the list below.

   1, 3, __________, 21
Chapter Pretest

Write the fraction of the shaded area and find an equivalent fraction.

1. [Shaded fractions]
   \[ \frac{3}{6} \]

4. [Shaded fractions]
   \[ \frac{2}{4} \]

2. [Shaded fractions]
   \[ \frac{2}{3} \]

5. [Shaded fractions]
   \[ \frac{1}{2} \]

3. [Shaded fractions]
   \[ \frac{4}{5} \]

6. [Shaded fractions]
   \[ \frac{3}{4} \]

Order the fractions from least to greatest.

7. \[ \frac{1}{3}, \frac{1}{10}, \frac{2}{15} \]

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

Write each improper fraction as a mixed number.

9. \[ \frac{37}{7} \]

10. \[ \frac{17}{11} \]

11. \[ \frac{19}{2} \]

12. \[ \frac{11}{4} \]

Add or subtract the fractions. Write the answer in simplest form.

13. \[ \frac{6}{10} - \frac{2}{10} = \]

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

15. \[ \frac{5}{8} - \frac{3}{8} = \]

16. \[ \frac{1}{5} + \frac{1}{5} = \]
Draw a picture and shade part of it to show the fraction.

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

Draw a picture to show each set.

5. \( \frac{1}{2} \) of a set of shapes are stars.
6. \( \frac{6}{8} \) of a set of shapes are circles.
7. \( \frac{1}{3} \) of a set of shapes are fish.
8. \( \frac{2}{5} \) of a set of lines are zigzag.

Write the amount as a fraction.

9. 6 out of 15 students

_____

10. 9 out of 15 books

_____

Solve. Use the draw a picture strategy.

11. There are 18 books on a shelf. One-half are about sports. One-third are about music. The rest are about ecology. How many are ecology books? ___________
Quiz 2 (Lessons 13-4 through 13-6)

Find an equivalent fraction for each fraction.

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

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

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

4. \( \frac{5}{25} \)  

Write each fraction in simplest form. If it is in simplest form, write simplest form.

5. \( \frac{5}{40} \)  

6. \( \frac{8}{32} \)  

7. \( \frac{2}{10} \)  

8. \( \frac{9}{15} \)  

Use any strategy to solve.

9. There are 8 elephants at the zoo. \( \frac{1}{4} \) are baby elephants. 1 is a young adult. How many full-grown elephants are there?

10. Sonya and her friend are in a jewelry store. The store has 20 kinds of rings. \( \frac{3}{4} \) of the different kinds are diamond rings. There are 3 kinds of emerald rings. The rest are kinds of ruby rings. How many kinds of ruby rings are there?

11. Eddie rode on his skateboard for \( \frac{1}{2} \) an hour. Sam was on his for 50 minutes. Who rode longer?
Quiz 3 (Lessons 13-7 through 13-9)

Compare. Write >, < or =.

1. \( \frac{3}{5} \) __ 4/5

2. \( \frac{7}{8} \) __ 4/8

3. \( \frac{3}{6} \) __ 1/2

Order from least to greatest.

4. \( \frac{2}{6}, \frac{1}{4}, \frac{4}{6} \) __________

5. \( \frac{4}{16}, \frac{1}{8}, \frac{4}{6} \) __________

Write each improper fraction as a mixed number.

6. \( \frac{5}{4} \) __________

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

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

Find each sum or difference. Write in simplest form.

9. \( \frac{3}{5} + \frac{1}{5} \) __________

10. \( \frac{7}{8} - \frac{2}{8} \) __________

11. \( \frac{1}{3} + \frac{2}{3} \) __________
Mid-Chapter Review (Lessons 13-1 through 13-4)

1. Emily wanted to spend \( \frac{1}{3} \) of her evening talking on the phone and \( \frac{1}{3} \) of her evening doing homework. What fraction below is NOT equivalent to the amount of time she spent doing both?
   A. \( \frac{4}{6} \)  
   B. \( \frac{6}{9} \)  
   C. \( \frac{6}{12} \)  
   D. \( \frac{10}{15} \)  

2. What fraction is 4 pieces of an 8-slices pizza?
   A. \( \frac{4}{8} \)  
   B. \( \frac{4}{4} \)  
   C. \( \frac{8}{8} \)  
   D. \( \frac{1}{8} \)  

3. What is the missing number in \( \frac{1}{3} = \frac{2}{x} \)?
   A. \( x = 3 \)  
   B. \( x = 4 \)  
   C. \( x = 5 \)  
   D. \( x = 6 \)  

4. There are 3 red flowers, 4 yellow flowers, and 1 white flower. Of the flowers, what fraction is yellow?
   A. \( \frac{1}{2} \)  
   B. \( \frac{3}{10} \)  
   C. \( \frac{5}{8} \)  
   D. \( \frac{1}{6} \)  

5. Anne Marie recorded her time studying over four days as: 1, \( 1 \frac{1}{2} \), and 2 hours. Following this pattern, how much time did she spend studying on the fourth day?

6. What problem-solving strategy would be best to solve the problem above?

7. What is a fraction?

8. What are equivalent fractions?

9. How do you find an equivalent fraction?

10. Why are \( \frac{3}{15} \) and \( \frac{1}{5} \) equivalent fractions?
**Vocabulary Test**

Using the word bank below, complete each sentence by writing the correct word or words in the blank.

<table>
<thead>
<tr>
<th>denominator</th>
<th>numerator</th>
</tr>
</thead>
<tbody>
<tr>
<td>equivalent fractions</td>
<td>factor</td>
</tr>
<tr>
<td>fraction</td>
<td>simplest form</td>
</tr>
<tr>
<td>mixed number</td>
<td></td>
</tr>
</tbody>
</table>

1. A fraction is in ____________ when the numerator and the denominator have no common factor greater than 1.

2. The top number in a fraction is the ____________.

3. Fractions that represent the same number are ____________.

4. A(n) ____________ is a number that represents part of a whole or part of a set.

5. A(n) ____________ is a number that divides into a whole number evenly.

6. The bottom number in a fraction is the ____________.

7. A number that has a whole number part and a fraction part is a (n) ____________.
Oral Assessment

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

Place 2 nickels, 3 dimes, 1 quarter and 4 pennies on the table.

1. What is the total number of coins on the table?

2. What is the fraction for the number of nickels on the table?

3. Tell how you got your answer.

4. What is the fraction for the number of dimes on the table?

5. What is the fraction for the number of quarters on the table?

6. Explain your answer.
Show the following chart to the student.

<table>
<thead>
<tr>
<th>Name</th>
<th>Distance to State Park (mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamie</td>
<td>$\frac{3}{4}$</td>
</tr>
<tr>
<td>Scott</td>
<td>$\frac{5}{10}$</td>
</tr>
<tr>
<td>Mario</td>
<td>$\frac{1}{2}$</td>
</tr>
<tr>
<td>Deja</td>
<td>$\frac{2}{5}$</td>
</tr>
<tr>
<td>Michelle</td>
<td>$\frac{1}{5}$</td>
</tr>
</tbody>
</table>

8. Who lives the farthest from the state park?

________________________________________________________________________

9. Who lives the closest to the state park?

________________________________________________________________________

10. Tell how you got your answer.

________________________________________________________________________

11. What is the total distance it takes Deja and Michelle to get to the State Park?

________________________________________________________________________

12. Explain your answer.

________________________________________________________________________

13. What is the order of distance from least to greatest?

________________________________________________________________________

14. Tell how you got your answer.

________________________________________________________________________
# Chapter Project Rubric

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

### Fractions

#### Top Pocket Foldable

<table>
<thead>
<tr>
<th>Score</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>2</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>1</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>0</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>
Chapter Test, Form 1

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

For exercises 1 and 2, match the model with the fraction that correctly represents the shaded part of the model.

1.

- A. $\frac{8}{3}$
- B. $\frac{1}{3}$
- C. $\frac{3}{8}$
- D. $\frac{5}{8}$

2.

- F. $\frac{1}{7}$
- G. $\frac{12}{7}$
- H. $\frac{5}{12}$
- J. $\frac{7}{12}$

3. Find the sum. $\frac{1}{5} + \frac{3}{5}$

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

4. Which has the greatest value? $\frac{3}{12}$, $\frac{1}{6}$, $\frac{2}{6}$, $\frac{3}{8}$

- F. $\frac{3}{12}$
- G. $\frac{1}{6}$
- H. $\frac{2}{6}$
- J. $\frac{3}{8}$

5. Find an equivalent fraction for $\frac{2}{5}$.

- A. $\frac{4}{10}$
- B. $\frac{5}{8}$
- C. $\frac{4}{7}$
- D. $\frac{8}{10}$

6. Find $\frac{27}{36}$ in simplest form.

- F. $\frac{9}{4}$
- G. $\frac{4}{9}$
- H. $\frac{3}{4}$
- J. $\frac{3}{9}$

7. Find $\frac{19}{3}$ as a mixed number in simplest form.

- A. $6\frac{3}{19}$
- B. $6\frac{1}{3}$
- C. $\frac{6}{3}$
- D. $\frac{6}{19}$

8. Find the difference. $\frac{7}{8} - \frac{4}{8}$

- F. $\frac{3}{8}$
- G. $\frac{3}{4}$
- H. $\frac{1}{4}$
- J. $\frac{2}{3}$

9. Find the value of $x$ to simplify the fraction. $\frac{\frac{15}{25} = \frac{x}{5}}$

- A. 2
- B. 3
- C. 4
- D. 5

10. Find $\frac{7}{21}$ in simplest form.

- F. $\frac{7}{14}$
- G. $\frac{1}{7}$
- H. $\frac{1}{3}$
- J. $\frac{3}{27}$

Grade 4  65
11. Find an equivalent fraction for $\frac{6}{24}$.
   A. $\frac{2}{3}$   B. $\frac{1}{3}$   C. $\frac{1}{4}$   D. $\frac{3}{4}$  11. _____

12. Find the value of $x$ to simplify the fraction. $\frac{4}{28} = \frac{1}{x}$
   F. 7   G. 6   H. 5   J. 4  12. _____

13. Order from least to greatest. $\frac{7}{8}, \frac{3}{4}, \frac{8}{12}$
   A. $\frac{8}{12}, \frac{3}{4}, \frac{7}{8}$   B. $\frac{8}{12}, \frac{3}{4}, \frac{7}{8}$   C. $\frac{3}{4}, \frac{7}{8}, \frac{8}{12}$   D. $\frac{3}{4}, \frac{8}{12}, \frac{7}{8}$  13. _____

14. Find $\frac{12}{20}$ in simplest form.
   F. $\frac{4}{5}$   G. $\frac{3}{4}$   H. $\frac{3}{5}$   J. $\frac{6}{10}$  14. _____

15. Rename $\frac{26}{5}$ as a mixed number in simplest form.
   A. $5 \frac{6}{5}$   B. $\frac{5}{26}$   C. $5 \frac{1}{26}$   D. $5 \frac{1}{5}$  15. _____

16. A group of 40 students went to the museum. $\frac{3}{5}$ went to the Picasso exhibit and the rest went to the Matisse exhibit. How many went to the Picasso exhibit?
   F. 15 students   G. 8 students   H. 24 students   J. 35 students  16. _____

17. A group of 12 students performed a science experiment. Of the group, $\frac{2}{3}$ were girls. Which statement is true?
   A. More than 9 were girls.   B. Less than 8 were girls.
   C. More than $\frac{1}{4}$ were boys.   D. Less than $\frac{1}{3}$ were boys.  17. _____

18. Carlos read $\frac{1}{8}$ of his book. Then he read $\frac{4}{8}$ of the book. How much of his book did Carlos read in all?
   F. $\frac{3}{5}$   G. $\frac{1}{2}$   H. $\frac{5}{8}$   J. $\frac{3}{8}$  18. _____

19. A group of 16 students met to play soccer. $\frac{1}{8}$ had never played soccer and had to have the rules explained. Which statement is true?
   A. Fewer than 2 students had never played soccer.
   B. More than 12 students had played soccer before.
   C. Almost 10 students had played soccer before.
   D. More than 2 students had never played soccer.  19. _____
Chapter Test, Form 2A

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

For exercises 1 and 2, match the model with the fraction that correctly represents the shaded part of the model.

1. 

   - A. \( \frac{2}{5} \)
   - B. \( \frac{5}{2} \)
   - C. \( \frac{3}{5} \)
   - D. \( \frac{1}{5} \)

2. 

   - F. \( \frac{10}{8} \)
   - G. \( \frac{8}{10} \)
   - H. \( \frac{2}{8} \)
   - J. \( \frac{2}{10} \)

3. Find the sum. \( \frac{5}{8} + \frac{2}{8} \)
   - A. \( \frac{3}{8} \)
   - B. \( \frac{6}{8} \)
   - C. \( \frac{7}{8} \)
   - D. \( \frac{8}{7} \)

4. Which has the greatest value? \( \frac{1}{2}, \frac{9}{24}, \frac{4}{6}, \frac{5}{12} \)
   - F. \( \frac{1}{2} \)
   - G. \( \frac{9}{24} \)
   - H. \( \frac{4}{6} \)
   - J. \( \frac{5}{12} \)

5. Find an equivalent fraction for \( \frac{3}{7} \).
   - A. \( \frac{6}{16} \)
   - B. \( \frac{6}{14} \)
   - C. \( \frac{8}{16} \)
   - D. \( \frac{10}{14} \)

6. Find \( \frac{18}{45} \) in simplest form.
   - F. \( \frac{2}{9} \)
   - G. \( \frac{5}{9} \)
   - H. \( \frac{5}{2} \)
   - J. \( \frac{2}{5} \)

7. Find \( \frac{23}{4} \) as a mixed number in simplest form.
   - A. \( 5\frac{3}{4} \)
   - B. \( 5\frac{3}{23} \)
   - C. \( 4\frac{3}{4} \)
   - D. \( 4\frac{7}{4} \)

8. Find the difference. \( \frac{7}{9} - \frac{3}{9} \)
   - F. \( \frac{4}{9} \)
   - G. \( \frac{5}{9} \)
   - H. \( \frac{1}{3} \)
   - J. \( \frac{4}{5} \)

9. Find the value of \( x \) to simplify the fraction. \( \frac{16}{24} = \frac{x}{3} \)
   - A. 8
   - B. 4
   - C. 3
   - D. 2

10. Find \( \frac{6}{42} \) in simplest form.
    - F. \( \frac{6}{7} \)
    - G. \( \frac{1}{7} \)
    - H. \( \frac{1}{6} \)
    - J. \( \frac{3}{7} \)
11. Find an equivalent fraction for $\frac{3}{8}$.
   A. $\frac{1}{4}$  
   B. $\frac{8}{16}$  
   C. $\frac{9}{24}$  
   D. $\frac{8}{24}$  

12. Find the value of $x$ to simplify the fraction. $\frac{5}{20} = \frac{1}{x}$
   F. 5  
   G. 4  
   H. 3  
   J. 2

13. Order from least to greatest. $\frac{5}{8}, \frac{3}{4}, \frac{4}{6}$
   A. $\frac{5}{8}, \frac{4}{6}, \frac{3}{4}$  
   B. $\frac{4}{6}, \frac{5}{8}, \frac{3}{4}$  
   C. $\frac{3}{4}, \frac{4}{6}, \frac{5}{8}$  
   D. $\frac{5}{8}, \frac{3}{4}, \frac{4}{6}$

14. Find $\frac{6}{16}$ in simplest form.
   F. $\frac{1}{4}$  
   G. $\frac{3}{8}$  
   H. $\frac{3}{16}$  
   J. $\frac{1}{8}$

15. Find $\frac{46}{10}$ as a mixed number in simplest form.
   A. $3\frac{6}{10}$  
   B. $3\frac{3}{5}$  
   C. $4\frac{6}{10}$  
   D. $4\frac{3}{5}$

16. A group of 30 students went to a ballet. $\frac{5}{6}$ had never seen a ballet performance before. How many had never seen a ballet?
   F. 11  
   G. 20  
   H. 24  
   J. 25

17. 25 students attended the science fair. $\frac{3}{5}$ entered their projects into the competition. Which statement is true?
   A. $\frac{2}{5}$ of the students did not enter the science fair.
   B. More than 15 students entered the science fair.
   C. Less than $\frac{3}{8}$ of the students entered the science fair.
   D. More than 14 students did not enter the science fair.

18. Before eating dinner, Vanessa finished $\frac{1}{5}$ of the problems in her math homework. After dinner she finished $\frac{2}{5}$ more problems. What fraction of the problems did Vanessa complete?
   F. $\frac{1}{5}$  
   G. $\frac{2}{5}$  
   H. $\frac{3}{5}$  
   J. $\frac{3}{10}$

19. Missy has 38 marbles. She separates the marbles into piles of 4 marbles each. She is left with a pile that has less than 4 marbles. Write a mixed number in simplest form that represents the piles of marbles.
   A. $\frac{38}{4}$  
   B. $\frac{9}{2}$  
   C. $\frac{4}{38}$  
   D. $4\frac{9}{4}$
Choose the fraction that each picture shows.

1. \[
\begin{array}{c}
\text{A. } \frac{2}{5} \\
\text{B. } \frac{5}{2} \\
\text{C. } \frac{3}{5}
\end{array}
\]

2. \[
\begin{array}{c}
\text{F. } \frac{10}{8} \\
\text{G. } \frac{8}{10} \\
\text{H. } \frac{2}{8}
\end{array}
\]

3. Find \( \frac{5}{8} + \frac{2}{8} \).
   \[
   \text{A. } \frac{3}{8} \\
   \text{B. } \frac{6}{8} \\
   \text{C. } \frac{7}{8}
   \]

4. Find \( x \). \( \frac{16}{24} = \frac{x}{3} \)
   \[
   \text{F. } 8 \\
   \text{G. } 4 \\
   \text{H. } 2
   \]

5. Find \( \frac{7}{9} - \frac{3}{9} \).
   \[
   \text{A. } \frac{4}{9} \\
   \text{B. } \frac{5}{9} \\
   \text{C. } \frac{4}{5}
   \]

6. \( \frac{3}{7} = ? \)
   \[
   \text{F. } \frac{6}{16} \\
   \text{G. } \frac{6}{14} \\
   \text{H. } \frac{8}{16}
   \]

7. Find \( \frac{18}{45} \) in simplest form.
   \[
   \text{A. } \frac{2}{9} \\
   \text{B. } \frac{5}{2} \\
   \text{C. } \frac{2}{5}
   \]

8. Which is the greatest? \( \frac{9}{24}, \frac{4}{6}, \frac{5}{12} \)
   \[
   \text{F. } \frac{9}{24} \\
   \text{G. } \frac{4}{6} \\
   \text{H. } \frac{5}{12}
   \]

9. Find \( \frac{23}{4} \) as a mixed number in simplest form.
   \[
   \text{A. } 5 \frac{3}{4} \\
   \text{B. } 5 \frac{3}{23} \\
   \text{C. } 4 \frac{3}{4}
   \]

10. Find \( \frac{6}{42} \) in simplest form.
    \[
    \text{F. } \frac{6}{7} \\
    \text{G. } \frac{1}{7} \\
    \text{H. } \frac{1}{6}
    \]
11. Find \( \frac{46}{10} \) as a mixed number in simplest form.
   A. \( 4 \frac{3}{5} \)  
   B. \( 3 \frac{3}{5} \)  
   C. \( 4 \frac{6}{10} \)  

12. Find \( x \) if \( \frac{5}{10} = \frac{1}{x} \)
   F. 5  
   G. 4  
   H. 2  

13. Order from least to greatest. \( \frac{5}{8}, \frac{4}{6}, \frac{3}{4} \)
   A. \( \frac{5}{8}, \frac{4}{6}, \frac{3}{4} \)  
   B. \( \frac{4}{6}, \frac{5}{8}, \frac{3}{4} \)  
   C. \( \frac{3}{4}, \frac{4}{6}, \frac{5}{8} \)  

14. Find \( \frac{6}{16} \) in simplest form.
   F. \( \frac{3}{16} \)  
   G. \( \frac{3}{8} \)  
   H. \( \frac{2}{8} \)  

15. \( \frac{3}{8} = ? \)
   A. \( \frac{1}{4} \)  
   B. \( \frac{8}{16} \)  
   C. \( \frac{9}{24} \)  

16. Vanessa did \( \frac{3}{12} \) math problems. Later she did \( \frac{4}{12} \) more problems. What fraction of the problems did Vanessa do?
   F. \( \frac{5}{6} \)  
   G. \( \frac{7}{12} \)  
   H. \( \frac{1}{2} \)  

17. A class has 25 students. \( \frac{3}{5} \) of the students play sports. Which statement is true?
   A. \( \frac{2}{5} \) of the students do not play sports.  
   B. More than 15 students play sports.  
   C. Less than \( \frac{3}{8} \) of the students play sports.  

18. 30 students went to a ballet. \( \frac{5}{6} \) had never seen a ballet. How many had never seen a ballet?
   F. 11  
   G. 20  
   H. 25  

19. Missy has 38 marbles. She put the marbles into piles of 4. One pile has less than 4 marbles. Write a fraction in simplest form that shows the piles of marbles.
   A. \( \frac{38}{4} \)  
   B. \( 9 \frac{1}{2} \)  
   C. \( 9 \frac{4}{38} \)
Read each question carefully. Write your answer on the line provided.

For exercises 1 and 2, write a fraction that correctly represents the shaded part of the model.

1. 

2. 

3. Find the value of \( x \) to simplify the fraction. \( \frac{16}{24} = \frac{x}{3} \)

4. Write \( \frac{18}{45} \) in simplest form.

5. Write an equivalent fraction for \( \frac{3}{8} \).

6. Find the sum. \( \frac{5}{8} + \frac{2}{8} \)

7. Write an equivalent fraction for \( \frac{3}{7} \).

8. Write \( \frac{46}{10} \) as a mixed number in simplest form.

9. Write \( \frac{23}{4} \) as a mixed number in simplest form.

10. Find the difference. \( \frac{7}{9} - \frac{3}{9} \)

11. Which has the greatest value?

12. Order from least to greatest.

13. Write \( \frac{6}{42} \) in simplest form.

14. Find the value of \( x \) to simplify the fraction. \( \frac{5}{20} = \frac{1}{x} \)

15. Write \( \frac{6}{16} \) in simplest form.
16. Missy has 38 marbles. She separates the marbles into piles of 4 marbles each. She is left with a pile that has less than 4 marbles. Write a fraction in simplest form that represents the piles of marbles.

17. Before eating dinner, Vanessa finished \( \frac{1}{5} \) of the problems in her math homework. After dinner she finished \( \frac{2}{5} \) more problems. What fraction of the problems did Vanessa complete?

18. 25 students attended the science fair. \( \frac{3}{5} \) entered their projects into the competition. What number of students entered their projects into the competition?

19. A group of 30 students went to a ballet. \( \frac{5}{6} \) had never seen a ballet performance before. How many had never seen a ballet?
Read each question carefully. Write your answer on the line provided.

Write the fraction that the picture shows.

1. \[
\begin{array}{c}
\text{Fraction: } \frac{1}{5}
\end{array}
\]

2. \[
\begin{array}{c}
\text{Fraction: } \frac{3}{4}
\end{array}
\]

3. Write a fraction equal to \( \frac{3}{8} \).

4. Write \( \frac{18}{45} \) in simplest form.

5. Find \( \frac{7}{9} - \frac{3}{9} \).

6. Find \( x \) if \( \frac{5}{20} = \frac{1}{x} \).

7. Find \( \frac{5}{8} + \frac{2}{8} \).

8. Write \( \frac{23}{4} \) as a mixed number in simplest form.

9. Which is the greatest? \( \frac{9}{24}, \frac{4}{6}, \frac{5}{12} \).

10. Write a fraction equal to \( \frac{3}{7} \).

11. Find \( x \) if \( \frac{16}{24} = \frac{x}{3} \).

12. Write \( \frac{6}{42} \) in simplest form.

13. Write \( \frac{6}{16} \) in simplest form.

14. Write \( \frac{46}{10} \) as a mixed number in simplest form.

15. Order from least to greatest: \( \frac{5}{8}, \frac{3}{4}, \frac{4}{6} \).
16. Missy has 38 marbles. She put the marbles into piles of 4. One pile has less than 4 marbles. Write a fraction in simplest form that shows the piles of marbles.

17. 30 students went to a ballet. \(\frac{5}{6}\) had never seen a ballet. How many had never seen a ballet?

18. A class has 25 students. \(\frac{3}{5}\) of the students play sports. What number of students play sports?

19. Vanessa did \(\frac{3}{8}\) math problems. Later she did \(\frac{2}{8}\) more problems. What fraction of the problems did Vanessa do?
Read each question carefully. Write your answer on the line provided.

1. What fraction of the model is shaded? Express your answer in simplest form.

   ![Fraction Model]

2. _____________
3. _____________

Use the information for exercises 2 and 3.

Jody earned $8.00 for helping his aunt wash her car. He spent \( \frac{1}{4} \) of the money on an ice-cream cone and $4.00 on a paperback book.

4. What fraction of the money he earned did Jody not spend?
5. _____________

6. How much money did Jody spend?
7. _____________

4. Determine the value of \( x \) to simplify the fraction. \( \frac{24}{72} = \frac{x}{3} \)
8. _____________

5. Express \( \frac{15}{51} \) in simplest form.
9. _____________

6. Write an equivalent fraction for \( \frac{5}{12} \).
10. _____________

7. Determine the sum. Express your answer in simplest form. \( \frac{3}{12} + \frac{3}{12} \)
11. _____________

8. Write an equivalent fraction for \( \frac{2}{19} \).
12. _____________

9. Express \( \frac{66}{8} \) as a mixed number in simplest form.
13. _____________

10. Express \( \frac{38}{4} \) as a mixed number in simplest form.

11. Determine the difference. Express your answer in simplest form. \( \frac{7}{8} - \frac{1}{8} \)

12. _____________

12. Which fraction has the greatest value? \( \frac{1}{3}, \frac{9}{25}, \frac{3}{8}, \frac{5}{12} \)

13. _____________

13. Which has the least value? \( \frac{5}{9}, \frac{3}{5}, \frac{2}{3}, \frac{28}{45} \)

13. _____________
14. Express $\frac{13}{39}$ in simplest form.

15. Determine the value of $x$ to simplify the fraction. $\frac{8}{44} = \frac{2}{x}$

16. Write $\frac{56}{77}$ in simplest form.

17. Joseph has 47 coins. He separates them into piles of eight. He is left with a pile that contains fewer than eight coins. Write a fraction in simplest form that represents Joseph’s piles of coins.

18. Before going to soccer practice, Patricia solves $\frac{2}{12}$ of the equations in her math homework. After practice she solves $\frac{3}{12}$ more problems. What fraction of the problems must Patricia still complete?

19. 18 students met to rehearse for a school play. $\frac{1}{2}$ of the students had never acted in a play before, $\frac{1}{3}$ had been in one previous play. The rest had been in multiple plays before. What number of students have been in multiple plays?

20. In a class of 25 students, $\frac{2}{5}$ walk to school, 4 ride their bicycles to school, and $\frac{1}{5}$ carpool. The remaining students ride the bus. How many students ride the bus to school?
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. David has 50 marbles and loses 12 of them. Michelle has 50 marbles and loses 25 of them. What fraction of marbles does each of them have left?
   a. What is a numerator? What are the numerators of the fractions of marbles David and Michelle have left?
   b. What is a denominator? What are the denominators of the fractions of marbles David and Michelle have left?
   c. Are the two fractions equivalent? Why or why not?

2. Explain the difference between a mixed number and an improper fraction and give an example of each.

3. Explain what it means for a fraction to be in simplest form and then complete the chart below.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Simplest Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/4</td>
<td>1/2</td>
</tr>
<tr>
<td>4/16</td>
<td>1/4</td>
</tr>
<tr>
<td>3/24</td>
<td></td>
</tr>
<tr>
<td>6/36</td>
<td></td>
</tr>
<tr>
<td>9/27</td>
<td></td>
</tr>
<tr>
<td>10/50</td>
<td></td>
</tr>
</tbody>
</table>
Use this recording sheet with pages 550–551 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

Allison completed \( \frac{1}{4} \) of her book report Sunday morning and completed \( \frac{2}{4} \) of her book report in the afternoon. Which model shows how much of the book report she completed in all on Sunday?

A. 

B. 

C. 

D. 

Read the Question

You need to find a model that shows how much of her book report Allison completed.

Solve the Question

Look at the models to find one that shows fourths to match the fractions given in the problem.

Eliminate answer choices that do not show fourths.

Add \( \frac{2}{4} \) and \( \frac{1}{4} \).

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

So, Allison completed \( \frac{3}{4} \) of her book report on Sunday.

The answer is B.

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

1. What model shows the sum of \( \frac{3}{5} \) and \( \frac{1}{5} \)?

A. 

B. 

C. 

D. 

1. ___
2. Sharice downloaded 77 songs in 7 days. She downloaded the same number of songs each day. How many songs did she download each day?
   F. 11  
   G. 10  
   H. 7  
   J. 5  

3. Which fraction is best represented by point q on the number line?

   A. \(4\frac{2}{4}\)  
   B. \(3\frac{1}{5}\)  
   C. \(\frac{2}{4}\)  
   D. \(4\frac{1}{4}\)  

4. Which set of fractions is in order from least to greatest?
   F. \(\frac{9}{10}, \frac{2}{5}, \frac{1}{4}\)  
   G. \(\frac{4}{5}, \frac{1}{2}, \frac{1}{3}\)  
   H. \(\frac{1}{4}, \frac{1}{3}, \frac{1}{2}\)  
   J. \(\frac{3}{5}, \frac{1}{9}, \frac{3}{10}\)  

5. Which fraction is an improper fraction?
   A. \(\frac{9}{5}\)  
   B. \(\frac{2}{4}\)  
   C. \(\frac{7}{8}\)  
   D. \(\frac{4}{6}\)  

6. Which fraction is the model shaded to show?
   F. \(3\frac{2}{4}\)  
   G. \(2\frac{1}{4}\)  
   H. \(1\frac{1}{2}\)  
   J. \(3\frac{1}{4}\)  

7. What is the value of the expression below if \(b = 5\)?
   \(15 + (b \times 8)\)
   A. 40  
   B. 55  
   C. 3  
   D. 124
8. The auditorium has 60 rows of seats. Each row contains 9 seats. How many people can sit in the auditorium?
   F. 380  G. 385  H. 540  J. 520
   8. ____________

9. Which expression matches the shaded models?
   A. \( \frac{2}{3} = \frac{2}{4} \)  B. \( \frac{5}{6} > \frac{2}{3} \)  C. \( \frac{1}{3} < \frac{2}{5} \)  D. \( \frac{5}{6} < \frac{2}{5} \)
   9. ____________

10. Which number is 300,000 more than 21,569,320?
    F. 21,983,076  G. 22,000,000  H. 21,869,320  J. 18,923,294
    10. ____________

11. Rodolfo practiced his clarinet 14 hours in 7 days. He practiced the same amount of hours each day. How many hours did he practice each day?
    11. ____________

12. What number is 100,000 more than 345,243?
    12. ____________

13. The restaurant has 20 tables. Each table seats 4 people. How many people can sit in the restaurant at once?
    13. ____________

14. Write an expression to match the shaded models.
    14. ____________

15. Write an expression to match the shaded models.
    15. ____________

16. What is the value of the expression below if \( r = 9 \)?
    \[ 4 + (r + 5) \]
    16. ____________

17. What is the value of the expression below if \( t = 24 \)?
    \[ t - (4 \times 3) \]
    17. ____________
### Graphic Organizer

Use this graphic organizer to take notes on Chapter 13: Fractions. Fill in the missing information.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>fraction</td>
<td>A number that represents part of a whole or part of a set.</td>
<td>$\frac{1}{4}$ represents 1 of a set of 4.</td>
</tr>
<tr>
<td>numerator</td>
<td>The top number in a fraction.</td>
<td>The numerator in $\frac{1}{4}$ is 1.</td>
</tr>
<tr>
<td>denominator</td>
<td>The bottom number in a fraction.</td>
<td>The denominator in $\frac{1}{4}$ is 4.</td>
</tr>
<tr>
<td>equivalent fraction</td>
<td>Fractions that represent the same number.</td>
<td>$\frac{1}{4}$ and $\frac{4}{16}$ are equivalent fractions.</td>
</tr>
<tr>
<td>mixed number</td>
<td>A number that has a whole number part and a fraction part.</td>
<td>$5\ 1\ 4$ is a mixed number.</td>
</tr>
<tr>
<td>factor</td>
<td>A number that divides into a whole number evenly. Also a number that is multiplied by another number.</td>
<td>4 and 5 are factors of 20.</td>
</tr>
<tr>
<td>simplest form</td>
<td>A fraction in which the numerator and the denominator have no common factor greater than 1.</td>
<td>$\frac{4}{5}$ is in simplest form because 4 and 5 have no common factor greater than 1.</td>
</tr>
</tbody>
</table>

### Anticipation Guide

**Fractions**

**STEP 1** Before you begin Chapter 13

- 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>A, D, or NS Statement</th>
<th>STEP 2 A or D</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The bottom number in a fraction is the denominator.</td>
<td>A</td>
</tr>
<tr>
<td>2. Fractions that represent the same number are equivalent.</td>
<td>A</td>
</tr>
<tr>
<td>3. All fractions represent the same number.</td>
<td>D</td>
</tr>
<tr>
<td>4. A fraction is a number that represents part of a whole or part of a set.</td>
<td>A</td>
</tr>
<tr>
<td>5. A mixed number is a number that has a whole number part and a fraction part.</td>
<td>A</td>
</tr>
<tr>
<td>6. $6\frac{1}{3}$ is a mixed number.</td>
<td>A</td>
</tr>
<tr>
<td>7. 12 is a mixed number.</td>
<td>D</td>
</tr>
<tr>
<td>8. The top number in a fraction is the numerator.</td>
<td>A</td>
</tr>
<tr>
<td>9. In $\frac{9}{10}$, 10 is the numerator.</td>
<td>D</td>
</tr>
<tr>
<td>10. $\frac{1}{2}$ is in simplest form.</td>
<td>A</td>
</tr>
</tbody>
</table>

**STEP 2** After you complete Chapter 13

- 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.
Reteach
Parts of a Whole

You can use models to show fractions.

This model shows 1.

This model shows 1 divided into 10 equal parts. You can shade the model to show \( \frac{1}{10} \).

This model shows 1 divided into 100 equal parts. You can shade the model to show \( \frac{1}{100} \).

Circle the fraction for the shaded part.

1. \( \frac{4}{10} \)
2. \( \frac{7}{10} \)
3. \( \frac{52}{100} \)
4. \( \frac{8}{10} \)

Write a fraction for each shaded part.

5. \( \frac{6}{10} \)
6. \( \frac{5}{100} \)
7. \( \frac{1}{2} \)
8. \( \frac{1}{6} \)

Skills Practice
Parts of a Whole

Write the fraction that names part of the whole.

1. \( \frac{5}{11} \)
2. \( \frac{4}{8} \)
3. \( \frac{3}{6} \)
4. \( \frac{5}{15} \)
5. \( \frac{5}{9} \)
6. \( \frac{1}{4} \)
7. \( \frac{3}{8} \)
8. \( \frac{3}{4} \)

Draw a rectangle and shade part of it to show the fraction.

Check students’ work. Possible answers are given.

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

Parts of a Whole

1. Draw a picture and shade part of it to show a fraction.

check students' work

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

Solve.

10. A pizza is cut in 8 pieces. Maria ate two of the pieces. Her friends ate the remaining pieces. What fraction of the pizza did Maria eat?

\[ \frac{2}{8} \] or \[ \frac{1}{4} \] pizza

11. A recipe to bake biscuits calls for 2 cups of milk and 4 cups of flour. What fraction of the ingredients is milk?

\[ \frac{2}{6} \] or \[ \frac{1}{3} \] milk

12. A recipe for crunchy treats calls for 1 cup of chocolate and 3 cups of crunchy cereal. What fraction of the ingredients is chocolate?

\[ \frac{1}{4} \] chocolate

Problem-Solving Practice

Parts of a Whole

1. Tony lost a button off his shirt. He measures one of the remaining buttons to find out what size button to buy to replace the one he lost.

Find the width of Tony's button and write a fraction for the part of an inch.

\[ \frac{5}{8} \] in.

2. Ciro has finished 1 part of his homework assignment. There are 3 parts to the assignment. What fraction of his assignment has he completed?

Use grid paper to draw a rectangle and shade it to show how much of the assignment Ciro has finished.

students' should show \( \frac{1}{3} \)

3. Diallo baked a pumpkin pie. He sliced it into 6 pieces. His family ate 5 of the pieces. Write a fraction to show what part of the pie the family ate.

Write a fraction to show what part of the pie the family ate.

\[ \frac{5}{6} \] of a pie

4. Megan has read 4 chapters of a book about electricity. There are 8 chapters in the book. Use grid paper to draw a rectangle and shade it to show how much of the book Megan has read. If she reads two more chapters, what fraction of the book will she have read?

students' drawings should show \( \frac{4}{8} \) and \( \frac{6}{8} \) of the book

5. Alani has a pizza that is cut into 8 slices. After she and her friends finish eating, there are 3 slices left. Write a fraction that names the part of the pizza that is left.

Write a fraction that names the part of the pizza that is left.

\[ \frac{2}{8} \] of a pizza

6. Jesse has a block of cheddar cheese. He cuts it into 12 equal chunks and puts toothpicks into them to serve at a party. After the party, Jesse discovers that 11 cheese chunks have been eaten. Write a fraction to show what part of the block of cheese was eaten.

Write a fraction to show what part of the block of cheese was eaten.

\[ \frac{11}{12} \] of the cheese
Enrich

Stained Glass Door

An artist decided to use stained glass panes in his front door. Read all the color clues first. Then use a colored pencil or a crayon to color the panes.

Color Clues
- One-eighth of the panes are red.
- Four-eighths of the panes are blue, and none of them are in the top half.
- Two-eighths of the panes are yellow. They have no sides in common.
- The whole door contains eight stained glass panes: red, yellow, green, or blue.

sample answer:

G Y
Y R
B B
B B

13–2

Re teach

Parts of a Set

Pat has three shirts. Two of the shirts are blue and one of them is red.

What you know:
There is a total of 3 things in the set.
One of the 3 things is red.
Two of the 3 things are blue.

To use a fraction to name a part of the whole:
Make the denominator the whole, the total number of things in the set. The numerators are the different parts of the set.

Pat has a total of 3 shirts and 1 of the shirts is red. What fraction of the shirts is red?
\[ \frac{1}{3} \text{ or } 1 \text{ out of } 3 \text{ shirts is red.} \]
\[ \frac{2}{3} \text{ or } 2 \text{ of the } 3 \text{ shirts are blue.} \]

Write the fraction that names the part of each set of objects.

1. 5 hornets in a set of 8 flying insects \[ \frac{5}{8} \]
2. 2 black widow spiders in a set of 5 spiders \[ \frac{2}{5} \]
3. 6 red roses in a set of 12 roses \[ \frac{1}{2} \]
4. 4 colored pencils in a case of 8 pencils \[ \frac{1}{2} \]
5. 10 math books on a shelf with a total of 30 books \[ \frac{1}{3} \]
Skills Practice

13–2

Parts of a Set

Write the fraction that names the part that is shaded.

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

Solve.

11. Five of 12 students are in the school chorus. What part of the students are in the chorus? \( \frac{5}{12} \)
12. Twenty of 25 students voted for class president. What part of the class did not vote for president? \( \frac{5}{25} \) or \( \frac{1}{5} \)

Homework Practice

13–2

Parts of a Set

Draw a picture to show each set. See students' work.

1. \( \frac{3}{4} \) of a set of shapes are circles.
2. \( \frac{7}{8} \) of a set of shapes are squares.
3. \( \frac{5}{6} \) of a set of shapes are rectangles.
4. \( \frac{4}{5} \) of a set of lines are zigzag.
5. \( \frac{7}{10} \) of a group of whales are grownups, \( \frac{3}{10} \) of the group are babies.

Solve.

6. Miguel's mom brought home a bag of 15 hats for his birthday party. 6 of the hats are pointed shiny red hats. What fraction of the hats are pointed hats? \( \frac{6}{15} \)
7. The other hats are striped and have bells. What fraction of the 15 hats are striped hats? \( \frac{9}{15} \)
8. Miguel's mom also has a bag of 16 toys. 9 of the toys are balls. What fraction of toys are balls? \( \frac{9}{16} \)
9. There are also 7 whistles in the bag of toys. What fraction of 16 toys are whistles? \( \frac{7}{16} \)
10. The last bag Miguel's mom brought home has 18 noisemakers. Miguel took 3 of the blowers out of the bag and started using them before the party. What fraction of the noisemakers are left for the party guests? \( \frac{15}{18} \)

Spiral Review

11–16 see students' work.

11. \( \frac{1}{4} \)
12. \( \frac{5}{12} \)
13. \( \frac{7}{9} \)
14. \( \frac{3}{5} \)
15. \( \frac{4}{8} \)
16. \( \frac{7}{11} \)
17. Look back over the page. Circle every fraction that shows more than one half. Check students' work.
Problem-Solving Practice

Parts of a Set

Solve.

1. Lara saw 3 snowmen on her way to school. She noticed that 2 of the three snowmen were smiling. On a separate sheet of paper, draw a picture of the snowmen that Lara saw. Then write a fraction that describes the number of snowmen who are smiling. **\( \frac{2}{3} \)** are smiling; Check students’ drawings.

2. Ali has a group of 9 game pieces. Some of them are white and some of them are not.

\[ \begin{array}{cccccc} \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \\ \includegraphics[width=1.5in]{snowmen.png} \end{array} \]

Write a fraction that shows the part of Ali’s game pieces that are white. **\( \frac{4}{9} \)**

3. Diane has laid out 12 game cards. She put 7 of the cards face up and 5 of the cards face down. Write a fraction that names the part of Diane’s cards that are face up. **\( \frac{7}{12} \)**

4. James spends 2 hours a day doing homework. What fraction of the day does James spend on homework? **\( \frac{2}{24} \)**

5. There are 8 students in the chess club. Only 7 of the members attended the last meeting. Write a fraction that tells what part of the chess club missed the meeting. **\( \frac{1}{8} \)**

6. There are 32 bottles of milk on the grocery store shelf. Carrie buys 5 of the bottles and Heather buys 11 of them. What fraction of the original number of milk bottles is left after Carrie and Heather make their purchases? **\( \frac{16}{32} \)**

Enrich

Name That Part

Write the fraction represented by each idea below. For example, two stars on the American flag is **\( \frac{2}{50} \) or \( \frac{1}{25} \)**.

1. One day a week
   **\( \frac{1}{7} \)**

2. Three months in a year
   **\( \frac{3}{12} \)**

3. Eight toes on two feet
   **\( \frac{8}{10} \)**

4. Two legs on a spider
   **\( \frac{2}{8} \)**

5. Ten minutes in an hour
   **\( \frac{10}{60} \)**

6. The left shoe of a pair
   **\( \frac{1}{2} \)**

7. One flat tire on a car
   **\( \frac{1}{4} \)**

8. Twelve inches of a yard
   **\( \frac{12}{36} \)**

9. Three arms on an octopus
   **\( \frac{3}{8} \)**

10. The color yellow on a traffic light
    **\( \frac{1}{3} \)**
Len took a survey among his classmates to find which type of movie they liked best. He surveyed 24 students. He showed his results on a circle graph. How many students chose mystery as their favorite type of movie?

**Interpret a Circle Graph**

A circle graph shows data as part of a circle. You can interpret the circle graph to solve the problem.

**Step 1** What part of this whole chose mystery? What does the circle graph show? The part for Mystery is marked $\frac{1}{6}$.

**Step 2** Draw 24 circles to show the 24 students surveyed. Since $\frac{1}{6}$ of the students chose mystery, place the circles in 6 equal groups.

There are 4 circles in each group. So, 4 out of 24 students chose mystery.

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

Use the graph to answer these questions.

1. If 20 campers were surveyed about their favorite camp activity, how many chose swimming?

**8 campers**

2. How many chose boating?

**5 campers**

3. How many chose hiking?

**6 campers**

4. Write About It: Suppose you did not know the number of campers surveyed about their favorite activity. Would you be able to order the activities from most to least favorite? Tell why or why not.

Yes. You could order the choices by comparing the parts of the circle, from the part that is largest to the part that is smallest.

5. There are 15 students in Mr. Black’s class. One-fifth of them forgot to bring lunch on the class trip. Six of them forgot to bring a drink. How many students will have to buy either a drink or lunch and a drink?

**9 students**

6. There are 12 glasses in the cabinet. If one fourth of the glasses are red, how many are some other color?

**9 glasses**

7. There are 4 boys. The second oldest is 12. The youngest is 3. The youngest is $\frac{1}{5}$ the age of the oldest. The second oldest is twice the age of the second youngest. How old is each boy?

**oldest: 15; second oldest: 12; second youngest: 6; youngest: 3**

Use the table to answer question 8.

<table>
<thead>
<tr>
<th>Name</th>
<th>Time Spent Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joaquin</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Benjamin</td>
<td>$\frac{1}{4}$ of an hour</td>
</tr>
<tr>
<td>Petrus</td>
<td>$\frac{2}{5}$ of an hour</td>
</tr>
</tbody>
</table>

8. Which of the students spent the most time reading?

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

1. There are 24 puppies at the pet store. One-third are brown. One-half are black. The rest are some other color or combination of colors. How many puppies are some other color or combination of colors?

4 puppies

2. Keanu bought his sister 12 tulips for her graduation. 1/3 of the tulips were yellow. The rest are red. Which color were there the most of? How many tulips were that color?

Most of the tulips were red. There were 8 red tulips.

3. Rosalyn has 24 CDs. One-fourth are classical. One-third are blues. The rest are techno. How many are techno CDs?

10 CDs

4. Monica spent 3 1/2 hours swimming in the lake. Cynthia swam in the lake for 190 minutes. Who swam longer? How much longer?

Monica; 20 minutes

5. Julia has three sizes of fish in her aquarium. The first type of fish is 4 inches long. The second type is 1/2 as long as the first. The third type is 1 inch longer than the second type. How long are the second and third types of fish?

2 inches and 3 inches

6. Write a problem that you can solve by drawing a picture. Solve your problem. Then ask a classmate to solve the problem.

Check students' answers.
Enrich
For the Birds

Use the information to answer the questions.

- An eagle can fly 40 miles to her home in the woods in one hour.
- A robin can cover a quarter of the distance in the same amount of time.
- An eagle flies \( \frac{2}{3} \) as fast as a falcon.
- A falcon flies at twice the speed of an owl.
- A crow covers \( \frac{3}{4} \) as much distance as an eagle does in one hour.

1. How far can a robin fly in sixty minutes? 10 miles

2. Which two birds travel at half the speed of a falcon? owl and crow

3. How fast does the falcon fly? 60 miles per hour

4. How many miles can a crow fly in half an hour? 15 miles

5. What fraction tells how fast the robin flies compared to the crow? \( \frac{1}{3} \)

Reteach
Equivalent Fractions

Equivalent Fractions

Equivalent fractions name the same part. To find an equivalent fraction, multiply the numerator and denominator by the same number.

Find fractions equivalent to \( \frac{1}{3} \).

\[
\begin{align*}
\frac{1 \times 2}{3 \times 2} &= \frac{2}{6} \\
\frac{1 \times 3}{3 \times 3} &= \frac{3}{9} \\
\frac{1 \times 4}{3 \times 4} &= \frac{4}{12}
\end{align*}
\]

So, \( \frac{2}{6} \), \( \frac{3}{9} \), and \( \frac{4}{12} \) are equivalent fractions.

Complete to find equivalent fractions. Answers may vary. Possible answers are given.

1. \[
\frac{3}{4} = \frac{6}{8}, \quad \frac{3}{6} = \frac{6}{12}, \quad \frac{3}{5} = \frac{6}{10}
\]

2. \[
\frac{4}{8} = \frac{1}{2}, \quad \frac{2}{10} = \frac{1}{5}, \quad \frac{4}{12} = \frac{1}{3}
\]

3. \[
\frac{6}{2} = \frac{6}{10}, \quad \frac{6}{2} = \frac{6}{8}, \quad \frac{6}{2} = \frac{6}{12}
\]
Skills Practice

Equivalent Fractions

Complete to find equivalent fractions.

1. \(\frac{4}{10} \div \frac{2}{5} = \frac{2}{5}\)
2. \(\frac{3}{8} \times \frac{8}{16} = \frac{3}{8}\)
3. \(\frac{2}{8} \div \frac{2}{4} = \frac{1}{2}\)
4. \(\frac{4}{5} = \frac{8}{10}\)

5. \(\frac{1}{2} \times \frac{8}{2} = \frac{4}{8}\)
6. \(\frac{4}{16} = \frac{1}{4}\)

Name an equivalent fraction for each.

Answers may vary. Possible answers are given.

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

11. \(\frac{4}{10} = \frac{2}{5}\)
12. \(\frac{6}{12} = \frac{1}{2}\)
13. \(\frac{5}{18} = \frac{1}{6}\)
14. \(\frac{8}{12} = \frac{2}{3}\)

15. \(\frac{3}{21} = \frac{1}{7}\)
16. \(\frac{10}{30} = \frac{1}{3}\)
17. \(\frac{5}{15} = \frac{1}{3}\)
18. \(\frac{9}{24} = \frac{3}{8}\)

ALGEBRA Complete the pattern of equivalent fractions.

19. \(\frac{1}{4} \div \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{5}{20} = \frac{6}{24}\)
20. \(\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12} = \frac{5}{15} = \frac{6}{18}\)

Solve.

21. A box contains 6 red pencils and 8 black pencils. What fraction of the pencils are red? \(\frac{6}{14} \text{ or } \frac{3}{7}\)
22. Paul caught 9 bass and 3 trout. What fraction of the fish were trout? \(\frac{3}{12} \text{ or } \frac{1}{4}\)
4NS1.5

Problem-Solving Practice

Equivalent Fractions

Solve.

1. Ms. Andrews has an umbrella that is gray and white. Look at the top of her umbrella. What fractional part of the umbrella is gray?

\[ \frac{4}{8} \text{ or } \frac{1}{2} \text{ gray} \]

Write an equivalent fraction. Answers may vary. Possible answers:

\[ \frac{2}{4} \text{ or } \frac{1}{2} \]

2. Dean has 10 marbles. He gives 2 of them to Jamie. Write a fraction for the number of marbles Dean has left.

\[ \frac{1}{3} \text{ or } \frac{2}{3} \text{ marbles} \]

3. Lainie delivers newspapers. She spends \( \frac{1}{2} \) of her earnings. Write an equivalent fraction to show the amount of Lainie's earnings that she spends.

\[ \frac{1}{3} \text{ or } \frac{2}{3} \text{ of earnings} \]

4. There are 32 students in Mr. Simon's class. Four of the students are on the soccer team. Write the fraction that shows how many of Mr. Simon's students are on the soccer team.

\[ \frac{4}{32} \text{ or } \frac{1}{8} \text{ students} \]

5. Ms. Ashton's class set 9 major goals for their school year. They have reached 6 of their goals. Write a fraction that names the goals that have been reached. Then write 2 equivalent fractions. Possible responses:

\[ \frac{6}{9} \text{ or } \frac{2}{3} \text{ goals} \]

\[ \frac{2}{3} \text{ or } \frac{12}{18} \]

6. There are 72 players in the soccer league and 54 of the players are new this year. Write a fraction that shows the number of players who are new this year.

\[ \frac{54}{72} \text{ or } \frac{3}{4} \text{ players} \]
Marty ate 2 of 4 muffins. You can also say that Marty ate $\frac{1}{2}$ of the muffins. $\frac{1}{2}$ is the simplest form of $\frac{2}{4}$. $\frac{1}{2}$ is the simplest form because its numerator and denominator have no common factor other than 1.

You can use division to write $\frac{3}{15}$ in simplest form.

**Step 1.** Find the common factors.
Factors of 3: 1, 3
Factors of 15: 1, 3, 5, 15
The common factor is 3.

**Step 2.** Divide by the greatest common factor.
$\frac{3}{15}$ divided by 3 = 1
15 divided by 3 = 5
The simplest form of $\frac{3}{15}$ is $\frac{1}{5}$.

Write each fraction in simplest form. If it is already in simplest form, write simplest form.

1. $\frac{2}{6}$ simplest form
2. $\frac{1}{15}$ simplest form
3. $\frac{1}{2}$ simplest form
4. $\frac{9}{12}$ simplest form
5. $\frac{3}{10}$ simplest form
6. $\frac{3}{9}$ simplest form
7. $\frac{2}{8}$ simplest form

**Skills Practice**

Write each fraction in simplest form. If it is in simplest form, write simplest form.

1. $\frac{18}{48}$ simplest form
2. $\frac{5}{55}$ simplest form
3. $\frac{9}{15}$ simplest form
4. $\frac{24}{48}$ simplest form
5. $\frac{5}{35}$ simplest form
6. $\frac{8}{64}$ simplest form
7. $\frac{7}{16}$ simplest form
8. $\frac{3}{7}$ simplest form
9. $\frac{8}{40}$ simplest form
10. $\frac{1}{32}$ simplest form

**ALGEBRA** Find the value of $x$ to simplify each fraction.

11. $\frac{6}{48} = \frac{x}{8}$
12. $\frac{9}{63} = \frac{x}{7}$
13. $\frac{32}{48} = \frac{4}{x}$
14. $\frac{40}{60} = \frac{2}{x}$
15. $\frac{30}{36} = \frac{5}{x}$
16. $\frac{7}{21} = \frac{x}{3}$

Write as a fraction in simplest form.

17. 6 eggs in a dozen $\frac{1}{2}$
18. 4 days of the week $\frac{4}{7}$
19. 3 months in a year $\frac{1}{4}$
20. vowels in the alphabet $\frac{5}{26}$
Homework Practice

Simplest Form

Write each fraction in simplest form. If it is in simplest form, write simplest form.

1. \(\frac{3}{9} \quad \frac{1}{3}\)
2. \(\frac{5}{15} \quad \frac{1}{3}\)
3. \(\frac{1}{3} \quad \text{Simplest form}\)
4. \(\frac{24}{36} \quad \frac{2}{3}\)
5. \(\frac{7}{35} \quad \frac{1}{5}\)

ALGEBRA Find the value of \(x\) to simplify each fraction.

6. \(\frac{6}{48} \quad \frac{1}{8}\)
7. \(\frac{20}{25} \quad \frac{4}{5}\)
8. \(\frac{7}{49} \quad \frac{1}{7}\)

Write as a fraction in simplest form.

9. \(\frac{15}{50} \quad \frac{3}{10}\)

10. Six of the 12 muffins in a bag are blueberry. What fraction of muffins are blueberry?

\(\frac{1}{2}\) muffins

Spiral Review

Find an equivalent fraction for each fraction. (Lesson 13-4)

11. \(\frac{9}{27} \quad \frac{1}{3}\)
12. \(\frac{7}{63} \quad \frac{1}{9}\)
13. \(\frac{15}{50} \quad \frac{3}{10}\)

14. \(\frac{5}{20} \quad \frac{1}{4}\)
15. \(\frac{6}{16} \quad \frac{3}{8}\)
16. \(\frac{12}{18} \quad \frac{2}{3}\)
17. \(\frac{2}{6} \quad \frac{1}{3}\)
18. \(\frac{4}{8} \quad \frac{1}{2}\)

19. \(\frac{3}{9} \quad \frac{1}{3}\)
20. \(\frac{3}{28} \quad \frac{1}{7}\)
21. \(\frac{4}{28} \quad \frac{1}{7}\)
22. \(\frac{2}{6} \quad \frac{1}{3}\)

Problem-Solving Practice

Simplest Form

Solve.

1. Ryan has 8 kittens. 2 of the kittens are white. Write a fraction for the number of kittens Ryan has that are not white in simplest form.

\(\frac{3}{4}\) kittens

2. Laura has 10 marbles. After she gives 2 of them to Emma, she has \(\frac{8}{10}\) of her marbles left. Write a fraction for the number of marbles Laura gave away in simplest form.

\(\frac{1}{5}\) marbles

3. Aidan likes to build with his 12 blocks. He used 8 blocks to build a house. Write a fraction in simplest form that tells what fraction of Aidan’s blocks were used in the house.

\(\frac{2}{3}\) blocks

4. Ellen has 6 cousins. 2 of her cousins live nearby. Write a fraction for the number of cousins that do not live near Ellen in simplest form.

\(\frac{2}{3}\) cousins

5. Nick wants to run 9 miles in a week. So far he has run 3 miles. Write a fraction in simplest form that names how many Nick has run.

\(\frac{1}{3}\) miles
### Enrich

**Odd One Out**

Look at the fractions in each square. Cross out the fraction that does not belong. Then write a fraction that does belong.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>( \frac{3}{8} )</td>
<td>( \frac{5}{8} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{6}{7} )</td>
<td>( \frac{3}{8} )</td>
</tr>
<tr>
<td>2</td>
<td>( \frac{5}{6} )</td>
<td>( \frac{1}{2} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{8}{7} )</td>
<td>( \frac{1}{2} )</td>
</tr>
<tr>
<td>3</td>
<td>( \frac{1}{2} )</td>
<td>( \frac{3}{8} )</td>
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<tr>
<td></td>
<td>( \frac{2}{3} )</td>
<td>( \frac{5}{9} )</td>
</tr>
<tr>
<td>4</td>
<td>( \frac{3}{8} )</td>
<td>( \frac{12}{16} )</td>
</tr>
<tr>
<td></td>
<td>( \frac{5}{9} )</td>
<td>( \frac{3}{8} )</td>
</tr>
</tbody>
</table>

Cross out each fraction in simplest form and the letter below it.

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

Write the letters that are left.

- \( E \)
- \( X \)
- \( C \)
- \( E \)
- \( L \)
- \( L \)
- \( E \)
- \( N \)
- \( T \)
- \( Y \)

### Reteach

**Problem-Solving Investigation**

Choose a Strategy

28 students are studying in the library on Thursday afternoon. \( \frac{1}{4} \) of them are studying for a history test. 5 students are studying grammar. The rest of the students are studying for a math test. How many students are studying for a math test?

**Step 1 Understand**

Make sure you understand the problem.

What do you know?

- There are 28 students.
- \( \frac{1}{4} \) are studying history.
- 5 students are studying grammar.

What do you need to find out?

The number of students studying math.

**Step 2 Plan**

- Guess and Check.
- Look for a pattern.
- Solve a simpler problem.
- Use logical reasoning.
- Draw a picture.

**Make a plan.**

Choose a Strategy.

You can use logical reasoning to solve.

**Step 3 Solve**

Find out the number that equals \( \frac{1}{4} \) of 28.

\[ \frac{1}{4} \text{ of } 28 = \_ \_ \_ \]

7 students are studying history. 5 are studying grammar.

\[ 7 + 5 = \_ \_ \_ \]

12 students are studying grammar or history. Subtract 12 from 28.

\[ 28 - 12 = \_ \_ \_ \]
Reteach (continued)

Problem-Solving Investigation

Step 4 Check Is the solution reasonable.
Reread the problem.
Does your answer make sense?
Did you answer the question?

Use any strategy shown below to solve.
• Guess and check.
• Use logical reasoning.
• Look for a pattern.
• Draw a picture.
• Solve a simpler problem.

Choose the correct answer.
1. A group of 18 students goes to the amusement park. Of these students, \( \frac{5}{6} \) go on the bumper cars. How many students go on the bumper cars? **15 students**
2. Amiri has 9 cousins. Of these cousins, \( \frac{1}{3} \) live in the same town as Amiri. How many of his cousins live someplace else? **\( \frac{2}{3} \) or 6 cousins**
3. Angie has $35. She wants to spend three-sevenths of her money on a new pair of jeans. How much money will she have left over? **$20**
4. Marge exercises for 45 minutes twice a day. If she keeps up this schedule for 15 days, how many minutes will she exercise in all? **1,350 minutes**
5. Neil has some coins. He has 2 times as many pennies as quarters. He has 4 more nickels than pennies. If he has 4 quarters, how much money does he have? **$1.68**
6. Sadie wants to spend 15 minutes every day this week practicing her piano recital piece. Each week until the recital, she wants to double the amount of time she spends playing each day. How many minutes will Sadie spend playing during the entire fourth week? **840 minutes, or 2 hours each day during the fourth week**

Skills Practice

Problem-Solving Investigation

Use any strategy shown below to solve.
• Guess and check.
• Look for a pattern.
• Solve a simpler problem.
• Use logical reasoning.
• Draw a picture.

Solve.
1. There are 32 rides at an amusement park. Norman goes on \( \frac{3}{8} \) of the rides. How many rides does he go on? **12 rides**
2. Donna went on 18 rides over 3 hours. If she spent half her time on \( \frac{1}{3} \) of the rides, on how many rides did she spend the last half of her time? **12 rides**
3. Ashley puts 45 stamps in an album. She puts the same number of stamps on each page, and 3 stamps on the last page. There are 2 more pages in the album than the number of stamps on each page. How many pages are in the album? How many stamps are on each page? **8 pages, with 6 stamps on each of 7 pages, 3 on one page**
4. The orchestra is composed of 54 students. One third of the students play string instruments. Nine students play percussion. If one more student plays a woodwind instrument than a brass instrument, how many students play each instrument? **14 woodwind, 13 brass**
5. Molly’s uncle is cooking a 7-pound beef roast for dinner. It takes 25 minutes per pound to cook. What time should Molly’s uncle begin cooking the roast if he wants to serve dinner at 7 P.M.? **4:05 P.M.**
6. Marcus exercises for 45 minutes 4 times a week. During a 10-week period, he had a cold one week and did not get to exercise. How many total minutes did Marcus spend exercising during this 10-week period? **1,620 minutes**
Answers (Lesson 13-6)

Choose a Strategy

1. Use any strategy shown below to solve.
   - Use Logical Reasoning
   - Solve a Simpler Problem
   - Draw a Picture
   - Look for a Pattern
   - Guess and Check

2. Write each fraction in simplest form. If it is in simplest form, write simplest form.

   - $\frac{10}{20}$ simplest form
   - $\frac{9}{12}$ simplest form
   - $\frac{5}{10}$ simplest form
   - $\frac{8}{16}$ simplest form
   - $\frac{6}{12}$ simplest form
   - $\frac{7}{14}$ simplest form

3. Find the value of $x$ to simplify each fraction.
   - $x = \frac{2}{4}$ simplest form
   - $x = \frac{3}{6}$ simplest form
   - $x = \frac{4}{8}$ simplest form
   - $x = \frac{5}{10}$ simplest form
   - $x = \frac{6}{12}$ simplest form
   - $x = \frac{7}{14}$ simplest form

Spiral Review

Write each fraction in simplest form. If it is in simplest form, write simplest form.

- $\frac{4}{10} = \frac{2}{5}$ simplest form
- $\frac{6}{9} = \frac{2}{3}$ simplest form
- $\frac{8}{12} = \frac{2}{3}$ simplest form
- $\frac{10}{15} = \frac{2}{3}$ simplest form
- $\frac{12}{18} = \frac{2}{3}$ simplest form
- $\frac{14}{21} = \frac{2}{3}$ simplest form

Fourth Graders

There are 28 fourth-grade students at Holt Crossing Elementary School. Read all the clues first. Then figure out the number of students for each fraction. Write the number in the circle.

1. One-fourth of the students play basketball.
2. Two-thirds of the students are boys.
3. Half of the students wear tennis shoes every day.
4. One-fourth of the girls wear their hair in braids.
5. One-sixth of the girls wear their hair in braids.
6. One-third of the students who aren’t wearing tennis shoes are wearing socks.
7. Three-eighths of the girls are blonde.
8. Three-fourths of the students love math.
9. One-fourth of the students wear red socks last Tuesday.
10. When 8 students were sick, one-fifth of the remaining students sent cards to them.

Problem-Solving Investigation

Choose a Strategy

1. Mark has some coins. He has 2 more quarters than nickels and 4 more dimes than quarters. If he has 6 nickels, how much money does he have?
2. Jerry owns 30 sports posters. Two-thirds of them are small posters. One-third are medium posters. The rest are large posters. How many are large posters?
3. Linda bought 5 new jerseys. The long-sleeved ones cost $15, and the striped ones cost $10. She spent a total of $60. How many of each type of shirt did she buy?

Grade 4
Reteach

Compare and Order Fractions

You can use models to compare and order fractions. Order the numbers from least to greatest.

\[ \frac{1}{2}, \frac{3}{4}, \frac{1}{4} \]

Compare the fractions.
\( \frac{1}{2} < \frac{3}{4} \) and \( \frac{1}{2} < \frac{3}{4} \)

Order the decimals.
Think: \( \frac{1}{2} < \frac{3}{4} \)

The order from least to greatest is \( \frac{1}{4}, \frac{1}{2}, \frac{3}{4} \).

Compare. Write >, <, or =.

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

Order from least to greatest.

4. \( \frac{7}{10}, \frac{6}{10}, \frac{4}{10}, \frac{10}{10} \)
5. \( \frac{6}{12}, \frac{3}{6}, \frac{8}{12} \)
6. \( \frac{5}{6}, \frac{1}{6}, \frac{2}{12}, \frac{5}{6} \)
7. \( \frac{3}{8}, \frac{2}{4}, \frac{1}{8}, \frac{4}{8} \)

Compare and Order Fractions

Complete. Write >, <, or =.

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

Order from least to greatest.

7. \( \frac{1}{2}, \frac{1}{2}, \frac{1}{2} \)
8. \( \frac{7}{15}, \frac{7}{15}, \frac{1}{15} \)
9. \( \frac{1}{2}, \frac{1}{2}, \frac{1}{2} \)
10. \( \frac{5}{9}, \frac{3}{9}, \frac{1}{9} \)

Order from greatest to least.

11. \( \frac{1}{2}, \frac{1}{2}, \frac{1}{2} \)
12. \( \frac{3}{4}, \frac{3}{4}, \frac{3}{4} \)

Solve.

27. Sandra eats \( \frac{1}{6} \) of a cake. Pat eats \( \frac{1}{3} \) of the same cake. Who eats more cake? Explain.

\[ \text{Pat,} \quad \frac{1}{3} \text{ or} \frac{2}{6} > \frac{1}{6} \] of the cake

28. Karl eats \( \frac{1}{2} \) of a pizza. Tim eats \( \frac{3}{4} \) of a pizza. Chris eats \( \frac{3}{8} \) of a pizza. Order the amounts from greatest to least.

\[ \frac{3}{2}, \frac{1}{3}, \frac{2}{6} \]
**Homework Practice**

**Compare and Order Fractions**

Compare. Write $>$, $<$, or $=$.

1. $\frac{1}{4} \overset{?}{\underset{?}{<}} \frac{2}{4}$
2. $\frac{5}{6} \overset{?}{\underset{?}{<}} \frac{3}{12}$
3. $\frac{5}{10} \overset{?}{\underset{?}{=}} \frac{4}{8}$
4. $\frac{6}{12} \overset{?}{\underset{?}{<}} \frac{3}{4}$
5. $\frac{5}{6} \overset{?}{\underset{?}{>}} \frac{3}{12}$
6. $\frac{3}{8} \overset{?}{\underset{?}{>}} \frac{9}{8}$
7. $\frac{2}{9} \overset{?}{\underset{?}{>}} \frac{1}{8}$
8. $\frac{4}{5} \overset{?}{\underset{?}{=}} \frac{8}{10}$

Order from least to greatest.

9. $\frac{5}{10}, \frac{9}{12}, \frac{1}{3}, \frac{5}{8}$
10. $\frac{3}{12}, \frac{8}{9}, \frac{5}{9}, \frac{1}{3}, \frac{11}{11}$

Solve.

11. Joe worked on his woodworking project for $\frac{3}{4}$ of an hour Monday evening. Tuesday evening, he worked for $\frac{7}{8}$ of an hour. Which day did he work longer? **Tuesday**

**Spiral Review**

Use any strategy shown below to solve. (Lesson 13-6)

- Use logical reasoning
- Look for a pattern
- Solve a simpler problem
- Guess and check
- Draw a picture

12. Jack and Frank shared the cost of renting a boat. It cost $20 an hour and they used it 5 hours. How much did each friend pay? **$50**

13. Janice leaves to walk to her friend's house at 3:30. She arrives at her friend's house at 3:45. How many minutes did it take her to walk to her friend's? **15 minutes**

14. Look back over the page and circle all the fractions with a denominator of 9.

**Problem-Solving Practice**

**Compare and Order Fractions**

Solve.

1. Lon can have $\frac{2}{3}$ cup of orange juice or $\frac{3}{4}$ cup of milk. Which amount is more? **$\frac{3}{4}$ cup of milk**

2. Patti has three glue sticks that are partially used. One has $\frac{1}{5}$ left, one has $\frac{3}{5}$ left, and one has $\frac{3}{10}$ left. Order the fractions from least to greatest. **$\frac{1}{5}, \frac{3}{10}, \frac{3}{5}$**

3. Eduardo has three cans of paint. One can is $\frac{3}{8}$ full, one is $\frac{3}{4}$ full, and one is $\frac{2}{16}$ full. Order the cans from greatest to least amounts of paint. **$\frac{3}{4}, \frac{3}{8}, \frac{2}{16}$**

4. Samuel is making bread and needs $\frac{5}{8}$ cup of flour. Jason is making a different kind of bread and needs $\frac{3}{4}$ cup of flour. Who needs the greater amount of flour? **Jason**

5. Lola measures three buttons to find one which will fit the buttonhole on the shirt she is making. One is $\frac{3}{8}$ inch, one is $\frac{5}{8}$ inch, and one is $\frac{1}{4}$ inch. Order the button sizes from largest to smallest. **$\frac{3}{8}, \frac{5}{8}, \frac{1}{4}$**

6. Jerilyn has finished $\frac{2}{3}$ of her math problems. Matt has finished $\frac{5}{6}$ of his math problems. Who has finished the greatest number of math problems? **Matt**
Enrich

Just Five

Use only the numbers 1, 2, 3, 4 and 5 to fill in as many circles as you can to make each number sentence true.

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

2. \[
\frac{2}{5} > \frac{1}{4}; \frac{1}{1} = \frac{2}{2}; \frac{1}{2} = \frac{3}{4} > \frac{2}{4}
\]

Answers will vary. Possible answers: \(\frac{1}{2} < \frac{3}{4} ; \frac{1}{3} < \frac{2}{4} ; \frac{2}{5} > \frac{1}{4} ; \frac{1}{1} = \frac{2}{2}; \frac{1}{2} = \frac{3}{4} > \frac{2}{4}\).
Name ________________________ Date ________________

**Skills Practice**

Add and Subtract Like Fractions

Find each sum or difference. Write in simplest form.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ( \frac{7}{8} - \frac{2}{8} )</td>
<td>( \frac{5}{8} )</td>
</tr>
<tr>
<td>2. ( \frac{3}{4} + \frac{1}{4} )</td>
<td>( 1 )</td>
</tr>
<tr>
<td>3. ( \frac{6}{10} + \frac{1}{10} )</td>
<td>( \frac{7}{10} )</td>
</tr>
<tr>
<td>4. ( \frac{8}{9} - \frac{7}{9} )</td>
<td>( \frac{1}{9} )</td>
</tr>
<tr>
<td>5. ( \frac{6}{8} - \frac{1}{8} )</td>
<td>( \frac{5}{8} )</td>
</tr>
<tr>
<td>6. ( \frac{2}{8} + \frac{3}{8} )</td>
<td>( \frac{5}{8} )</td>
</tr>
<tr>
<td>7. ( \frac{5}{10} + \frac{3}{10} )</td>
<td>( \frac{4}{5} )</td>
</tr>
<tr>
<td>8. ( \frac{1}{4} + \frac{2}{4} )</td>
<td>( \frac{3}{4} )</td>
</tr>
<tr>
<td>9. ( \frac{6}{7} - \frac{7}{7} )</td>
<td>( 0 )</td>
</tr>
</tbody>
</table>

**Solve.**

13. Summer watched \( \frac{3}{4} \) of a movie. Then, she watched another \( \frac{2}{6} \). What fraction of the movie does she have left to watch?

14. John is hitting baseballs at a batting cage. He used \( \frac{5}{12} \) of the baseballs the first time he batted. Then, he used \( \frac{3}{12} \) more. What fraction of the baseballs does he have left?

Grade 4 44 Chapter 13
**Problem-Solving Practice**

**Add and Subtract Like Fractions**

Solve. Write the result in simplest form.

1. Sam has a set of 6 wildcat animal cards. The set of cards is made up of \( \frac{2}{6} \) tigers, \( \frac{1}{6} \) pumas, and \( \frac{3}{6} \) lions. If Sam gave away the tiger and puma cards, how many cards would he have left?

   \( \frac{1}{2} \) or 3 cards

2. Amber sliced a watermelon into 12 wedges. She ate 1 wedge, her brother ate 2 wedges, and her uncle ate 3 wedges. What fraction of the melon did they eat?

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

3. There are 8 pieces of fruit in a bowl. If you removed \( \frac{1}{4} \) of the fruit, how many pieces would remain?

   6 pieces

4. There are 6 students in a group. One student wrote a science report on animals. One student wrote a science report on trees. Four students wrote social studies reports. What fraction of the group wrote science reports?

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

5. Rachel baked a blueberry pie. She ate \( \frac{1}{6} \). How much pie is left for her family?

   \( \frac{5}{6} \) of the pie

6. Brice and his younger sister, Carla, share 21 chores each week. They do 3 chores each day. What fraction of the week’s chores do Brice and Carla do on 2 days?

   \( \frac{2}{7} \) of the chores

---

**Enrich**

**Add and Subtract Fractions with Like Denominators**

In this triangle, the number in each blank circle is equal to the sum of the fractions in the two circles above it.

Add to find the missing fractions to complete the triangle. Do not write your answers in simplest form.

How many fractions less than 1 can you simplify in the triangle?

7; \( \frac{5}{25}, \frac{10}{25}, \frac{15}{25}, \frac{20}{25} \)

Write the fractions in simplest form.

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

How many fractions in the triangle are greater than 1?

2; \( \frac{35}{25} \)

Write the fractions in simplest form.

\( \frac{1\frac{2}{5}}{5} \)
A mixed number is made up of a whole and a part of a whole.
You can use models to help you write mixed numbers.

Mixed number: 1  7 ___ 10
Read: one and seven tenths

Mixed number: 2  36 ___ 100
Read: two and thirty-six hundredths

Write a mixed number for each model.

1. [Model Image] 1  3 ___ 10
   Read: one and three tenths

2. [Model Image] 2  3 ___ 10
   Read: two and three tenths

Write out the mixed number.

3. 1  7 ___ 10
   one and seven tenths

4. 3  5 ___ 100
   three and five hundredths

5. 2  7 ___ 10
   two and seven tenths

6. 1  17 ___ 100
   one and seventeen hundredths

Write each as an improper fraction or a mixed number.

16. 1  1 __ 6
   >

17. 2 = 1 __ 3
   =

18. 2 > 1  7 __ 8
   >

19. 1 < 1  5 __ 8
   <

20. 1  1 __ 8
   <

21. 1  3 __ 4
   <

Solve.

22. Adam drinks 11 one-fourths of a cup of milk each day. What is this as a mixed number?
   2  3 __ 4 cups of milk

   John 1 1__2 > 1 1__3

   Jared; 7 3__4 (1 3__4) > 9 3__6 (1 1__2)
Identify the points on the number line below. Write each point as a mixed number.

1. A \( \frac{21}{2} \)
2. B \( \frac{3}{4} \)

Identify the points on the number line below. Write each point as an improper fraction.

3. C \( \frac{10}{2} \)
4. D \( \frac{5}{2} \)

Write each mixed number as an improper fraction.

5. \( \frac{11}{4} \)
6. \( \frac{28}{5} \)
7. \( \frac{20}{3} \)

Write each improper fraction as a mixed number.

8. \( \frac{7}{2} \)
9. \( \frac{16}{5} \)
10. \( \frac{23}{7} \)

Solve.

1. Ana has 13 crayons that are only \( \frac{1}{3} \) as long as they used to be. Rename \( \frac{13}{3} \) as a mixed number in simplest form.

   \( 4 \frac{1}{3} \) crayons

2. Vic needs \( 1 \frac{1}{2} \) cups of flour to bake bread. How many halves is that?

   3 halves

3. Pedro uses \( \frac{1}{9} \) of a sheet of art paper to make one paper crane. He makes 75 cranes. How many sheets of art paper does Pedro use to make the cranes? Rename \( \frac{75}{9} \) as a mixed number in simplest form.

   8 \( \frac{1}{3} \) sheets of art paper

4. Jenny needs \( 3 \frac{2}{3} \) cups of flour to bake bread. How many thirds is that?

   11 thirds

5. The hardware company uses \( \frac{1}{8} \) of a roll of wire to make a hook. The company made 338 hooks on Tuesday. How many rolls of wire did they use? Write your answer as a mixed number in simplest form.

   42 \( \frac{1}{4} \) rolls of wire

6. Tamika uses \( \frac{1}{4} \) of a block of wax to make a candle. How many blocks of wax does she use to make 22 candles? Write your answer as a mixed number in simplest form.

   5 \( \frac{1}{2} \) blocks of wax
Mixed numbers are whole numbers and fractions. Improper fractions have numerators that are equal to or greater than their denominators.

1. In the space below, draw a picture of some kind of food to show that \(2\frac{1}{2} = \frac{5}{2}\).
   **Answers will vary. Sample answer:**
   2 whole apples and \(\frac{1}{2}\) apple = five half apples

2. In the space below, explain how you know that \(\frac{20}{6} = 3\frac{1}{3}\). (You may want to use pictures or some of the terms above.)
   **Answers will vary. Sample answer:** I know that \(\frac{18}{6} = 3\) because 6 goes into 18 three times. That leaves \(\frac{2}{6}\), which is the same as \(\frac{1}{3}\).

Vocabulary Test

Using the word bank below, complete each sentence by writing the correct word or words in the blank.

- denominator
- equivalent fractions
- factor
- fraction
- simplest form
- mixed number

1. A fraction is in **simplest form** when the numerator and the denominator have no common factor greater than 1.

2. The top number in a fraction is the **numerator**.

3. Fractions that represent the same number are **equivalent fractions**.

4. A(n) **fraction** is a number that represents part of a whole or part of a set.

5. A(n) **factor** is a number that divides into a whole number evenly.

6. The bottom number in a fraction is the **denominator**.

7. A number that has a whole number part and a fraction part is a (n) **mixed number**.
Oral Assessment

Show the following chart to the student.

<table>
<thead>
<tr>
<th>Name</th>
<th>Distance to State Park (mi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamie</td>
<td>$\frac{3}{4}$</td>
</tr>
<tr>
<td>Scott</td>
<td>$\frac{5}{10}$</td>
</tr>
<tr>
<td>Mario</td>
<td>$\frac{1}{2}$</td>
</tr>
<tr>
<td>Deja</td>
<td>$\frac{2}{5}$</td>
</tr>
<tr>
<td>Michelle</td>
<td>$\frac{1}{5}$</td>
</tr>
</tbody>
</table>

8. Who lives the farthest from the state park?
   **Jamie**

9. Who lives the closest to the state park?
   **Michelle**

10. Tell how you got your answer.
    **Accept reasonable answers.**

11. What is the total distance it takes Deja and Michelle to get to the State Park?
    $\frac{3}{5}$ mile

12. Explain your answer.
    **Sample answer: I added each distance together to find the total sum.**

13. What is the order of distance from least to greatest?
    $\frac{1}{2}, \frac{3}{5}, \frac{1}{4}$ and $\frac{5}{10}$

14. Tell how you got your answer.
    **Accept reasonable answers.**
### Chapter 13 Assessment Answer Key

#### Chapter Diagnostic Assessment

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>thirds</td>
</tr>
<tr>
<td>2.</td>
<td>halves</td>
</tr>
<tr>
<td>3.</td>
<td>fifths</td>
</tr>
<tr>
<td>4.</td>
<td>fourths</td>
</tr>
<tr>
<td>5.</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td>9</td>
</tr>
<tr>
<td>7.</td>
<td>12</td>
</tr>
<tr>
<td>8.</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>7</td>
</tr>
<tr>
<td>10.</td>
<td>9</td>
</tr>
<tr>
<td>11.</td>
<td>6</td>
</tr>
<tr>
<td>12.</td>
<td>9</td>
</tr>
<tr>
<td>13.</td>
<td>8</td>
</tr>
<tr>
<td>14.</td>
<td>12 pages</td>
</tr>
<tr>
<td>15.</td>
<td>1, 2, 3, 6, 9, 18</td>
</tr>
<tr>
<td>16.</td>
<td>1, 2, 4, 5, 10, 20</td>
</tr>
<tr>
<td>17.</td>
<td>1, 2, 3, 4, 6, 8, 12, 24</td>
</tr>
<tr>
<td>18.</td>
<td>1, 2, 3, 5, 6, 10, 15, 30</td>
</tr>
<tr>
<td>19.</td>
<td>7</td>
</tr>
</tbody>
</table>

#### Chapter Pretest

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>$\frac{2}{9}$; Sample answer: $\frac{4}{18}$</td>
</tr>
<tr>
<td>2.</td>
<td>$\frac{5}{6}$; Sample answer: $\frac{10}{12}$</td>
</tr>
<tr>
<td>3.</td>
<td>$\frac{3}{8}$; Sample answer: $\frac{6}{16}$</td>
</tr>
<tr>
<td>4.</td>
<td>$\frac{1}{2}$; Sample answer: $\frac{2}{4}$</td>
</tr>
<tr>
<td>5.</td>
<td>$\frac{4}{7}$; Sample answer: $\frac{8}{14}$</td>
</tr>
<tr>
<td>6.</td>
<td>$\frac{9}{10}$; Sample answer: $\frac{18}{20}$</td>
</tr>
<tr>
<td>7.</td>
<td>$\frac{1}{10}$, $\frac{2}{15}$, $\frac{1}{3}$</td>
</tr>
<tr>
<td>8.</td>
<td>$\frac{4}{3}$, $\frac{4}{5}$, $\frac{5}{6}$</td>
</tr>
<tr>
<td>9.</td>
<td>$\frac{5}{7}$</td>
</tr>
<tr>
<td>10.</td>
<td>$\frac{1}{6}$, $\frac{1}{11}$</td>
</tr>
<tr>
<td>11.</td>
<td>$\frac{9}{2}$</td>
</tr>
<tr>
<td>12.</td>
<td>$\frac{2}{3}$, $\frac{4}{5}$</td>
</tr>
<tr>
<td>13.</td>
<td>$\frac{4}{10}$, $\frac{2}{5}$</td>
</tr>
<tr>
<td>14.</td>
<td>$\frac{8}{8}$, $\frac{1}{4}$</td>
</tr>
<tr>
<td>15.</td>
<td>$\frac{2}{8}$, $\frac{1}{4}$</td>
</tr>
<tr>
<td>16.</td>
<td>$\frac{2}{5}$</td>
</tr>
</tbody>
</table>

#### Quiz 1

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>1.</td>
<td>Check students’ drawings.</td>
</tr>
<tr>
<td>2.</td>
<td>Check students’ drawings.</td>
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<td>3.</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>9</td>
</tr>
<tr>
<td>5.</td>
<td>3 books</td>
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</table>
Chapter 13 Assessment Answer Key

**Quiz 2**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sample answer: $\frac{2}{4}$</td>
</tr>
<tr>
<td>2.</td>
<td>Sample answer: $\frac{1}{3}$</td>
</tr>
<tr>
<td>3.</td>
<td>Sample answer: $\frac{8}{10}$</td>
</tr>
<tr>
<td>4.</td>
<td>Sample answer: $\frac{10}{50}$</td>
</tr>
<tr>
<td>5.</td>
<td>$\frac{1}{8}$</td>
</tr>
<tr>
<td>6.</td>
<td>$\frac{1}{4}$</td>
</tr>
<tr>
<td>7.</td>
<td>$\frac{1}{5}$</td>
</tr>
<tr>
<td>8.</td>
<td>$\frac{3}{5}$</td>
</tr>
<tr>
<td>9.</td>
<td>5 elephants</td>
</tr>
<tr>
<td>10.</td>
<td>2 kinds</td>
</tr>
<tr>
<td>11.</td>
<td>Sam</td>
</tr>
</tbody>
</table>

**Quiz 3**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>$&lt;$</td>
</tr>
<tr>
<td>2.</td>
<td>$&gt;$</td>
</tr>
<tr>
<td>3.</td>
<td>$=$</td>
</tr>
<tr>
<td>4.</td>
<td>$\frac{1}{8}, \frac{2}{16}, \frac{4}{6}$</td>
</tr>
<tr>
<td>5.</td>
<td>$\frac{1}{8}, \frac{4}{16}, \frac{4}{6}$</td>
</tr>
<tr>
<td>6.</td>
<td>$1\frac{1}{4}$</td>
</tr>
<tr>
<td>7.</td>
<td>$3\frac{1}{2}$</td>
</tr>
<tr>
<td>8.</td>
<td>$1\frac{3}{5}$</td>
</tr>
<tr>
<td>9.</td>
<td>$\frac{4}{5}$</td>
</tr>
<tr>
<td>10.</td>
<td>$\frac{5}{8}$</td>
</tr>
<tr>
<td>11.</td>
<td>$\frac{3}{3}$ or 1</td>
</tr>
</tbody>
</table>

**Mid-Chapter Review**

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>C</td>
</tr>
<tr>
<td>2.</td>
<td>A</td>
</tr>
<tr>
<td>3.</td>
<td>D</td>
</tr>
<tr>
<td>4.</td>
<td>A</td>
</tr>
<tr>
<td>5.</td>
<td>$2\frac{1}{2}$ hours</td>
</tr>
<tr>
<td>6.</td>
<td>look for a pattern</td>
</tr>
<tr>
<td>7.</td>
<td>A fraction names part of a whole or part of a set.</td>
</tr>
<tr>
<td>8.</td>
<td>Equivalent fractions represent the same amount.</td>
</tr>
<tr>
<td>9.</td>
<td>Multiply or divide the numerator and denominator by the same number.</td>
</tr>
<tr>
<td>10.</td>
<td>$\frac{3}{15}$ and $\frac{1}{5}$ represent the same amount.</td>
</tr>
</tbody>
</table>
# Chapter 13 Assessment Answer Key

<table>
<thead>
<tr>
<th>Chapter Test From 1</th>
<th>Page 66</th>
<th>Chapter Test From 2A</th>
<th>Page 67</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Page 65</strong></td>
<td></td>
<td><strong>Page 67</strong></td>
<td></td>
</tr>
<tr>
<td>1. C</td>
<td></td>
<td>1. A</td>
<td></td>
</tr>
<tr>
<td>2. J</td>
<td></td>
<td>2. G</td>
<td></td>
</tr>
<tr>
<td>3. B</td>
<td></td>
<td>3. C</td>
<td></td>
</tr>
<tr>
<td>5. A</td>
<td></td>
<td>5. B</td>
<td></td>
</tr>
<tr>
<td>7. B</td>
<td></td>
<td>7. A</td>
<td></td>
</tr>
<tr>
<td>8. F</td>
<td></td>
<td>8. F</td>
<td></td>
</tr>
<tr>
<td>11. C</td>
<td></td>
<td>11. C</td>
<td></td>
</tr>
<tr>
<td>12. F</td>
<td></td>
<td>12. F</td>
<td></td>
</tr>
<tr>
<td>15. D</td>
<td></td>
<td>15. D</td>
<td></td>
</tr>
<tr>
<td>17. C</td>
<td></td>
<td>17. C</td>
<td></td>
</tr>
<tr>
<td>19. B</td>
<td></td>
<td></td>
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</table>

(continued on the next page)
<table>
<thead>
<tr>
<th>Chapter Test From 2A (continued) Page 68</th>
<th>Chapter Test Form 2B Page 69</th>
<th>Page 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>11. C</td>
<td>11. A</td>
<td></td>
</tr>
<tr>
<td>13. A</td>
<td>13. A</td>
<td></td>
</tr>
<tr>
<td>15. D</td>
<td>15. C</td>
<td></td>
</tr>
<tr>
<td>17. A</td>
<td>17. A</td>
<td></td>
</tr>
<tr>
<td>19. B</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Chapter 13 Assessment Answer Key

Chapter Test Form 2C
Page 71

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

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

3. 2

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

   Sample answer: \( \frac{9}{24} \)

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

   Sample answer: \( \frac{6}{14} \)

6. \( 4 \frac{3}{5} \)

7. \( 5 \frac{3}{4} \)

8. 4

9. 4

10. 6

11. 8’ 6’ 4

12. \( \frac{5}{4} + 3 \)

13. \( \frac{1}{7} \)

14. \( 4 \frac{3}{5} \)

15. \( \frac{5}{8} + 4 \frac{3}{6} + 1 \)

16. \( 9 \frac{1}{2} \)

17. \( \frac{3}{5} \)

18. 15 students

19. 25 students

Page 72

Chapter Test Form 2D
Page 73

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

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

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

4. \( \frac{7}{8} \)

   Sample answer: \( \frac{9}{24} \)

5. 4

6. \( 7 \frac{3}{4} \)

7. \( 5 \frac{3}{4} \)

8. 4

9. 6

10. 14

11. 2

12. 7

13. 3

14. \( 4 \frac{3}{5} \)

15. \( \frac{5}{8} + 4 \frac{3}{6} + 1 \)

(continued on the next page)
Chapter 13 Assessment Answer Key

Form 2D (continued) Page 74

16. $9\frac{1}{2}$

17. 25 students

18. 15 students

19. $\frac{5}{8}$

Chapter Test Form 3 Page 75

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

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

3. $6.00$

4. 1

5. $\frac{5}{17}$

Sample answer: $\frac{10}{24}$

6. $\frac{6}{12}\cdot\frac{1}{2}$

Sample answer: $\frac{4}{38}$

7. $8\frac{1}{4}$

8. $9\frac{1}{2}$

9. $6\cdot\frac{3}{8}\cdot\frac{4}{4}$

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

11. $\frac{5}{9}$

12. $\frac{7}{12}$ of the problems

13. 3 students

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

15. 11

16. $\frac{8}{11}$

17. $\frac{57}{8}$

18. 6 students

19. 6 students

20. 6 students

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## Chapter 13 Assessment Answer Key

### Page 77, Extended-Response Test

#### Scoring Rubric

<table>
<thead>
<tr>
<th>Level</th>
<th>Specific Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<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 13 Assessment Answer Key

Page 77, Extended-Response Test
Sample Answers

In addition to the scoring rubric found on page A32, the following sample answers may be used as guidance in evaluating open-ended assessment items.

1. David has \( \frac{38}{50} \) marbles left. Michelle has \( \frac{25}{50} \) marbles left.
   - a. A numerator is the top number in a fraction. The numerators for the fractions in this problem are 38 and 25.
   - b. A denominator is the bottom number in a fraction. The denominator for both fractions in this problem is 50.
   - c. The two fractions are not equivalent because they do not name the same number.

2. A mixed number is made up of a whole number and a fraction. An improper fraction has a numerator that is greater than or equal to its denominator. Improper fractions can be changed to mixed numbers. An example of an improper fraction is \( \frac{16}{5} \). The mixed number equivalent for that improper fraction is \( 3\frac{1}{5} \).

3. A fraction is in simplest form when its numerator and denominator have no common factor other than 1.

<table>
<thead>
<tr>
<th>Fraction</th>
<th>Simplest Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{2}{4} )</td>
<td>( \frac{1}{2} )</td>
</tr>
<tr>
<td>( \frac{4}{16} )</td>
<td>( \frac{1}{4} )</td>
</tr>
<tr>
<td>( \frac{3}{24} )</td>
<td>( \frac{1}{8} )</td>
</tr>
<tr>
<td>( \frac{6}{36} )</td>
<td>( \frac{1}{6} )</td>
</tr>
<tr>
<td>( \frac{9}{27} )</td>
<td>( \frac{1}{3} )</td>
</tr>
<tr>
<td>( \frac{10}{50} )</td>
<td>( \frac{1}{5} )</td>
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# Chapter 13 Assessment Answer Key

<table>
<thead>
<tr>
<th>STP</th>
<th>Page 79</th>
<th>Page 80</th>
<th>Page 81</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>D</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td><strong>F</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><strong>D</strong></td>
<td></td>
<td></td>
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<tr>
<td>4.</td>
<td><strong>H</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><strong>A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td><strong>J</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td><strong>B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td><strong>H</strong></td>
<td></td>
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<td>9.</td>
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<td></td>
<td><strong>B</strong></td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td></td>
<td><strong>H</strong></td>
</tr>
<tr>
<td>11.</td>
<td><strong>2 hours</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td><strong>445,243</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td><strong>80 people</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td><strong>$\frac{4}{8} = \frac{1}{2}$</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td><strong>$\frac{2}{3} &gt; \frac{1}{3}$</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td><strong>18</strong></td>
<td></td>
<td></td>
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<tr>
<td>17.</td>
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