California Mathematics 3
Chapter 10
Resource Masters

Includes:

Chapter Resources
- Graphic Organizer
- Student-Built Glossary
- Family Letter
- Anticipation Guide
- Game

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

Assessment Resources
- Individual Progress Checklist
- Chapter Diagnostic Test
- Chapter Pretest
- 3 Quizzes
- Mid-Chapter Test
- Vocabulary Test
- Oral Assessment
- Chapter Project Rubric
- Foldables Rubric
- 6 Chapter Tests
- Extended Response Test
- Student Recording Sheet
- Cumulative Standardized Test Practice
- Answer Pages
- Chapter 15 Assessment Line-up
- Answer Keys

All Answers Included
Teacher's Guide to Using the
Chapter 10 Resource Masters

The Chapter 10 Resource Masters includes the core materials needed for Chapter 10. These materials include worksheets, extensions, and assessment options. The answers for these pages appear at the back of this booklet.

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

Chapter Resources

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

**Student Glossary** (page 2) This master is a study tool that presents the key vocabulary terms from the chapter. You may suggest that students highlight or star the terms they do not understand. Give this list to students before beginning Lesson 10–1. Remind them to add these pages to their mathematics study notebooks.

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

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

Resources for Computational Lessons

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

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

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

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

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

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

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

**Assessment Options** The assessment masters in the *Chapter 10 Resource Masters* offer a wide variety of assessment tools for monitoring progress as well as final assessment.

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

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

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

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

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

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

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

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

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

**Leveled Chapter Tests**

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

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

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

**Answers**

The answers for the Anticipation Guide and Lesson Resources are provided as reduced pages with answers appearing in black. Full size line-up answer keys are provided for the Assessment Masters.
Use this graphic organizer to take notes on **Chapter 10: Measurement and Geometry**.

**Fill in the missing information.**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Name</th>
<th>Number of sides</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="triangle.png" alt="Triangle" /></td>
<td><img src="name.png" alt="Name" /></td>
<td><img src="number_of_sides.png" alt="Number of sides" /></td>
</tr>
<tr>
<td><img src="square.png" alt="Square" /></td>
<td><img src="name.png" alt="Name" /></td>
<td><img src="number_of_sides.png" alt="Number of sides" /></td>
</tr>
<tr>
<td><img src="pentagon.png" alt="Pentagon" /></td>
<td><img src="name.png" alt="Name" /></td>
<td><img src="number_of_sides.png" alt="Number of sides" /></td>
</tr>
<tr>
<td><img src="hexagon.png" alt="Hexagon" /></td>
<td><img src="name.png" alt="Name" /></td>
<td><img src="number_of_sides.png" alt="Number of sides" /></td>
</tr>
<tr>
<td><img src="heptagon.png" alt="Heptagon" /></td>
<td><img src="name.png" alt="Name" /></td>
<td><img src="number_of_sides.png" alt="Number of sides" /></td>
</tr>
</tbody>
</table>
This is an alphabetical list of new vocabulary terms you will learn in **Chapter 10: Measurement and Geometry**. 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>area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>perimeter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>plane figure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>polygon</td>
<td></td>
<td></td>
</tr>
<tr>
<td>quadrilateral</td>
<td></td>
<td></td>
</tr>
<tr>
<td>volume</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Dear Family,

Today my class started Chapter 10: Measurement and Geometry. I will be learning to estimate and find area and volume. I will also be learning to find perimeter. Here are my vocabulary words and an activity that we can do together.

Love, ______________________

Key Vocabulary

**perimeter** The distance around a shape or region

**area** The number of square units needed to cover the inside of a region or plane figure

**volume** The number of square units needed to fill a 3-dimensional figure or solid figure

**closed figure** A shape that starts and ends at the same point.

**plane figure** A 2-dimensional figure that lies entirely within one plane, such as a triangle or square

**polygon** A closed plane figure formed using line segments that meet only at their endpoints

**quadrilateral** A shape that has 4 sides and 4 angles. Examples: square, rectangle, and parallelogram

Activity

On construction paper, draw the outline of a triangle, quadrilateral, pentagon, hexagon and octagon. Cut the shapes out and take turns quizzing each other on the names of the different shapes.

Books to Read:

**Changes**
by Marjorie N. Allen

**The Greedy Triangle**
by Marilyn Burns

**Wing on a Flea**
by Ed Emberley
Estimada familia:

Hoy mi clase comenzó el Capítulo 10: La medición y la geometría. Aprenderé a estimar y hallar el área y el volumen y también a calcular el perímetro. A continuación están mis palabras de vocabulario y una actividad que podemos hacer juntos.

Cariños, ________________

**Vocabulario clave**

- **perímetro** Distancia alrededor de una figura o región
- **área** Número de unidades cuadradas necesarias para cubrir el interior de una región o figura plana
- **volumen** Número de unidades cúbicas necesarias para llenar una figura tridimensional o sólida
- **figura cerrada** Figura en un plano que se puede calcar con el mismo punto inicial y final
- **figura plana** Figura bidimensional que yace completamente en un plano, como un triángulo o un cuadrado
- **polígono** Figura plana cerrada formada por segmentos de recta que sólo concurren en sus extremos
- **cuadrilátero** Figura con 4 lados y 4 ángulos. Ejemplos: cuadrado, rectángulo y paralelogramo

**Actividad**

Tracen el contorno de un triángulo, un cuadrilátero, un pentágono, un hexágono y un octágono sobre cartulina. Recorten las formas y türnense para examinar los nombres de las diferentes formas.

**Libros recomendados:**

- **Changes** de Marjorie N. Allen
- **The Greedy Triangle** de Marilyn Burns
- **Wing on a Flea** de Ed Emberley
## Anticipation Guide

**Measurement and Geometry**

### Before you begin Chapter 10

1. Read each statement.
2. Decide whether you agree (A) or disagree (D) with the statement.
3. 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>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>Perimeter is the distance around a shape or region.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Area is the number of square units needed to fill a 3-dimensional figure or solid figure.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>A plane figure is a 2-dimensional figure that lies entirely within one plane, such as a triangle or square.</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>A polygon is a closed plane figure formed using line segments that meet only at their endpoints.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>A quadrilateral is a shape with 4 sides and 4 angles.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>A circle is a quadrilateral.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>A hexagon has 8 sides.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>A triangle has 3 sides.</td>
<td></td>
</tr>
</tbody>
</table>

### After you complete Chapter 10

1. Reread each statement and complete the last column by entering an A (agree) or a D (disagree).
2. Did any of your opinions about the statements change from the first column?
3. For those statements that you mark with a D, use a separate sheet of paper to explain why you disagree. Use examples, if possible.
Chapter 10 Game

Rolling Figures

You will need:
1 blank number cube, crayons, scissors

Set

Make a number cube with the numbers 0, 3, 4, 6, 8, and the letter X. Color and cut out the shapes below. Place the shapes in a row between the two players.

GO!

1. Take turns rolling the number cube, and choosing a figure with the same number of sides as the rolled number. Players keep the figures in their own pile. If an X is rolled, the player loses his or her turn.

2. Repeat until all shapes have been selected.

3. When all figures have been chosen, players count the number of figures in their pile. For each figure that a player has, the player earns 1 point.

4. Repeat this game for two more rounds. At the end of three rounds, the player with the most points wins.
A polygon is a closed figure with straight sides.

These are polygons.

These are not polygons.

Circle the polygons below.

1. 
2. 
3. 

Classify each polygon.

4. 
5. 
6. 
Skills Practice

Polygons

Classify each polygon.

1. ______________________
   2. ______________________

3. ______________________
   4. ______________________

5. It has 6 sides.
   ______________________

6. It has 4 sides. All sides may not be equal in length.
   ______________________

7. It has 3 sides.
   ______________________

8. It has 8 sides.
   ______________________

9. It has 4 sides.
   ______________________

10. It has 5 sides.
    ______________________

Solve.

11. The library at Ladew Mansion in Maryland has 8 sides. What is the shape of the library?
    ______________________

12. A kitchen tile has 4 sides of equal length. What is the shape of the tile?
    ______________________
Classify each polygon.

1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

Solve.

7. Eve is setting the dinner table with placemats and napkins. What are some of the polygons she may be seeing on her table?

8. Carlos drew a shape that had three straight sides and one rounded side. He said his shape is not a polygon. Is he correct? Explain.

Convert each unit. (Lesson 9–6)

9. \(2 \text{ L} = \square \text{ mL}\)  
10. \(8 \text{ km} = \square \text{ m}\)  
11. \(4,000 \text{ g} = \square \text{ kg}\)
1. Each tile on a floor has 5 sides and 5 angles. What shape is each of the tiles?

2. What is the shape of the stop sign?

3. Peter made a hexagon using 6 toothpicks. He now wants to change the hexagon into an octagon. How many more toothpicks does he need?

4. Is a circle a polygon? Why or why not?

5. James says the figure below is a polygon. Karen says the figure below is a quadrilateral. Who is correct? Explain.

6. Lana drew a design using the same number of hexagons and octagons. The design has a total of 42 sides. How many hexagons are in the design?

______ hexagons
You will need colored pencils or crayons. Look at the following shapes. Follow the directions.

1. Underline the triangle that has equal sides.
2. Color the octagon blue.
3. Color the square green.
4. Color the pentagon yellow.
5. Outline the sides of the hexagon in red.
6. Color the right triangle purple.

Circle the figure that does not fit the pattern shown in the drawing. Tell one reason why it does not fit.

7.
The perimeter is the distance around the outside of an object or shape. To find perimeter, add the lengths of the sides.

To find the perimeter of this triangle, add the lengths of the 3 sides.

\[5 + 5 + 3 = 13\]

The perimeter is 13 m.

To find the perimeter of this rectangle, add the lengths of the 4 sides.

\[10 + 4 + 10 + 4 = 28\]

The perimeter is 28 yd.

**Complete the sentences.**

1. The quadrilateral has _____ sides.
2. To find the perimeter of the quadrilateral, I must _____ the lengths of the sides.
3. The lengths of its sides are _____, _____, _____, and _____.
4. Find the perimeter. 2 cm + 2 cm + 2 cm + 5 cm = ___ cm

**Find the perimeter of each figure.**

5. [Square with sides 3 ft]
6. [Triangle with sides 3 in., 5 in., 4 in.]
7. [Rectangle with sides 3 cm, 2 cm]
Find the perimeter of each figure. Use a centimeter ruler.

1. 

2. 

3. 

4. 

5. 

6. 

ALGEBRA  Find the length of the missing side.

7. 

\[ P = 3 + 6 + 3 + \square = 18 \text{ ft} \]

8. 

\[ P = 30 + \square + 50 = 120 \text{ in.} \]
10–2

Homework Practice
Perimeter

Find the perimeter of each figure.

1. 4 in. 4 in. 4 in.
2. 3 cm 3 cm 3 cm
3. 17 ft 17 ft
4. 2 in. 2 in. 5 in. 7 in.
5. 3 m 3 m 3 m
6. 2 m 2 m 2 m

Using the grids, create a shape with the following perimeters.

7. 5 + 4 + 5 + 4
8. 6 + 2 + 2 + 6
9. 2 + 9 + 2 + 9

Solve. (Lesson 10–1)

10. Which figure doesn’t fit? Tell why.

11. Is the sun a plane figure? Explain your answer.

12. How many sides does an octagon have? __________
Problem-Solving Practice

Perimeter

Solve.

1. Jean will put a paper border around the 4 walls in the living room. How many feet of border paper will she use? _____ ft

3. A rose garden is hexagonal in shape. Two of the sides are 14 feet and the remaining four sides are 16 feet each. How much fencing is needed to completely enclose the garden? _____ ft

5. The perimeter of a small room is 34 feet. If the room is rectangular in shape and it is 7 feet wide, how long is the room? _____ ft

2. How much border paper is needed to go around the walls of the dining room? _____ ft

4. Each of two bulletin boards is a 6 ft by 8 ft rectangle. How much border paper is needed to go around both boards? _____ ft

6. Zoe will sew lace around a rectangular tablecloth. The tablecloth is 5 feet long and 4 feet wide. If lace costs $2 per foot, how much will Zoe pay for the lace she needs? ____________________________________
Enrich

All “Around” Fun!

Perimeter is the distance around the outside of a figure or shape. You can use addition to find the perimeter. Add the lengths of the sides. For example, the perimeter of this square is 4 cm.

1 cm

1 cm

1. Perry lays out garden plots. She just bought fencing to go around a garden. The garden is shaped like a pentagon with equal sides. She bought 50 feet of fencing to go around the garden. How much fencing will go on each side?

2. One of Perry’s customers wants a garden shaped like an octagon. The sides of the octagon are 10 feet each. What is the total perimeter of the garden?

3. Another customer wants a garden with the same perimeter. If the second garden is shaped like a rectangle, what will the length of each side of this garden be if the long sides are 25, 30, or 35 feet?

4. What happens to the short sides as the long sides increase in length?
Reteach

Area

The number of square units needed to cover a plane figure without overlapping is called area. You can use grid paper to help you find the area of a figure.

Count the units. The area of this rectangle is 10 square units.

Count the units. The area of this figure is 8 square units.

Find the area of each figure.

1. The rectangle has _____ square units. It has an area of _____ square units.

2. The shaded figure has _____ square units. It has an area of _____ square units.

Find the area of each figure.

3. 

4. 

5. 


Find the area of each figure.

1. 

2. 

3. 

4. 

5. 

6. 

Draw a figure having the given area. Use the grid paper below.

7. 12 square units

8. 18 square units

9. 25 square units

10. 30 square units
Find the area of each shaded figure.

1. [Shaded square]
2. [Shaded triangle]
3. [Shaded square]
4. [Shaded square]
5. [Shaded rectangle]
6. [Shaded triangle]

Draw each figure described. Then find the area.

7. Sean and Jim were pouring some new concrete. They needed to fill a square that was 2 units by 2 units. What was the area of concrete poured? __________
8. Alfonso’s swimming pool is 9 units by 8 units. What is the area of the pool? __________

Spiral Review
Find the perimeter of each figure. (Lesson 10–2)

9. \(3 + 4 + 5 + 6 = \) ______
10. \(2 + 2 + 2 + 2 + 2 + 2 + 2 + 2 = \) ______
Use the model above to solve.

1. What is the area of the rug in square units?
   ______ square units

3. What is the area of the floor that is not covered by a rug?
   ____________________________

2. What is the area of the whole floor, including the rug covered area?
   ______ square units

4. If the rug were 5 units long and 4 units wide, how much greater would its area be than the one shown in the model?
   ______ square units greater

5. Shawna wants to buy the rug shown above. The rug costs $2 a square unit. Use repeated addition to find the price of the rug above.
   ____________________________

6. Kaitlin wants to buy a rug that is 5 units long and 3 units wide. Draw a model of the rug to find the area.
   ______ square units
You can find the area of a shape by counting square units. Sometimes you might have to add half-square units to make a whole square unit.

The area of this shape is 10 square units.

You can also find the area of rectangles and squares by multiplying their lengths × their widths.

Length × Width = Area

1. Eric and Pedro are drawing shapes. Each boy draws a shape that has an area of 15 square units. Show a pattern that each boy might have drawn. Shade in the square units.

2. What is the area of the part of this drawing that is not shaded?
Solve a Simpler Problem

A family of 2 adults and 3 children each order a sandwich and a drink in the museum cafeteria. Sandwiches cost $4 and drinks are $1. How much does lunch cost in all?

**Step 1** Understand

Be sure you understand the problem.

Read carefully.

What do you know?

- There are _____ people in the family.
- They buy _____ sandwiches for _____ each and _____ drinks for _____ each.

What do you need to know?

- You need to find how much

**Step 2** Plan

Make a plan.

Choose a strategy.

Break the problem down into smaller parts. First, find the total number of people. Next, find the total cost of the sandwiches. Then, find the total cost of the drinks. Finally, add the total cost of the sandwiches to the total cost of the drinks.

**Step 3** Solve

Carry out your plan.

Solve this simpler problem.

Total number of people

2 adults + 3 children = _____ total number of people
Reteach

Problem-Solving Strategy  (continued)

<table>
<thead>
<tr>
<th>Total cost of sandwiches:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 people × $4 per sandwich = _____ total cost of sandwiches</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total cost of drinks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 people × $1 per drink = _____ total cost of drinks</td>
</tr>
<tr>
<td>_____ + _____ = _____</td>
</tr>
<tr>
<td>total cost of sandwiches + total cost of drinks = total cost</td>
</tr>
</tbody>
</table>

So, the lunch cost _____ in all.

Step 4
Check

Is the solution reasonable?
Reread the problem.

Does your answer make sense?  Yes  No
Did you answer the question?  Yes  No

What other strategies could you use to solve the problem?

Solve. Use the solve a simpler problem strategy.

1. The Wilsons buy 2 adult’s tickets for $5 each and 3 children’s tickets for $2 each. How much money do they spend in all?

2. Virginia buys 3 model airplanes for $6 each, 2 tubes of paint for $3 each, and 2 tubes of glue for $2 each. How much money does she spend in all?
1. Tickets to the Science Center cost $6 for adults and $3 for children. How much does a family of 2 adults and 4 children pay for tickets?

2. The Yuen family stops in the gift shop. Science Center pens cost $3. Science Center buttons cost $1. How much does it cost to buy 2 pens and 3 buttons?

3. Workers at the Science Center rope off a rectangular space. The space has 2 sides of 5 meters and 2 sides of 8 meters. How much rope do they need?

4. Lana’s home is 1 mile away from the bus stop. The ride from the bus stop to the Science Center is 6 miles. Lana walks to the bus stop and takes the bus to the Science Center. She returns home the same way. How many miles does she travel in all?

5. Nell, Barry, Chet, and Jill are in line for a movie on Alexander Graham Bell. The first person in line is a boy. Barry is ahead of Nell, but not ahead of Jill. List the names in order from first to last in line.

6. Write a problem that you could use the solve a simpler problem strategy to solve. Share it with others.
**1.** Tommy, Katy and Lily were eating grapes. Tommy ate twice as many grapes as Katy, and Lily ate half as many grapes as Katy. If Katy ate 6 grapes, how many grapes did the three of them eat in all?

2. Pat and Rich drove to the beach last weekend. It took them twice as long to get back as it did to drive there. If they spent 9 hours traveling to and from the beach, how long did it take them to drive each way?

3. Rosa was very proud of her floral arrangement. It contained 8 black-eyed susans, 12 tulips, 15 daisies, and the rest were roses. If her arrangement had 48 flowers, how many were roses?

4. Carol was collecting quarters from different states. She had 5 quarters from California, 8 from Texas, and twice as many from Florida as from California and Texas combined. If Carol had 39 quarters, how many were from Florida?

5. Amy bought valentines for her class. They were sold in boxes of 8. Amy has 24 students in her class. How many boxes of valentines will she need to purchase?

6. Sean’s baby brother sleeps about 13 hours a day. If he takes 2 two-hour naps, how long does he sleep at night?

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**Spiral Review**

**7.** Find the area of each figure. (Lesson 10–3)

7. [Grid Image] _______ square units

8. [Grid Image] _______ square units
Match each 3-dimensional figure to the plans used to make it. These plans are called nets. Hint: there is one more set of nets than there are figures.

6. Tell how you were able to match each 3-dimensional figure to its net.
Triangles can be classified by the length of their sides or the size of their angles.

In an **equilateral triangle**, 3 sides are the same length and the angles are the same.

In an **isosceles triangle**, 2 sides are the same length.

In a **scalene triangle**, no sides are the same length.

Identify each triangle. Write *equilateral*, *isosceles*, or *scalene*.

1. None of the sides of the triangle are the same length. It is a(n) ________ triangle.

2. All of the sides of the triangle are equal. It is a(n) ________ triangle.

3. All of the angles of this triangle are equal. It is a(n) ________ triangle.

4. Two of the sides of the triangle are the same length. It is a(n) ________ triangle.
Identify each triangle. Write equilateral, isosceles, or scalene.

1.  
2.  
3.  
4.  
5.  
6.  

Identify each triangle. Tell whether each angle shown is a right angle, less than a right angle, or greater than a right angle.

7.  
8.  
9.  
10.  
11.  
12.  

Solve.

13. Classify the triangle in two different ways.

14. Classify the triangle in this flag.
Answer the following true or false.

1. An isosceles triangle has two equal sides. _____
2. An equilateral triangle only has two sides that are equal. _____
3. A scalene triangle cannot contain a right angle. _____
4. A right triangle cannot be an equilateral triangle. _____
5. An isosceles triangle can be a right triangle. _____
6. A scalene triangle has no equal sides. _____

On the grids below, draw the following triangles.

7. an equilateral triangle
8. an isosceles triangle
9. a right triangle
10. a scalene triangle

Solve. Use the solve a simpler problem strategy. (Lesson 10–4)

11. Colleen ate apples 5 times a week. How many apples did she eat in 3 weeks?

12. Alicia scored three times as many points as Wade. If Wade scored 9 points, how many points did both children score in the game?
Problem-Solving Practice

Triangles and Angles

Solve.

1. Elaine drew a triangle with only two of the sides the same length. What kind of triangle did she draw?

2. The sides of a window shaped like a triangle are each different. What kind of triangle is the window shaped like?

3. An equilateral triangle has 2 sides that are each 4 inches long. What is the length of the third side? How do you know?

4. Billy has a pattern block of a right triangle and Laura has one of a scalene triangle. Tell how the pattern blocks are alike. Tell how they are different.

5. The flower bed in the park by Amy’s house is in the shape of an equilateral triangle. One side of the triangular flower bed is 40 feet long. Amy walked around all three sides of the triangle. How far did she walk?

6. Ron is drawing a triangle. One side is 3 inches long. One side is 6 inches long. His triangle is not an isosceles triangle or a right triangle. What kind of triangle did Ron draw? How do you know?
**Enrich**

*Triangle Puzzle: What’s the Question?*

Study the pattern made of triangles above. Read the “answers” below. Think of a question to go with each answer. *(Hint: Use a ruler to help you measure the sides of triangles.)*

1. The answer is 8.  
   What is the question?

2. The answer is 18.  
   What are two questions?

3. The answer is 0.  
   What is the question?

4. Write your own question for the triangle pattern above.

5. Draw a puzzle of your own that includes at least two equilateral triangles. Ask a friend to find them.
A **quadrilateral** can be classified by its sides and angles.

A **square** has 4 right angles and 4 equal sides.

A **rectangle** has 4 right angles. Its opposite sides are equal in length.

In a **parallelogram**, both pairs of opposite sides are parallel.

**Identify each quadrilateral.**

1. It has 2 pairs of parallel sides. It is a ________.

2. It is a rectangle with sides of equal length. It is a ________.

3. It has 4 right angles and 4 sides of equal length. It is a ________.

4. Both pairs of its opposite sides are parallel. It is a ________.

5. It has 4 right angles, and its opposite sides are equal in length. It is a ________.
Skills Practice
Quadrilaterals

Identify each quadrilateral.

1. 
2. 
3. 

4. 
5. 
6. 

7. It has 4 right angles and 4 sides of equal length.

8. Opposite sides have the same length with 2 angles less than right angles.

9. It has 4 sides, opposite sides are parallel, and there are no right angles.

10. It has 4 right angles. Its opposite sides are equal. All sides are not equal in length.

Write the missing numbers in the table.

11. 

<table>
<thead>
<tr>
<th>Number of quadrilaterals</th>
<th>2</th>
<th>4</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of sides</td>
<td>8</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

Solve.

12. Which quadrilateral do most DVD cases look like?
13. Which quadrilateral does a computer screen look like?
Answer the following true (T) and false (F) questions.

1. A rectangle is a quadrilateral. _____
2. Some quadrilaterals have parallel sides. _____
3. A parallelogram has two pairs of parallel sides. _____
4. A square is a rectangle. _____
5. A square must have four right angles. _____
6. A parallelogram has right angles. _____

On the grids below, draw the following quadrilaterals.

7. a rectangle
8. a parallelogram
9. a square

Spiral Review

Draw each type of triangle. (Lesson 10–5)

10. Draw an isosceles triangle.
11. Draw a scalene triangle.
12. Draw a right triangle.
1. Rhonda makes two different quadrilaterals with toothpicks. Both have sides of the same length. Name one of the quadrilaterals she could have made.

2. The pattern blocks in a box are quadrilaterals except for one. What shape could the block that is not a quadrilateral be?

3. Three picture frames are on a dresser. Two are shaped like squares and the other is shaped like a parallelogram. How many sides are there in all in the frames?

4. Collin says that all quadrilaterals are polygons, but not all polygons are quadrilaterals. Is he correct? Explain.

5. Three students were asked to draw a parallelogram. Each drew a different shape, but each was correct. Explain how that can be.

6. Are both of the shapes shown below parallelograms? Explain.
1. Circle only the quadrilaterals in the group of polygons below.

2. Which quadrilaterals above have at least one set of parallel sides?

3. Create a drawing using only quadrilaterals. Use all of the quadrilateral shapes shown in Problem 1. Use a ruler to help make your drawing.

4. How are quadrilaterals different from other shapes?

5. How are the quadrilaterals similar to each other?
Choose the Best Strategy
Claire made a quilt. The quilt has a length of 7 feet and a width of 5 feet. Each patch is a square with an area of 1 square foot. How many patches are in the quilt?

<table>
<thead>
<tr>
<th>Understand</th>
<th>You know the length of the quilt is 7 feet and the width of the quilt is 5 feet.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>You know the area of each patch is 1 square foot.</td>
</tr>
<tr>
<td></td>
<td>You need to find how many patches are in the quilt.</td>
</tr>
<tr>
<td>Plan</td>
<td>You can draw a picture to help solve the problem.</td>
</tr>
<tr>
<td>Solve</td>
<td>Draw a picture of the quilt. The width should be 5 units and the length should be 7 units. Each unit equals one square foot.</td>
</tr>
<tr>
<td></td>
<td>Each patch has an area of 1 square foot. So, each square represents a patch. Count the squares in your drawing. Claire’s quilt has 35 patches.</td>
</tr>
<tr>
<td>Check</td>
<td>Look back at the problem. You can find the area of the quilt by repeatedly adding the width seven times.</td>
</tr>
<tr>
<td></td>
<td>$5 + 5 + 5 + 5 + 5 + 5 + 5 = 35$ square feet</td>
</tr>
<tr>
<td></td>
<td>So, the answer is correct. There are 35 patches in Claire’s quilt.</td>
</tr>
</tbody>
</table>
Use any strategy shown below to solve.

- Choose an operation
- Make a table
- Guess and check
- Solve a simpler problem

1. Maria’s class had a bake sale. They sold cupcakes and cups of milk. For every dozen cupcakes they sold, they poured a half a gallon of milk. If the class sold 24 dozen cupcakes, how many gallons of milk did they pour?

2. Pablo went golfing. On the first 9 holes, he took four strokes each. On the second 9, he only took 3 strokes each. What was Pablo’s final score for 18 holes?

3. Juanita collects marbles. For every 4 small marbles Juanita has, she has one large marble. If Juanita has 36 small marbles, how many large marbles does she have?

4. Toby swims laps every day. Shawna swims twice as many laps each day as Toby. If Shawna swims 14 laps a day, how many does Toby swim?
Skills Practice

Problem-Solving Investigation

Use any strategy shown below to solve.

• Choose an operation
• Make a table
• Guess and check
• Solve a simpler problem

1. Lori went to the store and bought 3 cans of soup, a dozen eggs, a 6 pack of water, a loaf of bread, and 2 cans of tuna fish. The express line is for 10 items or fewer. Can Lori go through the express line?

2. Pam has two pages of math homework, one page of English, and still needs to study for a spelling test for 15 minutes. If she begins her work at 7:30 and spends ten minutes on each page of homework, will she be able to be in bed by 8:30?

3. Marta was designing her new garden. For every 2 pink flowering plants, she wanted to plant 3 purple flowering plants. If Marta planted 18 pink flowering plants, how many purple plants would she need?

4. Jorge is hanging some new wallpaper. His walls are 10 feet by 8 feet, and he has 4 walls to cover. If he buys 500 square feet of wallpaper, will he have enough to paper the entire room?

5. Susan and Vanesa are mother’s helpers. They earn $3 an hour and work 5 hours a week. How much do Vanesa and Susan make together each week?

6. Mercedes rides her bike every day. Beatriz rides her bike twice as much as Mercedes. Emilio bikes 5 miles per day. If Mercedes rides her bike 2 miles a day, how many miles does Beatriz bike?
Use any strategy to solve.

1. Irene had 15 thank you notes to write for her birthday gifts. She writes 3 thank you notes a night. How many nights will it take her to finish her notes?

2. Elena and Ricky bought fruit. For every 2 apples she bought, he would buy 3 kiwi. If Elena bought 6 apples, how many kiwi did Ricky buy?

3. Catalina was selling fruit in her neighborhood. She visited 6 houses on her block, and 7 houses on the next block. By the time she was finished, she had visited 19 houses in all. How many houses must she have visited on the third block?

4. Matt and Cecelia are going to Washington, D.C. on vacation and want to visit the Capitol, the Washington Monument, and the National Zoo in one day. They only have 8 hours and want to spend twice as much time at the Zoo as the other monuments. How much time can they spend at the Capitol and the Washington Monument?
Play this puzzle game with a partner. Each player looks at the puzzle independently. Players find as many circles, pentagons, triangles, and quadrilaterals as they can. Each player writes an answer for questions 1–4 on a separate sheet of paper. Compare your answers.

1. How many circles do you see? ______

2. How many pentagons do you see? ______

3. How many triangles do you see? ______________

4. How many quadrilaterals do you see? ______________

5. Did you have the same answer as your partner? ______________
   How were they alike or different? ______________

6. Study the puzzle again. Can you find more triangles and quadrilaterals? If so, change your answers to questions 3 and 4. Compare your answers again. Then score your game.

Scoring the game:

Give each player who said there were 2 circles 2 points.

Give each player who said there were 2 pentagons 2 points.

Subtract one point if you said there were 10 or fewer triangles.

Subtract one point if you said there were 3 or fewer quadrilaterals.

Give each player who said there were more than 10 triangles 5 points.

Give each player who said there were more than 10 quadrilaterals 5 points.
The objects you see around you are solid figures. A solid, or 3-dimensional figure, is a figure that has length, width, and height.

- cube
- pyramid
- rectangular prism
- cylinder
- sphere
- cone

**Identify each solid figure.**

1. 

2. 

3. 

4. 
### Skills Practice

#### Solid Figures

Identify each solid figure.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>2.</td>
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<td>6.</td>
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<tr>
<td>7.</td>
<td>8.</td>
<td>9.</td>
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</tbody>
</table>

10. Identify the figures that were used to build this house.

11. Name 3 things in your classroom that are shaped like a rectangular prism.

---

Grade 3

Chapter 10
Identify each solid figure.

1. [Baseball]
2. [Book]
3. [Cube]

4. Luisa was trying to describe the item used to hold her morning orange juice. What solid figure would you consider a juice glass to be?

5. Ella was exercising with a large round object. What solid figure would you consider this yoga ball to be?

Spiral Review

Use any strategy shown below to solve. (Lesson 10–7)

- Choose an operation
- Draw a picture
- Guess and check
- Solve a simpler problem

6. Cesar was hanging a garland around the room. The garland was 40 feet long. He needed to tack it up in five feet sections. How many sections of garland are there?

7. Sigrid wrote two numbers. The sum of the numbers is 8. The product of the numbers is 15. What are the two numbers?
Solve. Use the art for questions 1–2.

1. Penny had a drink in a container shaped like a rectangular prism. What did Penny drink?

2. What is the shape of the orange juice container?

3. Lorena was searching for the perfect pine tree. If the tree were perfect, it might be in this solid shape. What would it be?

4. Ricky traced around the bottom of a box shaped like a pyramid. What shape did Ricky draw?

5. Which of these pencil parts is shaped like a cylinder? A cone?

6. Hector kept his toys neatly stored in his toy chest. What solid figure would you consider his toy chest to be?
Write the name of the figure that does not belong. Give a reason.

1.  
   - Sphere
   - Triangle
   - Cube
   - Pyramid

2.  
   - Football
   - Basketball
   - Ball
   - Cube

3.  
   - Rectangular prism
   - Cylinder
   - Cube
   - Pyramid

Look at these solid figures.

4. How is the sphere different from the other shapes shown?
Complex Solid Figures

Think about the solid figures you learned about in lesson 8.

When we look around, we can find many solid figures in just one object. We call these complex solid figures. Think about a computer keyboard. It contains two solid figures.

Can you find the rectangular prism in the keyboard? It’s the base. Can you find the cubes on the keyboard? They are the keys. Sometimes we may need to use our imagination a bit. Sometimes we need to make the solid figures taller, or sometimes we may need to make the figures shorter and wider. If you look around, you can find lots of complex solids.

Identify the figures that make each complex solid.

1. 

2. 

3. crayon
Identify the figures that make each complex solid.

1.  
2.  
3.  
4.  
5.  
6.  
7.  
8.  
9.  

10. Gabrielle was told she needed to construct a sign using two cylinders, two cones, and a rectangular prism. What do you think her sign looked like?

11. Alberto was designing some new playground equipment. He used cones, cylinders, and spheres. He did not use any rectangular prisms or cubes. What do you think his equipment looked like?
10–9
Homework Practice

Complex Solid Figures

Identify the figures that make each complex solid.

1. 

2. 

3. 

4. 

Solve.

5. Lucy was helping her parents construct a concrete birdbath in her backyard. They had a cone shape and a flattened cylinder. How do you think they put this birdbath together?

Identify each solid figure. (Lesson 10–8)

6. 

7. 

8. 

Spiral Review

Identify each solid figure. (Lesson 10–8)
Problem-Solving Practice

Complex Solid Figures

Solve.

1. Paul had a number of tall, thin cylinders and cones. He needed to construct a fence around his pet’s play area. Draw the structure you think Paul created.

2. Alma was excited to be creating the furniture for her new bedroom. Alma had two rectangular prisms, two cubes, and five flattened cylinders to use for her design. Draw what you think her new room may have looked like.

3. Lina and Jose were very busy building a sand castle at the beach last week. They used 15 cones, 8 cylinders, 5 rectangular prisms, a pyramid, and 10 cubes in their design. It won a prize! Recreate the castle that won a prize at the beach last week.
Enrich

What Could It Be?

Identify the figures that make each complex solid.

1. 

2. 

3. 

4. 

5. Draw 3 items you might find at home that are made up of one or more solid figures. Name each item and identify the solid figures used.
A **cubic unit** is a unit of volume.

Volume is the number of cubic units a solid figure holds.

You can use cubes to help you find volume. Count the cubes.

This figure has a volume of 8 cubic units.

This figure has a volume of 10 cubic units.

---

**Use the figure at the right to answer 1–5.**

1. The top layer has _____ cubic units.
2. The middle layer has _____ cubic units.
3. The bottom layer has _____ cubic units.
4. How many cubes are there in all? _____
5. The volume is _____ cubic units.

---

**Find the volume of each solid figure.**

6. 

7. 

---
Find the volume of each solid figure.

1. 

2. 

3. 

4. 

5. 

6. 

7. 

8. 

9. 

10.
Homework Practice
Measurement: Volume

Find the volume of each solid figure.

1. 

2. 

3. 

4. 

5. 

6. 

Spiral Review

Identify the figures that make this complex solid. (Lesson 10–9)

7. Name the solid figures in the complex figure above.

8. Carmen and Luisa were carefully looking at a ferris wheel. What solid figures do you think they could find in that ferris wheel?
Solve.

1. How many cubic units long \( (l) \) is the box? _____ cubic units

   How many cubic units wide \( (w) \)?
   _____ cubic units

   How many cubic units high \( (h) \)?
   _____ cubic units

2. What is the volume of the box in cubic units?
   _____ cubic units

3. Miko’s jewelry box is 4 units long, 5 units wide, and 6 units high. What is its volume?
   _____ cubic units

4. Haki built a box out of 24 cubic units. What could the dimensions of the box be?

5. A ring box is 3 inches long, 2 inches wide, and 1 inch high. What is the volume of 2 of these boxes?
   _____ cubic inches

6. Each block is 1 cubic inch in volume. How many blocks could you fit into a box that is 4 in. long, 4 in. wide, and 4 in. high?
   about _____ blocks
Chapter Resources

Name ____________________________ Date ________________

Grade 3

Chapter 10

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10-10

Enrich

Estimating Volumes

Look at each item. Name which solid shape it resembles. Then choose volume amounts that best match the items.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Volume Amounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 quarts or 115 cubic inches</td>
<td>11 ounces or 325 cubic centimeters</td>
</tr>
<tr>
<td>6,912 cubic inches or 30 gallons</td>
<td>44 ounces or 80 cubic inches</td>
</tr>
<tr>
<td>2 ounces or 60 cubic centimeters</td>
<td>3 ounces or 89 cubic centimeters</td>
</tr>
</tbody>
</table>

(Hint: Rectangular prisms and cubes may be measured in cubic units. They may also be measured in dry or liquid measures, such as ounces, cups, pints, quarts, and gallons.)

1. [Image of a milk carton]
2. [Image of a fish tank]
3. [Image of a ice cream cone]
4. [Image of a soup can]
5. [Image of a glass]
6. [Image of a muffin cup]
# 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, describe, and classify plane and solid figures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>estimate and find perimeter, area, and volume</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>identify solid figures that make up complex figures</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>solve problems by solving a simpler problem</td>
<td></td>
</tr>
</tbody>
</table>

## Notes

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Chapter Diagnostic Assessment

Identify which figure does not belong with the others.

1. A  B

2. Susan found a photo, an apple, and an eraser. Which of these doesn’t belong? Why?

Tell how each pair of figures differs.

3.  

4.  

5. Alicia found an object with 6 sides. Carla found an object with 6 sides. The shapes did not look the same. Why?

Find the length in centimeters.

6.  

7.  

8. Mrs. Domingo wants to cover her desk with squares of fabric. If each square is 1 foot long and the desk is two feet long, how many pieces of fabric will it take to cover the length of the desk.

8.  

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Classify each polygon.

1. 

2. 

3. 

4. 

5. 

6. 

Find the perimeter.

7. What is the perimeter of the square in the picture?

8. What is the perimeter of the triangle?

9. What is the perimeter of the whole shape?

Find the area and volume.

10. area of a square with sides that are 6 units long

11. volume of a box that is 10 units long, 3 units wide, and 2 units high
Read each question carefully. Write your answer on the line provided.

1. How many sides does an octagon have?
2. What polygon has 5 sides?
3. Determine the perimeter of a hexagon if each side is 5 cm.
4. What is the difference between perimeter and area?
5. Marta calculated the perimeter of the square room to be $15 \frac{1}{2}$ feet. Could this be correct if the walls were equal and were an even number of feet? Explain your answer.
6. What is the area of the figure?
7. Sonia was trying to describe a five sided figure with a perimeter of 10 cm. Each side is the same length. What was the name of the figure, and how long was each side?
8. Jim put up a fence around his rectangular back yard. The yard measured 20 feet by 30 feet. What is the length of the fence?
Read each question carefully. Write your answer on the line provided.

1. What kind of triangle does not have any equal sides?

2. Can an equilateral triangle have a right angle?

3. Can a triangle have three angles that are less than a right angle? Explain your answer.

4. Can a square be considered a quadrilateral? Explain your answer.

5. Do all quadrilaterals have at least one pair of sides that are parallel? Explain your answer.

6. Charo has a collection of barrettes. 3 were red, 8 were purple, and the rest were yellow. If Charo had 15 barrettes, how many were yellow?

7. Mariano had a box of 18 grapefruits. If he ate 2 grapefruits a day, how many boxes would he need to last him 3 weeks?

8. Nine people came to dinner. Each person had four different plates. If Gregoria cleared away half the plates, how many were left?
Read each question carefully. Write your answer on the line provided.

1. Name two solid figures that are alike. Explain your answer.

2. Which solid figure does not belong in the group? Explain your answer.

3. If you were to create a pencil out of two solid figures, what two solid figures would you use? Draw a picture of your creation.

4. What is the difference between area and volume?

5. Ozzy’s tomato plants were full of tomatoes. For every 3 red tomatoes, there were 5 green ones. If Ozzy picked 12 red tomatoes, how many green tomatoes did he leave on the vine?
Mid-Chapter Review (Lessons 10–1 through 10–5)

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

1. A triangle with equal sides is called a(n)
   A. isosceles triangle     B. scalene triangle
   C. equilateral triangle  D. quadrilateral

2. A polygon with 5 sides is called a
   F. hexagon     G. triangle
   H. rectangle    J. pentagon

3. To find the total measurement around the outside of a figure is to find its
   A. perimeter     B. volume
   C. area          D. cubic units

Identify each polygon.

4.    5.    6.

Solve.

7. Paul and Mary took a trip to see the family. They were away for 8 hours. They spent 4 hours visiting and the rest of the time driving there and back. How long did it take them to drive one way?
Vocabulary Test

Using the word bank below, complete each sentence by writing the correct word or words on the line provided.

<table>
<thead>
<tr>
<th>perimeter</th>
<th>area</th>
<th>volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>polygon</td>
<td>closed figure</td>
<td>plane figure</td>
</tr>
<tr>
<td>quadrilateral</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. _____ is the number of cubic units needed to fill a 3-dimensional figure or solid figure.
2. _____ is the distance around a shape or region.
3. A(n) _____ is a shape that has 4 sides and 4 angles.
4. A(n) _____ is a shape that starts and ends at the same point.
5. A(n) _____ is a closed plane figure formed using line segments that meet only at their endpoints.
6. _____ is the number of square units needed to cover the inside of a region or plane figure.
7. A(n) _____ is a 2-dimensional figure that lies entirely within one plane, such as a triangle or square.
On construction paper, draw the outline of a triangle, quadrilateral, pentagon, hexagon and octagon.

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

1. Which one of these shapes has 5 sides?

2. What is the name of the shape with 5 sides?

3. Which one of these shapes has 8 sides?

4. What is the name of the shape with 8 sides?

5. Tell how you got your answer.

6. Do the triangle and the quadrilateral have the same number of sides?

7. What is the name of the shape that has 6 sides?

8. Explain your answer.
9. Alex, Irene, Hector, and Fred were comparing their drawings. Alex drew a shape with 5 sides. Irene drew a shape with 8 sides and the ends did not touch. Hector drew a shape with 6 sides. Fred drew a shape with four sides. How many shapes did they draw in all? ________________

10. Who drew the pentagon?

_____________________________________________________________________

11. Prove your answer.

_____________________________________________________________________

12. Who drew the octagon?

_____________________________________________________________________

13. Who drew the hexagon?

_____________________________________________________________________

14. Tell how you got your answer.

_____________________________________________________________________

15. Who drew the open figure?

_____________________________________________________________________

16. Explain your answer.

_____________________________________________________________________


# Chapter Project Rubric

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

### Top Pocket Foldables

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

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

Identify each figure.

1. 
   - A. cone
   - B. cylinder
   - C. sphere
   - D. rectangular prism
   1. _____

2. 
   - F. cube
   - G. pyramid
   - H. rectangular prism
   - J. cylinder
   2. _____

3. 
   - A. pyramid
   - B. rectangular prism
   - C. cylinder
   - D. cone
   3. _____

4. 
   - F. cube
   - G. rectangular prism
   - H. cylinder
   - J. cone
   4. _____

Find the perimeter, area, or volume of each figure.

5. What is the perimeter of the rectangle? 
   - A. 6 m
   - B. 8 m
   - C. 10 m
   - D. 4 m
   5. _____

6. What is the perimeter of the equilateral triangle? 
   - F. 12 in.
   - G. 8 in.
   - H. 6 in.
   - J. 4 in.
   6. _____

Grade 3
7. What is the area?
   A. 18 square units
   B. 16 square units
   C. 22 square units
   D. 19 square units

8. What is the area?
   F. 25 square units
   G. 20 square units
   H. 16 square units
   J. 12 square units

Identify each figure.

9. A. equilateral triangle
   B. right triangle
   C. scalene triangle
   D. isosceles triangle

10. F. rectangle
    G. square
    H. parallelogram
    J. quadrilateral

11. A. square
    B. parallelogram
    C. rectangle
    D. triangle

Solve.

12. A wall tile is shaped like a square. One of its sides is 6 inches long. What is the length of each of the other sides?
   F. 6 in.
   G. 12 in.
   H. 13 in.
   J. 24 in.

13. A puzzle piece is shaped like an equilateral triangle. One of its sides is 3 inches long. What is the length of each of the other sides?
   A. 3 in.
   B. 6 in.
   C. 12 in.
   D. 15 in.
Read each question carefully. Write your answer on the line provided.

Identify each figure.

1. 
   A. pyramid  
   B. cube  
   C. cylinder  
   D. rectangular prism

2. 
   F. cylinder  
   G. cone  
   H. pyramid  
   J. prism

3. 
   A. sphere  
   B. cylinder  
   C. cone  
   D. rectangular prism

4. 
   F. cone  
   G. cylinder  
   H. pyramid  
   J. cube

Find the area, perimeter, or volume of each figure.

5. What is the perimeter of the rectangle?
   A. 6 m  
   B. 8 m  
   C. 10 m  
   D. 4 m

6. What is the area?
   F. 18 square units  
   G. 16 square units  
   H. 22 square units  
   J. 20 square units
7. What is the area?  
   A. 25 square units  
   B. 20 square units  
   C. 16 square units  
   D. 12 square units  

8. What is the volume?  
   F. 9 cubic units  
   G. 8 cubic units  
   H. 6 cubic units  
   J. 12 cubic units  

Identify each figure.  

9.  
   A. pentagon  
   B. rectangle  
   C. quadrilateral  
   D. parallelogram  

10.  
    F. right triangle  
    G. equilateral triangle  
    H. scalene triangle  
    J. pentagon  

11.  
    A. square  
    B. parallelogram  
    C. octagon  
    D. rectangle  

Solve.  

12. A puzzle piece is shaped like an equilateral triangle. One of its sides is 4 inches long. What is the length of each of the other sides?  
    F. 6 in.  
    G. 4 in.  
    H. 12 in.  
    J. 15 in.  

13. A wall tile is shaped like a square. The perimeter is 40 inches. What is the length of each of its sides?  
    A. 12 in.  
    B. 13 in.  
    C. 10 in.  
    D. 24 in.
Read each question carefully. Write your answer on the line provided.

Identify each figure.

1. 
   - A. pyramid
   - B. cube
   - C. rectangular prism
   1. _____

2. 
   - F. cylinder
   - G. cone
   - H. pyramid
   2. _____

3. 
   - A. cylinder
   - B. cone
   - C. rectangular prism
   3. _____

4. 
   - F. cone
   - G. cylinder
   - H. cube
   4. _____

Find the perimeter, area, or volume of each figure.

5. What is the **perimeter** of the rectangle?
   - A. 6 m
   - B. 8 m
   - C. 4 m
   5. _____

6. What is the **area**?
   - F. 18 square units
   - G. 20 square units
   - H. 22 square units
   6. _____

7. What is the **area**?
   - A. 25 square units
   - B. 16 square units
   - C. 12 square units
   7. _____
8. What is the **volume**?

F. 8 cubic units  G. 9 cubic units  H. 12 cubic units  

8. _____

**Identify each figure.**

9. 

A. square  B. quadrilateral  C. parallelogram  

9. _____

10. 

F. scalene triangle  
G. right triangle  
H. equilateral triangle  

10. _____

11. 

A. parallelogram  
B. square  
C. triangle  

11. _____

**Solve.**

12. A tile is shaped like an equilateral triangle. One of its sides is 5 inches long. What is the length of the other sides?

F. 5 in.  G. 12 in.  H. 15 in.  

12. _____

13. A puzzle piece is shaped like a square. One of its sides is 4 inches long. What is the length of the other sides?

A. 13 in.  B. 4 in.  C. 24 in.  

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

Identify each figure.

1.

2.

3.

4.

Find the area, perimeter, or volume of each figure.

5. What is the perimeter of the rectangle?

   \[ \text{3 m} \]

   \[ \text{1 m} \]

6. What is the area?
7. What is the area?  

8. What is the volume?  

Identify each figure.  

9.  

10.  

11. Identify the shape.  

12. A puzzle piece is shaped like an equilateral triangle. One of its sides is 8 inches long. What is the length of each of the other sides?  

13. A wall tile is shaped like a square. One of its sides is 7 inches long. What is the length of each of the other sides?
Chapter Test, Form 2D

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

Identify each shape.

1. 

2. 

3. 

4. 

Find the perimeter, area, or volume of each shape.

5. What is the **perimeter** of the rectangle?

6. What is the **area**?

7. What is the **area**?

8. What is the **volume**?
Identify each figure.

9.  

10.  

11.  

12. A puzzle piece is shaped like an equilateral triangle. One of its sides is 3 inches long. What is the length of the other sides?

13. A wall tile is shaped like a square. One of its sides is 6 inches long. What is the length of the other sides?
Name ___________________________ Date ________________

Chapter Test, Form 3

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

1. ________

2. ________

3. ________

4. ________

Find the perimeter, area, or volume of each figure.

5. What is the perimeter of the rectangle?

A. 6 m  B. 8 m  C. 10 m  D. 4 m  5. ________

6. What is the volume?

6. ________

7. What is the area?

7. ________

8. What is the area?

8. ________
Identify each figure.

9. __________

10. __________

11. __________

Solve.

12. A wall tile is shaped resembling a square. One of its sides is 15 inches long. What is the length of each additional side?

13. A puzzle piece is shaped resembling an equilateral triangle. One of its sides is 5 inches long. What is the length of each additional side?

14. Adam’s garden is shaped resembling a rectangle. He reserved a square plot for his vegetables and left the remaining area for flowers.

What is the length and the width of the vegetable garden?

What is the length and the width of the flower garden?
Demonstrate your knowledge by giving a clear, concise solution to each problem. Be sure to include all relevant drawings and justify your answers. You may show your solution in more than one way or investigate beyond the requirements of the problem. If necessary, record your answer on another piece of paper.

1. What is the difference between polygons and solid figures? Draw an example of each.
   a. List 5 types of polygons and tell how many sides each has.

2. If a triangle has three sides of equal length and the perimeter is 30, how would you find the length of one side?

3. Explain the differences between equilateral, isosceles and scalene triangles.
Use this recording sheet with pages 466–467 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
Standards Example

Anita drew a shape that has 6 sides and 6 angles. What shape did she draw?

A. triangle     B. rectangle
C. hexagon      D. octagon

Read the Question

You need to use the description to name the shape.

Solve the Question

Draw a model of a shape with 6 sides and 6 angles.

Use what you know to eliminate answer choices.

The only shape that has 6 sides and 6 angles is a hexagon, because the prefix hexa- means 6.

So, the answer is C.
Read each question carefully. Write your answer on the line provided.

1. Which shape is a pentagon?
   A.  
   B.  
   C.  
   D.  

2. An equilateral triangle MUST have
   F. no sides that are the same length
   G. 2 sides that are the same length
   H. 3 sides that are the same length
   J. 4 sides that are the same length

3. Which object looks like a cylinder?
   A.  
   B.  
   C.  
   D.  

4. Dalila’s math class begins at 11:00 and ends 80 minutes later. What time does Dalila’s math class end?
   F. 11:50    G. 12:10    H. 12:20    J. 12:40

Grade 3  85  Chapter 10
5. Stephanie walks her neighbor’s dog 5 times a week. How many times does she walk the dog in 7 weeks?
   A. 12  B. 25  C. 35  D. 49  

6. What number can be divided by 6 to give the answer 6?
   F. 66  G. 56  H. 46  J. 36

7. Which number is 37 less than 4,301?
   A. 4,264  B. 4,274  C. 4,338  D. 4,374

8. How many equal sides MUST an isosceles triangle have?

9. David read a 50-page book in 5 days. He read the same number of pages each day. How many pages did David read each day?

10. What number is 809 more than 314?

11. Seth draws a shape with three sides that are not equal. His shape has one right angle. What shape did Seth draw?

12. Is the figure below a polygon? If so, what is its name?

13. Find the perimeter of the figure below.

14. $60.51 + $5.96
**Anticipation Guide**

**Measurement and Geometry**

**Before you begin Chapter 10**

- 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).

**Shape Name Number of sides**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Name</th>
<th>Number of sides</th>
</tr>
</thead>
<tbody>
<tr>
<td>△</td>
<td>triangle</td>
<td>3</td>
</tr>
<tr>
<td>□</td>
<td>quadrilateral or square</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>pentagon</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>hexagon</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>octagon</td>
<td>8</td>
</tr>
</tbody>
</table>

**After you complete Chapter 10**

- 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.
10-1
Skills Practice
Polygons

Classify each polygon.

1. pentagon
2. triangle
3. rectangle
4. hexagon
5. It has 6 sides. hexagon
6. It has 4 sides. All sides may not be equal in length. quadrilateral
7. It has 3 sides. triangle
8. It has 8 sides. octagon
9. It has 4 sides. quadrilateral
10. It has 5 sides. pentagon

Solve.

11. The library at Ladew Mansion in Maryland has 8 sides. What is the shape of the library? octagon
12. A kitchen tile has 4 sides of equal length. What is the shape of the tile? quadrilateral

Name ____________________________ Date __________

Classify each polygon.

4. 
5. 
6. 

quadrilateral
pentagon
octagon

Circle the polygons below.

1. 2. 3.

circle
circle
square

These are not polygons.

Circle the polygons below.

1. 2. 3.

hexagon
triangle 

A polygon is a closed figure with straight sides.

These are polygons.

Grade 3
Solve.

1. Each tile on a floor has 5 sides and 5 angles. What shape is each of the tiles?

2. What is the shape of the stop sign?

3. Peter made a hexagon using 6 toothpicks. He now wants to change the hexagon into an octagon. How many more toothpicks does he need?

4. Is a circle a polygon? Why or why not?

5. James says the figure below is a polygon. Karen says the figure below is a quadrilateral. Who is correct? Explain.

6. Lana drew a design using the same number of hexagons and octagons. The design has a total of 42 sides. How many hexagons are in the design?

Homework Practice

Classify each polygon.

1. triangle

2. square

3. pentagon

4. hexagon

5. octagon

6. quadrilateral

7. Eve is setting the dinner table with placemats and napkins. What are some of the polygons she may be seeing on her table?

8. Carlos drew a shape that had three straight sides and one rounded side. He said his shape is a polygon. Is he correct? Explain.

Spiral Review

Convert each unit. (Lesson 9-6)

9. 2 L = ______ mL

10. 8 km = ______ m

11. 4,000 g = ______ kg
### 10-1 Enrich
**Find a Shape**

You will need colored pencils or crayons. Look at the following shapes. Follow the directions.

1. Underline the triangle that has equal sides.
2. Color the octagon blue.
3. Color the square green.
4. Color the pentagon yellow.
5. Outline the sides of the hexagon in red.
6. Color the right triangle purple.

**Check students’ work:** green square, hexagon outlined in red, underlined triangle, yellow pentagon, purple right triangle, blue octagon.

Circle the figure that does not fit the pattern shown in the drawing. Tell one reason why it does not fit.

7. **circle**

**Sample answer:** It does not have straight sides.

---

### 10-2 Reteach
**Perimeter**

The perimeter is the distance around the outside of an object or shape. To find perimeter, add the lengths of the sides.

To find the perimeter of this triangle, add the lengths of the 3 sides.

![Triangle](triangle.png)

\[5 \text{ m} + 3 \text{ m} + 3 \text{ m} = 13 \text{ m}\]

The perimeter is 13 m.

To find the perimeter of this rectangle, add the lengths of the 4 sides.

![Rectangle](rectangle.png)

\[4 \text{ yd} + 10 \text{ yd} + 4 \text{ yd} + 10 \text{ yd} = 28 \text{ yd}\]

The perimeter is 28 yd.

**Complete the sentences.**

1. The quadrilateral has 4 sides.
2. To find the perimeter of the quadrilateral, I must **add** the lengths of the sides.
3. The lengths of its sides are **2 cm**, **2 cm**, **2 cm**, and **5 cm**.
4. Find the perimeter. \[2 \text{ cm} + 2 \text{ cm} + 2 \text{ cm} + 5 \text{ cm} = 11 \text{ cm}\]

**Find the perimeter of each figure.**

5. \[3 \text{ ft} + 3 \text{ ft} + 3 \text{ ft} = 12 \text{ ft}\]

6. \[3 \text{ in.} + 4 \text{ in.} = 12 \text{ in.}\]

7. \[2 \text{ cm} + 2 \text{ cm} + 3 \text{ cm} + 3 \text{ cm} = 10 \text{ cm}\]
Chapter 10

Skills Practice

Find the perimeter of each figure. Use a centimeter ruler.

1. 8 cm
2. 12 cm
3. 6 cm
4. 12 cm
5. 10 cm
6. 10 cm

ALGEBRA Find the length of the missing side.

7. $P = 3 + 6 + 3 + 6 = 18$ ft
8. $P = 30 + 30 + 50 = 120$ in.

Homework Practice

Find the perimeter of each figure.

1. 12 in.
2. 24 cm
3. 58 ft
4. 16 in.
5. 40 in.

Using the grids, create a shape with the following perimeters.

7. $5 + 4 + 5 + 4$
8. $6 + 2 + 2 + 6$
9. $2 + 9 + 2 + 9$

Check students’ drawings.

10. Which figure doesn’t fit? Tell why.
    Open figure doesn’t fit. The sides don’t meet.

11. Is the sun a plane figure? Explain your answer.
    It’s not a plane figure. It isn’t flat.

12. How many sides does an octagon have? 8 sides
**Problem-Solving Practice**

**Perimeter**

**Solve.**

1. Jean will put a paper border around the 4 walls in the living room. How many feet of border paper will she use? 42 ft

2. How much border paper is needed to go around the walls of the dining room? 44 ft

3. A rose garden is hexagonal in shape. Two of the sides are 14 feet and the remaining four sides are 16 feet each. How much fencing is needed to completely enclose the garden? 92 ft

4. Each of two bulletin boards is a 6 ft by 8 ft rectangle. How much border paper is needed to go around both boards? 56 ft

5. The perimeter of a small room is 34 feet. If the room is rectangular in shape and it is 7 feet wide, how long is the room? 10 ft

6. Zoe will sew lace around a rectangular tablecloth. The tablecloth is 5 feet long and 4 feet wide. If lace costs $2 per foot, how much will Zoe pay for the lace she needs? $36

---

**Enrich**

**All “Around” Fun!**

Perimeter is the distance around the outside of a figure or shape. You can use addition to find the perimeter. Add the lengths of the sides. For example, the perimeter of this square is 4 cm.

1. Perry lays out garden plots. She just bought fencing to go around a garden. The garden is shaped like a pentagon with equal sides. She bought 50 feet of fencing to go around the garden. How much fencing will go on each side? 10 feet

2. One of Perry’s customers wants a garden shaped like an octagon. The sides of the octagon are 10 feet each. What is the total perimeter of the garden? 80 feet

3. Another customer wants a garden with the same perimeter. If the second garden is shaped like a rectangle, what will the length of each side of this garden be if the long sides are 25, 30, or 35 feet? 25 and 15; 30 and 10; and 35 and 5

4. What happens to the short sides as the long sides increase in length? The short sides decrease by 5 feet each.
Find the area of each figure.

1. 15 square units
2. 9 square units
3. 4 square units
4. 10 square units
5. 7 square units
6. 8 square units

Draw a figure having the given area. Use the grid paper below.

7. 12 square units
8. 18 square units
9. 25 square units
10. 30 square units

Check students' drawings.

Skills Practice
Area

Find the area of each figure.

1. 12 square units
2. 10 square units
3. 16 square units
4. 20 square units
5. 18 square units

The number of square units needed to cover a plane figure without overlapping is called area. You can use grid paper to help you find the area of a figure.

Find the area of each figure.

1. The rectangle has 10 square units.
2. The shaded figure has 10 square units.
3. The rectangle has 12 square units.
4. The shaded figure has 10 square units.

Homework Practice

Area

Find the area of each shaded figure.

1. 20 square units
2. 2 square units
3. 25 square units
4. 16 square units
5. 14 square units
6. 8 square units

Draw each figure described. Then find the area. 7–8. Check students’ drawings.

7. Sean and Jim were pouring some new concrete. They needed to fill a square that was 2 units by 2 units. What was the area of concrete poured? 4 square units
8. Alfonso’s swimming pool is 9 units by 8 units. What is the area of the pool? 72 square units

Problem-Solving Practice

Area

Use the model above to solve.

1. What is the area of the rug in square units?
   16 square units
2. What is the area of the whole floor, including the rug covered area?
   36 square units
3. What is the area of the floor that is not covered by a rug?
   20 square units
4. If the rug were 5 units long and 4 units wide, how much greater would its area be than the one shown in the model?
   4 square units greater
5. Shawna wants to buy the rug shown above. The rug costs $2 a square unit. Use repeated addition to find the price of the rug above.
   $32
6. Kaitlin wants to buy a rug that is 5 units long and 3 units wide. Draw a model of the rug to find the area. Check students’ drawings.
   15 square units

Spiral Review

Find the perimeter of each figure. (Lesson 10–2)

9. \(3 + 4 + 5 + 6 = \text{18 cm}\)
10. \(2 + 2 + 2 + 2 + 2 + 2 + 2 = \text{14 cm}\)

\[
\begin{align*}
\text{4 cm} & \quad \text{3 cm} \\
\text{6 cm} & \quad \text{5 cm}
\end{align*}
\]

\[
\begin{align*}
\text{2 cm} & \quad \text{2 cm} \\
\text{2 cm} & \quad \text{2 cm} \\
\text{2 cm} & \quad \text{2 cm}
\end{align*}
\]
Grade 3

10–3

Enrich

Finding Areas

You can find the area of a shape by counting square units. Sometimes you might have to add half-square units to make a whole square unit.

The area of this shape is 10 square units.

The area of each of these rectangles is 12 square units.

You can also find the area of rectangles and squares by multiplying their lengths \times \text{ their widths}.

Length \times \text{ Width} = \text{ Area}

1. Eric and Pedro are drawing shapes. Each boy draws a shape that has an area of 15 square units. Show a pattern that each boy might have drawn. Shade in the square units.

   Eric
   Pedro

   34 square units

Accept reasonable answers as long as each drawing represents 15 square units.

2. What is the area of the part of this drawing that is not shaded?

   34 square units

10–4

Reteach

Problem-Solving Strategy

Solve a Simpler Problem

A family of 2 adults and 3 children each order a sandwich and a drink in the museum cafeteria. Sandwiches cost $4 and drinks are $1. How much does lunch cost in all?

Step 1
Understand

Be sure you understand the problem.
Read carefully.

What do you know?
• There are \(5\) people in the family.
• They buy \(5\) sandwiches for \(\$4\) each and \(5\) drinks for \(\$1\) each.

What do you need to know?
• You need to find how much money they spent in all

Step 2
Plan

Make a plan.
Choose a strategy.

• Solve a Simpler Problem

Break the problem down into smaller parts. First, find the total number of people. Next, find the total cost of the sandwiches. Then, find the total cost of the drinks. Finally, add the total cost of the sandwiches to the total cost of the drinks.

Step 3
Solve

Carry out your plan.
Solve this simpler problem.

Total number of people

\(2\) adults + \(3\) children = \(5\) total number of people
Reteach

Problem-Solving Strategy (continued)

Total cost of sandwiches:
5 people × $4 per sandwich = $20 total cost of sandwiches

Total cost of drinks:
5 people × $1 per drink = $5 total cost of drinks

$20 + $5 = $25 total cost of sandwiches + total cost of drinks = total cost
So, the lunch cost $25 in all.

Step 4

Is the solution reasonable?
Reread the problem.

Does your answer make sense? Yes No
Did you answer the question? Yes No

What other strategies could you use to solve the problem?
Answers may vary.

Solve. Use the solve a simpler problem strategy.

1. The Wilsons buy 2 adult’s tickets for $5 each and 3 children’s tickets for $2 each. How much money do they spend in all?

$16

2. Virginia buys 3 model airplanes for $6 each, 2 tubes of paint for $3 each, and 2 tubes of glue for $2 each. How much money does she spend in all?

$28

3. Workers at the Science Center rope off a rectangular space. The space has 2 sides of 5 meters and 2 sides of 8 meters. How much rope do they need?

26 meters

4. Lana’s home is 1 mile away from the bus stop. The ride from the bus stop to the Science Center is 6 miles. Lana walks to the bus stop and takes the bus to the Science Center. She returns home the same way. How many miles does she travel in all?

14 miles

5. Nell, Barry, Chet, and Jill are in line for a movie on Alexander Graham Bell. The first person in line is a boy. Barry is ahead of Nell, but not ahead of Jill. List the names in order from first to last in line.

Chet, Jill, Barry, Nell

6. Write a problem that you could use the solve a simpler problem strategy to solve. Share it with others.

Answers may vary.
**Answers (Lesson 10–4)**

**Enrich**

**Matching 3-Dimensional Shapes to Nets**

Match each 3-dimensional figure to the plans used to make it. These plans are called nets. Hint: there is one more set of nets than there are figures.

<table>
<thead>
<tr>
<th>Figures</th>
<th>Nets</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>b.</td>
</tr>
<tr>
<td>c.</td>
<td>d.</td>
</tr>
<tr>
<td>e.</td>
<td>f.</td>
</tr>
</tbody>
</table>

Tell how you were able to match each 3-dimensional figure to its net. Answers will vary; sample answer: I counted the sides and looked at the shapes of the sides.

3MR1.2, 3MG1.3

**Solve Use the solve a simpler problem strategy.**

1. Tommy, Katy, and Lily were eating grapes. Tommy ate twice as many grapes as Katy, and Lily ate half as many grapes as Katy. If Katy ate 6 grapes, how many grapes did the three of them eat in all?

2. Pat and Rich drove to the beach last weekend. It took them twice as long to get back as it did to drive there. If they spent 9 hours traveling to and from the beach, how many hours did they take to drive each way?

3. Rosa was very proud of her floral arrangement. It contained 8 black-eyed susans, 12 tulips, 15 daisies, and the rest were roses. If her arrangement had 48 flowers, how many were roses?

4. Carol was collecting quarters from different states. She had 5 quarters from California, 8 from Texas, and twice as many from Florida as from California and Texas combined. If Carol had 39 quarters, how many were from Florida?

5. Amy bought valentines for her class. They were sold in boxes of 8. Amy had 24 boxes in her bag, but some were defective. If Amy had 16 boxes of non-defective valentines, how many were defective?

6. Sean’s baby brother sleeps about 13 hours a day. If he takes 2 two-hour naps, how long does he sleep at night?

7. Find the area of each figure. (Lesson 10–3)

8. 8 square units

9. 15 square units

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Triangles can be classified by the length of their sides or the size of their angles.

1. None of the sides of the triangle are the same length. It is a **scalene** triangle.

2. All of the sides of the triangle are equal. It is an **equilateral** triangle.

3. All of the angles of this triangle are equal. It is an **equilateral** triangle.

4. Two of the sides of the triangle are equal, and the angles are the same. It is an **isosceles** triangle.

Reteach

Triangles and Angles

Identify each triangle. Write equilateral, isosceles, or scalene.

1. In an isosceles triangle, 2 sides are the same length.

2. In an equilateral triangle, all sides are the same length.

3. In a scalene triangle, no sides are the same length.

4. Two of the sides of the triangle are equal. It is an **isosceles** triangle.

5. All of the angles of this triangle are equal. It is an **equilateral** triangle.

6. All of the sides of the triangle are the same length. It is an **equilateral** triangle.

7. In a scalene triangle, no sides are the same length.

8. Two of the sides of the triangle are equal, and the angles are the same. It is an **isosceles** triangle.

9. All of the angles of this triangle are equal. It is an **equilateral** triangle.

10. In an isosceles triangle, 2 sides are the same length.

11. In a scalene triangle, no sides are the same length.

12. All of the angles of this triangle are equal. It is an **equilateral** triangle.

13. Classify the triangle in two different ways.

14. Classify the triangle in this flag.
Solve.

1. Elaine drew a triangle with only two of the sides the same length. What kind of triangle did she draw?

   **isosceles**

2. The sides of a window shaped like a triangle are each different. What kind of triangle is the window shaped like?

   **scalene**

3. An equilateral triangle has 2 sides that are each 4 inches long. What is the length of the third side? How do you know?

   **4 inches; All of the sides of an equilateral triangle are the same length.**

4. Billy has a pattern block of a right triangle and Laura has one of a scalene triangle. Tell how the pattern blocks are alike. Tell how they are different.

   **The right triangle has a right angle; the scalene does not.**

5. The flower bed in the park by Amy’s house is in the shape of an equilateral triangle. One side of the triangular flower bed is 40 feet long. Amy walked around all three sides of the triangle. How far did she walk?

   **120 ft**

6. Ron is drawing a triangle. One side is 3 inches long. One side is 6 inches long. His triangle is not a right triangle. What kind of triangle did Ron draw?

   **scalene**

   How do you know?

**Sample answer:** Ron’s triangle cannot be an equilateral triangle because two of the sides are not equal. Since it is not an isosceles triangle, the third side cannot be the same as either of the first two sides. Since all three sides are different lengths, it must be a scalene triangle.
A quadrilateral can be classified by its sides and angles. A square has 4 right angles and 4 equal sides. A rectangle has 4 right angles. Its opposite sides are equal in length. In a parallelogram, both pairs of opposite sides are parallel.

Identify each quadrilateral.

1. It has 2 pairs of parallel sides. It is a parallelogram.

2. It is a rectangle with sides of equal length. It is a rectangle, parallelogram.

3. It has 4 right angles and 4 sides of equal length. It is a square, rectangle.

4. Both pairs of its opposite sides are parallel. It is a rectangle, parallelogram.

5. It has 4 right angles, and its opposite sides are equal in length. It is a rectangle, parallelogram.

Check student's answer

Triangle Puzzle: What's the Question?

Study the pattern made of triangles above. Read the "answers" below. Think of a question to go with each answer. (Hint: Use a ruler to help you measure the sides of triangles.)

1. The answer is 8. What is the question?
2. The answer is 18. What are two questions?
3. The answer is 0. What is the question?

Write your own question for the triangle pattern above.

1. How many right angles?
2. How many total triangles?
3. How many isosceles triangles?
4. How many equilateral triangles?

Answers may vary; accept reasonable puzzles that include at least two equilateral triangles.
Draw each shape of triangle (lesson 10–5) 10–13. Check students' drawings.

1. Draw an equilateral triangle.
2. Draw an isosceles triangle.
3. Draw a scalene triangle.

On the grids below, draw the following quadrilaterals. 7-9. Check students' drawings.

10. Draw a rectangle
11. Draw a parallelogram
12. Draw a square

Draw each type of triangle. (Lesson 10–5) 10-13. Check students' drawings.

10. Draw an isosceles triangle.
11. Draw a scalene triangle.
12. Draw a right triangle.

Identify each quadrilateral.

Write the missing numbers in the table.

11. Number of quadrilaterals
2 4 8
12. Number of sides
8 24 64

Solve.

12. Which quadrilateral do most DVD cases look like?
13. Which quadrilateral does a computer screen look like?

Check students' drawings.

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Problem-Solving Practice
Quadrilaterals

Solve.

1. Rhonda makes two different quadrilaterals with toothpicks. Both have sides of the same length. Name one of the quadrilaterals she could have made.
   
   square or rhombus

2. The pattern blocks in a box are quadrilaterals except for one. What shape could the block that is not a quadrilateral be?
   
   Possible answers: triangle, circle, pentagon, hexagon, octagon

3. Three picture frames are on a dresser. Two are shaped like squares and the other is shaped like a parallelogram. How many sides are there in all in the frames?
   
   12 sides

4. Collin says that all quadrilaterals are polygons, but not all polygons are quadrilaterals. Is he correct? Explain.
   
   Yes; Explanations may vary. Possible answer: All quadrilaterals are closed figures with 4 sides but not all polygons have 4 sides.

5. Three students were asked to draw a parallelogram. Each drew a different shape, but each was correct. Explain how that can be.
   
   Possible answer: One student drew a square, another drew a rectangle, and another drew a parallelogram.

6. Are both of the shapes shown below parallelograms? Explain.
   
   Yes; They both have 4 sides and both pairs of opposite sides are parallel.

Enrich
Quadrilateral Patterns

1. Circle only the quadrilaterals in the group of polygons below.

   circle: 2, 4, 5, 8, 9, 12
   square or rhombus: 2, 4, 5, 8, 9, 12
   3, 11, 12
   4, 8, 10
   5, 7, 15
   6, 9, 11
   12

2. Which quadrilaterals above have at least one set of parallel sides?

   2, 4, 5, 8, 9, 12

3. Create a drawing using only quadrilaterals. Use all of the quadrilateral shapes shown in Problem 1. Use a ruler to help make your drawing.

   Accept reasonable drawings that include the above listed quadrilaterals.

4. How are quadrilaterals different from other shapes?

   Answers may vary; sample answer: the quadrilaterals have four straight sides.

5. How are the quadrilaterals similar to each other?

   Answers may vary; sample answer: they have four sides and angles that total 360 degrees.
Choose the Best Strategy

Claire made a quilt. The quilt has a length of 7 feet and a width of 5 feet. Each patch is a square with an area of 1 square foot. How many patches are in the quilt?

**Understand**
- You know the length of the quilt is 7 feet.
- You know the width of the quilt is 5 feet.
- You know the area of each patch is 1 square foot.
- You need to find how many patches are in the quilt.

**Plan**
- You can draw a picture to help solve the problem.

**Solve**
- Draw a picture of the quilt. The width should be 5 units and the length should be 7 units. Each unit equals one square foot.

Each patch has an area of 1 square foot. So, each square represents a patch. Count the squares in your drawing.

Claire’s quilt has 35 patches.

**Check**
- Look back at the problem. You can find the area of the quilt by repeatedly adding the width seven times.

\[5 + 5 + 5 + 5 + 5 + 5 + 5 = 35 \text{ square feet}\]

So, the answer is correct. There are 35 patches in Claire’s quilt.

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

- Choose an operation
- Make a table
- Guess and check
- Solve a simpler problem

1. Maria’s class had a bake sale. They sold cupcakes and cups of milk. For every dozen cupcakes they sold, they poured a half a gallon of milk. If the class sold 24 dozen cupcakes, how many gallons of milk did they pour?

**Solution:**
- **Choose an operation**
- **Guess and check**
- **Solve a simpler problem**

\[12 \text{ gallons}\]

2. Pablo went golfing. On the first 9 holes, he took four strokes each. On the second 9, he only took 3 strokes each. What was Pablo’s final score for 18 holes?

**Solution:**
- **Choose an operation**
- **Make a table**

\[9 \times 4 = 36 \text{ plus } 9 \times 3 = 27; \]

\[36 + 27 = 63\]

3. Juanita collects marbles. For every 4 small marbles Juanita has, she has one large marble. If Juanita has 36 small marbles, how many large marbles does she have?

**Solution:**
- **Choose an operation**
- **Make a table**

\[9 \text{ large marbles}\]

4. Toby swims laps every day. Shawna swims twice as many laps each day as Toby. If Shawna swims 14 laps a day, how many does Toby swim?

**Solution:**
- **Choose an operation**
- **Make a table**

\[7 \text{ laps}\]
Use any strategy shown below to solve.

1. Lori went to the store and bought 3 cans of soup, a dozen eggs, a 6 pack of water, a loaf of bread, and 2 cans of tuna fish. The express line is for 10 items or fewer. Can Lori go through the express line?

2. Marta was designing her new garden. For every 2 pink flowering plants, she wanted to plant 3 purple flowering plants. If Marta planted 18 pink flowering plants, how many purple plants would she need?

3. Susan and Vanessa are mother's helpers. They earn $5 each week. How much do Vanessa and Susan make together each week?

4. Jorge is hanging some new wallpaper. His walls are 10 feet by 8 feet, and he has 4 walls to cover. If he buys 500 square feet of wallpaper, will he have enough to paper the entire room?

5. Emily bikes 2 miles per day. How many miles does Emily bike in 5 days?

6. Mercedes rides her bike every day, 5 miles per day. How many miles does Mercedes ride in 7 days?

7. Cinco buys a 4 by 4 square rug. Which square feet is equal to 30 ft²?

8. A square has sides of 4 ft. What is its area?

9. A triangle has sides of 3 ft. What is its area?
Reteach
Solid Figures

The objects you see around you are solid figures. A solid, or 3-dimensional figure, is a figure that has length, width, and height.

Identify each solid figure.

1. ____________
2. ____________
3. ____________
4. ____________

Identify each solid figure.

Play this puzzle game with a partner. Each player looks at the puzzle independently. Players find as many circles, pentagons, triangles, and quadrilaterals as they can. Each player writes an answer for questions 1–4 on a separate sheet of paper. Compare your answers.

1. How many circles do you see? ____________
2. How many pentagons do you see? ____________
3. How many triangles do you see? answers will vary
4. How many quadrilaterals do you see? answers will vary
5. Did you have the same answer as your partner? answers will vary depending on responses.

6. Study the puzzle again. Can you find more triangles and quadrilaterals? If so, change your answers to questions 3 and 4. Compare your answers again. Then score your game.

Scoring the game:

Give each player who said there were 2 circles 2 points.

Give each player who said there were 2 pentagons 2 points.

Subtract one point if you said there were 10 or fewer triangles.

Subtract one point if you said there were 3 or fewer quadrilaterals.

Give each player who said there were more than 10 triangles 5 points.

Give each player who said there were more than 10 quadrilaterals 5 points.
Skills Practice

Solid Figures

Identify each solid figure.

1. [Image of a rectangular prism]

2. [Image of a pyramid]

3. [Image of a cylinder]

4. [Image of a cone]

5. [Image of a sphere]

6. [Image of a pyramid]

7. [Image of a cube]

8. [Image of a cylinder]

9. [Image of a sphere]

10. Identify the figures that were used to build this house.

11. Name 3 things in your classroom that are shaped like a rectangular prism.

Answers will vary.

Homework Practice

Solid Figures

Identify each solid figure.

1. [Image of a sphere]

2. [Image of a rectangular prism]

3. [Image of a cube]

4. Luisa was trying to describe the item used to hold her morning orange juice. What solid figure would you consider a juice glass to be?

   [Image of a cylinder]

5. Ella was exercising with a large round object. What solid figure would you consider this yoga ball to be?

   [Image of a sphere]

Spiral Review

Use any strategy shown below to solve. (Lesson 10–7)

- Choose an operation
- Draw a picture
- Guess and check
- Solve a simpler problem

6. Cesar was hanging a garland around the room. The garland was 40 feet long. He needed to tack it up in five feet sections. How many sections of garland are there?

   8 sections

7. Sigrid wrote two numbers. The sum of the numbers is 8. The product of the numbers is 15. What are the two numbers?

   3, 5

Answers (Lesson 10–8)
**Recognizing Solid Figures**

Write the name of the figure that does not belong. Give a reason.

1. triangle; it is not a solid shape
2. the triangle; it is not a solid shape
3. the cube; it is not sphere

Look at these solid figures.

4. the cylinder; all of the others have a four-sided base

It does not have any edges.

**Problem-Solving Practice**

Solve. Use the art for questions 1–2.

1. Penny had a drink in a container shaped like a rectangular prism. What did Penny drink?
2. What is the shape of the orange juice container?

3. Lorena was searching for the perfect pine tree. If the tree were perfect, it might be in this solid shape. What would it be?
4. Ricky traced around the bottom of a box shaped like a pyramid. What shape did Ricky draw?
5. Hector kept his toys neatly stored in his toy chest. What solid figure would you consider his toy chest to be?
6. Which of these pencil parts is shaped like a cylinder? A cone? A rectangular prism?

**Possible answers:**
- rectangle, square, or triangle
- cone
- eraser and shaft
Complex Solid Figures

Identify the figures that make each complex solid.

Possible answers given.

1. 2 rec. prism, 1 deep, 1 shallow
2. cone and sphere on top
3. crayon
4. rectangular prism, cone
5. cylinders, cone
6. cylinder, cube
7. cylinders, cone
8. rectangular prism, cylinder
9. pyramid, rectangular prisms
10. Gabrielle was told she needed to construct a sign using two cylinders, two cones, and a rectangular prism. What do you think her sign looked like?
11. Alberto was designing some new playground equipment. He used cones, cylinders, and spheres. He did not use any rectangular prisms or cubes. What do you think his equipment looked like?

See student's work.

See student's work.
**Homework Practice**

**Complex Solid Figures**

Identify the figures that make each complex solid. Possible answers given.

1. cone, cylinder

2. rect. prism, sphere

3. cube, rect. prism, cubes, cylinders

4. cylinder, cone

Solve.

5. Lucy was helping her parents construct a concrete birdbath in her backyard. They had a cone shape and a flattened cylinder. How do you think they put this birdbath together?

   | See students’ work. |

Spiral Review

Identify each solid figure. (Lesson 10–8)

6. cone

7. rectangular prism

8. pyramid

**Problem-Solving Practice**

**Complex Solid Figures**

Solve.

1. Paul had a number of tall, thin cylinders and cones. He needed to construct a fence around his pet’s play area. Draw the structure you think Paul created.

   | Answers will vary. Check students’ work. |

2. Alma was excited to be creating the furniture for her new bedroom. Alma had two rectangular prisms, two cubes, and five flattened cylinders to use for her design. Draw what you think her new room may have looked like.

   | Answers will vary. Check students’ work. |

3. Lina and Jose were very busy building a sand castle at the beach last week. They used 15 cones, 8 cylinders, 5 rectangular prisms, a pyramid, and 10 cubes in their design. It won a prize! Recreate the castle that won a prize at the beach last week.

   | Answers will vary. Check students’ work. |
Identify the figures that make each complex solid.

1. rectangular prism and cylinder
2. sphere and cylinder
3. rectangular prism and cone

4. Draw 3 items you might find at home that are made up of one or more solid figures. Name each item and identify the solid figures used.

5. Answers will vary: Sample answers: cereal box, jars with lids, mattress, milk carton

A cubic unit is a unit of volume. Volume is the number of cubic units a solid figure holds. You can use cubes to help you find volume. Count the cubes.

This figure has a volume of 8 cubic units.

This figure has a volume of 10 cubic units.

Use the figure at the right to answer 1–5.

1. The top layer has ___ cubic units.

2. The middle layer has ___ cubic units.

3. The bottom layer has ___ cubic units.

4. How many cubes are there in all? ___ cubic units.

5. The volume is ___ cubic units.

Find the volume of each solid figure.

6. ___ cubic units

7. ___ cubic units

Reteach Measurement: Volume
Find the volume of each solid figure.

1. 12 cubic units
2. 8 cubic units
3. 24 cubic units
4. 24 cubic units
5. 11 cubic units
6. 12 cubic units
7. 12 cubic units
8. 27 cubic units

Identify the figures that make this complex solid. (Lesson 10–9)

7. Name the solid figures in the complex figure below:
   2 cubes, 2 rect. prisms, 4 cones, 2 cylinders

8. Carmen and Luisa were carefully looking at a ferris wheel. What solid figures do you think they could find in that ferris wheel?
   Cylinder and cubes or rect. prisms
Grade 3

**Answers (Lesson 10–10)**

**Problem-Solving Practice**

1. How many cubic units long (l) is the box? cubic units
2. How many cubic units wide (w)? cubic units
3. How many cubic units high (h)? cubic units
4. What is the volume of the box in cubic units? cubic units
5. Max’s jewelry box is 4 units long, 6 units wide, and 5 units high. What is its volume? 120 cubic units
6. A ring box is 1 cubic inch in volume. How many blocks could you fit into a box that is 4 in. long, 4 in. wide, and 4 in. high? about 64 blocks

**Measurement: Volume**

- Rectangular prism: 2 quarts or 115 cubic inches
- Rectangular prism: 6,912 cubic inches or 30 gallons
- Cone: 2 ounces or 60 cubic centimeters
- Cylinder: 11 ounces or 325 cubic centimeters
- Cylinder: 44 ounces or 80 cubic inches
- Cylinder: 3 ounces or 89 cubic centimeters

**Converting Measures**

- 2 quarts or 115 cubic inches
- 6,912 cubic inches or 30 gallons
- 2 ounces or 60 cubic centimeters
- 11 ounces or 325 cubic centimeters
- 44 ounces or 80 cubic inches
- 3 ounces or 89 cubic centimeters

**Estimating Volumes**

Look at each item. Name which solid shape it resembles. Then choose volume amounts that best match the item.

- 2 quarts or 115 cubic inches
- 6,912 cubic inches or 30 gallons
- 2 ounces or 60 cubic centimeters
- 11 ounces or 325 cubic centimeters
- 44 ounces or 80 cubic inches
- 3 ounces or 89 cubic centimeters
Vocabulary Test

Using the word bank below, complete each sentence by writing the correct word or words on the line provided.

perimeter area volume

polygon closed figure plane figure

quadrilateral

1. ____ is the number of cubic units needed to fill a 3-dimensional figure or solid figure.
2. ____ is the distance around a shape or region.
3. A(n) ____ is a shape that has 4 sides and 4 angles.
4. A(n) ____ is a shape that starts and ends at the same point.
5. A(n) ____ is a closed plane figure formed using line segments that meet only at their endpoints.
6. ____ is the number of square units needed to cover the inside of a region or plane figure.
7. A(n) ____ is a 2-dimensional figure that lies entirely within one plane, such as a triangle or square.

Oral Assessment

On construction paper, draw the outline of a triangle, quadrilateral, pentagon, hexagon and octagon.

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

1. Which one of these shapes has 5 sides?
   _student should point to pentagon_

2. What is the name of the shape with 5 sides?
   __pentagon__

3. Which one of these shapes has 8 sides?
   _student should point to octagon_

4. What is the name of the shape with 8 sides?
   __octagon__

5. Tell how you got your answer.
   Answers will vary; Accept reasonable answers.

6. Do the triangle and the quadrilateral have the same number of sides?
   _No_

7. What is the name of the shape that has 6 sides?
   __hexagon__

8. Explain your answer.
   Answers will vary; Accept reasonable answers.
9. Alex, Irene, Hector, and Fred were comparing their drawings. Alex drew a shape with 5 sides. Irene drew a shape with 8 sides and the ends did not touch. Hector drew a shape with 6 sides. Fred drew a shape with four sides. How many shapes did they draw in all? ______ 4 ______

10. Who drew the pentagon?

Alex

11. Prove your answer.

Alex drew a figure with 5 sides.

12. Who drew the octagon?

No one drew an octagon.

13. Who drew the hexagon?

Hector

14. Tell how you got your answer.

Hector’s shape has 6 sides.

15. Who drew the open figure?

Irene

16. Explain your answer.

Irene’s shape has ends that do not touch.
3–5. Sample answers given.

1. **D**
   - the photo, because it is flat

2. **right triangle**

3. **octagon**

4. **hexagon**

5. **pentagon**
   - isosceles

6. **triangle**

7. **40 ft**

8. **26 ft**

9. **46 ft**

10. **36 square inches**

11. **60 cubic units**

Perimeter measures the outside of a figure. Area measures the number of square units needed to cover the inside of a space.

This couldn’t be true since $15\frac{1}{2}$ isn’t evenly divided by 4 and we shouldn’t have a fraction in a measurement if the walls are all an even number of feet.

5. **6 square units**

6. **pentagon; 2 cm**

7. **100 feet**
**Chapter 10 Assessment Answer Key**

**Quiz 2** (10–4 through 10–6)  
Page 62

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<td>2.</td>
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<td>Yes. An equilateral triangle has three angles, all less than a right angle.</td>
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**Quiz 3** (10–7 through 10–10)  
Page 63

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<td>Answers will vary; possible answer: cone and cylinder – both have curved sides and flat surfaces.</td>
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<td>Sphere doesn’t fit; it doesn’t have any flat surfaces.</td>
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<td>a long cylinder and a cone</td>
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<td>4.</td>
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<td>Area refers to flat surfaces while volume refers to solid figures.</td>
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<td>5.</td>
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<td>20 green tomatoes</td>
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<td>8.</td>
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<td>18 plates</td>
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**Mid-Chapter Review**  
Page 64

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<td>octagon</td>
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<td>hexagon</td>
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<td>6.</td>
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<td>7.</td>
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</tr>
<tr>
<td>2 hours</td>
<td></td>
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</tr>
</tbody>
</table>
Chapter 10 Assessment Answer Key

Chapter Test, Form 1
Page 70

1. B
2. H
3. A
4. F
5. B
6. F
7. D
8. H
9. B
10. J
11. B
12. F

Chapter Test, Form 2A
Page 72

1. D
2. H
3. B
4. J
5. B
6. J
<table>
<thead>
<tr>
<th>Chapter Test, Form 2A</th>
<th>Chapter Test, Form 2B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page 73</td>
<td>Page 74</td>
</tr>
<tr>
<td>8. <strong>F</strong></td>
<td>1. <strong>C</strong></td>
</tr>
<tr>
<td>9. <strong>C</strong></td>
<td>4. <strong>H</strong></td>
</tr>
<tr>
<td>10. <strong>F</strong></td>
<td>5. <strong>B</strong></td>
</tr>
<tr>
<td>11. <strong>B</strong></td>
<td>12. <strong>F</strong></td>
</tr>
<tr>
<td>12. <strong>G</strong></td>
<td>6. <strong>G</strong></td>
</tr>
<tr>
<td>13. <strong>C</strong></td>
<td>7. <strong>B</strong></td>
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<td></td>
<td>Chapter Test, Form 2C</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
</tr>
<tr>
<td>1.</td>
<td>rectangular prism</td>
</tr>
<tr>
<td>2.</td>
<td>pyramid</td>
</tr>
<tr>
<td>3.</td>
<td>cylinder</td>
</tr>
<tr>
<td>4.</td>
<td>cube</td>
</tr>
<tr>
<td>5.</td>
<td>8 m</td>
</tr>
<tr>
<td>6.</td>
<td>20 square units</td>
</tr>
<tr>
<td>7.</td>
<td>16 square units</td>
</tr>
<tr>
<td>8.</td>
<td>9 cubic units</td>
</tr>
<tr>
<td>9.</td>
<td>quadrilateral</td>
</tr>
<tr>
<td>10.</td>
<td>right triangle or isosceles triangle</td>
</tr>
<tr>
<td>11.</td>
<td>parallelogram</td>
</tr>
<tr>
<td>12.</td>
<td>8 in.</td>
</tr>
<tr>
<td>13.</td>
<td>7 in.</td>
</tr>
</tbody>
</table>
Chapter 10 Assessment Answer Key

Chapter Test, Form 2D
Page 79

1. cube
2. pyramid
3. cylinder
4. rectangular prism
5. B
6. 9 cubic units
7. 16 square units
8. 20 square units
9. quadrilateral
10. parallelogram
11. ________
12. 3 in.
13. 6 in.

Chapter Test, Form 3
Page 80

9. right triangle or isosceles triangle
10. parallelogram
11. ________
12. 15 in.
13. 5 in.

Page 81

14. 8 ft by 8 ft
15. ________

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# Chapter 10 Assessment Answer Key

Page 82, 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>
1. Polygons are flat. Solid figures have depth as well as length and height.

Example of a polygon:

[Diagram of a triangle]

Example of a solid figure:

[Diagram of a cube]

2. Since you know all sides are equal and that the perimeter is 30, you can divide $30 \div 3$. Therefore, you can determine that the length of each side is 10.

3. An equilateral triangle has 3 equal sides. An isosceles triangle has 2 equal sides. A scalene triangle has no equal sides.
Chapter 10 Assessment Answer Key
Cumulative Standardized Test Practice
Page 85
Page 86

1. C
2. H
3. B
4. H
5. C
6. J
7. A
8. 2
9. 10 pages
10. 1,123 right
11. triangle
12. yes; octagon
13. 12 in.
14. $66.47