

Name \_\_\_\_\_

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## Chapter 7 Constructions and Scale

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|       | My Current Class Average   |       |

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

Teacher Signature \_\_\_\_\_ Date \_\_\_\_\_

Name \_\_\_\_\_ Class Period \_\_\_\_\_

### Evaluation of Notes

| Criteria   | 10 – Unsatisfactory   | 20 – Satisfactory  | 25 – Good   | 30 – Excellent   | Score |
|--|---|--|---|--|-------|
| Set-up and Neatness  | <ul style="list-style-type: none"> <li>No name</li> <li>Paper appears to have been scrunched, put through a blender, or used as a napkin</li> </ul> | <ul style="list-style-type: none"> <li>Name</li> <li>Handwriting is hard to read.</li> </ul>                   | <ul style="list-style-type: none"> <li>Name and class period</li> <li>Some extra notes added</li> </ul> | <ul style="list-style-type: none"> <li>Name and class period</li> <li>Many extra notes added</li> </ul>                  | _____ |
| Completion of practice   | <ul style="list-style-type: none"> <li>One or more sections are blank</li> </ul>  | <ul style="list-style-type: none"> <li>Some practice is not complete</li> <li>Not all work is shown</li> </ul> | <ul style="list-style-type: none"> <li>All practice is complete</li> <li>Some work not shown</li> </ul> | <ul style="list-style-type: none"> <li>All practice complete</li> <li>All work shown</li> </ul>                          | _____ |
| Text marking   | <ul style="list-style-type: none"> <li>None of the notes are highlighted or underlined</li> </ul>   | <ul style="list-style-type: none"> <li>One or more sections are missing highlighting or underlining</li> </ul> | <ul style="list-style-type: none"> <li>Each section contains highlighting or underlining.</li> </ul>    | <ul style="list-style-type: none"> <li>Every key point is highlighted or underlined and it is done so neatly.</li> </ul> | _____ |
| Completed on time or within one day of being absent? +10 points! |   |  |   |  | _____ |
| <b>Total Score</b>   |   |  |   |  | _____ |


### Evaluation of Homework

| Criteria               | 0 – Unsatisfactory  | 30 – Satisfactory  | 40 – Good   | 50 – Excellent   | Score |
|------------------------|---|--|---|--|-------|
| Set-up and Neatness    | <ul style="list-style-type: none"> <li>No name</li> <li>Paper appears to have been scrunched, put through a blender, or used as a napkin</li> </ul> | <ul style="list-style-type: none"> <li>Name</li> <li>Handwriting is hard to read.</li> </ul>                 | <ul style="list-style-type: none"> <li>Name and class period</li> <li>Some answers are boxed</li> </ul> | <ul style="list-style-type: none"> <li>Name and class period</li> <li>All answers are boxed</li> </ul> | _____ |
| Completion of practice | <ul style="list-style-type: none"> <li>The homework is not done or attempted.</li> </ul>  | <ul style="list-style-type: none"> <li>Some problems are not done.</li> <li>Not all work is shown</li> </ul> | <ul style="list-style-type: none"> <li>All practice is complete</li> <li>Some work not shown</li> </ul> | <ul style="list-style-type: none"> <li>All practice complete</li> <li>All work shown</li> </ul>        | _____ |
| <b>Total Score</b>     |   |  |   |  | _____ |

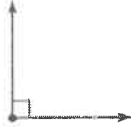
|                    |  |
|--------------------|--|
| Chapter 7          | Constructions and Scale  |
| MAFS.7.G.2.5       | Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.                |
| Essential Question | What can you conclude about the angles formed by two intersecting lines?<br><i>In this lesson I am learning geometric definitions so I can use them to help me solve for a variable.</i> |

**7.1 Adjacent and Vertical Angles**


*Classification of Angles*




**Acute:**  
Less than  $90^\circ$



**Right:**  
Equal to  $90^\circ$



**Obtuse:**  
Greater than  $90^\circ$  and less than  $180^\circ$

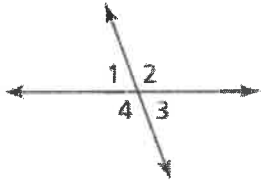


**Straight:**  
Equal to  $180^\circ$

**Adjacent Angles**

**Words** Two angles are **adjacent angles** when they share a common side and have the same vertex.

**Examples**



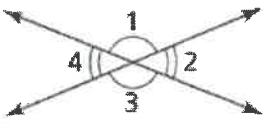
$\angle 1$  and  $\angle 2$  are adjacent.

$\angle 2$  and  $\angle 4$  are not adjacent.

**Vertical Angles**

**Words** Two angles are **vertical angles** when they are opposite angles formed by the intersection of two lines. Vertical angles are **congruent angles**, meaning they have the same measure.

**Examples**

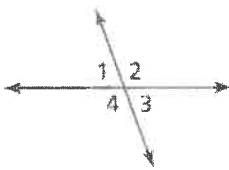


$\angle 1$  and  $\angle 3$  are vertical angles.

$\angle 2$  and  $\angle 4$  are vertical angles.

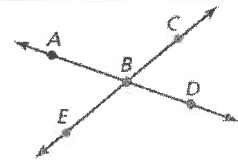
1. **VOCABULARY** When two lines intersect, how many pairs of vertical angles are formed? How many pairs of adjacent angles are formed?

2. **REASONING** Identify the congruent angles in the figure. Explain your reasoning.



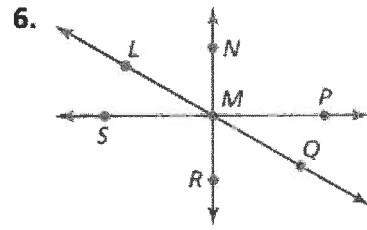
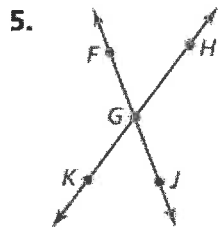
Use the figure at the right.

- Measure each angle formed by the intersecting lines.
- Name two angles that are adjacent to  $\angle ABC$ .

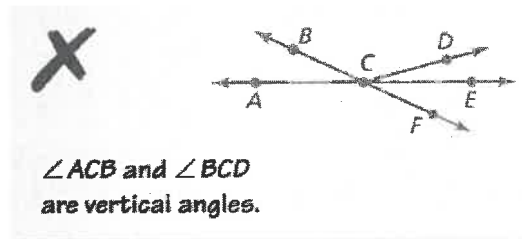


Homework  
7.1 Practice A  
#1-2

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.

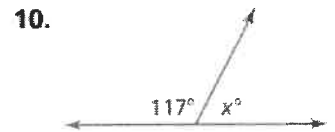
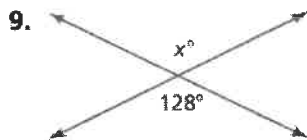
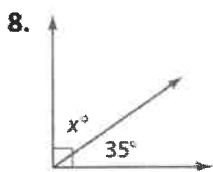


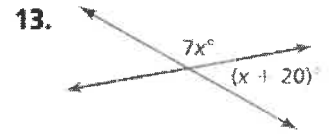
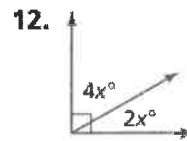
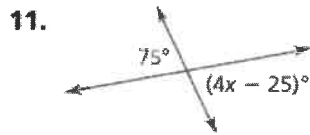
7. **ERROR ANALYSIS** Describe and correct the error in naming a pair of vertical angles.



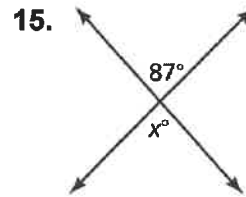
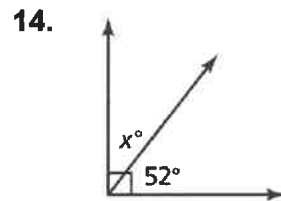
Homework  
7.1 Practice A  
#3-6

Tell whether the angles are *adjacent* or *vertical*. Then find the value of  $x$ .



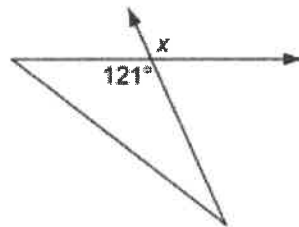


Tell whether the angles are *adjacent* or *vertical*. Then find the value of  $x$ .



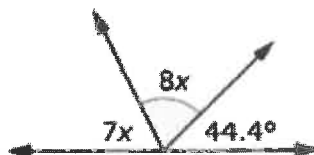
16. Angle 1 and angle 2 are supplementary. Angle 2 is vertical to a  $75^\circ$  angle. What are the measures of angle 1 and angle 2?

A figure is shown.



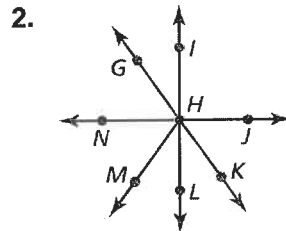
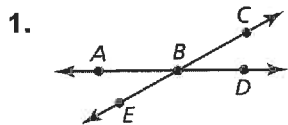
What is the measure, in degrees, of angle  $x$ ?

What is the measure, in degrees, of the highlighted (middle) angle?

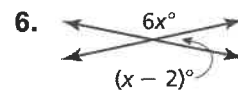
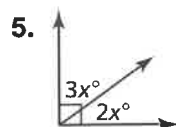
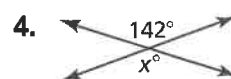
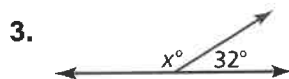


# 7.1 Practice A

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.



Tell whether the angles are *adjacent* or *vertical*. Then find the value of  $x$ .



Draw a pair of vertical angles with the given measure.

7.  $40^\circ$

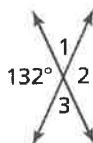
8.  $75^\circ$

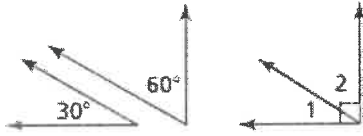

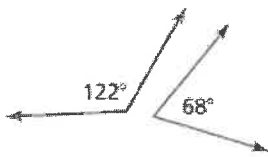
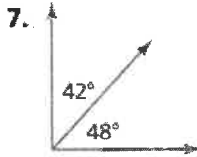
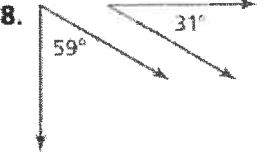
9.  $120^\circ$

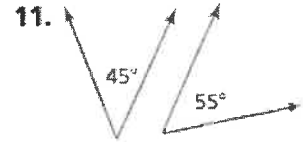
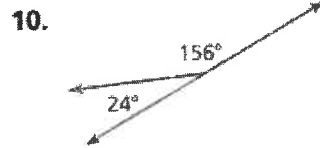
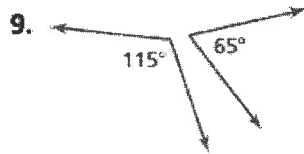
10. Draw a pair of adjacent angles with the given description.

- Both angles are obtuse.
- The sum of the angle measures is  $180^\circ$ .
- The sum of the angles measures is  $60^\circ$ .

11. What are the measures of the other three angles formed by the intersection?

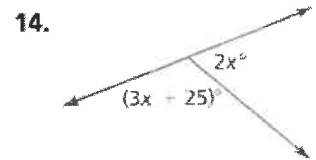
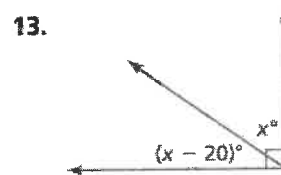
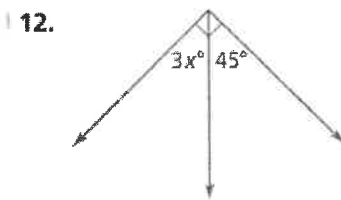


|   |   |
|---|---|
| MAFS.7.G.2.5                                      | Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.   |
| Essential Question                                | How can you classify two angles as complementary or supplementary?<br><i>In this lesson I am learning how to classify angles as complementary or supplementary so I can use that to help me solve for missing x values.</i>   |
| <p><b>7.2 Complementary and Supplementary</b></p> | <p><b>Complementary Angles</b></p> <p><b>Words</b> Two angles are <b>complementary angles</b> when the sum of their measures is <math>90^\circ</math>.</p> <p><b>Examples</b></p>  <p><math>\angle 1</math> and <math>\angle 2</math> are complementary angles.</p> <p><b>Supplementary Angles</b></p> <p><b>Words</b> Two angles are <b>supplementary angles</b> when the sum of their measures is <math>180^\circ</math>.</p> <p><b>Examples</b></p>  <p><math>\angle 3</math> and <math>\angle 4</math> are supplementary angles.</p> |
|   | <ol style="list-style-type: none"> <li><b>VOCABULARY</b> Explain how complementary angles and supplementary angles are different.</li> <li><b>REASONING</b> Can adjacent angles be supplementary? complementary? neither? Explain.</li> </ol>   |
| <p><b>Homework 7.2 Practice A #1-2</b></p>        | <p><b>Tell whether the statement is <i>always, sometimes, or never</i> true. Explain.</b></p> <ol style="list-style-type: none"> <li>If <math>x</math> and <math>y</math> are supplementary angles, then <math>x</math> is obtuse.</li> <li>If <math>x</math> and <math>y</math> are right angles, then <math>x</math> and <math>y</math> are supplementary angles.</li> <li>If <math>x</math> and <math>y</math> are complementary angles, then <math>y</math> is a right angle.</li> </ol>  |
| <p><b>Homework 7.2 Practice A #3-6</b></p>        | <p><b>Tell whether the angles are <i>complementary, supplementary, or neither</i>.</b></p> <p>6. </p> <p>7. </p> <p>8. </p>   |

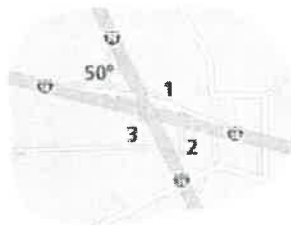


**Homework  
7.2 Practice A  
#8-9**

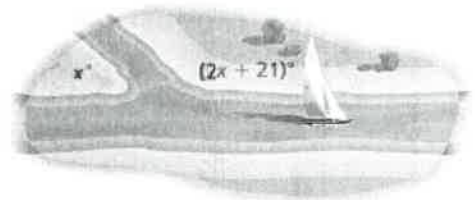
Tell whether the angles are *complementary* or *supplementary*. Then find the value of  $x$ .



15. **INTERSECTION** What are the measures of the other three angles formed by the intersection?



16. **TRIBUTARY** A tributary joins a river at an angle. Find the value of  $x$ .



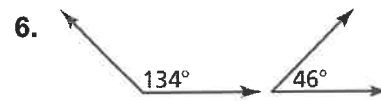
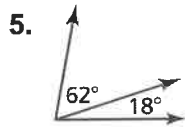
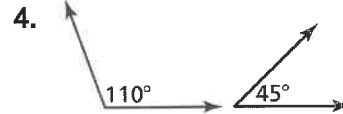
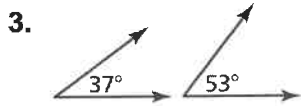


# 7.2 Practice A

Tell whether the statement is *always*, *sometimes*, or *never* true. Explain.

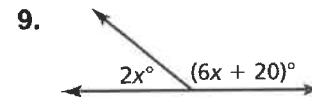
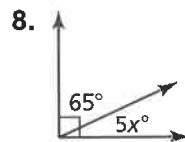
- If  $x$  and  $y$  are supplementary angles, then  $y$  is acute.
- If  $x$  and  $y$  are complementary angles, then  $x$  is obtuse.

Tell whether the angles are *complementary*, *supplementary*, or *neither*.



- Angle  $x$  and angle  $y$  are complementary. Angle  $x$  is supplementary to a  $128^\circ$  angle. What are the measures of angle  $x$  and angle  $y$ ?

Tell whether the angles are *complementary* or *supplementary*. Then find the value of  $x$ .



Draw a pair of adjacent supplementary angles so that one angle has the given measure.

10.  $50^\circ$

11.  $110^\circ$

12.  $135^\circ$

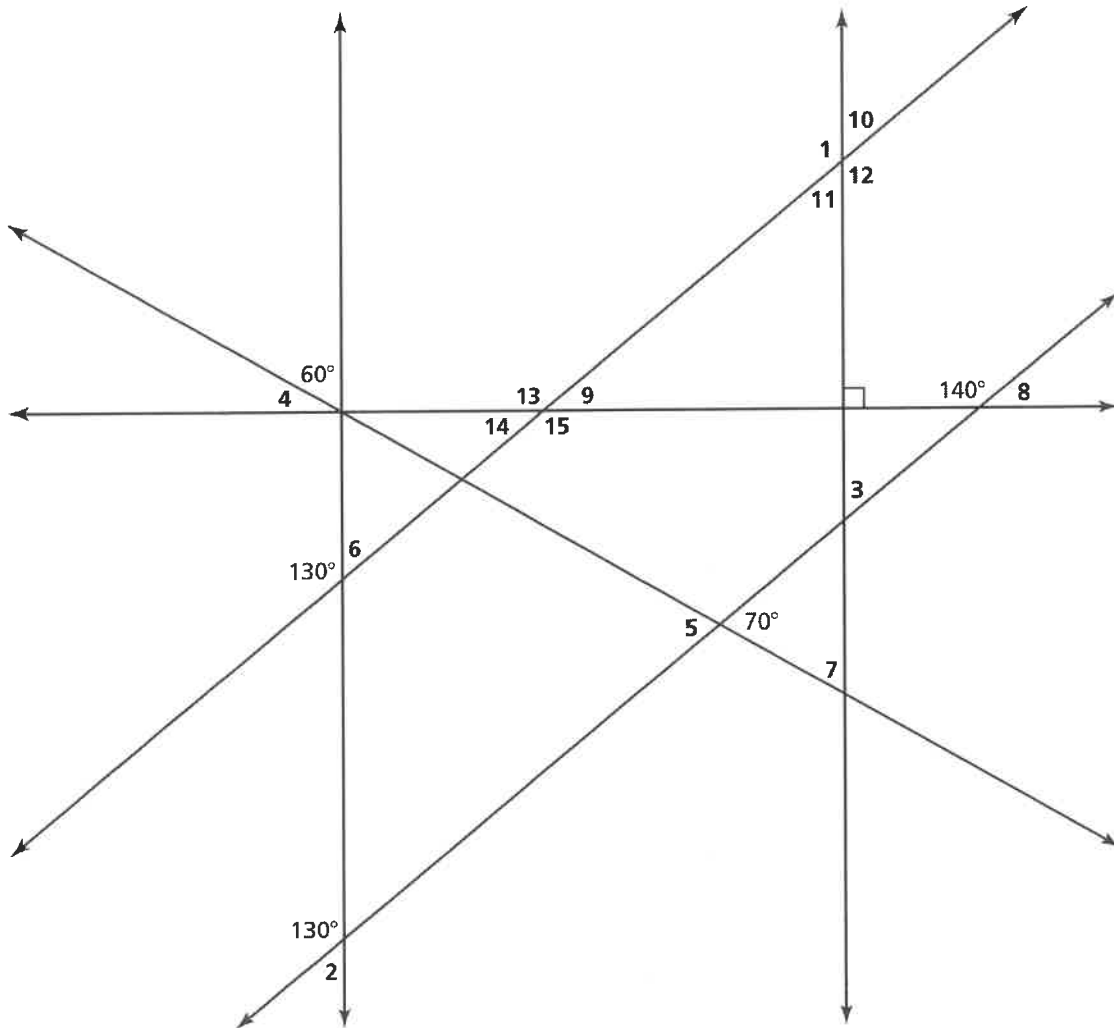
- Two angles have the same measure. What are their measures if they are also complementary angles? supplementary angles?

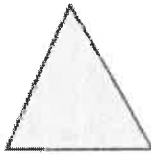
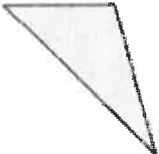
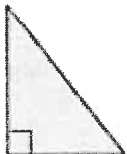
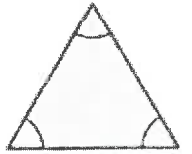
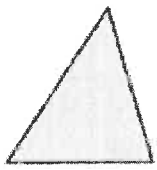

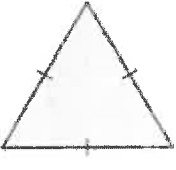
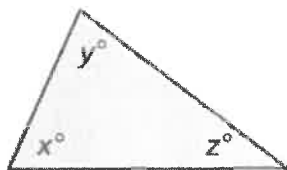


# 7.2 Enrichment and Extension

## Finding Missing Angles

Use properties of shapes and angles to find the missing measures.



|                                      |  |
|--------------------------------------|--|
| MAFS.7.G.1.2                         | Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.  |
| Essential Question                   | How can you use side lengths and angle measures to classify triangles?<br><i>In this lesson I will learn how to classify triangles so I can name triangles, construct triangles, and solve for missing angle measures within a triangle.</i>   |
| 7.3 Triangles                        | <p><b>Classifying Triangles Using Angles</b></p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div data-bbox="487 415 649 651"> <p><i>acute</i><br/>triangle</p>  </div> <div data-bbox="755 415 917 651"> <p><i>obtuse</i><br/>triangle</p>  </div> <div data-bbox="998 415 1128 651"> <p><i>right</i><br/>triangle</p>  </div> <div data-bbox="1242 415 1437 651"> <p><i>equiangular</i><br/>triangle</p>  </div> </div> <p>all acute angles    1 obtuse angle    1 right angle    3 congruent angles</p> <p><b>Classifying Triangles Using Sides</b></p> <p><b>Congruent sides</b> have the same length.</p> <div style="display: flex; justify-content: space-around; text-align: center;"> <div data-bbox="487 829 682 1050"> <p><i>scalene</i> triangle</p>  </div> <div data-bbox="901 829 1055 1050"> <p><i>isosceles</i> triangle</p>  </div> <div data-bbox="1250 829 1429 1050"> <p><i>equilateral</i> triangle</p>  </div> </div> <p>no congruent sides    at least 2 congruent sides    3 congruent sides</p> |
| 7.3 ext. Angle Measures of Triangles | <p><b>Sum of the Angle Measures of a Triangle</b></p> <p><b>Words</b> The sum of the angle measures of a triangle is <math>180^\circ</math>.</p> <p><b>Algebra</b> <math>x + y + z = 180</math></p> <div style="text-align: right; margin-top: 10px;">  </div>  |
|                                      | <p>1. <b>WRITING</b> How can you classify triangles using angles? using sides?</p> <p>2. <b>DIFFERENT WORDS, SAME QUESTION</b> Which is different? Find “both” answers.</p> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 45%;">Construct an equilateral triangle.</div> <div style="border: 1px solid black; padding: 5px; width: 45%;">Construct a triangle with 3 congruent sides.</div> </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 45%;">Construct an equiangular triangle.</div> <div style="border: 1px solid black; padding: 5px; width: 45%;">Construct a triangle with no congruent sides.</div> </div>   |

Construct a triangle with the given description.

3. side lengths: 4 cm, 6 cm

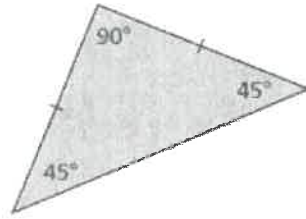
4. side lengths: 5 cm, 12 cm

5. angles:  $65^\circ$ ,  $55^\circ$

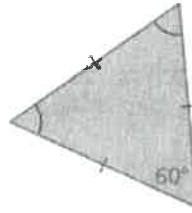
Homework  
7.3 Practice A  
#1-4

Classify the triangle.

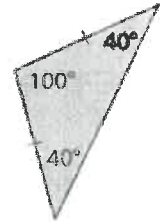
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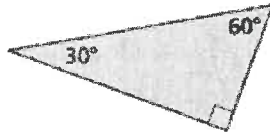
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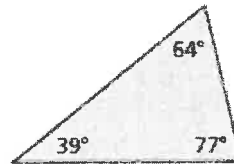
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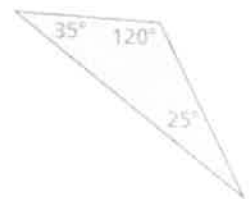
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10.



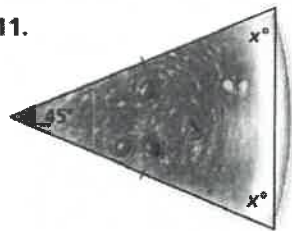
11.



Homework  
7.3 ext. Practice  
#1-6

Find the value of  $x$ . Then classify the triangle.

11.



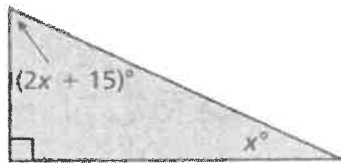
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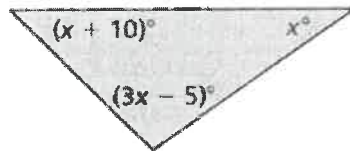
13.



14.

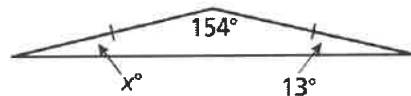


15.

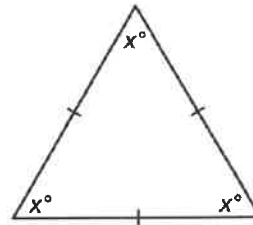


Find the value of  $x$ . Then classify the triangle.

16.



17.



Draw a triangle with the given angle measures. Then classify the triangle.

18.  $30^\circ, 60^\circ, 90^\circ$

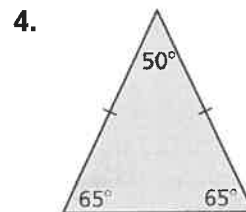
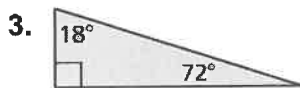
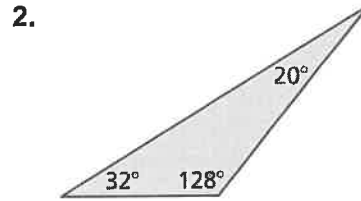
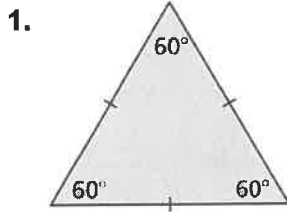
19.  $55^\circ, 55^\circ, 70^\circ$

Nathan wants to draw a triangle. He knows that two of the side lengths are 5 inches and 7 inches.

What is a possible length for the third side?

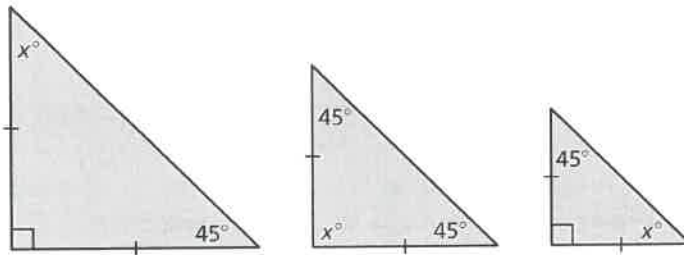
# 7.3 Practice A

Classify the triangle.



Draw a triangle with the given description.

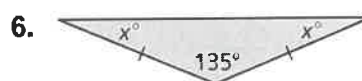
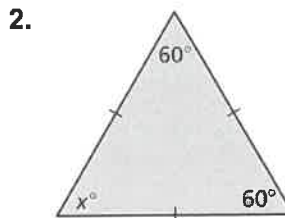
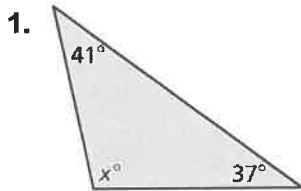
5. a right triangle with two congruent sides
6. a scalene triangle with a 3-inch side and a 4-inch side that meet at a  $110^\circ$  angle
7. Consider the three isosceles right triangles.



- a. Find the value of  $x$  for each triangle.
- b. What do you notice about the angle measures of each triangle?
- c. Write a rule about the angle measures of an isosceles right triangle.

**Extension**  
**7.3 Practice**

Find the value of  $x$ . Then classify the triangle.



Tell whether a triangle can have the given angle measures. If not, change the first angle measure so that the angle measures form a triangle.

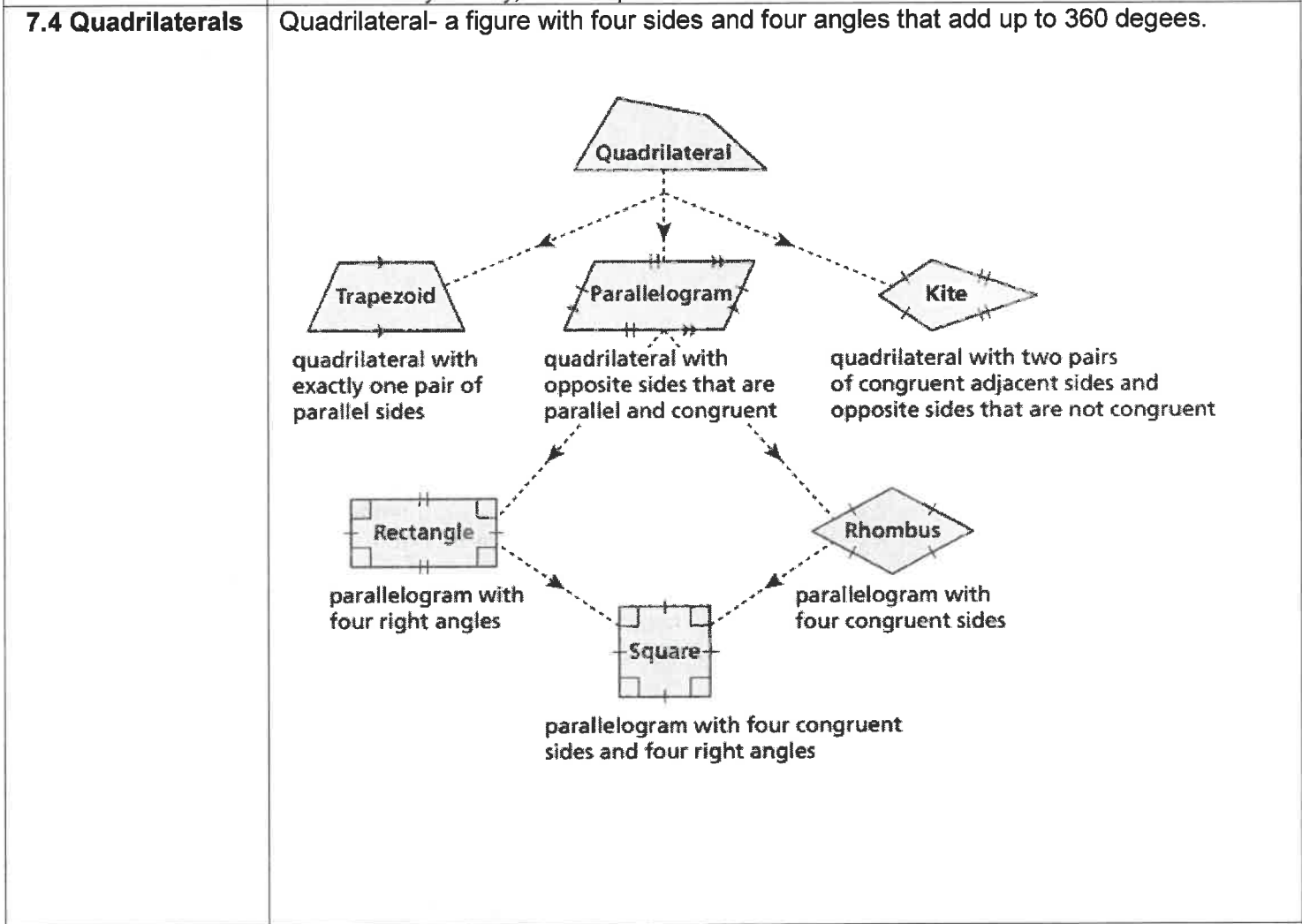
7.  $46\frac{1}{3}^\circ, 81\frac{1}{2}^\circ, 52\frac{1}{6}^\circ$

8.  $36.9^\circ, 121.4^\circ, 33.7^\circ$

9. Using 3 equal-sized craft sticks, put the ends together to make a triangle.
- Use a protractor to find the measure of each angle.
  - Classify the triangle.
  - Replace one of the sticks with either a longer stick or a longer pencil. Use a protractor to find the measure of each angle and classify this new triangle.
  - Replace the longest side with a stick or pencil that is shorter than the two other sides. Use a protractor to find the measure of each angle and classify this new triangle.
  - What do you notice about the triangle when two of its sides are equal in length?

**MAFS.7.G.2.6** Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.

**Essential Question** How can you classify quadrilaterals?  
*In this lesson I will learn how to classify quadrilaterals so I can identify quadrilaterals, identify their lines of symmetry, and compare them.*



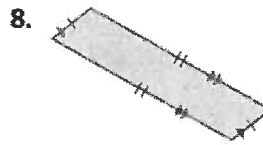
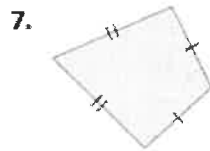
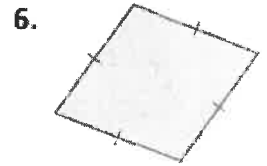
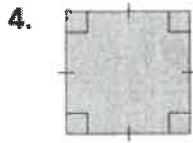
1. **VOCABULARY** Which statements are true?
 

|                                       |                                    |
|---------------------------------------|------------------------------------|
| a. All squares are rectangles.        | b. All squares are parallelograms. |
| c. All rectangles are parallelograms. | d. All squares are rhombuses.      |
| e. All rhombuses are parallelograms.  |                                    |
2. **REASONING** Name two types of quadrilaterals with four right angles.
3. **WHICH ONE DOESN'T BELONG?** Which type of quadrilateral does *not* belong with the other three? Explain your reasoning.



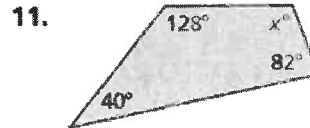
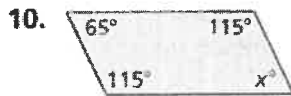
**Homework  
7.4 Practice A  
#1-4**

**Classify the quadrilateral.**



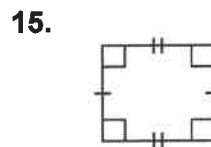
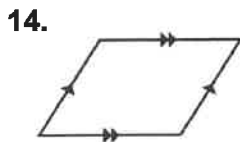
**Homework  
7.4 Practice A  
#5-6**

**Find the value of  $x$ .**

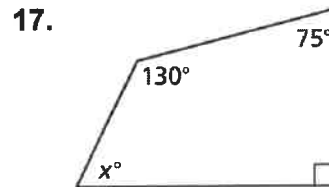
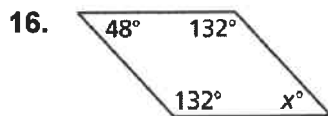


13. Which two quadrilaterals have 4 congruent sides?

**Classify the quadrilateral.**



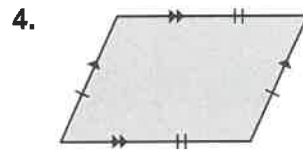
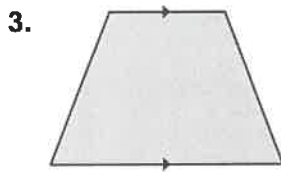
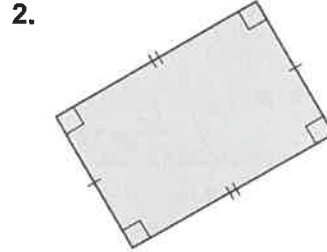
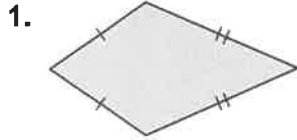
**Find the value of  $x$ .**



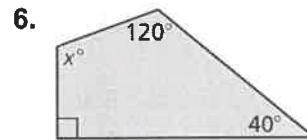
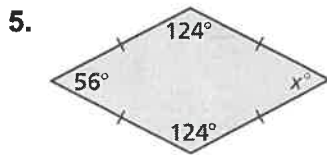
18. Draw a parallelogram with a  $70^\circ$  angle and a  $110^\circ$  angle.

# 7.4 Practice A

Classify the quadrilateral.

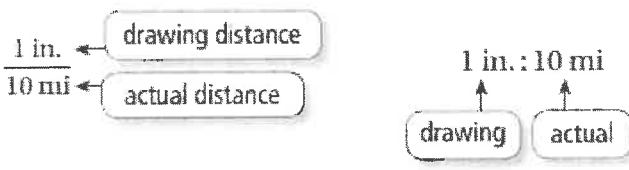


Find the value of  $x$ .



Copy and complete using *always*, *sometimes*, or *never*.

7. A square is   ?   a rhombus.
8. A parallelogram is   ?   a rectangle.
9. A kite is   ?   a square.
10. A trapezoid is   ?   a square.
11. Draw the following trapezoids. If it is not possible, explain why.
  - a. a trapezoid with one right angle
  - b. a trapezoid with two right angles
  - c. a trapezoid with three right angles
  - d. a trapezoid with four right angles

| MAFS.7.G.1.1                                       | Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.  |                     |                    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
|--|--|---------------------|--------------------|-------|--------|-----|----------|------------------|--------------------|-----|----------|--------------------|---------------|-----|-------------|--------------|-----------------|-----|----------|---------------|------------------|-----|-----------------|---------------------|-----------------|
| Essential Question                                 | How can you enlarge or reduce a drawing poportionally?<br><i>In this lesson I will learn about scale drawings so I can use a ratio (model over actual) to find missing dimensions.</i>   |                     |                    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 7.5 Scale Drawings                                 | <p>A <b>scale drawing</b> is a proportional, two-dimensional drawing of an object.<br/>A <b>scale model</b> is a proportional, three-dimensional model of an object.</p> <p><b>Scale</b><br/>The measurements in scale drawings and models are proportional to the measurements of the actual object. The <b>scale</b> gives the ratio that compares the measurements of the drawing or model with the actual measurements.</p> <div style="text-align: center;">  </div> <p>A scale can be written without units when the units are he same. A scale without units is called a <b>scale factor</b>.</p>                                       |                     |                    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
|  | <ol style="list-style-type: none"> <li><b>VOCABULARY</b> Compare and contrast the terms <i>scale</i> and <i>scale factor</i>.</li> <li><b>CRITICAL THINKING</b> The scale of a drawing is 2 cm : 1 mm. Is the scale drawing <i>larger</i> or <i>smaller</i> than the actual object? Explain.</li> <li><b>REASONING</b> How would you find the scale factor of a drawing that shows a length of 4 inches when the actual object is 8 feet long?</li> </ol>  |                     |                    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| <p><b>Homework</b><br/>7.5 Practice A<br/>#2-5</p> | <p><b>Find the missing dimension. Use the scale factor 1 : 12.</b></p> <table border="1" data-bbox="483 1360 1502 1728"> <thead> <tr> <th></th> <th>Item</th> <th>Model</th> <th>Actual</th> </tr> </thead> <tbody> <tr> <td>12.</td> <td>Mattress</td> <td>Length: 6.25 in.</td> <td>Length:        in.</td> </tr> <tr> <td>13.</td> <td>Corvette</td> <td>Length:        in.</td> <td>Length: 15 ft</td> </tr> <tr> <td>14.</td> <td>Water tower</td> <td>Depth: 32 cm</td> <td>Depth:        m</td> </tr> <tr> <td>15.</td> <td>Wingspan</td> <td>Width: 5.4 ft</td> <td>Width:        yd</td> </tr> <tr> <td>16.</td> <td>Football helmet</td> <td>Diameter:        mm</td> <td>Diameter: 21 cm</td> </tr> </tbody> </table> |                     | Item               | Model | Actual | 12. | Mattress | Length: 6.25 in. | Length:        in. | 13. | Corvette | Length:        in. | Length: 15 ft | 14. | Water tower | Depth: 32 cm | Depth:        m | 15. | Wingspan | Width: 5.4 ft | Width:        yd | 16. | Football helmet | Diameter:        mm | Diameter: 21 cm |
|  | Item   | Model               | Actual             |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 12.  | Mattress   | Length: 6.25 in.    | Length:        in. |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 13.  | Corvette   | Length:        in.  | Length: 15 ft      |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 14.  | Water tower  | Depth: 32 cm        | Depth:        m    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 15.  | Wingspan   | Width: 5.4 ft       | Width:        yd   |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |
| 16.  | Football helmet  | Diameter:        mm | Diameter: 21 cm    |       |        |     |          |                  |                    |     |          |                    |               |     |             |              |                 |     |          |               |                  |     |                 |                     |                 |

**Find the missing dimension. Use the scale factor 1 : 8.**

**17.** Model length: 6 cm

Actual length: ?

**18.** Model height: ?

Actual height: 28 in.

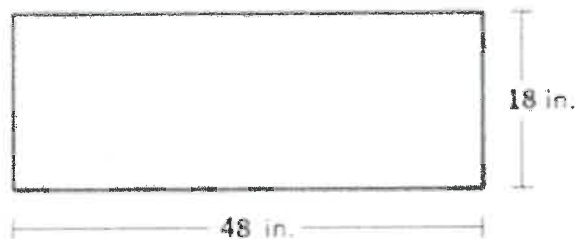
**19.** A scale drawing of an American flag is 10 inches long and 6 inches tall. The actual flag is 3 feet tall.

a. What is the scale of the drawing?

b. Find the perimeter and area of the American flag in the scale drawing.

c. Find the actual perimeter and area of the American flag.

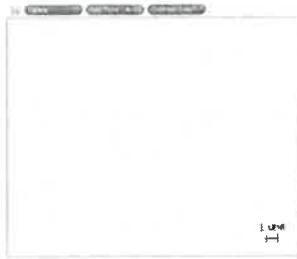
A rectangle with its dimensions, in inches (in), is shown.



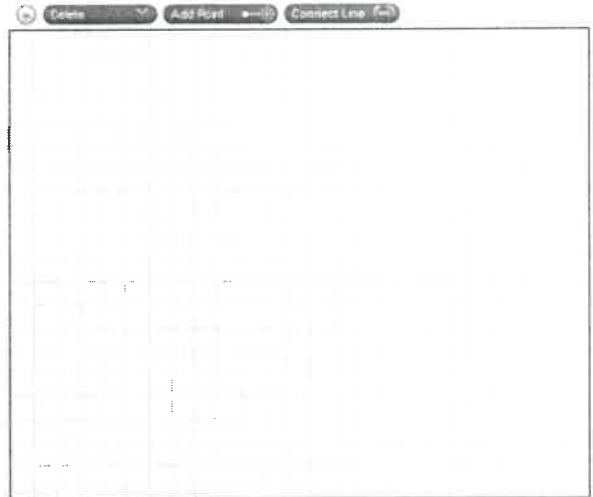
Use the Connect Line tool to create a scale drawing of the rectangle.



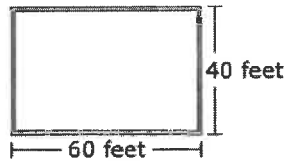
Use the Connect Line tool to draw a figure that has at least one pair of parallel sides and two side lengths of 5 units and 7 units.



Use the Connect Line tool to draw a quadrilateral that has exactly two lines of symmetry.



Eric wants to create a scale drawing of a house.



The scale drawing needs to fit on a piece of paper that is 6 inches wide. The drawing itself must be at least 3 inches wide.

- A. Drag numbers into the box to show an appropriate scale for the drawing.
- B. Use the Connect Line tool to create a drawing based on the scale you chose in Part A.

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

0 Delete Add Point Connect Line

**A. Scale**  =  feet  
1 inch

---

**B. Scale Drawing**

1 inch

Lisa drew a picture of a boat. She used the scale shown.

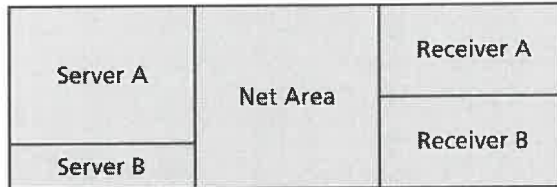
1 inch : 6 feet

The boat in her picture is 7 inches long.

What is the length, in feet, of the actual boat?

## 7.5 Practice A

1. Use the drawing of the game court and an inch ruler. Each inch in the drawing represents 8 feet.



- What is the actual length of the court?
- What are the actual dimensions of Receiver A?
- What are the actual dimensions of the Net Area?
- The area of Server B is what percent of the area of Server A?
- What is the ratio of the perimeter of Receiver B to the perimeter of Net Area?
- What is the ratio of the area of Receiver B to the area of Net Area?
- Are Receiver B and Net Area similar rectangles?
- The area of Server A is increased by what percent to get the area of Net Area?

**Find the missing dimension. Use the scale factor 1 : 5.**

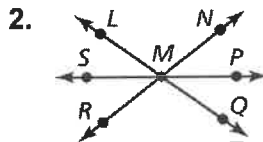
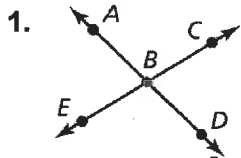
- |                      |                      |
|----------------------|----------------------|
| 2. Model: 3 ft       | 3. Model: 7 m        |
| Actual: <u>  ?</u>   | Actual: <u>  ?</u>   |
| 4. Model: <u>  ?</u> | 5. Model: <u>  ?</u> |
| Actual: 20 yd        | Actual: 12.5 cm      |
6. A scale drawing of a rose is 3 inches long. The actual rose is 1.5 feet long.
- What is the scale of the drawing?
  - What is the scale factor of the drawing?

**Chapter 7**

**Take Home Quiz #1**

For use after Section 7.3

Name two pairs of adjacent angles and two pairs of vertical angles in the figure.



**Answers**

1. \_\_\_\_\_

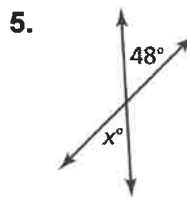
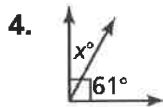
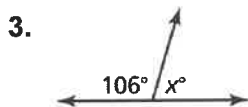
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tell whether the angles are *adjacent* or *vertical*. Then find the value of  $x$ .



2. \_\_\_\_\_

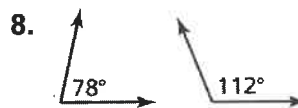
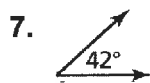
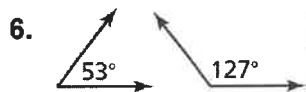
\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tell whether the angles are *complementary*, *supplementary*, or *neither*.



3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

Draw a pair of adjacent complementary angles so that one angle has the given measure.

9.  $30^\circ$

10.  $45^\circ$

11.  $75^\circ$

8. \_\_\_\_\_

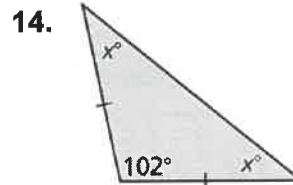
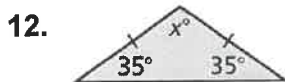
9. **See left.**

10. **See left.**

11. **See left.**

12. \_\_\_\_\_

Find the value of  $x$ . Then classify the triangle.



13. \_\_\_\_\_

14. \_\_\_\_\_

\_\_\_\_\_

15. \_\_\_\_\_

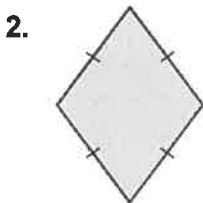
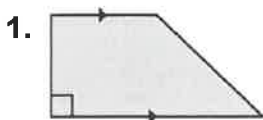
15. The measures of two supplementary angles have a ratio of 5 : 4. What is the measure of the larger angle?

**Chapter 7**

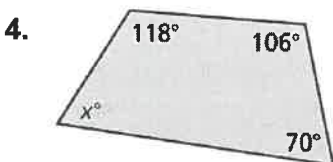
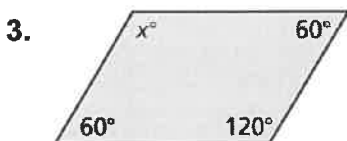
**Take Home Quiz #2**

For use after Section 7.5

**Classify the quadrilateral.**



**Find the value of x.**



**Find the missing dimension. Use the scale factor 1 : 15.**

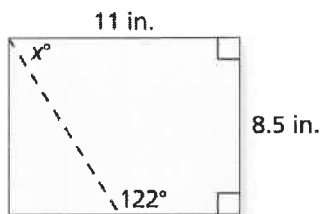
|    | Item | Model                   | Actual                   |
|----|------|-------------------------|--------------------------|
| 5. | Tree | Height: <u>  ?  </u> ft | Height: 30 ft            |
| 6. | Door | Height: 10 in.          | Height: <u>  ?  </u> in. |

7. A basketball player is 6 feet 8 inches tall. A model of the basketball player is 5 inches tall. What is the scale factor?

8. You cut one triangle from the piece of paper as shown.

a. Which quadrilateral is formed?

b. Find the value of x.



9. A scale drawing of a movie screen is 21 inches long and 9 inches tall. The actual screen is 30 feet tall.

a. What is the scale of the drawing?

b. Find the perimeter and area of the movie screen in the scale drawing.

c. Find the actual perimeter and area of the movie screen.

**Answers**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. a. \_\_\_\_\_  
b. \_\_\_\_\_
9. a. \_\_\_\_\_  
b. \_\_\_\_\_  
c. \_\_\_\_\_

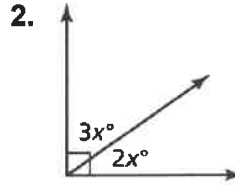
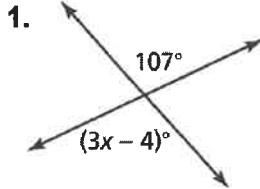


## Chapter

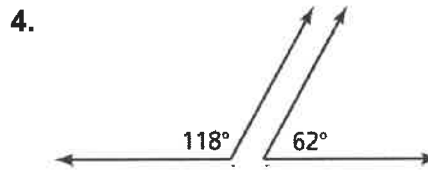
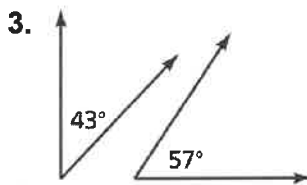
## 7

## Ms. Abadie's Test Review

Tell whether the angles are *adjacent* or *vertical*. Then find the value of  $x$ .

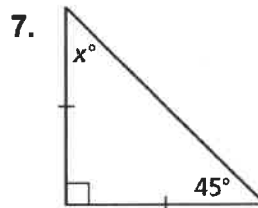
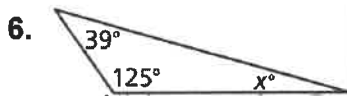


Tell whether the angles are *complementary*, *supplementary*, or *neither*.



5. The measures of two complementary angles have a ratio of 2 : 7.  
What is the measure of the smaller angle?

Find the value of  $x$ . Then classify the triangle.

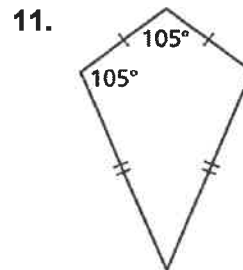


Draw a triangle with the given angle measures. Then classify the triangle.

8.  $50^\circ, 50^\circ, 80^\circ$

9.  $35^\circ, 40^\circ, 105^\circ$

Classify the quadrilateral. Find the missing angle measure(s).



**Chapter**  
**7**

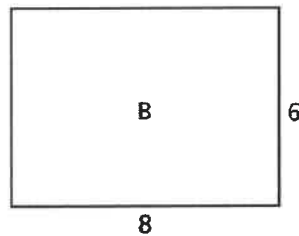
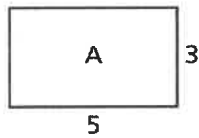
12. Draw a rhombus with two  $60^\circ$  angles.

**Find the missing dimension. Use the scale factor 5 : 8.**

13. Model length: 1.5 m  
Actual length: ?

14. Model width: ?  
Actual width: 20 ft

15. Could Rectangle A be a scale drawing of Rectangle B? Explain.



16. The scale on a drawing is 0.5 mm : 4 cm. The height of the drawing is 4.5 millimeters. What is the actual height of the object?

17. A scale drawing of a painting is 12 inches long and 8 inches tall. The actual painting is 2 feet tall.

- a. What is the scale of the drawing?
- b. Find the perimeter and area of the painting in the scale drawing.
- c. Find the actual perimeter and area of the painting.