Chapter 10 Notes

Tentative Assignment Schedule

Lesson 10.1  Page 512 8 - 24 even, 44-48 even
Lesson 10.2  Page 521 8 - 20 even, 26-34 even
Lesson 10.3  Page 527 8 - 24 even, 32-44 even
Lesson 10.4  Page 534 6 - 26 even, 38-44 even
Review 10.1-10.4 - 10 Points
Quiz 10.1-10.4 - 25 Points
Main Idea:____________________________________________________________________________________

1
2
3
4
5
6
7
8

interior angles | Exterior angles | Alternate interior angles | Alternate Exterior angles | Corresponding angles
---|---|---|---|---

![Diagram of line and angle relationships]

**KEY CONCEPT**

**Parallel Lines Cut by a Transversal**

If two parallel lines are
- corresponding angles are
- alternate interior angles are
- alternate exterior angles are

**EXAMPLE** Find Measures of Angles

In the figure at the right, $m \parallel n$ and $s$ and $t$ are transversals. If $m\angle 1 = 68^\circ$, find $m\angle 5$ and $m\angle 6$.

**CHECK** Your Progress

1. If $m\angle 11 = 84^\circ$, find $m\angle 10$ and $m\angle 16$. 
### Vertical Angles

### Adjacent Angles

### Complementary angles

### Supplementary Angles

### Perpendicular Lines

<table>
<thead>
<tr>
<th>Vertical Angles</th>
<th>Adjacent Angles</th>
<th>Complementary angles</th>
<th>Supplementary Angles</th>
<th>Perpendicular Lines</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Vertical Angles" /></td>
<td><img src="image2" alt="Adjacent Angles" /></td>
<td><img src="image3" alt="Complementary angles" /></td>
<td><img src="image4" alt="Supplementary Angles" /></td>
<td><img src="image5" alt="Perpendicular Lines" /></td>
</tr>
</tbody>
</table>

#### Real-World EXAMPLE

**TILING** Jun cuts a piece of tile at a 135° angle. What is the measure of the other angle formed by the cut?

#### Check Your Progress

2. **ARCHITECTURE** In the semicircular window, ∠1 is complementary to ∠2. If m∠2 is 24°, find m∠1.

**EXAMPLE** Find Measures of Angles

3. **ALGEBRA** Angles ABC and FGH are complementary. If m∠ABC = x + 8 and m∠FGH = x − 10, find the measure of each angle.

#### Check Your Progress

3. **ALGEBRA** Angles MNO and RST are supplementary. If m∠MNO = 5x and m∠RST = x − 6, find the measure of each angle.

#### Real-World EXAMPLE

4. **SAFETY** A lifeguard chair is shown. If m∠1 = 105°, find m∠4 and m∠6.

#### Check Your Progress

4. Find m∠2 and m∠3 in the lifeguard chair above. Explain your reasoning.
Unit 4: Geometry
Homework Page 521 8-20 even, 26-34 even

Main Idea:

Main Idea:

<table>
<thead>
<tr>
<th>Congruent</th>
<th>Corresponding Parts</th>
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**Example:** Name Corresponding Parts

Name the corresponding parts in the congruent triangles shown. Then complete the congruence statement.

**Example:** Identify Congruent Triangles

Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.
EXAMPLE Identify Congruent Triangles

Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.

2A.

2B.

CHECK Your Progress

Determine whether the triangles shown are congruent. If so, name the corresponding parts and write a congruence statement.

2A.

2B.

Real-World EXAMPLE

LANDSCAPING A brace is used to support a tree and to help it grow straight. In the figure, \( \triangle TRS \cong \triangle ERS \).

a. At what angle is the brace placed against the ground?

b. What is the length of the brace?

CHECK Your Progress

3. QUILTING A quilt design is shown. In the figure, \( \triangle ABC \cong \triangle ADE \). What is the measure of \( \angle BCA \)? What is the perimeter of the design?

Homework Page 521 8-20 even, 26-34 even
Main Idea:

<table>
<thead>
<tr>
<th>Transformation</th>
<th>Image</th>
<th>Translation</th>
<th>Reflection</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Line of Symmetry</th>
<th>Dilation</th>
<th>Center</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

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Triangle MNP is shown on the coordinate plane. Find the coordinates of the vertices of the image of \( \triangle MNP \) translated 5 units left and 3 units up.

- A \( M'(-1, 1), N'(0, 5), P'(-5, 5) \)
- B \( M'(4, 1), N'(0, 5), P'(5, 5) \)
- C \( M'(-1, 1), N'(-5, 5), P'(0, 5) \)
- D \( M'(-1, -2), N'(-5, -2), P'(0, 2) \)

1. Triangle \( ABC \) is translated so that \( B \) is mapped to \( B' \). Which coordinate pair best represents \( C' \)?
   - F \((-4, 1)\)
   - H \((-1, 1)\)
   - G \((0, 3)\)
   - J \((1, 3)\)
EXAMPLE: Reflection in a Coordinate Plane

The vertices of a figure are $A(-2, 3)$, $B(0, 5)$, $C(3, 1)$, and $D(3, 3)$. Graph the figure and the image of the figure after a reflection over the x-axis.

CHECK Your Progress

2. The vertices of polygon $DEFG$ are $D(4, -2)$, $E(5, -5)$, $F(2, -4)$, and $G(1, -1)$. Graph the polygon and the image of the figure after a reflection over the y-axis.

EXAMPLE: Dilation in a Coordinate Plane

A figure has vertices $J(2, 4)$, $K(2, 6)$, $M(8, 6)$, and $N(8, 2)$. Graph the figure and the image of the figure after a dilation centered at the origin with a scale factor of $\frac{1}{2}$.

CHECK Your Progress

1. A figure has vertices $R(-1, 2)$, $S(1, 4)$, and $T(1, 1)$. Graph the figure and the image of the figure after a dilation centered at the origin with a scale factor of 3.

Homework page 527 8-24 even, 32-44 even
Main Ideas:

1. 
2. 

Quadrilateral

<table>
<thead>
<tr>
<th>Quadrilaterals</th>
<th>Not Quadrilaterals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trapezoid</td>
<td></td>
</tr>
<tr>
<td>exactly one set of parallel sides</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quadrilaterals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parallelogram</td>
</tr>
<tr>
<td>2 sets of opposite sides parallel</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quadrilaterals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectangle</td>
</tr>
<tr>
<td>Parallelogram</td>
</tr>
<tr>
<td>with 90 angles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quadrilaterals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhombus</td>
</tr>
<tr>
<td>Parallelogram</td>
</tr>
<tr>
<td>with 4 congruent sides</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quadrilaterals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Square</td>
</tr>
<tr>
<td>Parallelogram</td>
</tr>
<tr>
<td>with 4 congruent sides and 4 right angles</td>
</tr>
</tbody>
</table>
1. **ALGEBRA** Find the value of $x$. Then find each missing angle measure.

![Diagram of a quadrilateral with angles labeled.]

2. **CHECK Your Progress**

   Find the value of $x$. Then find each missing angle measure.

![Diagram of a triangle with angles labeled.]

---

**EXAMPLE** Classify Quadrilaterals

2. Classify each quadrilateral using the name that best describes it.

   A. ![Diagram of a quadrilateral.]

   B. ![Diagram of a parallelogram.]

---

**CHECK Your Progress**

2. **QUILT PATTERN** The photograph shows a pattern for the border of a quilt. Classify the quadrilaterals used to form the leaves using the name that best describes them.

![Quilt border diagram.]
Chapter 10 Notes

Tentative Assignment Schedule

Lesson 10.5  Page 542 8 - 22 even, 36-46 even
Lesson 10.6  Page 549 10 - 30 even,
Lesson 10.7  Page 554 2 - 18 even, 30-36 even 50-53 all
Lesson 10.8  Page 564 2-42 even
Review Chapter 10 - 20 Points
Test Chapter 10 - 50 Points
**Main Idea:**

**UNIT 4 Geometry**

**Lesson 10.5 Polygons**

<table>
<thead>
<tr>
<th>Polygon</th>
<th>Diagonal</th>
<th>Interior Angles</th>
<th>Regular Polygon</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

**EXAMPLE** Classify Polygons

1. **A. Classify the polygon.**

2. 

**CHECK Your Progress**

1. **A. Classify the polygon.**

2. **B. Classify the polygon.**

**KEY CONCEPT** *Interior Angles of a Polygon*

**EXAMPLE** Measures of Interior Angles

1. **Find the sum of the measures of the interior angles of a quadrilateral.**

2. **Find the sum of the measures of the interior angles of a pentagon.**

**3. TRAFFIC SIGNS** A stop sign is a regular octagon. What is the measure of one interior angle in a stop sign?

**PICNIC TABLE** A picnic table in the park is a regular hexagon. What is the measure of one interior angle in the picnic table?
**Extra Credit**
Complete the pyramid by filling in the missing numbers. Each Number is the sum of the numbers in the two boxes below it.

<table>
<thead>
<tr>
<th>Name-Regular Shapes</th>
<th>Sides</th>
<th>Each Angle</th>
<th>Total Angles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quadrilateral</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentagon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hexagon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heptagon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-gon</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n-gon</td>
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</tbody>
</table>

Homework: Page 542  8-22 even 36-46 even
Lesson 10.6
Area of Trapezoids and Parallelogram

Main Idea: __________________________________________________________

Main Idea: __________________________________________________________

<table>
<thead>
<tr>
<th>Base</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key Concept:
Area of a Parallelogram __________________________
Area of a triangle __________________________

1. Formula
2. Substitute
3. Solve
4. Label
5. Check

1. Formula
2. Substitute
3. Solve
4. Label
5. Check

CHECK Your Progress
1. A. Find the area of the parallelogram.
2. B. Find the area of the parallelogram.
Key Concept:
Area of a trapezoid ________________________

### Area of a Trapezoid

1. **Formula**
2. **Substitute**
3. **Solve**
4. **Label**
5. **Check**

### Check Your Progress

#### A. Find the area of the triangle.

- **Diagram:**
  - Height = 3 m
  - Base = 4 m

#### B. Find the area of the triangle.

- **Diagram:**
  - Height = 3.9 ft
  - Base = 5.2 ft

### Find the area of the trapezoid.

- **Diagram:**
  - Height = 6 m
  - Bases = 5 1/2 m and 6 m

### PAINTING

A wall that needs to be painted is 16 feet wide and 9 feet tall. There is a doorway that is 3 feet by 8 feet and a window that is 6 feet by 5 1/2 feet. What is the area to be painted?

### CHECK Your Progress

#### GARDENING

A garden needs to be covered with fresh soil. The garden is 12 feet wide and 15 feet long. A rectangular concrete path runs through the middle of the garden and is 3 feet wide and 15 feet long. Find the area of the garden which needs to be covered with fresh soil.

---


<table>
<thead>
<tr>
<th>Area Parallelogram</th>
<th>Area Trapezoid</th>
<th>Area Triangle</th>
<th>Area Composite</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
</tbody>
</table>
Main Idea
1. 
2. 

Get Ready for the Lesson  Page 551

<table>
<thead>
<tr>
<th>Object</th>
<th>d</th>
<th>C</th>
<th>C/d</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
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<td></td>
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<tr>
<td>3</td>
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</tbody>
</table>

Name the parts of the circle
Diameter
Circumference
Radius
Center

Key Concept
Circumference:_______
Area:_______________

Find the area and circumference of the figure below
radius of 5 cm

Circumference:_______________
Area:_______________

Circumference:_______________
Area:_______________
Find the area and perimeter of the figure below

Find the area of the shaded portion below

FIND THE AREA OF THE SHADED PORTION OF COMPOSITE FIGURE BELOW

A pancake restaurant serves small silver dollar pancakes and regular-size pancakes.

1. What is the area of a silver dollar pancake to the nearest tenth?

2. What is the area of a regular pancake to the nearest tenth?

3. If 6 solver dollar pancakes are the same price as 3 regular pancakes, which is the better deal?

Home work Page 554 2-18 even 30 -36 even 50-53 all
Lesson 10.8 Page 558
Area of Composite Figures

Main Idea:

________________________

Concept Summary:
Triangle:________________________ Trapezoid:________________________
Parallelogram:____________________ Circle:__________________

Define a Composite Figure:________________

\begin{itemize}
  \item Find the area of the figure to the nearest tenth.
\end{itemize}

\begin{itemize}
  \item Find the area of the figure to the nearest tenth.
\end{itemize}
CARPETING  Carpets costs $2 per square foot. How much will it cost to carpet the area shown?

CHECK Your Progress

PAINTING  One gallon of paint is advertised to cover 100 square feet of wall surface. About how many gallons will be needed to paint the wall shown below?

Homework: Page 564  1-42 evens