### Honors Geometry – Chapter 5 Tentative Syllabus (Updated 11/4/2015)

All text book answers are posted on Mrs. Moreman’s website

**YOU ARE EXPECTED TO CHECK YOUR ANSWERS BEFORE COMING TO CLASS.**

<table>
<thead>
<tr>
<th>Red Day</th>
<th>Red Date</th>
<th>Blue Day</th>
<th>Blue Date</th>
<th>Topic</th>
<th>Practice Assignments (due next class period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon</td>
<td>Nov. 2</td>
<td>Tues</td>
<td>Nov 3</td>
<td><strong>CHAPTER 4 TEST</strong>&lt;br&gt;Algebra Review #6</td>
<td>Algebra Review #6 Handouts</td>
</tr>
<tr>
<td>Wed</td>
<td>Nov 4</td>
<td>Thurs</td>
<td>Nov 5</td>
<td>5.1 Polygon Sum Conjecture 5.2 Exterior Angles of a Polygon 5.3 Kite and Trapezoid Properties</td>
<td>p.259, #3-9&lt;br&gt;p.263, #1-9, 14&lt;br&gt;p.271, #1-8,19&lt;br&gt;p.277, #1-7&lt;br&gt;<em>Constructions are optional challenge questions. (p. 273 #14-16; p. 280 #18)</em></td>
</tr>
<tr>
<td>Fri</td>
<td>Nov 6</td>
<td>Mon</td>
<td>Nov 9</td>
<td>5.4 Properties of Midsegments 5.5 Properties of Parallelograms 5.6 Properties of Special Parallelograms 5.1 &amp; 5.2 In-Class Handout</td>
<td>p.283, #1-10,&lt;br&gt; p.294, #1-13, 18, 26&lt;br&gt;<em>Know ALL properties!</em>&lt;br&gt;Algebra Review #7: p. 289 # 1-14, p. 294 #30-31,&lt;br&gt;p. 302 #13-14( Due Nov. 20/23)&lt;br&gt;Study for QUIZ 5.1 – 5.2</td>
</tr>
<tr>
<td>Tue</td>
<td>Nov 10</td>
<td>Wed</td>
<td>Nov 11</td>
<td>5.7 Proving Quadrilateral Properties 5.7 Proof Practice + Review Handout</td>
<td>Finish Practice Problems on Handout&lt;br&gt;5.1 Wkbk p.32, #1-6&lt;br&gt;5.2 Wkbk p.33, #1-8&lt;br&gt;Study for QUIZ 5.3 – 5.4</td>
</tr>
<tr>
<td>Thurs</td>
<td>Nov 12</td>
<td>Fri</td>
<td>Nov 13</td>
<td>Review Day</td>
<td>Start Review for test p.304, #1-17, 19 ( no construction), 25, 26, 27&lt;br&gt;Study for QUIZ 5.5 – 5.7</td>
</tr>
<tr>
<td>Mon</td>
<td>Nov 16</td>
<td>Tue</td>
<td>Nov 17</td>
<td><strong>AMC 8</strong>&lt;br&gt;QUIZ 5.5 – 7.7</td>
<td></td>
</tr>
<tr>
<td>Wed</td>
<td>Nov 18</td>
<td>Thurs</td>
<td>Nov 19</td>
<td><strong>CHAPTER 5 TEST</strong>&lt;br&gt;Algebra Review #8 (Handout)</td>
<td>Algebra Review #7 Due Next Class</td>
</tr>
<tr>
<td>Fri</td>
<td>Nov 20</td>
<td>Mon</td>
<td>Nov 23</td>
<td>Start Chapter 6&lt;br&gt;Turn in Algebra Review #7</td>
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</tbody>
</table>

*Created by W.L. Bass and used with permission, p.1*
<table>
<thead>
<tr>
<th>Section</th>
<th>Indiana Standard</th>
<th>Learning Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>GQP3 Find measures of interior and exterior angles of polygons. Explain and justify the method used.</td>
<td>-Discover and use the sum of the measures of the angles of a polygon.</td>
</tr>
<tr>
<td></td>
<td>Practice Standard 7: Look for &amp; make use of structure.</td>
<td></td>
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<tr>
<td>5.2</td>
<td>GQP3</td>
<td>-Discover and use the sum of the measures of the exterior angles of a polygon. -Write formulas for the measure of an equiangular polygon’s interior angle.</td>
</tr>
<tr>
<td></td>
<td>Practice Standard 7: Look for &amp; make use of structure.</td>
<td></td>
</tr>
<tr>
<td>5.3</td>
<td>GQP2 Prove that given quadrilaterals are parallelograms, rhombuses, rectangles, squares or trapezoids. GTS6 Apply geometric methods to solve design problems. Practice Standard 5: Use appropriate tools strategically.</td>
<td>-Discover and use properties of kites &amp; trapezoids. (p.273 #17)</td>
</tr>
<tr>
<td></td>
<td>GQP3</td>
<td>-Discover and use the sum of the measures of the angles of a polygon.</td>
</tr>
<tr>
<td></td>
<td>Practice Standard 7: Look for &amp; make use of structure.</td>
<td></td>
</tr>
<tr>
<td>5.4</td>
<td>GT1 Prove and apply theorems about triangles, including the following: the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length. Practice Standard 7: Look for &amp; make use of structure.</td>
<td>Define, discover and use properties of midsegments in triangles &amp; trapezoids.</td>
</tr>
<tr>
<td></td>
<td>GQP5 Discover and apply theorems about parallelograms, including the following: opposite sides are congruent; opposite angles are congruent; the diagonals of a parallelogram bisect each other; and rectangles are parallelograms with congruent diagonals. GTS6 Practice Standard 2: Reason abstractly &amp; quantitatively.</td>
<td>Discover and use properties of parallelograms. p.285 18)</td>
</tr>
<tr>
<td></td>
<td>GQP1</td>
<td>-Discover and use the sum of the measures of the angles of a polygon.</td>
</tr>
<tr>
<td></td>
<td>GQP3</td>
<td>-Discover and use the sum of the measures of the exterior angles of a polygon. -Write formulas for the measure of an equiangular polygon’s interior angle.</td>
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<td></td>
<td>Practice Standard 7: Look for &amp; make use of structure.</td>
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<td>5.5</td>
<td>GQP1</td>
<td>-Discover and use properties of rectangles, rhombuses &amp; squares.</td>
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<td>GQP5 Deduce formulas relating lengths and sides, perimeters, and areas of regular polygons. Practice Standard 1: Make sense of problems &amp; persevere in solving them.</td>
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<tr>
<td></td>
<td>Algebra Skills 5 GPL4 Find the equation of a line, passing through a given point, that is parallel or perpendicular to a given line. Practice Standard 2: Reason abstractly &amp; quantitatively.</td>
<td>-Review slope-intercept form of a linear equation. -Write linear equations.</td>
</tr>
<tr>
<td>5.6</td>
<td>GQP1</td>
<td>-Discover and use properties of rectangles, rhombuses &amp; squares.</td>
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<tr>
<td>5.7</td>
<td>GQP1</td>
<td>-Write flowchart, two-column &amp; paragraph proofs.</td>
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<tr>
<td></td>
<td>GLP4 Develop geometric proofs, including direct proofs, indirect proofs, proofs by contradiction and proofs involving coordinate geometry, using two-column, paragraphs, and flow charts formats. Practice Standard 3: Construct viable arguments &amp; critique other’s reasoning.</td>
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</tr>
</tbody>
</table>
Review Vocabulary

Definition: Kite – A _______________ with __________________ pairs of ________________________sides.

NEW Definition: Dart – A _______________ kite.

Definition: Trapezoid – A _______________ with __________________ of _______ sides.

NEW Definition: Isosceles Trapezoid – A _______________ with _______ legs.

Definition: Parallelogram – A _______________ with _______ pairs of _______________ sides.

Definition: Rhombus – An ______________________________ parallelogram.

Definition: Rectangle – An ______________________________ parallelogram.

Definition: Regular Polygon – A polygon that is _____________________ and _____________________.

Definition: Square – A ______________________________ parallelogram

Chapter 5 Conjectures

POLYGONS...

1. **Quadrilateral Sum Conjecture (Section 5.1)**
   The sum of the measures of the four interior angles of any quadrilateral is _______________.

2. **Pentagon Sum Conjecture (Section 5.1)**
   The sum of the measures of the five interior angles of any pentagon is _______________.

3. **Polygon Sum Conjecture (Section 5.1)**
   The sum of the measures of the \( n \) interior angles of a \( n \)-gon is _______________.

4. **Exterior Angle Sum Conjecture (Section 5.2)**
   For any polygon, the sum of the measures of one exterior angle at each vertex is _______________.

5. **Equiangular Polygon Conjecture (Section 5.2)**
   Find the measure of each interior angle of an equiangular \( n \)-gon by using one of these formulas:
   _______________ or _______________.
KITES...

6. **Kite Angles Conjecture** *(Section 5.3)*
   The _____________ angles of a kite are _______________

7. **Kite Diagonals Conjecture** *(Section 5.3)*
   The diagonals of a kite are ________________.

8. **Kite Diagonal Bisector Conjecture** *(Section 5.3)*
   The diagonal connecting the ________________ angles of a kite is
   the ________________ of the other diagonal.

9. **Kite Angle Bisector Conjecture** *(Section 5.3)*
   The ________________ angles of a kite are ________________ by the diagonal.

TRAPEZIODS...

10. **Trapezoid Consecutive Angles Conjecture** *(Section 5.3)*
    The ________________ angles between the bases of a trapezoid are ________________.

11. **Isosceles Trapezoid Conjecture** *(Section 5.3)*
    Each pair of ________________ angles in an isosceles trapezoid are ________________.

12. **Isosceles Trapezoid Diagonals Conjecture** *(Section 5.3)*
    The ________________ in an isosceles trapezoid are ________________.

MIDSEGMENTS...

13. **Three Midsegments Conjecture** *(Section 5.4)*
    The ________________ midsegments of triangle divide the triangle into ________________.

14. **Triangle Midsegment Conjecture** *(Section 5.4)*
    A midsegment of a triangle is ________________ to the ________________ side.
    A midsegment of a triangle is ________________ the length of the ________________ side.

15. **Trapezoid Midsegment Conjecture** *(Section 5.4)*
    A midsegment of a trapezoid is ________________ to the ________________.
    A midsegment of a trapezoid is ________________ of the lengths of the ________________.

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PARALLELOGRAMS...
16. **Parallelogram Opposite Angles Conjecture** (*Section 5.5*)
   The ____________________ angles in a parallelogram are ____________________________.

17. **Parallelogram Consecutive Angles Conjecture** (*Section 5.5*)
   The ____________________ angles in a parallelogram are ____________________________.

18. **Parallelogram Opposite Sides Conjecture** (*Section 5.5*)
   The ____________________ sides in a parallelogram are ____________________________.

19. **Parallelogram Diagonals Conjecture** (*Section 5.5*)
   The ____________________ in a parallelogram ____________________________.

RHOMBI...
20. **Double-Edged Straightedge Conjecture** (*Section 5.6*)
   If two parallel lines are intersected by a second pair of parallel lines that are the same distance apart, then the parallelogram formed is a ____________________.

21. **Rhombus Diagonals Conjecture** (*Section 5.6*)
   The diagonals of a rhombus are______________ to each other.

   The diagonals of a rhombus ________________ each other.

22. **Rhombus Angles Conjecture** (*Section 5.6*)
   The _______________________ of a rhombus _________________________ the angles

RECTANGLES...
23. **Rectangle Diagonals Conjecture** (*Section 5.6*)
   The diagonals of a rectangle are ____________________ and ____________________ each other.

SQUARES...
24. **Square Diagonals Conjecture** (*Section 5.6*)
   The diagonals of a square are ____________________, and ___________________________,
   and they ____________________ each other.
Choose ONE vertex in each polygon. Draw all the diagonals from that ONE vertex. Complete the table below. Find a rule to calculate the sum of the interior angles for ANY convex polygon.

<table>
<thead>
<tr>
<th>Polygon</th>
<th># of sides</th>
<th>How many triangles were formed by the diagonals?</th>
<th>Calculate the measure of interior angles (Use the triangles!)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triangle</td>
<td>3</td>
<td></td>
<td>1•180°=180</td>
</tr>
<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>
</tbody>
</table>

Do you see a pattern? What about an n-gon?

| Heptagon |            |                                                 |                                                          |
| Octagon  |            |                                                 |                                                          |
| Nonagon  |            |                                                 |                                                          |
| Decagon  |            |                                                 |                                                          |
| Dodecagon|            |                                                 |                                                          |
5.2 – Exterior Angles of a Polygon

Step 1: *A SET of exterior angles is shown on the hexagon below.*
- The picture has been drawn to scale.
- Find **ALL** angle measures in the figure… **BOTH** interior and exterior angles.
- Write the measures for the angles on the diagram.

![Hexagon with exterior angles labeled](image)

Step 2: What do you notice about the relationship between the interior and exterior angles?

Step 3: Calculate the **SUM** of the measures of the exterior angles: __________

Step 4: Watch the software construction for the exterior angle conjecture.
What do you think the sum of the exterior angles in ANY polygon is? ________

Summary...

Sum of the INTerior angles =

Sum of EXterior angles =

**Take it another step**… IF the polygon is REGULAR, what do you know about all the angles?

SO...

Measure of **ONE INT**erior angle (*in a regular polygon*) =

Measure of **ONE EXTeior angle** (*in a regular polygon*) =

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HONORS GEOMETRY
5.3-5.4 Notes

Big ideas about KITES

1. From the definition... 2 distinct pairs of consecutive congruent sides.
   - Measure segments to confirm $ST \cong SR$ and $AT \cong AR$; but $ST \neq AT$ and $SR \neq AR$

2. Diagonals are perpendicular
   - Draw $SA$ and $TR$. Label the intersection $W$. Use your protractor to confirm $\angle SWT$ is a right angle

3. Diagonal connecting the vertex angles is a perpendicular bisector of the other diagonal.
   - Measure segments to confirm $TW \cong RW$ but $SW \neq AW$

4. Non-vertex angles are congruent.
   - Measure angles to confirm $\angle STA$ is congruent to $\angle SRA$

5. Vertex angles are bisected by the diagonal.
   - Measure angles to confirm $\angle TSA$ is congruent to $\angle RSA$
   - Measure angles to confirm $\angle TAS$ is congruent to $\angle RAS$

Given: STAR is a kite

Label all the kite properties on the given figure.

---

APPLY THE KITE PROPERTIES: Solve for $x$ in the KITES below.

A. $\angle 111^\circ (3x - 12)^\circ$

B. $\angle (2x + 113)^\circ$

$(5x + 56)^\circ$
Big ideas about ISOSCELES TRAPEZOIDS

1. From the definition... EXACTLY 1 pair of parallel sides.
   - If \( \overline{CA} \parallel \overline{SR} \), \( \angle C \) and \( \angle S \) are \( \text{_______________} \); \( \angle A \) and \( \angle R \) are \( \text{_______________} \).

2. From the definition: NON-parallel sides are congruent.
   - Measure sides to confirm \( \overline{CS} \cong \overline{AR} \) but \( \overline{CA} \neq \overline{SR} \)

3. Both sets of base angles are congruent.
   - Measure angles to confirm \( \angle C \) is congruent to \( \angle A \)
   - Measure angles to confirm \( \angle S \) is congruent to \( \angle R \)

4. Diagonals are congruent.
   - Draw in \( \overline{CR} \) and \( \overline{SA} \). Measure segments to confirm \( \overline{CR} \cong \overline{SA} \).

Given: \( \text{CARS} \) is an isosceles trapezoid

Label all the isosceles trapezoid properties on the given figure.

Note: Look at the NON-isosceles trapezoid at the right.

Are Properties #3 and #4 listed above true for any trapezoid? \( \text{_______________} \)

---

Big ideas about TRAPEZOID MIDSEGMENTS!

1. The midsegment is parallel to each of the bases.
   \( \rightarrow \text{Recall:} \) If Corresponding Angles (CA) are \( \cong \), then lines are parallel.

2. The length of the midsegment in a trapezoid is equal to one-half the sum of the bases.
   - Measure \( \overline{CL} + \overline{RM} \).
   - Divide the value by 2
   - Find \( \overline{AE} \)
   - Compare the measurements

Given: \( \text{RMLC} \) a trapezoid and \( \overline{AE} \) is a midsegment

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Big ideas about TRIANGLE MIDSEGMNETS

1. The midsegment is parallel to the third side.
   \[ \rightarrow \text{Recall: If Corresponding Angles (CA) are } \cong \text{, then lines are parallel.} \]
   - Compare \( \angle Z \) to \( \angle BER \)

2. The length of the midsegment in a triangle is equal to one-half the third side.
   - Use the perpendicular bisector construction to find the midpoint of \( ZA \). Label the midpoint \( S \).
   - \( ZS \cong ER \), therefore \( ER = \frac{1}{2}(ZA) \) \text{ OR } \( 2(ER) = ZA \)

3. The three midsegments divide the triangle into four congruent triangles.
   - Draw in the remaining midsegments in the triangle.
   - Compare the triangles formed.

---

Given: \( ER \) is a midsegment

Label all the midsegment properties in the figure.

Apply the TRAPEZOID and MIDSEGMENT properties. Solve for \( x \) in each situation.

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
</table>
| A. | \[ \text{m} \angle 1 = (15x - 5)^\circ \]  
|   | \[ \text{m} \angle 2 = (90 - 4x)^\circ \] |
| B. | \[ \text{m} \angle 4 = 78^\circ \]  
|   | \[ \text{m} \angle 2 = x^\circ \] |
| C. | \[ \text{m} \angle 1 = (2x - 7)^\circ \]  
|   | \[ \text{m} \angle 3 = 117^\circ \] |
| D. | \[ \text{EU} = 10 \]  
|   | \[ \text{RN} = x \]  
|   | \[ \text{FW} = 14 \] |
| E. | \[ \text{EU} = 60 \]  
|   | \[ \text{RN} = (4x - 1) \]  
|   | \[ \text{FW} = (6x + 11) \] |
| F. | \[ \text{EU} = (2x + 1) \]  
|   | \[ \text{RN} = 8 \]  
|   | \[ \text{FW} = (3x - 3) \] |
Make parallelograms and rhombi

Rhombus

Parallelogram

Big ideas about PARALLELOGRAMS!

1. From the definition... Both pairs of opposite sides are parallel.

4. Consecutive angles are supplementary.
   \( \Rightarrow \text{Recall:} \) If lines are parallel, then Consecutive Interior Angles (CIA) are supplementary.
   - \( \angle E \) is supplementary to \__________ and \__________
   - \( \angle A \) is supplementary to \__________ and \__________

2. Both pairs of opposite sides are congruent.
   - Measure all sides to confirm \( \overline{LE} \cong \overline{AT} \) and \( \overline{LA} \cong \overline{ET} \)

3. Both pairs of opposite angles are congruent.
   - Measure the angles to confirm \( \angle E \) is congruent to \( \angle A \).
   - Measure the angles to confirm \( \angle L \) is congruent to \( \angle T \).

5. Diagonals bisect each other.
   - Draw in diagonals \( \overline{LT} \) and \( \overline{EA} \). Label the point of intersection \( P \).
   - Measure the segments formed to confirm \( \overline{LP} \cong \overline{PT} \) and \( \overline{EP} \cong \overline{PA} \)

Given: LATE is a parallelogram

Label all the parallelogram properties in the figure.
### APPLY THE PARALLELOGRAM PROPERTIES!

Find the missing measures in parallelogram STAR.

<p>| | | |</p>
<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A.</td>
<td>ST</td>
<td></td>
</tr>
<tr>
<td>B.</td>
<td>SP</td>
<td></td>
</tr>
<tr>
<td>C.</td>
<td>RT</td>
<td></td>
</tr>
<tr>
<td>D.</td>
<td>m(\angle RAT)</td>
<td></td>
</tr>
<tr>
<td>E.</td>
<td>m(\angle SRA)</td>
<td></td>
</tr>
<tr>
<td>F.</td>
<td>m(\angle SRT)</td>
<td></td>
</tr>
</tbody>
</table>

Use the given information to solve for \(x\) in each scenario.

A.Sock is a parallelogram
\[m\angle SKC = (12x - 9)^\circ\]
\[m\angle SOC = 135^\circ\]

B. SHOE is a parallelogram
\[m\angle SHO = 89^\circ\]
\[m\angle EOH = (5x - 24)^\circ\]

C. PANT is a parallelogram
\[PA = (15x + 18)\]
\[TN = (23x - 14)\]

D. COAT is a parallelogram
\[CP = (x + 17)\]
\[CA = (5x - 23)\]

### Big ideas about RECTANGLES!

1. From the definition... All the parallelogram properties.

2. From the definition... All the angles are right angles. \((\angle J, \angle O, \angle K, \angle E\) are right angles)

3. Diagonals are congruent.
   - Draw diagonals \(\overline{OE}\) and \(\overline{KJ}\). Label the point of intersection P.
   - Measure the segments to confirm \(\overline{OE} \cong \overline{KJ}\)

Given: JOKE is a rectangle

Label all the rectangle properties in the figure.

Note: What kind of triangles are \(\triangle OPK\), \(\triangle JPE\), \(\triangle OPJ\), \(\triangle KPE\)?

What do you know about all the segments formed by the intersecting diagonals?
APPLY THE RECTANGLE PROPERTIES!

Answer the following questions about rectangle RSTU

1. Which of the following are congruent in RSTU?
   A. Consecutive sides
   B. \( \angle 1 \) and \( \angle 2 \)
   C. The diagonals
   D. All of the above.

2. If \( m\angle 1 = 50^\circ \), find \( m\angle 2 \)
   A. 25\(^\circ\)
   B. 40\(^\circ\)
   C. 50\(^\circ\)
   D. 100\(^\circ\)

3. If \( SB = 10x - 15 \) and \( BU = x + 12 \), find RT.
   A. 3
   B. 15
   C. 30
   D. 45

4. If \( RU = 3x - 5 \), \( UT = y - 25 \), \( RS = 10 \),
   and \( ST = 4 \), solve for \( x \) and \( y \).

Big ideas about RHOMBI (plural of rhombus)!

1. From the definition... All the parallelogram properties.

2. From the definition... All four sides are congruent
   - Measure the sides to confirm \( \overline{JU} \cong \overline{UN} \cong \overline{NK} \cong \overline{KJ} \)

3. Diagonals are perpendicular.
   - Measure the angles to confirm \( \angle JRU \) is a right angle.

4. Diagonals bisect the opposite angles.
   - Measure \( \angle 1 \) and compare its measure to \( \angle 2 \), \( \angle 3 \), and \( \angle 4 \). Are they all equal in measure?
   - Measure \( \angle 5 \) and compare its measure to \( \angle 6 \), \( \angle 7 \), and \( \angle 8 \). Are they all equal in measure?

Given: JUNK is a rhombus

Label all the rhombus properties in the figure.

Note: \( \angle 1 \cong \angle 2 \cong \angle 3 \cong \angle 4 \) and \( \angle 5 \cong \angle 6 \cong \angle 7 \cong \angle 8 \) BUT they are not always congruent to each other. When are they all congruent?
APPLY THE RHOMBUS PROPERTIES!

Use rhombus FISH to answer the following questions.

A. IF $FI = 6x + 2$ and $SI = 8x - 4$, find $FH$.

B. If $m\angle FIH = 56^\circ$, find the $m\angle IFH$.

Big ideas about SQUARES!

1. All the ________________ properties

2. All the ________________ properties

3. All the ________________ properties

LABEL EVERYTHING YOU KNOW ABOUT THE SQUARE!
HONORS GEOMETRY
5.7 Notes

Determine if the following questions are sometimes, always, or never true.

1. Diagonals of a trapezoid are perpendicular
2. Adjacent sides of a rectangle are congruent.
3. Opposite angles of a trapezoid are congruent.
4. Adjacent angles of rhombus are supplementary AND congruent.
5. Diagonals of a square are perpendicular.
6. A trapezoid is not a parallelogram.
7. Both pairs of opposite angles of a parallelogram are congruent.
8. The diagonals of a parallelogram are congruent.

How do you KNOW you have a parallelogram? (These are ways to PROVE a quadrilateral is a parallelogram.)

a.) Show that ________ pairs of opposite _________ are congruent

b.) Show that ________ pairs of opposite _________ are congruent

<table>
<thead>
<tr>
<th>OR</th>
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</table>

Remember you can always prove that a quadrilateral is a parallelogram by using the definition.

d.) Show that ________ pairs of opposite ____________________________.

Created by W.L. Bass and used with permission, p.15
A little practice...
Do you have a parallelogram?

Directions: Determine if the given markings on the quadrilateral provide enough information to conclude that it is a parallelogram. *Hint:* You may (if necessary) add segments to help find congruent triangles.

Given: $AC \cong BD$

Given: $AC \perp BD$
Chapter 5 Properties of Quadrilaterals

Polygons

Quadrilaterals

Parallelograms

Rhombus

Square

Rectangle

Kite

Trapezoid

Isos.

Trap
Put a check in the box if the property ALWAYS applies to the indicated shape

<table>
<thead>
<tr>
<th>Property</th>
<th>Parall’grm</th>
<th>Rectangle</th>
<th>Rhombus</th>
<th>Square</th>
<th>Trapezoid</th>
<th>Isos. Trapezoid</th>
<th>Kite</th>
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<td>Is it a parallelogram?</td>
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<td>b.p. opp. angles $\cong$</td>
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<td>Consec. $\angle$’s supp.</td>
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