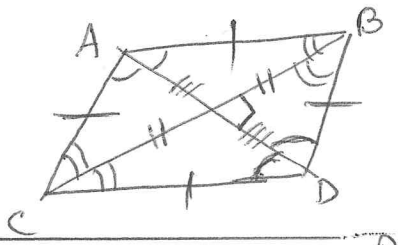
Mr.Reddy's Notes 8.4 Rhombus,Rectangle,Square

I A parallelogram is a RHOMBUS IF the ① four sides are congruent:

2) DIAGONALS ARE perpendicular (90°)

3). DIAGONALS BISECTS A PAIR OF OPPOSITE ANGLES.



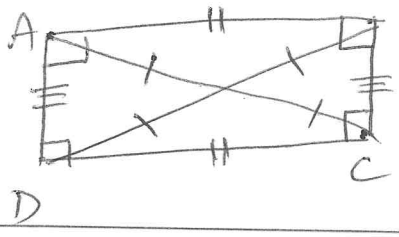
RHOMBUS:- $\overline{AB} = \overline{BD} = \overline{DC} = \overline{AC}$

$AD \perp BC$

II. A PARALLELOGRAM IS a Rectangle IF

1) IT HAS FOUR RIGHT ANGLES.

2) IT'S DIAGONALS ARE CONGRUENT.

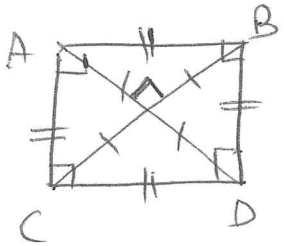


1. $\overline{AB} = \overline{CD}$
2. $\overline{AD} = \overline{BC}$
3. $\angle A, \angle B, \angle C, \angle D = 90^\circ$ each.
4. $\overline{AC} = \overline{BD}$

III A parallelogram IS a SQUARE, IF

1) IT HAS FOUR CONGRUENT SIDES AND FOUR RIGHT ANGLES.

2) IT IS BOTH RHOMBUS AND Rectangle.



$\overline{AB} = \overline{BD} = \overline{DC} = \overline{CA}$

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LESSON 8.4

Practice

For use with pages 533–540

For any rhombus *ABCD*, decide whether the statement is *always* or *sometimes* true. Draw a diagram and *explain* your reasoning.

1. $\angle ABC \cong \angle CDA$

2. $\overline{CA} \cong \overline{DB}$

For any rectangle *FGHJ*, decide whether the statement is *always* or *sometimes* true. Draw a diagram and *explain* your reasoning.

3. $\angle F \cong \angle H$

4. $\overline{GH} \cong \overline{HJ}$

Name each quadrilateral—*parallelogram*, *rectangle*, *rhombus*, and *square*—for which the statement is true.

7. It is equilateral.

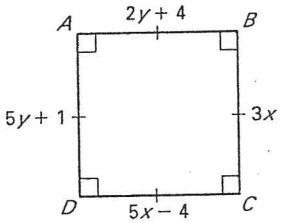
8. The diagonals are congruent.

9. It can contain obtuse angles.

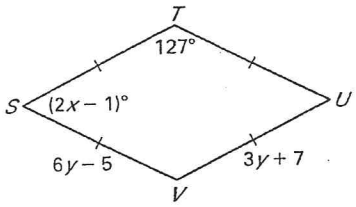
10. It contains no acute angles.

Classify the special quadrilateral. *Explain* your reasoning. Then find the values of *x* and *y*.

11.



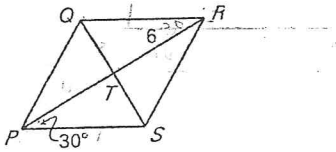
12.



The diagonals of rhombus *PQRS* intersect at *T*. Given that $m\angle RPS = 30°$ and $RT = 6$, find the indicated measure.

13. $m\angle QPR$

14. $m\angle QTP$



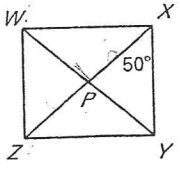
15. RP

16. QT

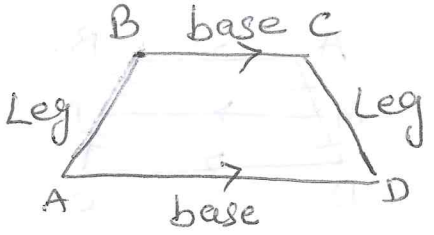
The diagonals of rectangle *WXYZ* intersect at *P*. Given that $m\angle YXZ = 50°$ and $XZ = 12$, find the indicated measure.

17. $m\angle WXZ$

18. $m\angle WPX$



Mr.Reddy's Notes 8.5 Properties of Trapezoids and Kites
Geometry



I TRAPEZOID:- 1) IT HAS EXACTLY ONE PAIR OF PARALLEL SIDES AND THE PARALLEL SIDES ARE CALLED BASES.

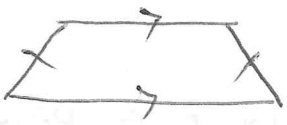
2) IT HAS TWO PAIRS OF BASE ANGLES;

$\angle A, \angle D \rightarrow$ ONE PAIR; $\angle B, \angle C \rightarrow$ Second pair.

3) NON PARALLEL SIDES ARE CALLED LEGS.

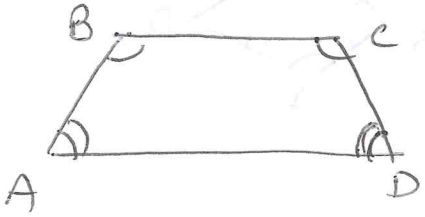
II ISOSCELES TRAPEZOID:-

1) LEGS OF TRAPEZOID ARE CONGRUENT.



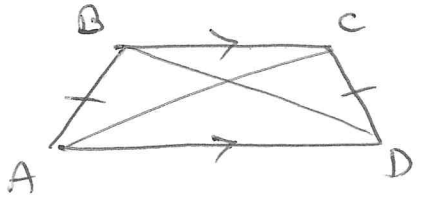
Isosceles Trapezoid

2. each pair of base angles are Congruent.



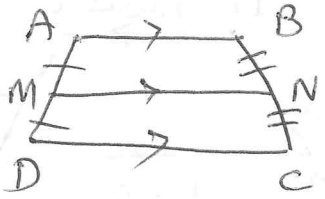
$\angle A \cong \angle D$;
$\angle B \cong \angle C$

3. ITS DIAGONALS ARE CONGRUENT.



$\overline{AC} \cong \overline{BD}$

4. THE MID-SEGMENT OF A TRAPEZOID IS PARALLEL TO EACH base angle and its LENGTH IS ONE HALF OF THE SUM OF THE LENGTHS OF THE Bases.

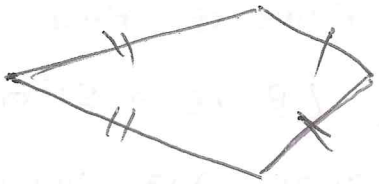


$\overline{MN} \parallel \overline{AB}$

$\overline{MN} \parallel \overline{DC}$

$\overline{MN} = \frac{1}{2}(AB+CD)$ OR $\overline{AB}+\overline{CD} = 2\overline{MN}$

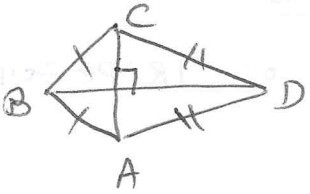
KITE:-



IT HAS TWO PAIRS OF consecutive CONGRUENT SIDES, but opposite sides are NOT CONGRUENT.

1. ITS DIAGONALS ARE PERPENDICULAR.

$\overline{AC} \perp \overline{BD}$



2. EXACTLY ONE PAIR OF OPPOSITE ANGLES ARE CONGRUENT.

$\angle A \cong \angle C$

$\angle B \ncong \angle D$

Name _____ Date _____

LESSON 8.5

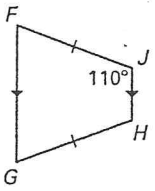
Practice

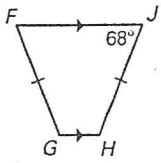
For use with pages 541–549

Points *A*, *B*, *C*, and *D* are the vertices of a quadrilateral. Determine whether *ABCD* is a trapezoid.

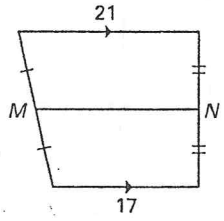
1. $A(-2, 3)$, $B(3, 3)$, $C(-1, -2)$, $D(2, -2)$

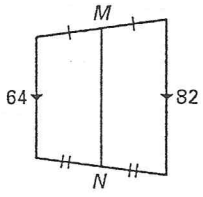
Find $m\angle F$, $m\angle G$, and $m\angle H$.

4. 

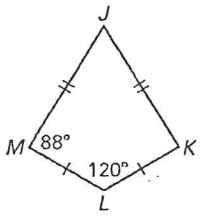
5. 

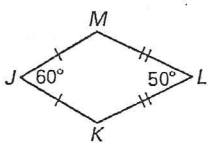
Find the length of the midsegment of the trapezoid.

6. 

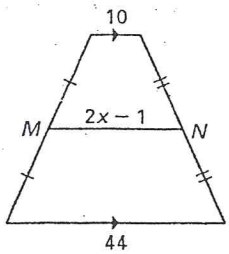
7. 

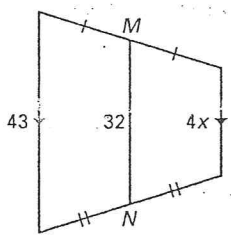
***JKLM* is a kite. Find $m\angle K$.**

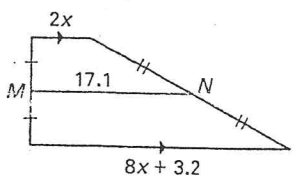
8. 

9. 

Find the value of *x*.

12. 

13. 

14. 

Name _____ Date _____

LESSON 8.6

Practice

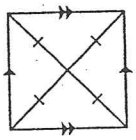
For use with pages 552–557

Complete the chart. Put an X in the box if the shape *always* has the given property.

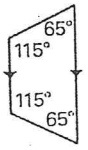
	Property	▱	Rectangle	Rhombus	Square	Kite	Trapezoid
1.	Both pairs of opposite sides are congruent.						
2.	Both pairs of opposite angles are congruent.						
3.	Exactly one pair of opposite sides are congruent.						
4.	Exactly one pair of opposite sides are parallel.						
5.	Exactly one pair of opposite angles are congruent.						
6.	Consecutive angles are supplementary.						

Tell whether enough information is given in the diagram to classify the quadrilateral by the indicated name.

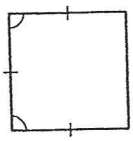
11. Rectangle



12. Isosceles trapezoid



13. Rhombus



14. Kite