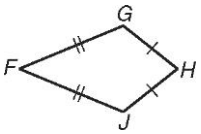
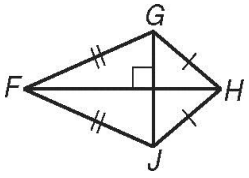
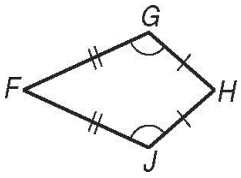
Name _____ Date _____ Period_____

Notes 6-6: Properties of Kites and Trapezoids

Objective: 1. Use properties of kites to solve problems.
2. Use properties of trapezoids to solve problems.

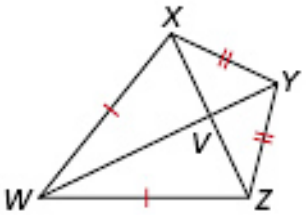
A _____ is a quadrilateral with exactly two pairs of congruent consecutive sides. If a quadrilateral is a kite, such as FGHJ, then it has the following properties**.**



Properties of Kites	
 $\overline{FH} \perp \overline{GJ}$	 $\angle G \cong \angle J$
The diagonals are _____.	Exactly one pair of opposite _____ is congruent.

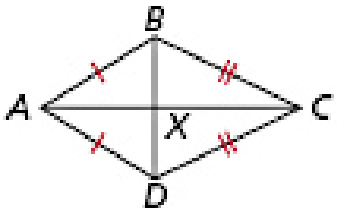
In kite WXYZ, m∠WXY = 104°, and m∠VYZ = 49°. Find each measure.

1. m∠VZY = _____
2. m∠VXW = _____
3. m∠XWZ = _____



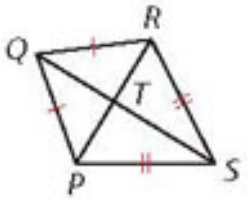
In kite ABCD, m∠DAX = 32°, and m∠XDC = 64°. Find each measure.

4. m∠XDA = _____
5. m∠ABC = _____
6. m∠BCD = _____

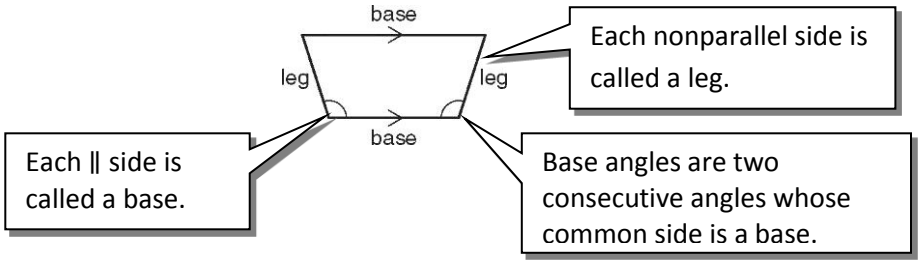


In kite PQRS, m∠PQR = 78°, and m∠TRS = 59°. Find each measure.

7. m∠QRT = _____
8. m∠QPS = _____
9. m∠PSR = _____

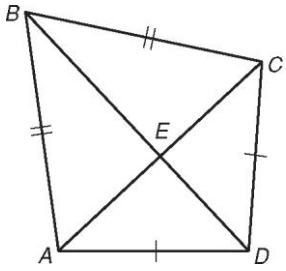


A _____ is a quadrilateral with exactly one pair of parallel sides. If the legs of a trapezoid are congruent, the trapezoid is an _____ **trapezoid.**



Isosceles Trapezoid Theorems
• In an isosceles trapezoid, each pair of base angles is _____.
• If a trapezoid has one pair of congruent base angles, then it is _____.
• A trapezoid is isosceles if and only if its _____ are congruent.

In kite *ABCD*, m∠*BCD* = 98°, and m∠*ADE* = 47°. Find each measure.

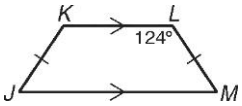


10. m∠*DAE* = _____

11. m∠*BCE* = _____

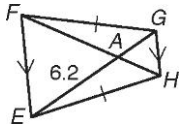
12. m∠*ABC* = _____

13. Find m∠*J* in trapezoid *JKLM*.



_____

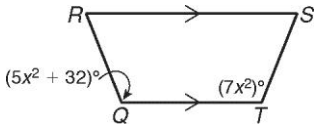
14. In trapezoid *EFGH*, *FH* = 9. Find *AG*.



_____

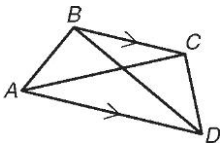
Find each value so that the trapezoid is isosceles.

15. Find the value of *x*.



_____

16. *AC* = (2*z* + 9), *BD* = (4*z* − 3). Find the value of *z*.



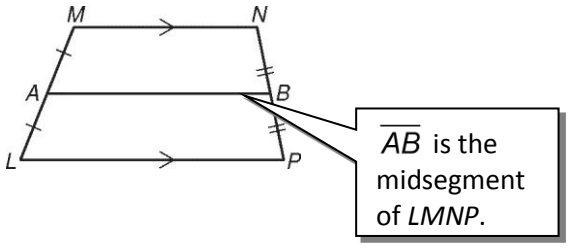
_____

Trapezoid Midsegment Theorem

The _____ **of a trapezoid** is the segment whose endpoints are the midpoints of the legs.

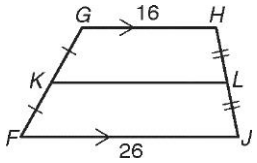
- The midsegment of a trapezoid is parallel to each base. $\overline{AB} \parallel \overline{MN}$ and $\overline{AB} \parallel \overline{LP}$
- The length of the midsegment is ____-_____ the sum of the length of the bases.

$AB = \frac{1}{2}(MN + LP)$



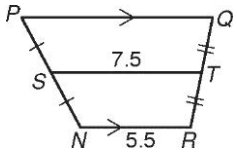
Find each length.

17. *KL*



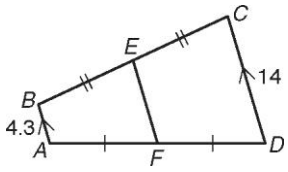
_____

18. *PQ*



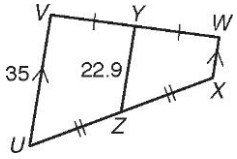
_____

19. EF



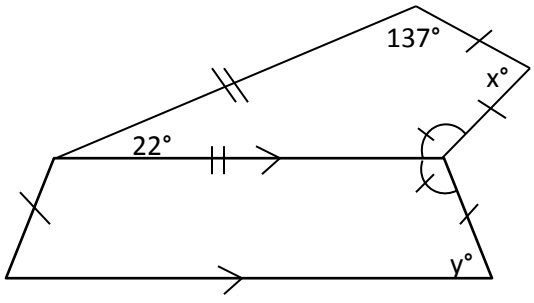
_____

20. WX

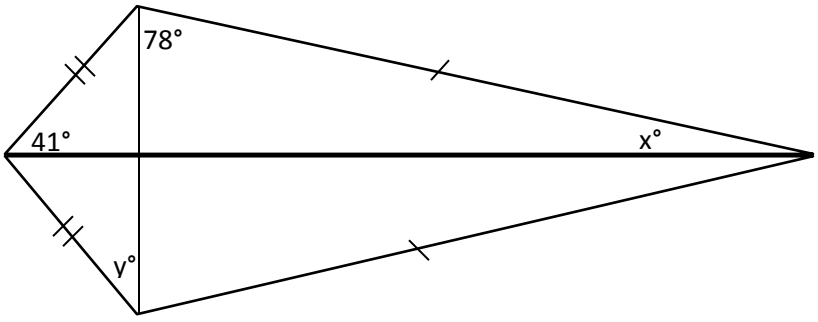


_____

21. x = _____, y = _____



22. x = _____, y = _____



QUADRILATERALS

Parallelogram

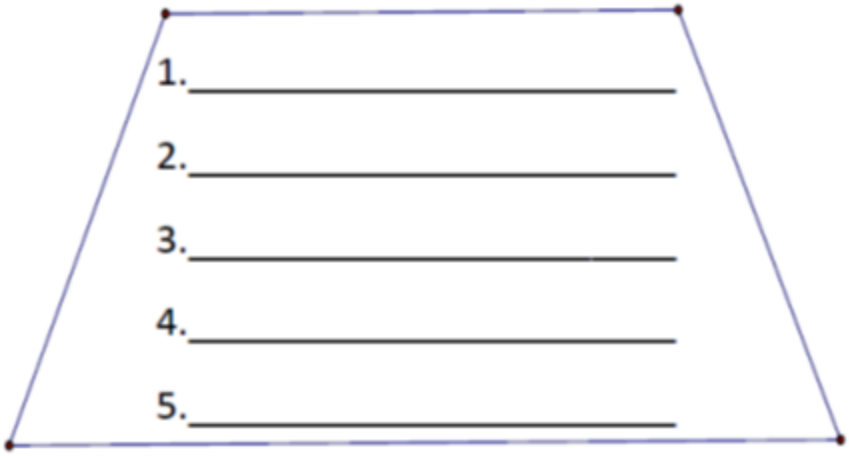
Rectangle

Rhombus

Square

Trapezoid

Isosceles Trapezoid



Kite