Geometry

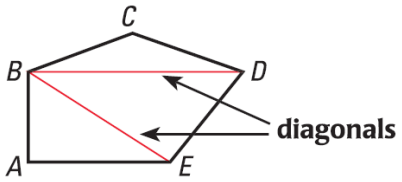
7.1 Angles of Polygons

Polygon

- _____ figure made of _____ segments

Diagonal

- Segment that joins _____ _____



All polygons can be _____ into _____

- The sum of the angles of a triangle is _____
- For the _____, multiply that by ____

Polygon Interior Angles Theorem

Sum of the _____ of the _____ angles of a _____ is _____

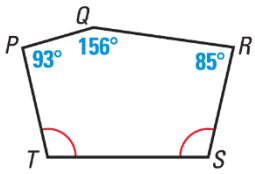
_____

Sum of the _____ of the _____ angles of a _____ is _____

The coin is a regular 11-gon. Find the sum of the measures of the interior angles.

The sum of the measures of the interior angles of a convex polygon is 1440°. Classify the polygon by the number of sides.

Find m∠T



Geometry 7.1

Name: _____

Equilateral Polygon

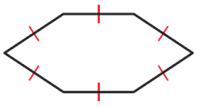
- All _____ congruent

Equiangular Polygon

- All _____ congruent

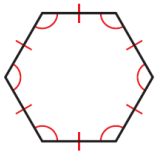
Regular Polygon

- All _____ and _____ congruent



_____

_____

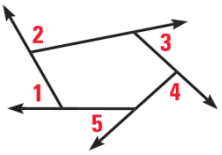


_____

Polygon Exterior Angles Theorem

Sum of the _____ of the _____ angles of a _____ polygon is _____

What is the measure of an exterior angle of a regular pentagon?



What is the measure of an interior angle of a regular pentagon?

Assignment: 352 #1, 4, 6, 8, 10, 12, 14, 18, 22, 24, 25, 30, 32, 34, 36, 50, 51, 52, 56, 61 = 20 total

Geometry

7.2 Properties of Parallelograms

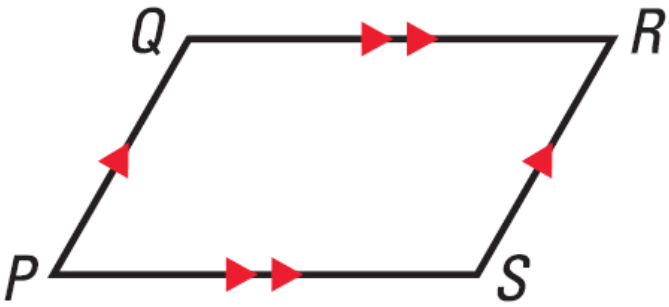
Definition of parallelogram

_____ with opposite sides _____

Opposite _____ of parallelogram are _____

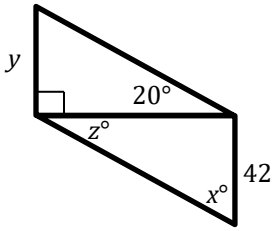
Opposite _____ of a parallelogram are _____

Consecutive _____ in a parallelogram are _____



_____ of a parallelogram _____ each other

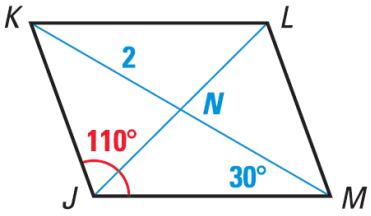
Find x, y, and z



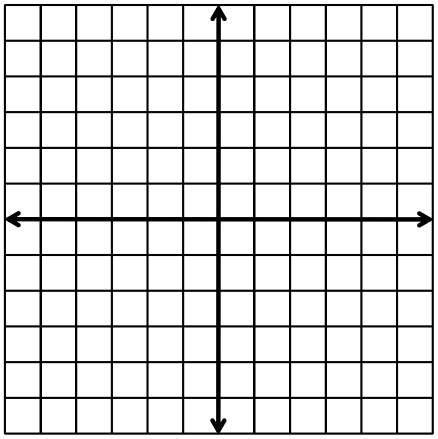
Find NM

Find $m\angle JML$

Find $m\angle KML$



Three vertices of $\square DEFG$ are $D(-1, 4)$, $E(2, 3)$, and $F(4, -2)$. Find the coordinates of vertex G.



Assignment: 360 #2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24, 26, 28, 30, 38, 47, 51, 52, 53, 54 = 20

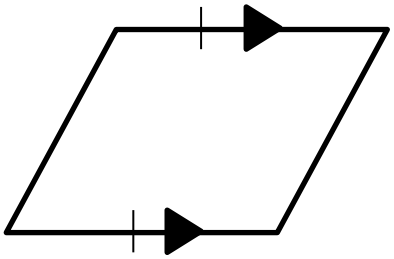
Geometry

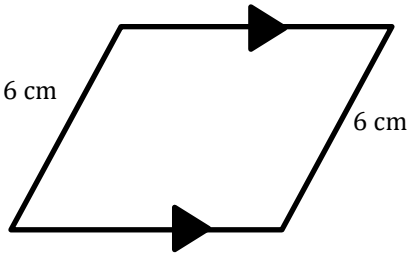
7.3 Proving that a Quadrilateral is a Parallelogram

If we can show any of these things in a _____, then it is a _____.

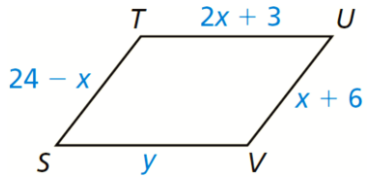
If opposite _____ of a quad are _____, then it is a parallelogram (definition of parallelogram)
If both pairs of opposite _____ of a quad are _____, then it is a parallelogram.
If both pairs of opposite _____ of a quad are _____, then it is a parallelogram.
If the _____ of a quad _____ each other, then it is a parallelogram.
If _____ pair of opposite _____ of a quad is both _____ and _____, then it is a parallelogram.

Is it a parallelogram?

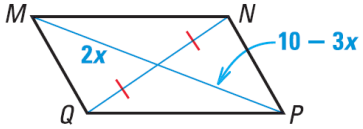




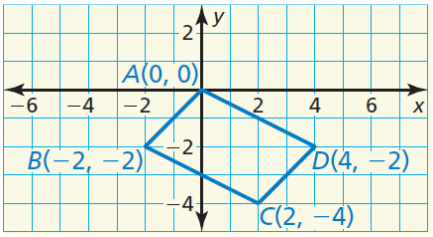
For what values of x and y is quadrilateral $STUV$ a parallelogram?



Find x so that $MNPQ$ is a parallelogram.



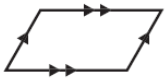
Show that quadrilateral *ABCD* is a parallelogram.



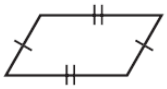
CONCEPT SUMMARY *For Your Notebook*

Ways to Prove a Quadrilateral is a Parallelogram

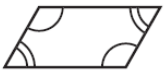
1. Show both pairs of opposite sides are parallel. ***(Definition)***



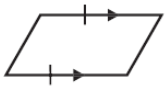
2. Show both pairs of opposite sides are congruent. ***(Theorem 8.7)***



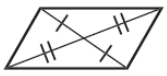
3. Show both pairs of opposite angles are congruent. ***(Theorem 8.8)***



4. Show one pair of opposite sides are congruent and parallel. ***(Theorem 8.9)***



5. Show the diagonals bisect each other. ***(Theorem 8.10)***



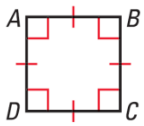
Assignment: 369 #2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 28, 34, 43, 50, 53, 54, 59, 61 = 20

Geometry

7.4 Properties of Special Parallelograms

Parallelograms

- Rhombus
  - Four _____
- Rectangle
  - Four _____
- Square
  - _____ and _____
  - Four _____
  - Four _____



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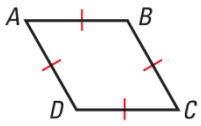

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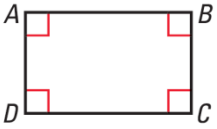

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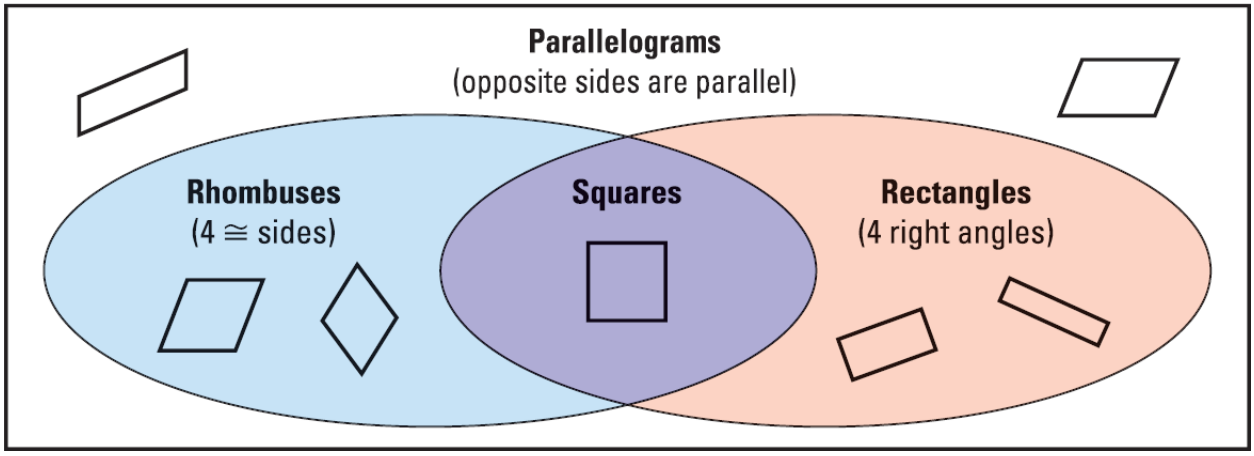
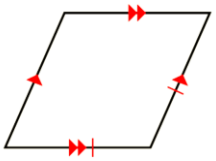


For any rectangle EFGH, is it always or sometimes true that $\overline{FG} \cong \overline{GH}$?

Classify the figure.

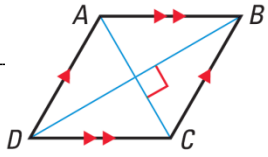


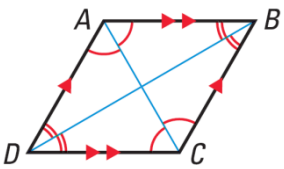
Diagonals

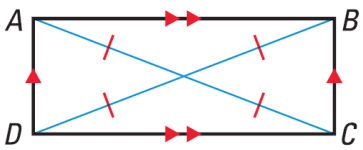
Rhombus: diagonals are _____

Rhombus: diagonals bisect _____

Rectangle: diagonals are _____

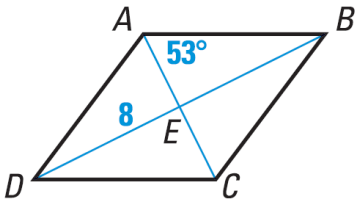






ABCD is a rhombus

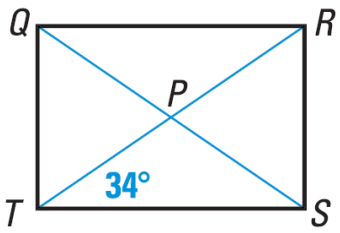
Find $m\angle BCE$



Find $m\angle ABD$

Find $m\angle AED$

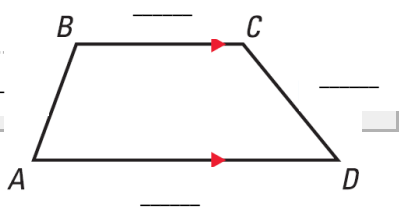
In rectangle *QRST*, $QS = 7x - 15$ and $RT = 2x + 25$. Find the lengths of the diagonals of *QRST*.



Assignment: 379 #2, 4, 8, 10, 12, 14, 16, 18, 22, 24, 30, 32, 36, 38, 48, 50, 52, 62, 64, 66, 88, 89, 92, 94, 99 = 25

Geometry

7.5 Properties of Trapezoids and Kites

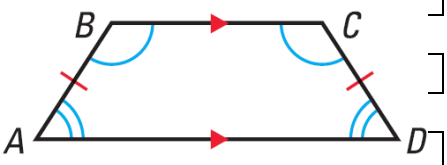


Trapezoid

Quadrilateral with exactly _____ pair of _____ sides

If the legs are _____, then the trapezoid is _____

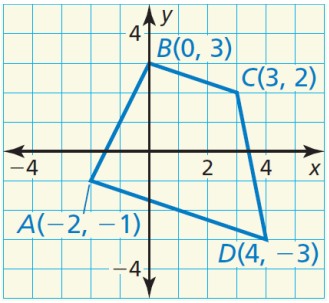
If _____ trapezoid, then each pair of base _____ is _____.



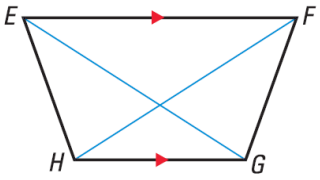
If _____ trapezoid, then _____ are _____.

The converses are also true

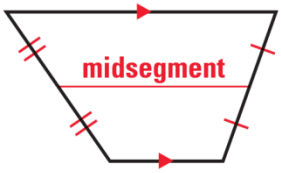
Show that *ABCD* is a trapezoid. Then decide whether it is isosceles.



If the trapezoid is isosceles and $m\angle HEF = 70°$, find $m\angle EFG$, $m\angle FGH$, and $m\angle GHE$.



Midsegment of a Trapezoid



Segment connecting the _____ of each _____

Midsegment Theorem for Trapezoids

The midsegment of a trapezoid is _____ to the _____ and its _____ is the _____ of the _____ of the _____.

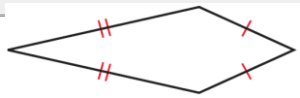
_____

In trapezoid *JKLM*, $\angle J$ and $\angle M$ are right angles, and $JK = 9$ cm. The length of the midsegment $\overline{NP}$ of trapezoid *JKLM* is 12 cm. Find *ML*.

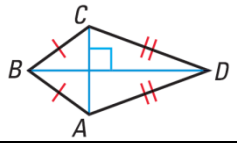
Geometry 7.5 Name: _____

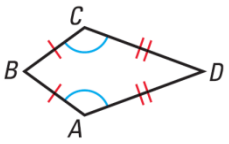
Kites

Quadrilateral with _____ pairs of _____ congruent sides



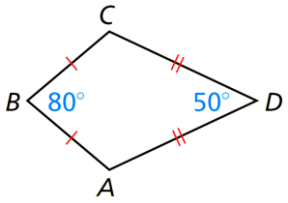
If kite, then the _____ are _____.

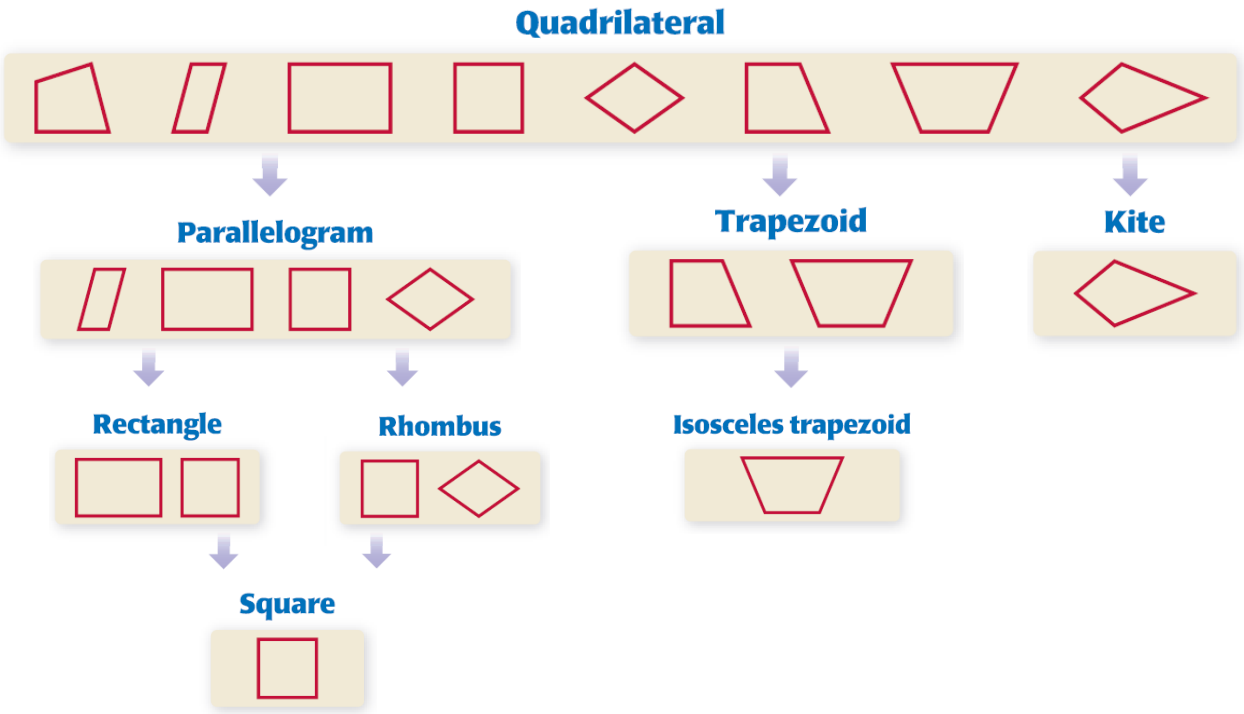




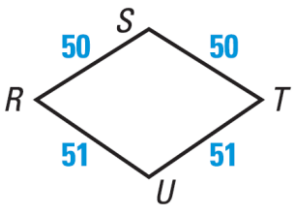
If kite, then exactly _____ pair of opposite _____ are _____.

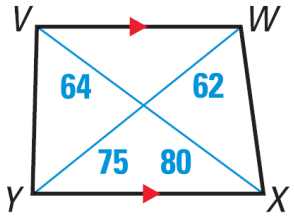
Find $m\angle C$ in the kite shown.

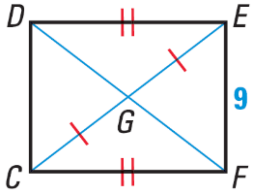




Give the most specific name for the quadrilateral.







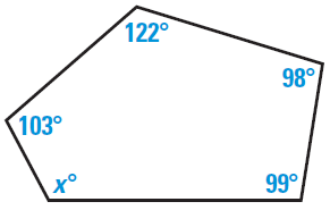
Assignment: 389 #2, 4, 6, 8, 10, 12, 16, 18, 20, 22, 24, 26, 28, 30, 39, 54, 58, 60, 63, 64 = 20

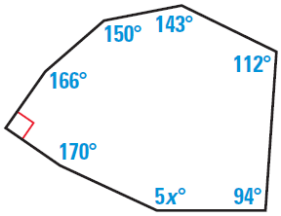
Name: _____

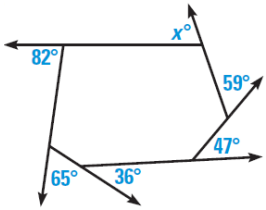
Geometry Chapter 7 Review

1. What is the sum of the interior angles of a convex dodecagon?

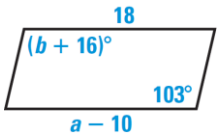
Find the value of x.

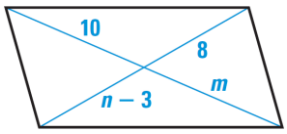
2. 

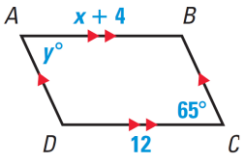
3. 

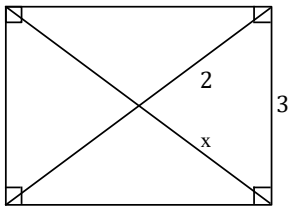
4. 

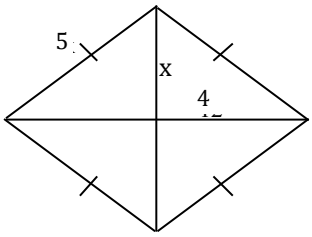
Find the value of each variable in the parallelogram.

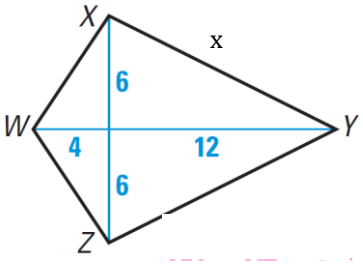
5. 

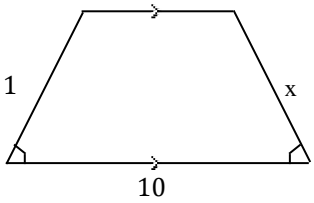
6. 

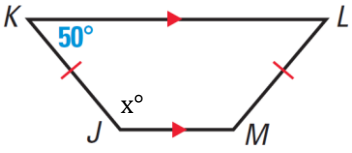
7. 

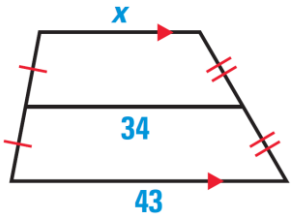
8. 

9. 

10. 

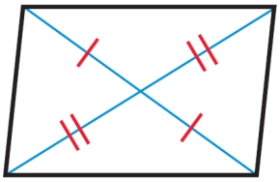
11. 

12. 

13. 

Which theorem indicates that the quadrilateral is a parallelogram?

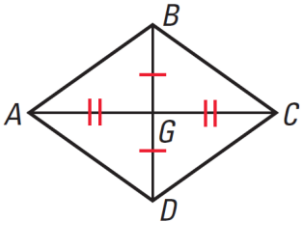
14. 

15. 

Name: _____

Give the most specific name for the quadrilateral.
***Explain* your reasoning.**

16.



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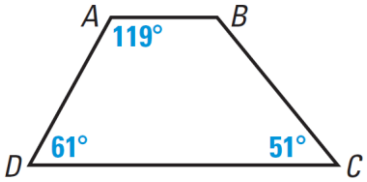

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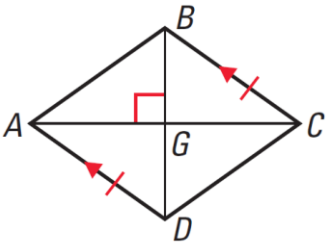

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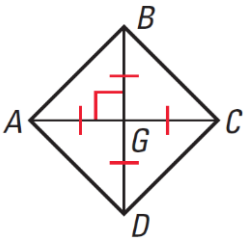

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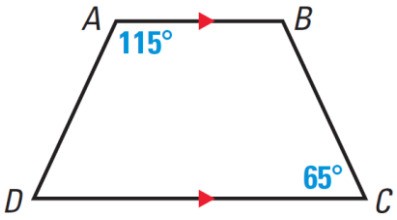

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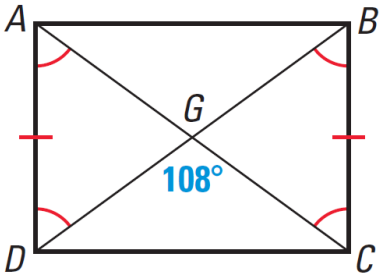

Answers

1. 1800°
2. 118
3. 31
4. 71
5. 28, 87
6. 10, 11
7. 8, 65
8. 2
9. 3
10. $6\sqrt{5}$
11. 1
12. 130
13. 25
14. Both pairs of opposite angles are congruent.
15. Diagonals bisect each other.
16. Parallelogram
17. Trapezoid
18. Rhombus
19. Square
20. Isosceles Trapezoid
21. Rectangle