

Geometry Chapter 6 Topics List

Discovering and Proving Polygon Properties

1. Polygon Angle Sum Theorem

- a. Calculation of interior angles sum $= (n-2)180^\circ$
- b. Calculation of individual equiangular interior angles

2. Polygon Exterior Angle Sum

- a. Exterior Angle Sum $= 360^\circ$
- b. Calculation of individual equiangular exterior angles

3. Kite Properties

- a. Kite Angles Theorem
- b. Kite Diagonals Theorem
- c. Kite Diagonals Bisector Theorem
- d. Kite Angle Bisector Theorem

4. Trapezoid Properties

- a. Same-Side Interior Angles Theorem
- b. Isosceles Trapezoids
 - i. Isosceles Trapezoid Theorem
 - ii. Isosceles Trapezoid Diagonal Theorem

5. Properties of Midsegments

- a. Triangle Midsegment Theorem
- b. Trapezoid Midsegment Theorem

6. Properties of Parallelograms

- a. Same-Side Interior Angles Theorem
- b. Parallelogram Opposite Side Theorem
- c. Parallelogram Opposite Angle Theorem
- d. Parallelogram Diagonals Theorem

7. Rhombus/Rectangle/Square Properties

- a. Rhombus Diagonals Theorem
- b. Rhombus Angles Theorem
- c. Rectangle Diagonals Theorem
- d. Square Diagonals Theorem

8. Conditions of Special Parallelograms

- a. Parallelogram Diagonals Theorem

If you are unsure of any of these theorems, check our classroom notes!

Name _____ Class _____ Date _____

Lesson 6-1

Chapter 6

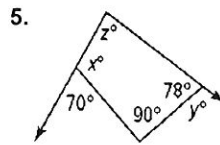
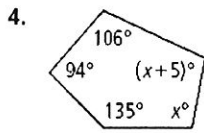
Find the sum of the interior angle measures of each polygon.

1. octagon

2. 16-gon

3. 42-gon

Find the missing angle measures.



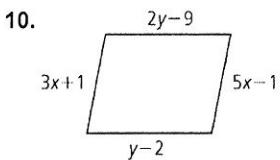
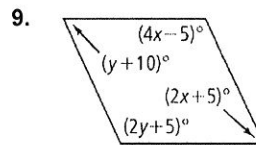
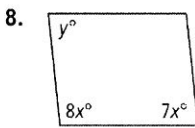
Find the measure of one interior angle and the measure of one exterior angle in each regular polygon.

6. nonagon

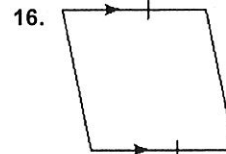
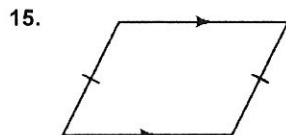
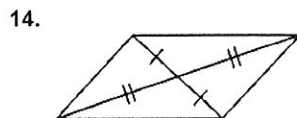
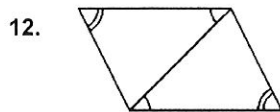
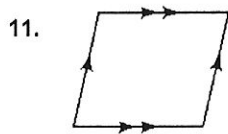
7. 20-gon

Lesson 6-2

Find the values of the variables in each parallelogram.

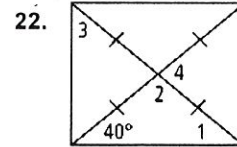
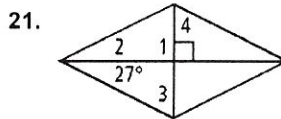
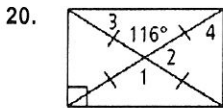
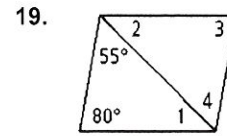
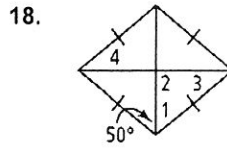
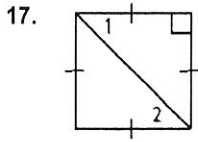


Based on the markings, decide whether each figure must be a parallelogram.

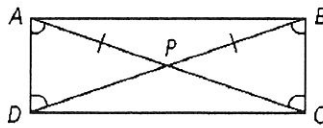


Lessons 6-4 and 6-5

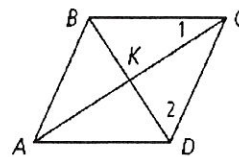
For each parallelogram, determine the most precise name and find the measures of the numbered angles.



23. Use the information in the figure. Explain how you know that $ABCD$ is a rectangle.

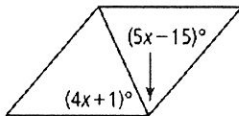


24. $\square ABCD$ is a rhombus. What is the relationship between $\angle 1$ and $\angle 2$? Explain.

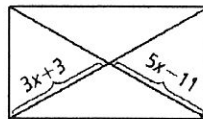


What value of x makes each figure the given special parallelogram?

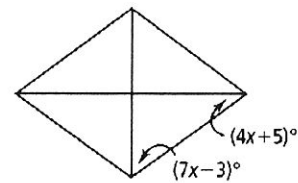
25. rhombus



26. rectangle

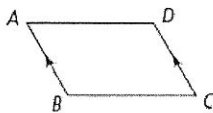


27. Rhombus



28. Why is it that the statement “all rhombuses are squares” is false, but the statement “all squares are rhombuses” is true? Explain.

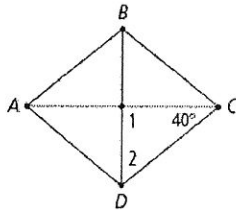
29. What additional pieces of information could be supplied to make $ABCD$ a parallelogram?



30. The diagonals of a parallelogram are 2.3 cm and 3.2 cm long. Can you tell if the parallelogram is a rhombus? Explain.

31. For this exercise, identify the error(s) in planning the solution or solving the problem. Then write the correct solution..

What are the measures of the numbered angles in rhombus $ABCD$?



$m\angle 1 = 90$ Diagonals of a rhombus are \perp .
 $\angle BDC \cong \angle ACD$, so $m\angle 2 = 40$