

Geometry  
Chapter 6 Review

Name: Kuy

Date: \_\_\_\_\_ Period: \_\_\_\_\_

State whether the figure is a polygon; if it is a polygon, state whether the polygon is convex or concave.

HINT: No curves, no gaps, and no overlaps!

1. NO, curves



2. yes, concave



3. NO, overlaps



4. yes convex



Find the indicated measures of the polygon.

HINT: For interior angles use  $(n-2)180$  and for exterior angles use  $360^\circ$ .

5. Find the **SUM** of the measures of the interior angles of a octagon.

$$(8-2)180 = 1080^\circ$$

6. Find the **SUM** of the measures of the interior angles of a pentagon.

$$(5-2)180 = 540^\circ$$

7. Find the **SUM** of the measures of the exterior angles of a 24-gon.

$$360^\circ$$

8. Find the **SUM** of the measures of the exterior angles of a hexagon.

$$360^\circ$$

9. Find the measure of **EACH** interior angle of a regular decagon.

$$(10-2)180 = 1440$$

$$1440 \div 10 = 144^\circ$$

10. Find the measure of **EACH** interior angle of a regular nonagon.

$$(9-2)180 = 1260$$

$$1260 \div 9 = 140^\circ$$

11. Find the measure of **EACH** exterior angle of a heptagon.

$$360 \div 7 = 51\frac{3}{4}^\circ$$

12. Find the measure of **EACH** exterior angle of a 18-gon.

$$360 \div 18 = 20^\circ$$

13. How many sides does a regular polygon have, if the measure of an interior angle is  $108^\circ$ ?

$$180 - 108 = 72^\circ \text{ (Ext. } \angle)$$

$$360 \div 72 = 5 \text{ sides}$$

14. How many sides does a regular polygon have, if the measure of an interior angle is  $60^\circ$ ?

$$180 - 60 = 120 \text{ (Ext. } \angle)$$

$$360 \div 120 = 3 \text{ sides.}$$

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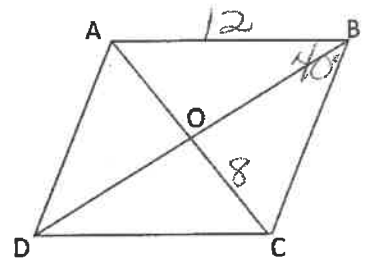
### Parallelograms!

If a quadrilateral is a parallelogram then....

15. opposite sides are parallel and  $\cong$
16. opposite angles are  $\cong$
17. diagonals bisect each other.
18. consecutive angles are supplementary

ABCD is a parallelogram.  $m\angle ABC = 40^\circ$ ,  $AB = 12$ , and  $CO = 8$ .

19.  $m\angle BAD =$   $140^\circ$
20.  $DC =$  12
21.  $m\angle BCD =$   $140^\circ$
22.  $AO =$  8



State whether each conditional statement is true. Write the converse of each conditional statement and state whether it is true.

23. If a parallelogram is a square, then it is a rhombus. TRUE  
If a parallelogram is a rhombus, then it is a square. False
24. If a parallelogram is a square, then it is a rectangle. TRUE  
If a parallelogram is a rectangle, then it is a square. False
25. If a quadrilateral is a rhombus, then it is a parallelogram. True  
If a quadrilateral is a parallelogram, then it is a rhombus. False

If a parallelogram is a rhombus then ....

26. if all 4 sides are  $\cong$
27. diagonals are perpendicular
28. diagonals bisect opposite angles

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If a parallelogram is a rectangle then ....

29. if it has 4 right angles

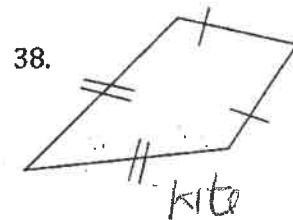
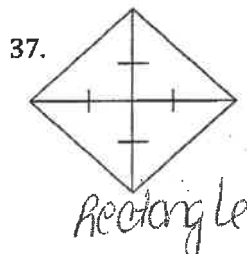
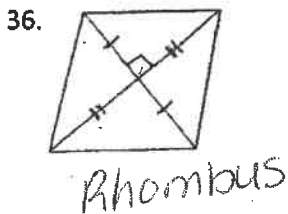
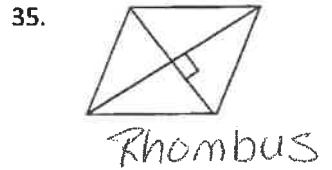
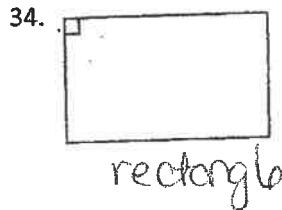
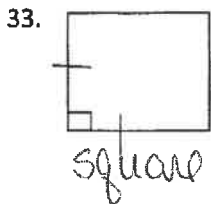
30. diagonals are  $\cong$

If a parallelogram is a square then ....

31. if all 4 sides are  $\cong$

32. if it has 4 right angles

Identify each parallelogram (rhombus, rectangle, square or parallelogram). Use the BEST fit.



BUCK is a parallelogram with diagonals intersecting at O. Use the given information to identify the BEST type of parallelogram (parallelogram, rectangle, rhombus, or square) that the information describes.

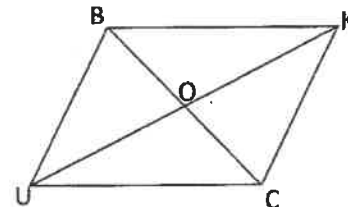
39.  $\overline{BU} \perp \overline{UC}$ ,  $\overline{BU} \cong \overline{BK}$

40.  $\overline{BO} \cong \overline{CO}$ ,  $\overline{UO} \cong \overline{KO}$

41.  $\overline{BC} \cong \overline{UK}$

42.  $\overline{BC} \perp \overline{UK}$

square  
parallelogram  
rectangle  
rhombus



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Match the properties of a quadrilateral with all of the types of quadrilateral which have that property.

43. The diagonals are congruent. *B, D*
44. Both pairs of opposite sides are congruent. *A-D*
45. Both pairs of opposite sides are parallel. *A-D*
46. All angles are congruent. *B, D*
47. All sides are congruent. *C, D*
48. Diagonals bisect the angles. *C, D*

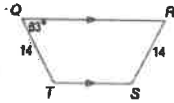
- A. Parallelogram
- B. Rectangle
- C. Rhombus
- D. Square

### Skills Practice

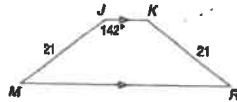
#### Trapezoids and Kites

ALGEBRA Find each measure.

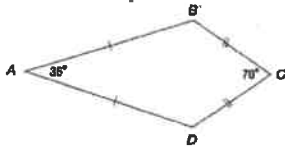
1.  $m\angle S$  117



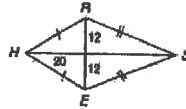
2.  $m\angle M$  38



3.  $m\angle D$  127



4.  $RH$   $\sqrt{544} = 4\sqrt{34}$



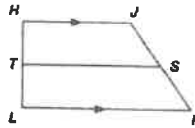
ALGEBRA For trapezoid  $HJKL$ ,  $T$  and  $S$  are midpoints of the legs.

5. If  $HJ = 14$  and  $LK = 42$ , find  $TS$ . 28

6. If  $LK = 19$  and  $TS = 15$ , find  $HJ$ . 11

7. If  $HJ = 7$  and  $TS = 10$ , find  $LK$ . 13

8. If  $LK = 17$  and  $JH = 9$ , find  $ST$ . 13



9)  $x + 3 = \frac{1}{2}(10 + 15)$

$2x + 6 = 25$

$2x = 19$

$x = 19/2$

10)  $12 = \frac{1}{2}(2x + 4 + x)$

$24 = 3x + 4$

$20 = 3x$

$\frac{20}{3} = x$

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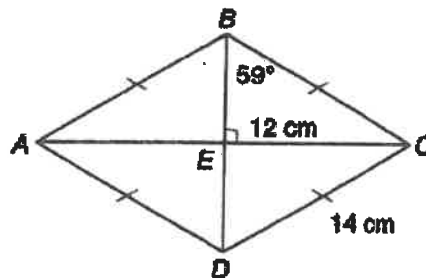
Geometry  
Rectangle, Rhombus, and Square Practice

Use rhombus  $ABCD$  to find the following measures.

- $m\angle BCE = 31^\circ$
- $m\angle BEC = 90^\circ$
- $AC = 24$  cm
- $m\angle ABD = 59^\circ$
- $m\angle ADC = 108^\circ$
- $AD = 14$  cm

$$1) \quad m\angle BCE + 59 + 90 = 180$$

$$m\angle BCE = 31^\circ$$



Use square  $ABCD$  and the given information to find each value.

7. If  $m\angle AEB = 3x$ , find  $x$ .

$$3x = 90$$

$$x = 30$$

8. If  $m\angle BAC = 9x$ , find  $x$ .

$$90 + 9x + 9x = 180$$

$$18x = 90$$

$$x = 5$$

9. If  $AB = 2x + 4$  and  $CD = 3x - 5$ , find  $BC$ .

$$2x + 4 = 3x - 5$$

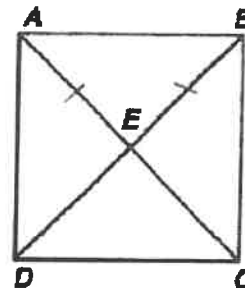
$$9 = x$$

$$BC = AB = CD$$

$$= 2x + 4$$

$$= 2(9) + 4$$

$$= 22$$



Use rectangle  $ABCD$  and the given information to find each value.

10. If  $AC = 4x - 60$  and  $AE = x + 5$ , find  $EC$ .

$$4x - 60 = 2(x + 5)$$

$$4x - 60 = 2x + 10$$

$$2x = 70$$

$$x = 35$$

$$EC = AE$$

$$= x + 5$$

$$= 35 + 5$$

$$= 40$$

11. If  $m\angle BAC = 4x + 5$  and  $m\angle CAD = 5x - 14$ , find  $m\angle CAD$ .

$$4x + 5 + 5x - 14 = 90$$

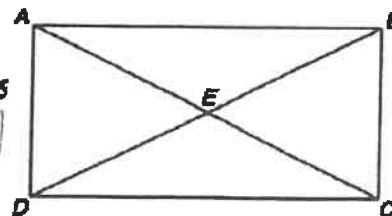
$$9x - 9 = 90$$

$$9x = 99$$

$$x = 11$$

$$m\angle CAD = 5(11) - 14$$

$$= 41^\circ$$



12. If  $AE = 2x + 3$  and  $BE = 12 - x$ , find  $BD$ .

$$2x + 3 = 12 - x$$

$$3x = 9$$

$$x = 3$$

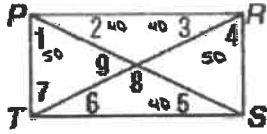
$$BD = 2(12 - x)$$

$$= 24 - 2x$$

$$= 24 - 2(3)$$

$$= 18$$

13.  $PRST$  is a rectangle, find the measure of all the numbered angles if  $m\angle 1 = 50^\circ$ .



$$m\angle 1 = 50$$

$$m\angle 5 = 40^\circ$$

$$m\angle 9 = 90^\circ$$

$$m\angle 2 = 40$$

$$m\angle 6 = 40^\circ$$

$$m\angle 3 = 40$$

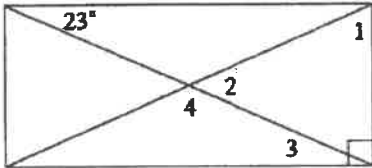
$$m\angle 7 = 50^\circ$$

$$m\angle 4 = 50$$

$$m\angle 8 = 90^\circ$$

For each parallelogram, a) choose the best name, then b) find the measures of the numbered angles.

14.



rectangle

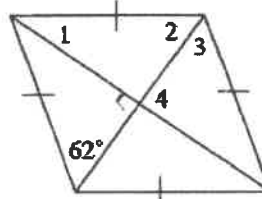
$$m\angle 3 = 23^\circ$$

$$m\angle 2 = 46^\circ$$

$$m\angle 4 = 134^\circ$$

$$m\angle 1 = 67^\circ$$

15.



rhombus

$$m\angle 4 = 90^\circ$$

$$m\angle 3 = 45^\circ$$

$$m\angle 2 = 45^\circ$$

$$m\angle 1 = 45^\circ$$

Use the properties of the special quadrilaterals you have learned so far to determine if the following statements are true or false. If a statement is false, rewrite it so that it is true.

16. All rectangles are squares.

All squares are rectangles

False

17. All squares are rhombi.

True

18. If a quadrilateral is a rectangle and a rhombus, then it is a square.

True

19. If a quadrilateral has congruent diagonals, then it must be a ~~square~~ <sup>rectangle</sup>.

False

20. All rectangles, rhombi and squares are parallelograms.

True

21. A rhombus has four congruent angles.

False

22. If a quadrilateral has four congruent sides, then it must be a ~~square~~ <sup>rhombus</sup>.

False