Name: _____ Date: Key

Period : _____

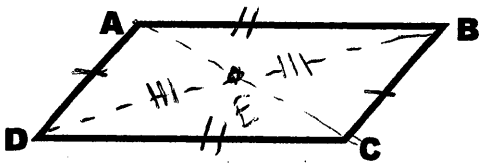
1

Essential Question: What are the similarities and differences between the special quadrilaterals?

Quadrilateral-

Parallelogram-

Mark this below in ▱ABCD



By *Definition of a Parallelogram:*

1. If a quadrilateral is a parallelogram,

   AD ≅ BC and AB ≅ CD

2. If a quadrilateral is a parallelogram, then its opposite angles are congruent.

   ∠A ≅ ∠C and ∠D ≅ ∠B

3. If a quadrilateral is a parallelogram, then its consecutive angles are supplementary.

   ∠A + ∠B = 180 and ∠C + ∠B = 180

4. If a quadrilateral is a parallelogram, then its diagonals bisect each other.
   (Draw in diagonals AC and BD above on ▱ABCD, label their intersection point E)

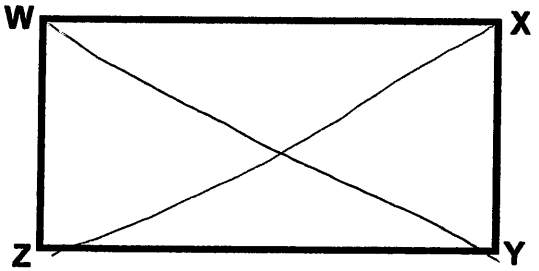
   AE ≅ EC and DE ≅ BE

Theorem about Rectangles (use Rectangle ABCD below to fill in the blanks):

1. A parallelogram is a rectangle if and only if its diagonals are congruent.

   WY ≅ XZ

2. All four angles are right angles.

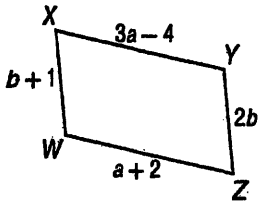


NAME _____ DATE _____ PERIOD _____ (2)

6-2 Practice
Parallelograms

ALGEBRA Find the value of each variable.

1.



$2b = b + 1$

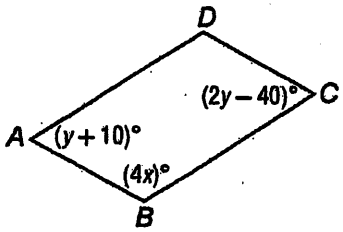
$\boxed{b = 1}$

$3a - 4 = a + 2$

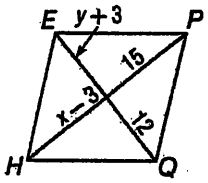
$2a = 6$

$\boxed{a = 3}$

2.



3.



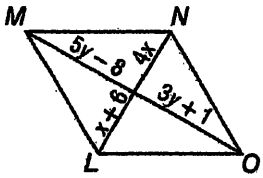
$y + 3 = 12$

$y = 9$

$x - 3 = 15$

$\boxed{x = 18}$

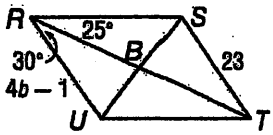
4.



$\angle RST + \angle SRU = 180$

$55 + \angle RST = 180$

ALGEBRA Use ▱*RSTU* to find each measure or value.



5. $m\angle RST =$ 125°

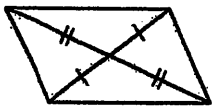
6. $m\angle STU =$ _____

7. $m\angle TUR =$ 125°

8. $b =$ _____

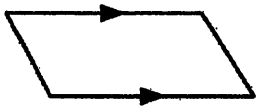
Determine whether each quadrilateral is a parallelogram. Justify your answer.

1.

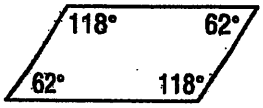


yes, diagonals bisect each other

2.

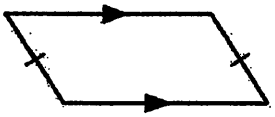


3.



yes opp. angles are congruent

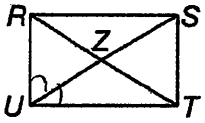
4



NAME _____ DATE _____ PERIOD _____ (3)

6-4 Practice
Rectangles

ALGEBRA Quadrilateral *RSTU* is a rectangle.



1. If $UZ = x + 21$ and $ZS = 3x - 15$, find US.

$x+21=3x-15$ $2x=36$ $x=18$ $US=2(39)$ $=\boxed{78}$

2. If $RZ = 3x + 8$ and $ZS = 6x - 28$, find UZ.

$6x-28=3x+8$ $3x=36$ $x=12$ $UZ=2(44)$ $=\boxed{88}$ $RZ=44$

3. If $RT = 5x + 8$ and $RZ = 4x + 1$, find ZT.

$4x+1+4x+1=5x+8$ $8x+2=5x+8$ $3x=6$ $x=2$ $ZT=RZ$ $\boxed{ZT=9}$

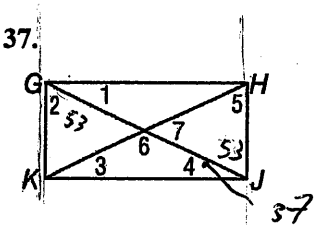
4. If $m\angle SUT = 3x + 6$ and $m\angle RUS = 5x - 4$, find $m\angle SUT$.

5. If $m\angle SRT = x + 9$ and $m\angle UTR = 2x - 44$, find $m\angle UTR$.

$2x-44=x+9$ $\boxed{x=53}$ → $\boxed{62^\circ}$

6. If $m\angle RSU = x + 41$ and $m\angle TUS = 3x + 9$, find $m\angle RSU$.

Quadrilateral *GHJK* is a rectangle. Find each measure if $m\angle 1 = 37$.



7. $m\angle 2$ 53°

8. $m\angle 3$

9. $m\angle 4$ 37°

10. $m\angle 5$

11. $m\angle 6$

12. $m\angle 7$

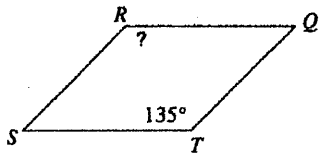
Name_____

Properties of Parallelograms

Date_____ Period____

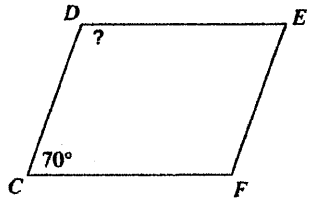
Find the measurement indicated in each parallelogram.

1)



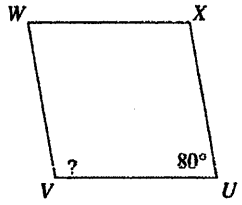
135°

2)



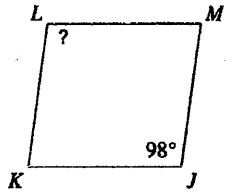
110°

3)



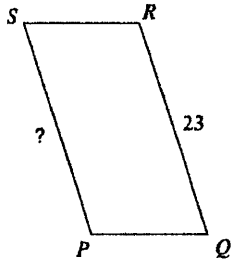
100°

4)



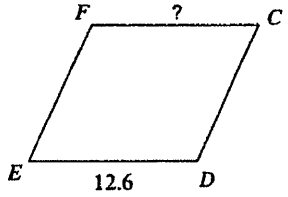
98°

5)



23

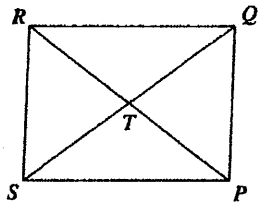
6)



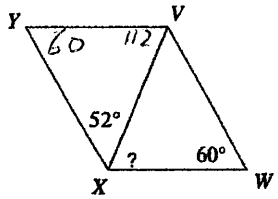
12.6

7) $RT = 19.8$
Find RP

39.6

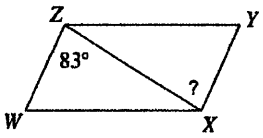


8)



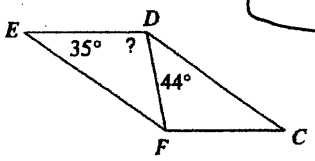
112°

9)



83°

10)



101°

Geometry Quadrilaterals and Polygons Name Key ID: 1

HW Quiz Review 1

Date_____ Period____

Find the other endpoint of the line segment with the given endpoint and midpoint.

1) Endpoint: (10, 5), midpoint: (–5, 4)

(–20, 3)

$$\begin{array}{r} -15 \\ M \\ -15 \end{array}\begin{bmatrix} 10 & 5 \\ -5 & 4 \\ -20 & 3 \end{bmatrix}\begin{array}{l} \\ -1 \\ -1 \end{array}$$

$\boxed{(-20, 3)}$

Find the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

$x_1\ y_1\ x_2\ y_2$

2) (–6, 3), (5, –6)

14.2

$d^2 = (5+6)^2 + (-6-3)^2$

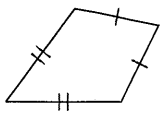
$d^2 = 11^2 + 9^2$

$d^2 = 202$

$d = \sqrt{202} = \boxed{14.213}$

State the most specific name for each figure.

3)

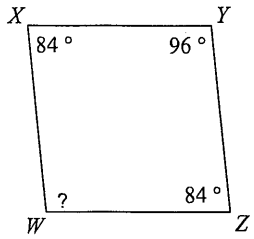


kite

$\boxed{\text{kite}}$

Find the measure of each angle indicated.

4)

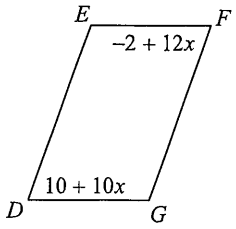


96°

$\boxed{96^\circ}$

Find the measurement indicated in each parallelogram.

5) Find $m\angle D$



70°

$-2 + 12x = 10 + 10x$

$2x = 12$

$x = 6$

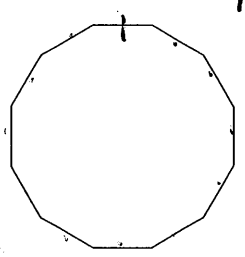
$\angle D = 10 + 10x$

$= 10 + 10(6) = \boxed{70^\circ}$

$$\text{angle} = \frac{180(n-2)}{n}$$

Find the measure of one interior angle in each polygon. Round your answer to the nearest tenth if necessary.

6)



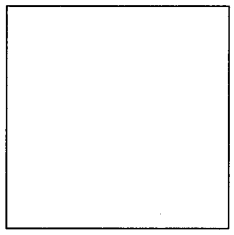
150°

$n=12$

$$\text{angle} = \frac{180(12-2)}{12} = \boxed{150^\circ}$$

Find the measure of one exterior angle in each polygon. Round your answer to the nearest tenth if necessary.

7)



90°

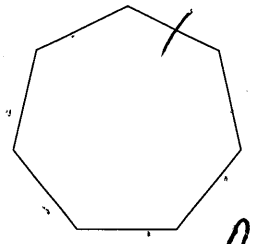
$n=4$

$$\text{Exterior angle} = \frac{360}{n}$$

$$\text{angle} = \frac{360}{4} = \boxed{90^\circ}$$

Find the interior angle sum for each polygon. Round your answer to the nearest tenth if necessary.

8)



900°

$n=7$

$$\text{Sum} = 180(n-2)$$

$$S = 180(7-2) = \boxed{900^\circ}$$

