

Name: Key  
Period: \_\_\_\_\_

Quiz properties of Quadrilaterals

Fill in the blank for each definition with the appropriate term (use each name only once).

1. Trapezoid has one set of parallel sides.
2. Kite has two pairs of consecutive congruent sides.
3. Rectangle has four right angles.
4. Parallelogram has two pairs of parallel sides.
5. Rhombus has four congruent sides.
6. Quadrilateral has four sides.
7. Square has four congruent sides and four right angles.

8. List three properties of parallelograms (do not include the definition).

- 2 pairs parallel sides
- Opposite sides  $\cong$
- Opposite angles  $\cong$
- Consecutive angles Supplementary
- Diagonals bisect each other

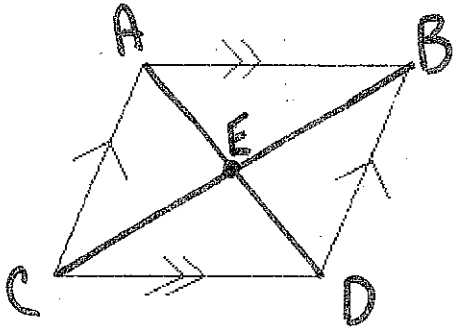
9. List all three quadrilaterals that are parallelograms.

Square  
Rhombus  
Rectangle

10. Name all three quadrilaterals that have perpendicular diagonals.

Square  
Rhombus  
Kite

For problems 1-4 use the following rhombus.



1.  $AB=3x+1$  and  $BD=7x-7$ , solve for  $x$ . What is the length of  $BD$ ?

$x=2$

$BD=7$

2. If  $m\angle ABD$  is  $75$ , what is the  $m\angle ACD$ ?

$75^\circ$

3. If the  $m\angle AEB$  is  $5x-10$ , solve for  $x$ .

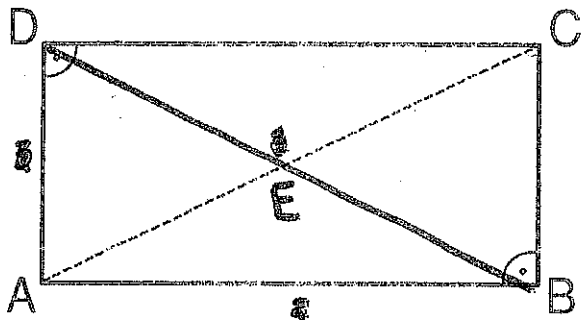
$5x-10=90$

$x=20$

4. What is the  $m\angle CAB$

(Using #2)  $105^\circ$

For problems 5-7 use the rectangle below:



5. If  $DB=10$  and  $DA=8$ , find  $AB$ .

6

5. If  $DA=10$  and  $DC=13$ , what is the perimeter of rectangle ABCD?

$$46$$

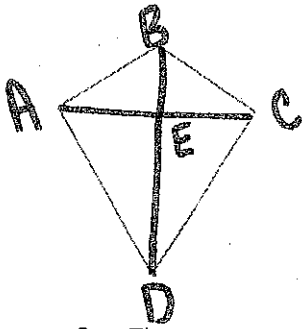
6. If  $DC=4$  and  $DB=5$ , what is  $CB$ ?

$$3$$

7. If  $DE=15$  and  $EB=10x-1$ , what is  $x$ ?

$$10x-1=15 \quad x=1.6$$

Use the kite below to answer questions 8-10



8. The  $m\angle BEC$  is  $10x+10$ . Solve for  $x$ .

$$10x+10=90 \quad x=8$$

9. If  $AB=10x+10$  and  $BC=9x-1$ , what is  $x$ ?

$$10x+10=9x-1 \quad x=11$$

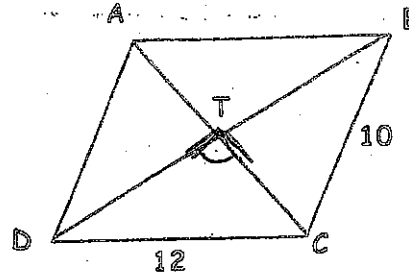
10. If  $AB=4$  and  $AD=7$ , what is the perimeter of kite ABCD?

$$8+14=22$$

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

### Properties of Parallelograms

Problems 1-4. Use the parallelogram at right.



1) Find the perimeter

$$24 + 20 = 44$$

2) If  $CT = 9$ , find  $AT$ .

$$9$$

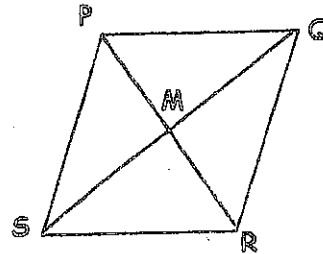
3) If  $m\angle CDA = 60^\circ$ , find  $m\angle CBA$  and  $m\angle BAD$ .

$$\angle CBA = 60^\circ \quad \angle BAD = 120^\circ$$

4) If  $AT = 4x - 7$  and  $CT = -x + 13$ , solve for  $x$ .

$$4x - 7 = -x + 13 \quad x = 4$$

Problems 5-8. Use the rhombus at right.



5) If  $PS = 6$ , find the perimeter of PQRS.

$$24$$

6) If  $PQ = 3x + 7$  and  $QR = -x + 17$ , solve for  $x$ .

$$3x + 7 = -x + 17 \quad x = 2.5$$

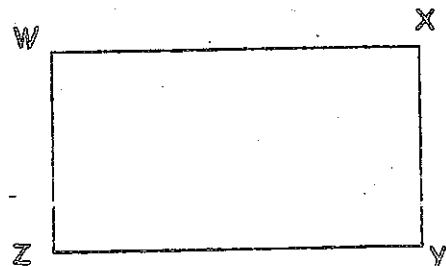
7) If  $m\angle PSM = 22^\circ$ , find  $m\angle RSM$  and  $m\angle SPQ$ .

$$\angle RSM = 22^\circ \quad \angle SPQ = 136^\circ$$

8) If  $m\angle PMQ = 4x - 5$ , solve for  $x$ .

$$4x - 5 = 90 \quad x = 23.75$$

Problems 9-12. Use the quadrilateral at right.



9) If  $WX = YZ$  and  $WZ = XY$ , must  $WXYZ$  be a rectangle? Explain your answer.

No, must have 4 rt angles

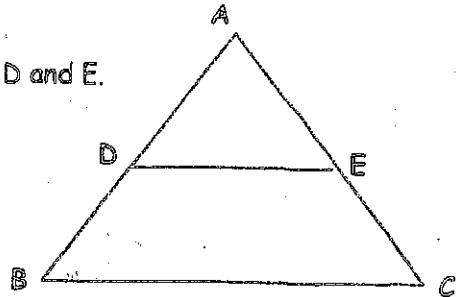
10) If  $m\angle WZY = 90^\circ$ , must  $WXYZ$  be a rectangle? Explain your answer.

11) If the information in problems 9-10 are both true, must  $WXYZ$  be a rectangle? Explain your answer.

12) If  $WXYZ$  is a rectangle,  $WY = 15$  and  $WZ = 9$ . Find  $YZ$  and  $XZ$ .

$$\sqrt{15^2 - 9^2} \quad XZ = 12$$

Problems 13-14. Use the triangle at the right, with midpoints D and E.



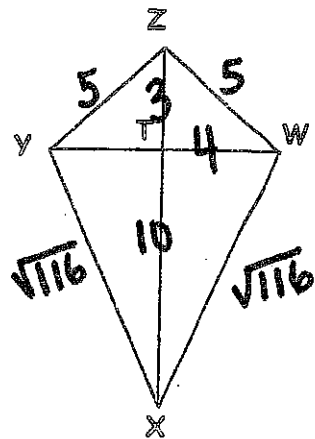
13) If  $m\angle ADE = 35^\circ$ , find  $m\angle ABC$ .

$35^\circ$

14) If  $DE = 2x + 1$  and  $BC = 5x - 2$ , solve for  $x$ .

$$2(2x+1) = 5x-2 \quad x=4$$

Problems 15-18. Use the kite at the right.



15) If  $m\angle XWZ = 95^\circ$ , find  $m\angle XYZ$ .

$95^\circ$

16) If  $m\angle WZY = 110^\circ$  and  $m\angle WXY = 40^\circ$ , find

- (a)  $m\angle WZT$   $55$
- (b)  $m\angle TXW$   $20$
- (c)  $m\angle ZWX$   $105$

17) If  $WZ = 5$  and  $WT = 4$ , find  $ZT$ .

$3$

18) If  $WT = 4$ ,  $TZ = 3$ , and  $TX = 10$ , find the perimeter of  $WXYZ$ .

$$2\sqrt{29} + 2\sqrt{29} + 5 + 5 = 10 + 4\sqrt{29}$$

Problem 19. Given trapezoid  $EFGH$  with  $EF$  parallel to  $GH$ , and  $\angle H \cong \angle G$ . Prove that  $EH \cong FG$ . Write a flowchart or T-chart to show your thinking. (Hint: Create a triangle).

