Geometry **Name: _____**

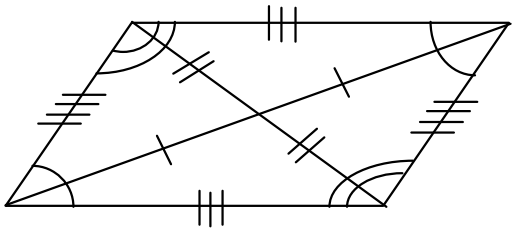
Unit 4 Agenda - Parallelograms

DATE	DAY	LESSON	PAGE	HOMEWORK
Tuesday 10/25	4.1	Parallelograms & Rectangles	4 – 7	Pages 8 & 9
Wednesday 10/26	4.2	Practice: Parallelograms & Rectangles	10 – 13	
Thursday 10/27	4.3	Squares & Rhombi	14 – 16	Page 17
Friday 10/28	4.4	Practice: Squares & Rhombi	18 – 19	
Monday 10/31	4.5	Graded Assignment	--------	
Tuesday 11/1		Graded Assignment – Day 2	--------	
Wednesday 11/2	4.6	Math Libs & Start Test Review	20 – 24	Start working on Test Review
Thursday 11/3	4.7	Review for Test! **TEST FRIDAY!!**	20 – 24	Finish Test Review Due Friday!
Friday 11/4	4.8	**TEST TODAY!!! GOOD LUCK!**		

* Properties of Parallelograms are on pages 2 & 3 *

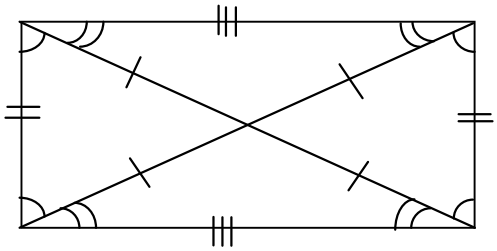
Summary Sheet Quadrilateral Properties

PARALLELOGRAMS (rectangles, squares, and rhombi):



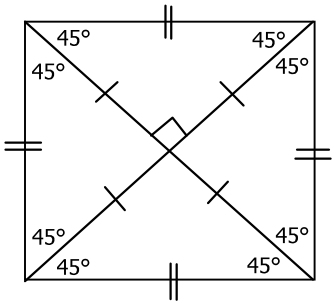
1) Opposite sides of a parallelogram are congruent.
2) Opposite angles of a parallelogram are congruent.
3) Consecutive angles in a parallelogram are supplementary.
4) The diagonals of a parallelogram bisect each other.

RECTANGLES:



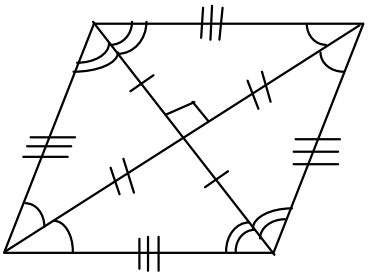
1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals are congruent (they equal each other).
6) All four corner angles are 90°.

SQUARES:



1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals are congruent (they equal each other).
6) All four corner angles are 90°.
7) Diagonals perpendicular (the form right angles in the middle).
8) Diagonals bisect angles (the angles equal to each other).

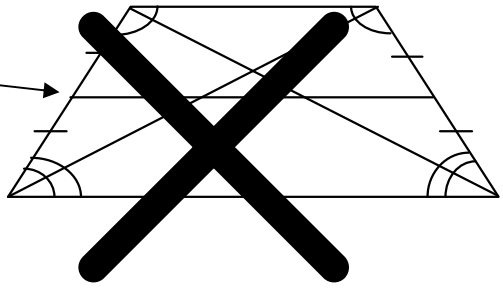
RHOMBI:



1) Opposite sides are congruent (they equal each other).
2) Opposite angles are congruent (they equal each other).
3) Consecutive angles are supplementary (they add up to 180).
4) Diagonals bisect each other (the parts are equal).
5) Diagonals perpendicular (the form right angles in the middle).
6) Diagonals bisect angles (the angles are equal to each other).
7) All four sides are congruent.
8) The diagonals are NOT congruent.

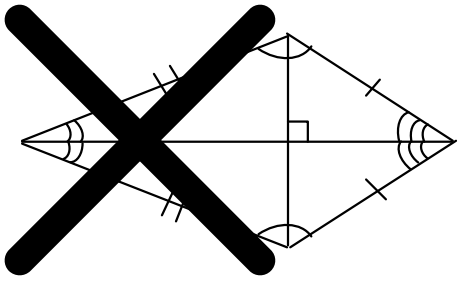
ISOSCELES TRAPEZOIDS:

Median = ½ (base + base)



1) Lower two base angles are congruent (they equal each other).
2) Upper two base angles are congruent (they equal each other).
3) The diagonals are congruent (they equal each other).
4) One pair of opposite angles are supplementary (they add up to 180).

Kite:

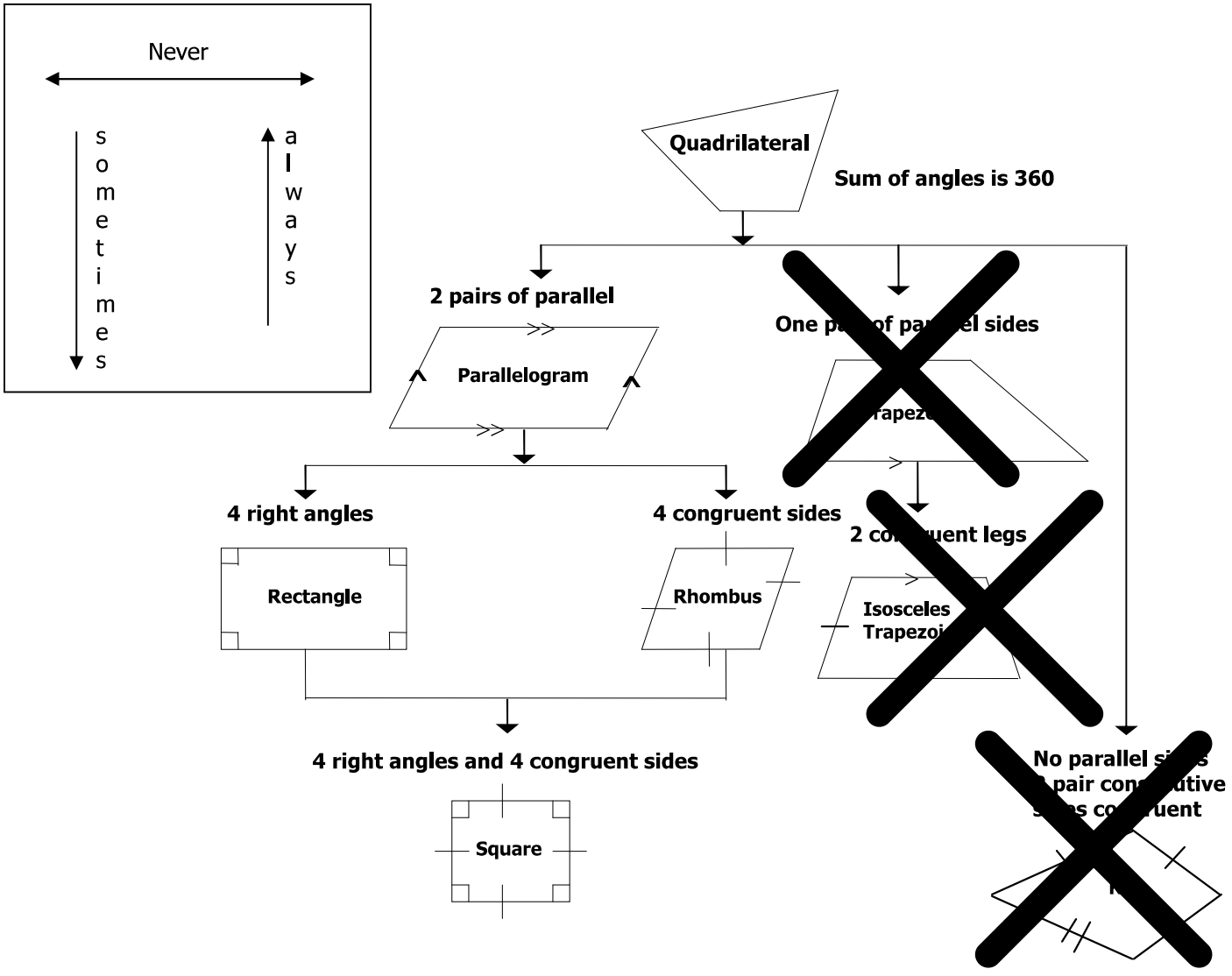


1) Two pairs of consecutive sides congruent, but opposite sides not congruent
2) Diagonals perpendicular.
3) Exactly one pair of angles congruent.
4) One pair of angles bisected.

SUMMARY CHARTS:

Special Quadrilateral	Diagonals		Diagonals Bisect	
	Congruent	Perpendicular	Each Other	Angles
Parallelogram	**Sometimes**	**Sometimes**	**Always**	**Sometimes**
Rectangle	**Always**	**Sometimes**	**Always**	**Sometimes**
Rhombus	**Sometimes**	**Always**	**Always**	**Always**
Square	**Always**	**Always**	**Always**	**Always**
~~**Trapezoid**~~	~~**Sometimes**~~	~~**Never**~~	~~**Never**~~	~~**Never**~~
~~**Isosceles Trapezoid**~~	~~**Always**~~	~~**Never**~~	~~**Never**~~	~~**Never**~~
~~**Kite**~~	~~**Never**~~	~~**Always**~~	~~**Only one diagonal**~~	~~**Only one angle**~~

Property	Rectangle	Rhombus	Square
1. All the properties of a parallelogram?	**Yes**	**Yes**	**Yes**
2. Equiangular (4 right corner angles?)	**Yes**	**No**	**Yes**
3. Equilateral (4 congruent sides?)	**No**	**Yes**	**Yes**
4. Diagonals bisect angles?	**No**	**Yes**	**Yes**
5. Diagonals congruent?	**Yes**	**No**	**Yes**
6. Diagonals perpendicular?	**No**	**Yes**	**Yes**



Geometry – DAY 4.1
Parallelograms

Name: _____
Date: _____

Properties of Parallelograms

1. Opposite angles of a parallelogram are _____.

2. Opposite sides of a parallelogram are _____.

3. Consecutive angles in a parallelogram are _____.

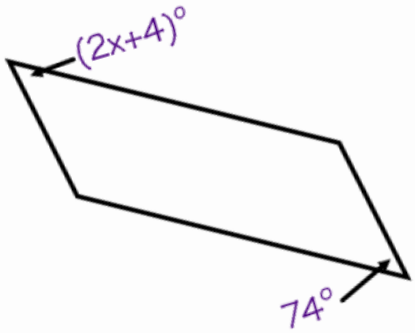
4. The diagonals of a parallelogram _____.

1st Property: _____

1.

X= _____

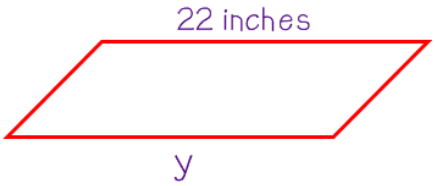
2.



X= _____

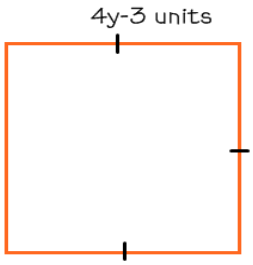
2nd Property: _____

3.



y=_____

4.

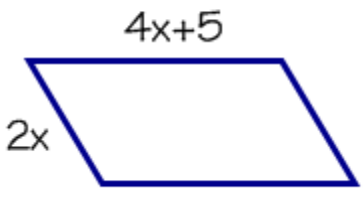


y=_____

5.

X=_____

6.



$4x + 5 = 2x$
$-4x \quad -4x$

$\frac{5}{-2} = \frac{-2x}{-2}$

$-5/2 = x$

What is wrong with this logic?

_____

3rd Property: _____

7. 

X=_____

8. 

_____ + _____ = 180

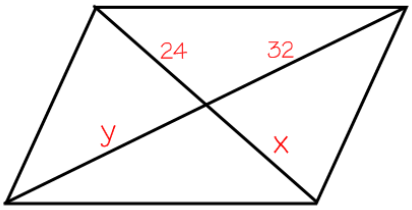
_____ = 180

_____ = _____

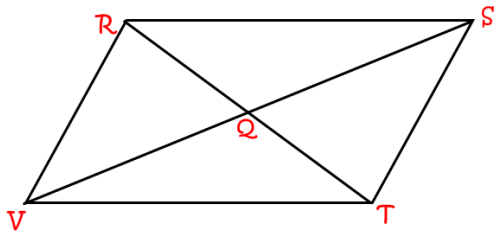
4th Property: _____

9. x=_____

y=_____



10. In ▱ RSTV, diagonals RT and VS intersect at Q. If RQ = 5x+1 and QT = 3x+15, find QT.



X=_____

(now plug in x to get QT)

QT=_____

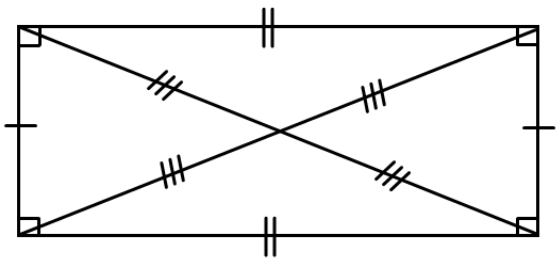
Rectangle Characteristics

Has all the properties of a _____

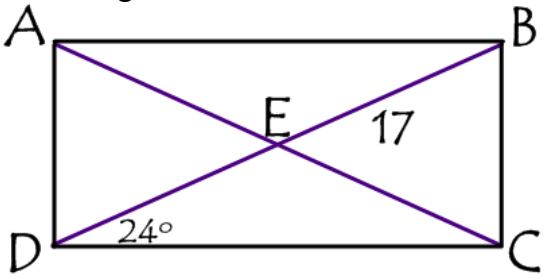
Has 4 _____ angles

Diagonals are _____

_____ triangles



Use rectangle ABCD to answer the following.



4. m<BCE _____

5. m<BEC _____

6. AC _____

7. m<ABD _____

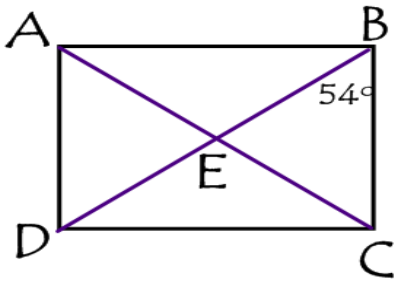
8. m<CED _____

Given Rectangle ABCD, solve each problem.

9. If m<AEB = 2x, find x. _____

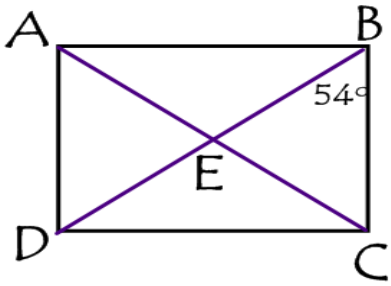
10. If m<BAC = 6y , find y. _____

11. If AB = 2x + 4, CD = 3x - 15,
and AD = x + 11. Find BC. _____



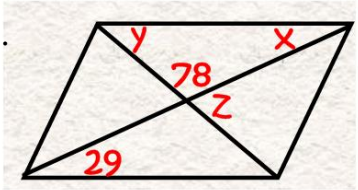
12. If AC = 5g and DB = g + 12, solve for g. _____

13. If DB = x + 43 and DE = 2x + 5, solve for x. _____

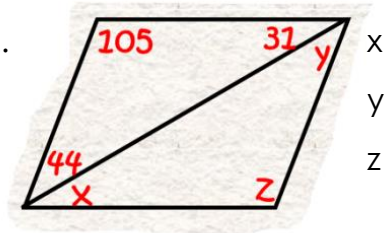


Geometry **Name**_____
Classwork – Parallelograms

If each of the quadrilaterals is a parallelogram, find the values of x, y, and z.

1. 

x = _____
y = _____
z = _____

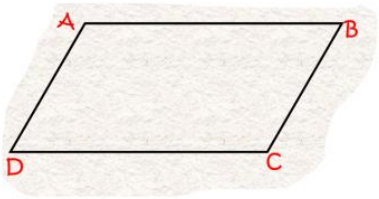
2. 

x = _____
y = _____
z = _____

3. 

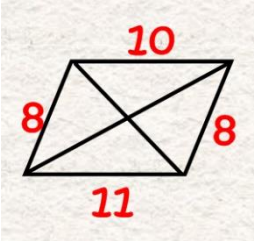
x = _____
y = _____
z = _____

4. Given ▱ ABCD, with m<A = 3x and m<B = 4x+40, find the measure of each angle.



m<A = _____ m<B = _____
m<C = _____ m<D = _____

Explain why it is not possible for each figure to be a parallelogram.

5. 

_____

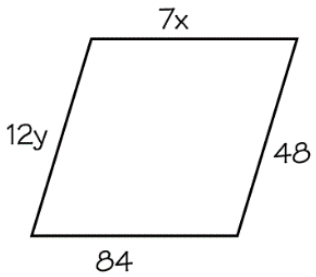
6. 

_____

In the parallelograms below, solve for each variable.

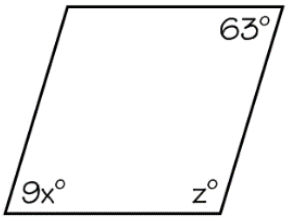
7. x = _____

y = _____



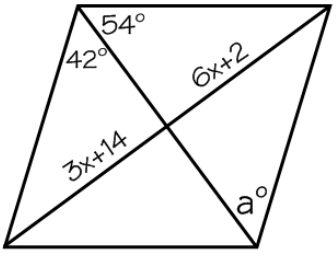
8. x = _____

z = _____



9. a = _____

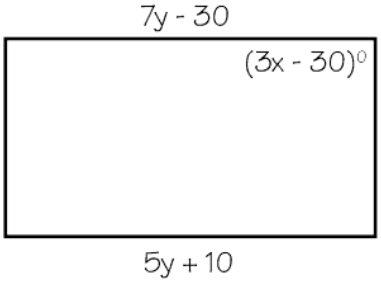
x = _____



Given the rectangles below, solve for each variable.

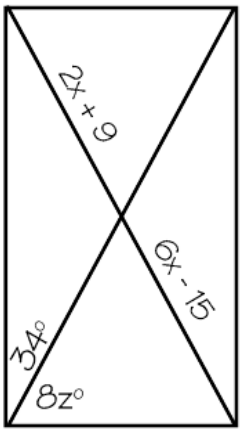
10. x = _____

y = _____



11. x = _____

z = _____



12. **Which information is needed to show that a parallelogram is a rectangle?**

A. The diagonals bisect each other.

B. The diagonals are congruent.

C. The diagonals are congruent and perpendicular.

D. The diagonals bisect each other and are perpendicular.

Geometry – DAY 4.1 Name: _____

HOMEWORK – Parallelograms & Rectangles Practice

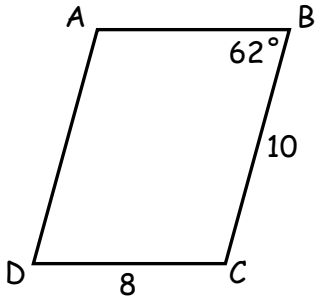
For each parallelogram below, find the values of the missing sides or angles.

1) AB = _____

AD = _____

m∠A = _____

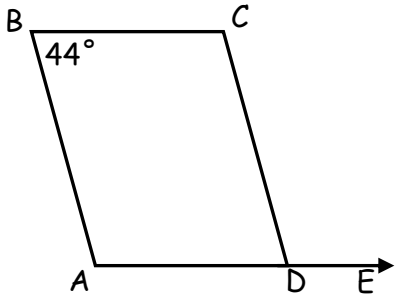
m∠D = _____



2) m∠A = _____

m∠BCD = _____

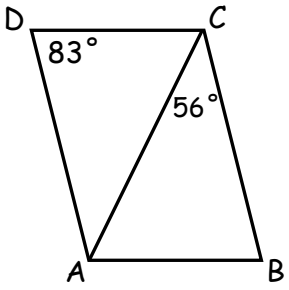
m∠CDE = _____



3) m∠DCA = _____

m∠CAD = _____

m∠CBA = _____

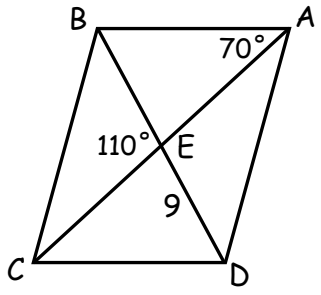


4) m∠ECD = _____

m∠AED = _____

m∠ABD = _____

BD = _____



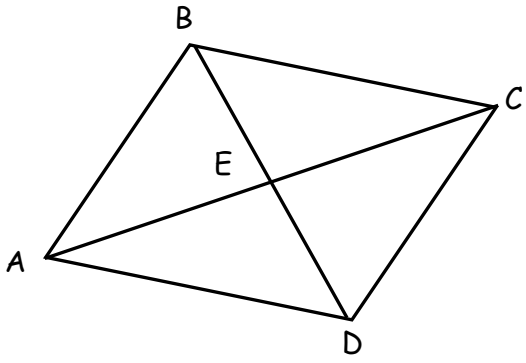
For problems 5 – 10, *ABCD* is a parallelogram. Find each unknown measure. <u>Treat each problem independently.</u> (More pics below to use for your diagrams!)

5) If m∠DAB = 80°,then m∠ABC = _____

6) If m∠ADC = 127°,then m∠CBA = _____

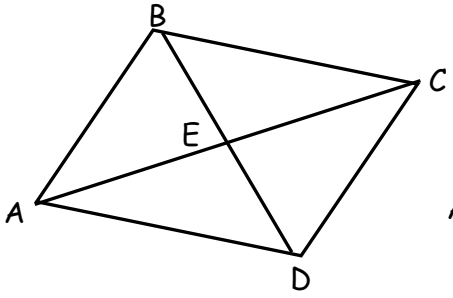
7) If DE = 6,then EB = _____ & DB = _____

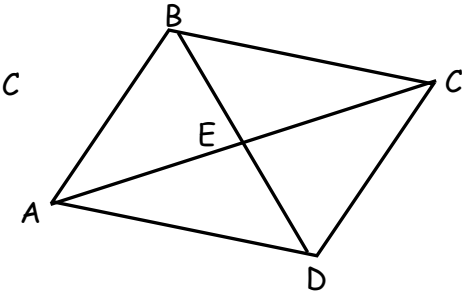
8) If DC = 14, then AB = _____

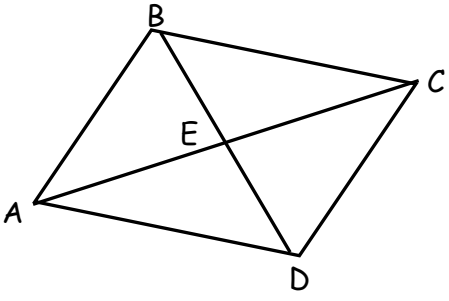


9) If AD = 3x + 6 and BC = x + 18, then x = _____ & AD = _____

10) If m∠CDB = 30° and m∠DBC = 40°, then m∠DBA = _____ and m∠DAB = _____.

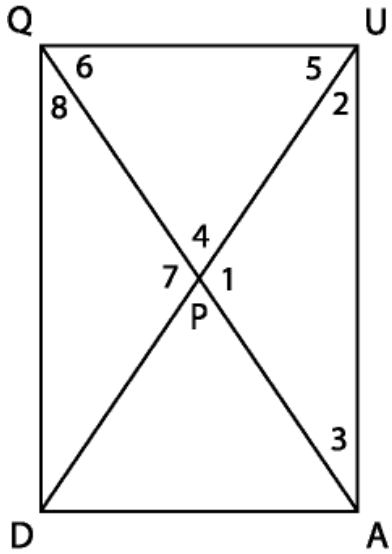






For problems 1-9, use rectangle QUAD. ***Treat each problem independently.***

1) If $DP = 4x + 1$ and $PA = x + 13$, then $DP =$ _____



2) If $DU = 5x - 4$ and $QP = 2x + 7$, then $DU =$ _____

3) If $m\angle 2 = 12x + 4$ and $m\angle 3 = 16x - 12$, then $m\angle 3 =$ _____

4) If $m\angle 5 = 12x - 3$ and $m\angle 6 = 10x + 9$, then $m\angle 4 =$ _____

5) If $m\angle 4 = 6x - 16$ and $m\angle 8 = 2x + 4$, then $m\angle 4 =$ _____

6) If $m\angle 3 = 18x - 8$ and $m\angle 6 = 70 - 4x$, then $m\angle 6 =$ _____

~~**7)** If $m\angle 2 = 32°$ and $DU = 12$, then $DA =$ _____, $AU =$ _____ and perimeter of $QUAD =$ _____~~

8) If $QD = 8$ and $AD = 6$, then $QA =$ _____

9) Classify the following triangles by their sides:

a. ΔDPA is _____ b. ΔUPQ is _____ c. ΔQPD is _____

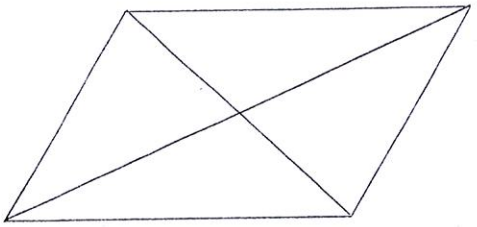
d. ΔAPU is _____ e. Explain why these triangles are classified as such.

Warm-Up

Name: _____

USING QUADRILATERAL PROPERTIES

Properties of a parallelogram:
1. Opposite sides are parallel.
2. Opposite sides are congruent.
3. Opposite angles are congruent.
4. Consecutive angles are supplementary.
5. Diagonals bisect each other.



EXAMPLE 1
Complete each statement regarding the parallelogram below.

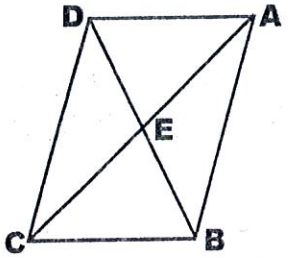
a) Name the parallelogram:_____

b) $\overline{AB} \parallel$ _____

c) DA ≅ _____

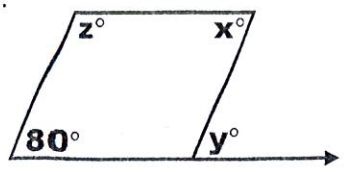
d) ∠CDA ≅ _____

e) $\overline{DE}$ ≅ _____

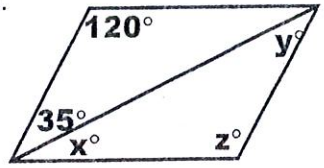


EXAMPLES
For each parallelogram, find the values of 'x', 'y', and 'z'.

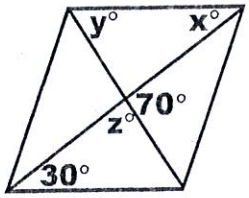
2.



3.



4.



x = _____; y = _____;

z = _____

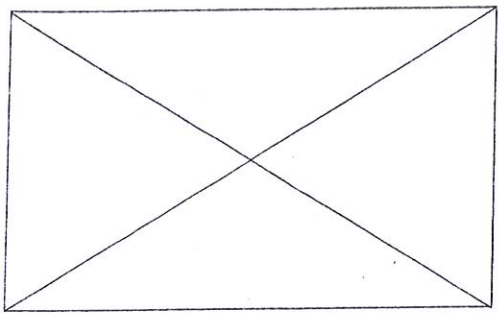
x = _____; y = _____;

z = _____

x = _____; y = _____;

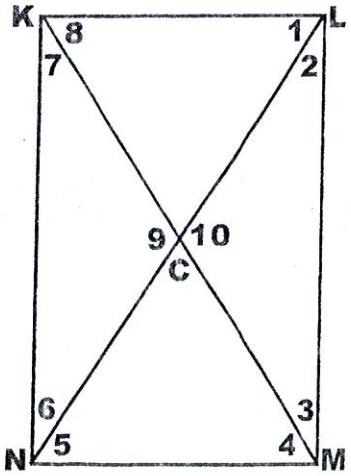
z = _____

Properties of a rectangle:
1. Opposite sides are parallel.
2. Opposite sides congruent.
3. Opposite angles congruent.
4. Consecutive angles supplementary.
5. Diagonals bisect each other.
6. Four right angles.
7. Diagonals are congruent.



EXAMPLE 5

Use the rectangle KLMN and the given information to find the following.



$m\angle 1 = 70°$ $m\angle 6 =$ _____

$m\angle 2 =$ _____ $m\angle 7 = 20°$

$m\angle 3 =$ _____ $m\angle 8 =$ _____

$m\angle 4 =$ _____ $m\angle 9 =$ _____

$m\angle 5 =$ _____ $m\angle 10 =$ _____

$CN = 15$ $KL = 16$

$CM =$ _____ $KM =$ _____

$CL =$ _____ $KN =$ _____

$CK =$ _____ $NM =$ _____

$NL =$ _____ $LM =$ _____

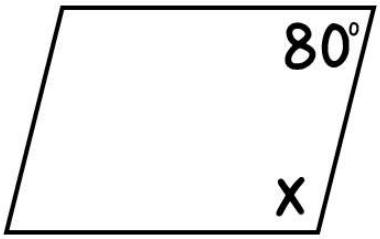
PARALLELOGRAM PROPERTIES

Assume sides that look parallel are parallel.

Name: _____

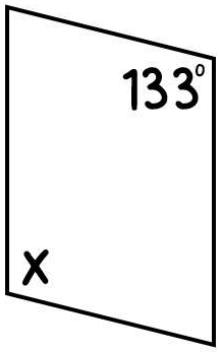
Date: _____ Period: _____

1.



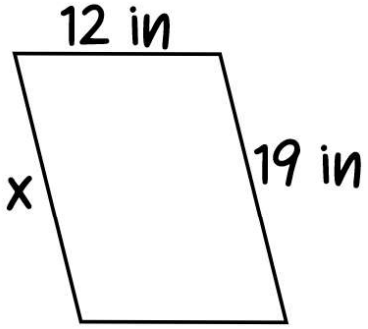
x = ____

2.



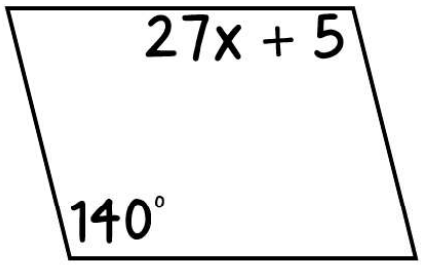
x = ____

3.



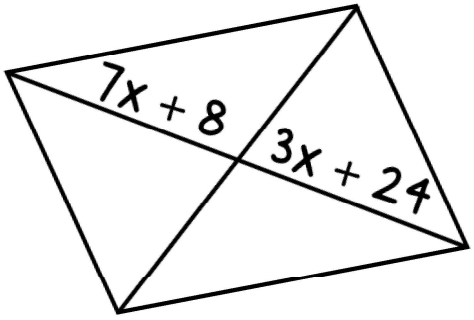
x = ____

4.



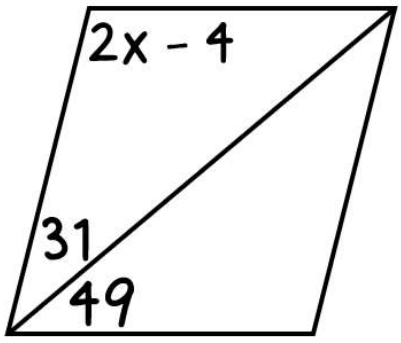
x = ____

5.



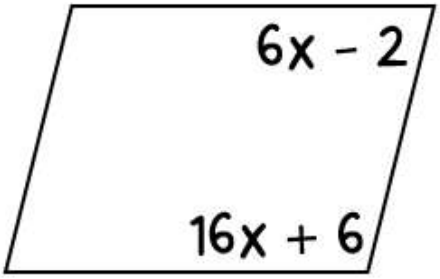
x = ____

6.



x = ____

7.



x = ____

8.

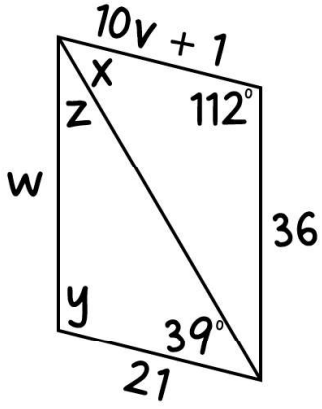
v = ____

w = ____

x = ____

y = ____

z = ____



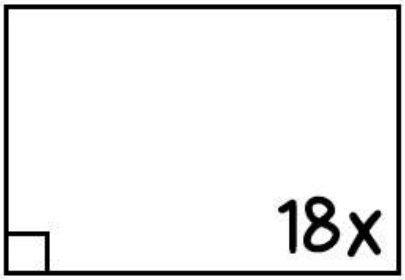
Rectangle Properties

Assume all quadrilaterals are rectangles.

Name: _____

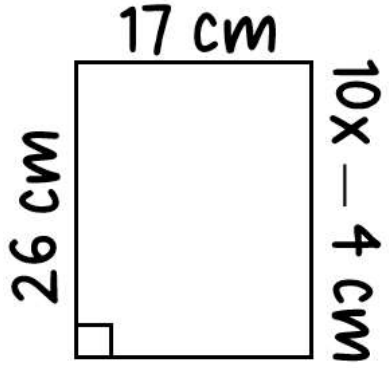
Date: _____ Period: _____

1.



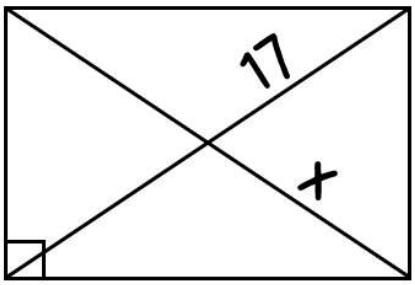
x = ____

2.



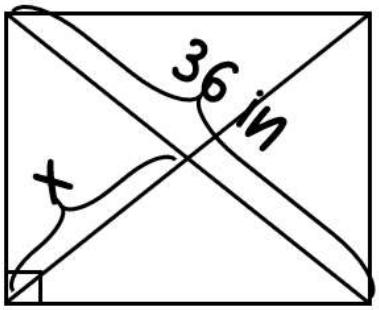
x = ____

3.



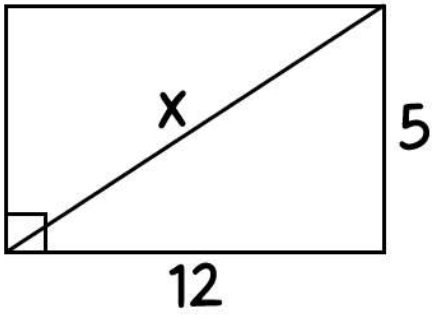
x = ____

4.



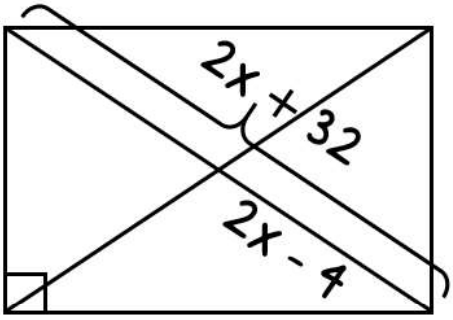
x = ____

5.



x = ____

6.



x = ____

7.

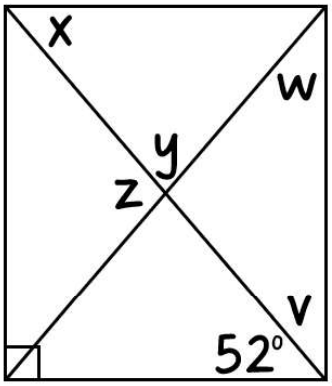
v = ____

w = ____

x = ____

y = ____

z = ____



8.

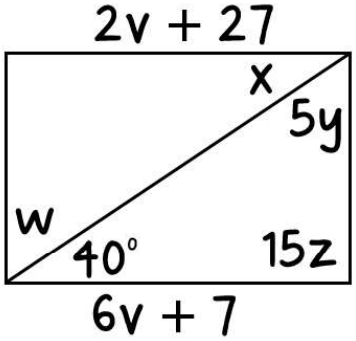
v = ____

w = ____

x = ____

y = ____

z = ____



Geometry – DAY 4.2
Squares and Rhombi

Name: _____
Date: _____

Square Characteristics

Has all the properties of a

_____

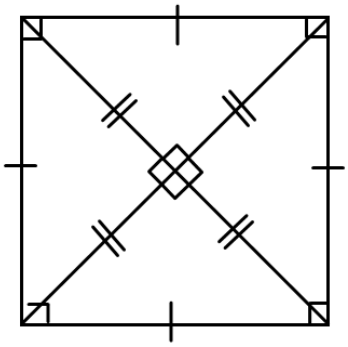
Has all the properties of a

_____

Diagonals are _____

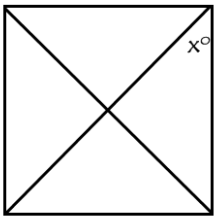
4 congruent _____

Diagonals bisect opposite _____



Use the squares to solve for the variables.

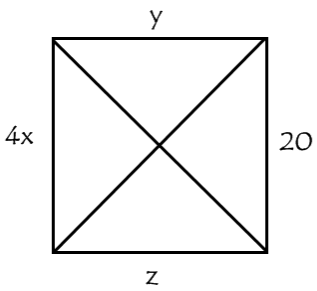
1. x = _____



2. x = _____

y = _____

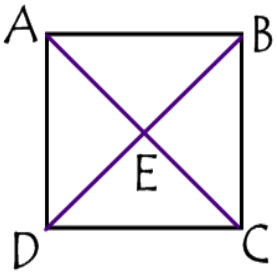
z = _____



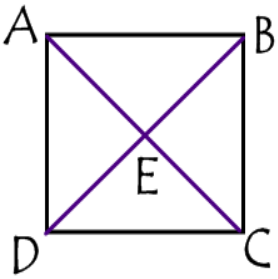
Quadrilateral ABCD is a square.

3. If m<AEB = 3x, find x. _____

4. If m<BAC = 9x , find x. _____



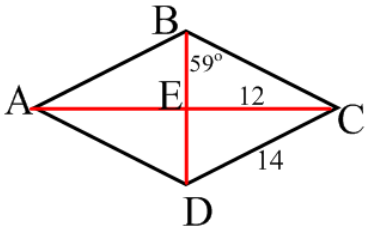
5. If AB = 2x + 4 and CD = 3x - 5, find BC. _____



6. If m<DAC = y and m<BAC = 3x, find x and y. _____

Rhombus Characteristics

- Has all properties of a _____
- Has four _____ sides
- Diagonals are _____
- Each diagonal _____ a pair of opposite _____



Each quadrilateral below is a rhombus.

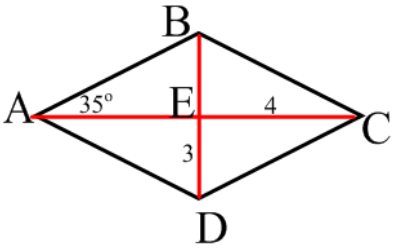
7) m<BCE _____ 8) m<BEC _____

9) AC _____ 10) m<ABD _____ 11) AD _____

---

12) m<ABD _____ 13) DC _____

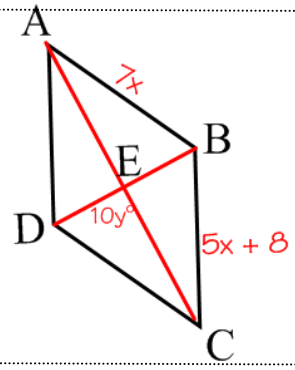
14) BD _____ 15) m<DCE _____



---

16) x = _____

17) y = _____



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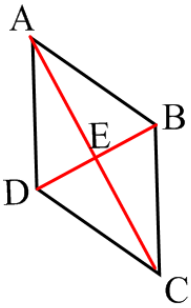
18) If BE = 3x - 2 and DB = 7x - 22, find x and then find BE.

x = _____

BE = _____

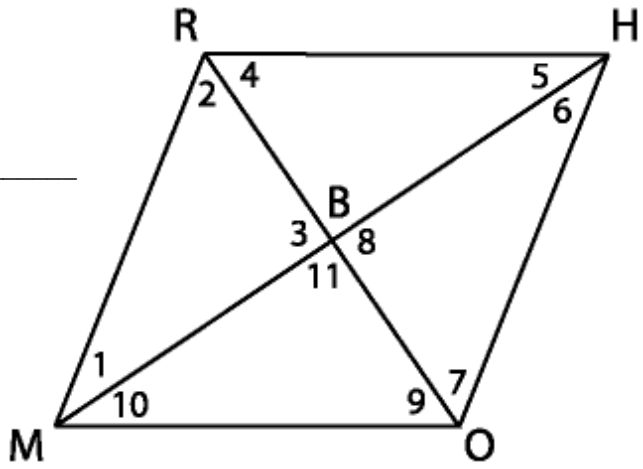


Geometry – DAY 4.2 Name: _____
Classwork – Rhombi & Squares Date: _____

- **A rhombus is a parallelogram with four congruent sides, perpendicular diagonals, and the diagonals bisect a pair of opposite angles.**
- **A square is a parallelogram with all the properties of a rectangle and rhombus.**

***RHOM* is a rhombus. Find the unknown measures. (Treat each problem independently.)**

1) If *OB* = 2*x* + 1 and *BR* = 3*x* - 10, then *OR* = _____



2) If *RM* = 18, then *RH* = _____, *OH* = _____, *OM* = _____

3) If $m\angle 2 = 48^\circ$, then $m\angle MOH$= _____

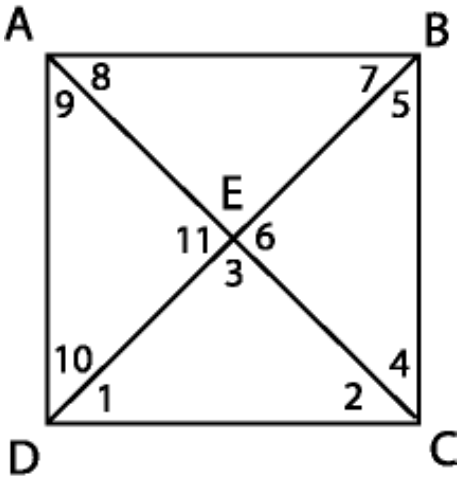
4) If $m\angle 7 = 61^\circ$, then $m\angle RHO$= _____

5) If $m\angle 3 = 8x - 6$, then x = _____

***ABCD* is a square. Find the unknown measures. (Treat each problem independently.)**

6) $m\angle EAB =$_____

7) $m\angle DEC =$_____



8) If $m\angle 4 = 3x + 15$, then x = _____

9) If *AE* = 3*x* – 2 and *EC* = 2*x* + 3, then *DB* = _____

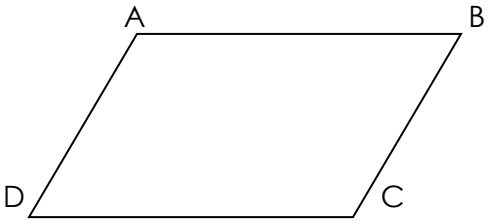
10) If *AD* = 2*x* – 1 and *BC* = 5*x* – 13, then

AD = _____, *BC* = _____, *AB* = _____, *DC* = _____

Geometry – DAY 4.2
HW – Special Parallelograms

Name_____
Date_____

Below is parallelogram ABCD.

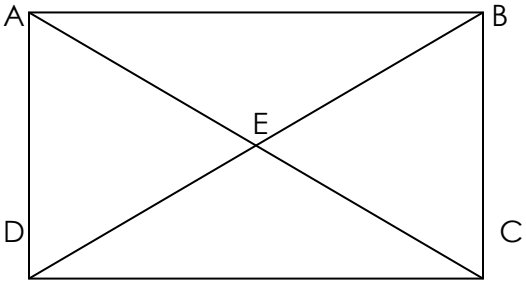


1. If m< A = x + 15, and m< C = 3x – 5, find the m<A and m<B.

2. If AD = 2x + 1 and BC = 4x – 7, find BC.

3. If m< B = 5x – 10 and m< C = 12x – 14, find the m< A.

Below is rectangle ABCD.

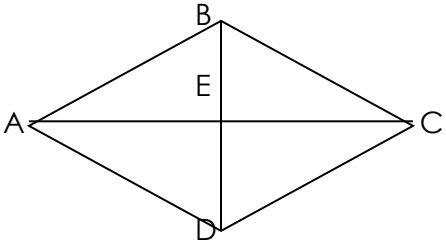


4. If AE = 36, and CE = 5x – 9, find BE.

5. If m<BDC = 42°, find m<ACD.

6. If m<AEB = 52°, find m<EAB and m<EBA.

Below is rhombus ABCD.

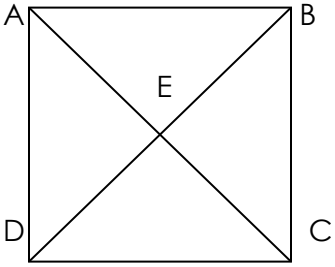


7. If m<CBD = 59°, find m<BCE.

8. If CD = 14 and BC = 3x + 2, find x.

9. If m<DBC = 54°, find m<ABD.

Below is square ABCD.



10. If the m < ABD = 5x, find x.

11. If m < AEB = 5x – 10, find x.

12. If AD = 7x – 4 and BC = 31, find x.

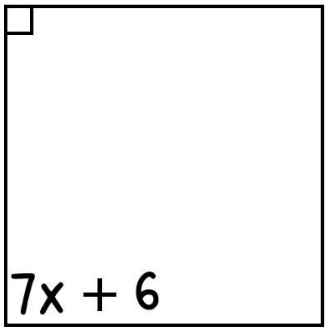
SQUARES PROPERTIES

Assume all quadrilaterals are squares.

Name: _____

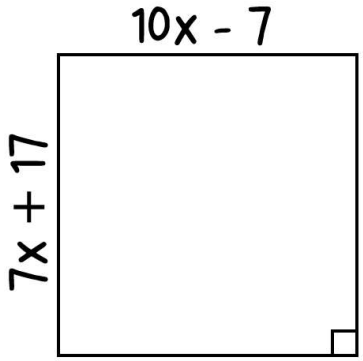
Date: _____ Period: _____

1.



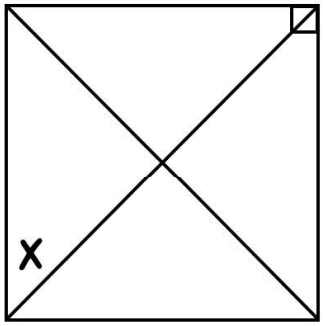
x = ____

2.



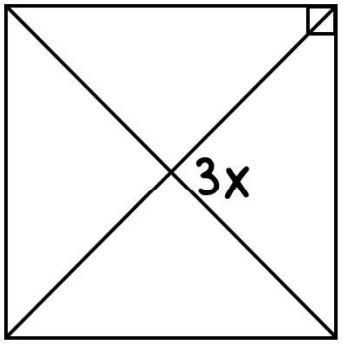
x = ____

3.



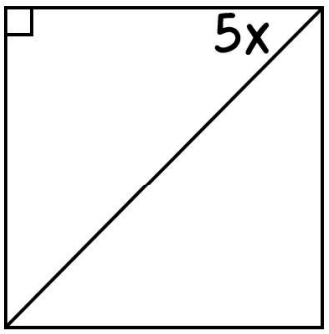
x = ____

4.



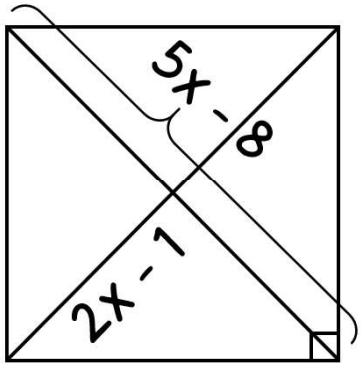
x = ____

5.



x = ____

6.



x = ____

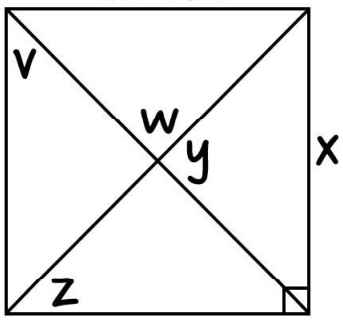
7. v = ____

w = ____

x = ____

y = ____

z = ____



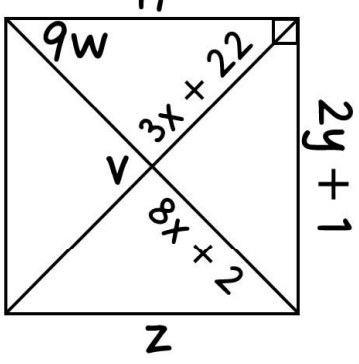
8. v = ____

w = ____

x = ____

y = ____

z = ____



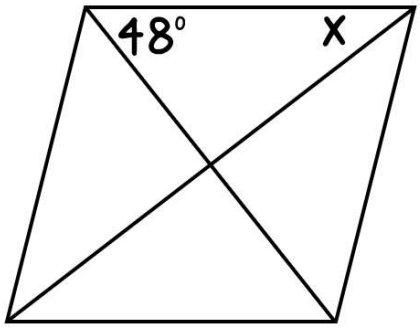
RHOMBUS PROPERTIES

Assume all quadrilaterals are rhombi.

Name: _____

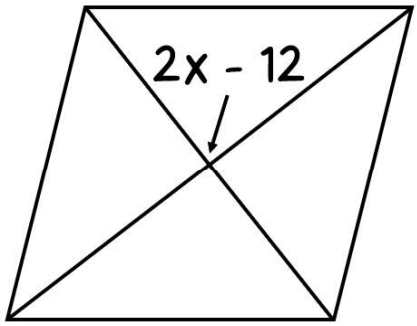
Date: _____ Period: _____

1.



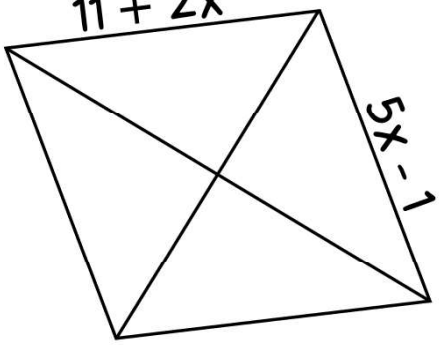
x = ____

2.



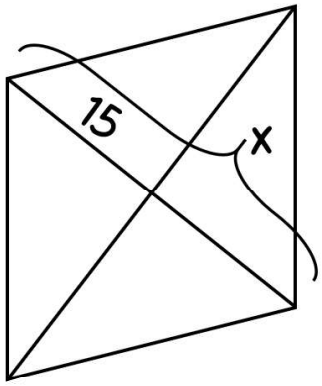
x = ____

3.



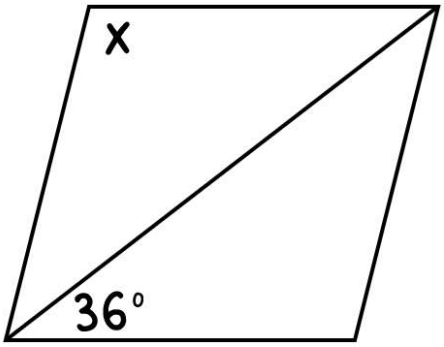
x = ____

4.



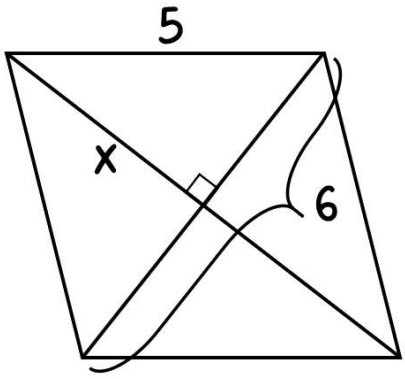
x = ____

5.



x = ____

6.



x = ____

7.

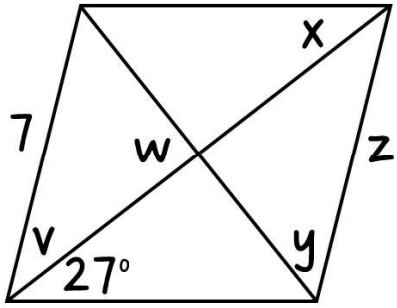
v = ____

w = ____

x = ____

y = ____

z = ____



8.

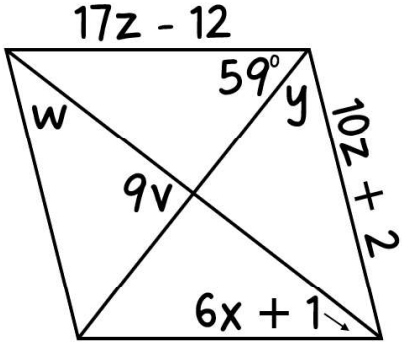
v = ____

w = ____

x = ____

y = ____

z = ____



Geometry – TEST REVIEW – DAY 4.6 **Name:** _____
Special Parallelograms Practice **Date:** _____ **Period:** ____

For 1-8, complete the following charts by putting checks in the boxes that are true.

	4 Sides	Opp. Sides ||	Opp. Sides ≅	All Sides ≅	Opp. Angles ≅	All Angles ≅
1. Parallelogram						
2. Rectangle						
3. Rhombus						
4. Square						

The diagonals ….	bisect each other	are congruent	bisect opposite angles	are perpendicular
5. Parallelogram				
6. Rectangle				
7. Rhombus				
8. Square				

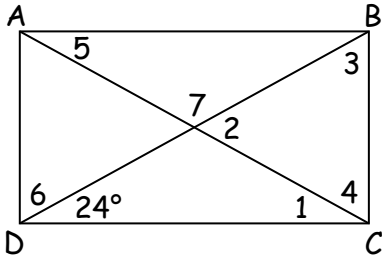
For 9-17, determine if the statement is true or false.

_____9. All quadrilaterals are parallelograms.
_____10. All parallelograms are quadrilaterals.
_____11. A square is a parallelogram.
_____12. A parallelogram with a right angle is a square.
_____13. All rectangles are parallelograms.
_____14. All rhombuses are squares.
_____15. All squares are rectangles.
_____16. A parallelogram with four congruent sides is a square.
_____17. A parallelogram with perpendicular diagonals is a square.

For 18-21, find the measure of the numbered angles in the figures.

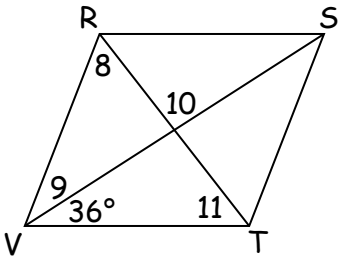
m∠1 = _____
m∠2 = _____
m∠3 = _____
m∠4 = _____
m∠5 = _____
m∠6 = _____
m∠7 = _____
m∠8 = _____
m∠9 = _____
m∠10 = _____
m∠11 = _____
m∠12 = _____

18. ABCD is *rectangle*

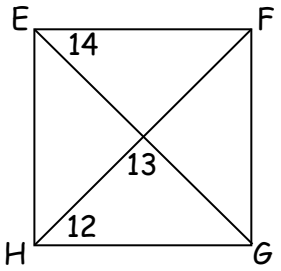


m∠13 = _____
m∠14 = _____

19. RSTV is a *rhombus*

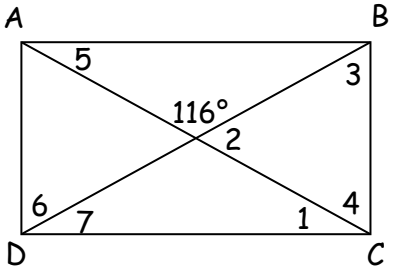


20. EFGH is a *square*



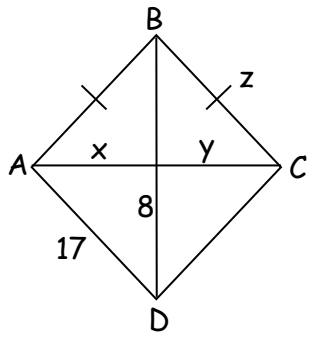
21. ABCD is a *rectangle*

m∠1 = _____
m∠2 = _____
m∠3 = _____
m∠4 = _____
m∠5 = _____
m∠6 = _____
m∠7 = _____



For 22-23, for the following parallelograms,(a) choose the best name, (b) find the value of each variable.

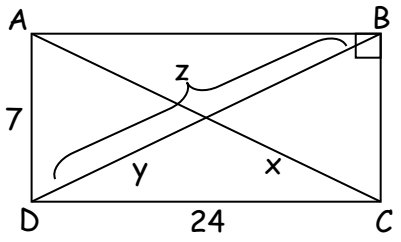
22.



name: _____

x = _____ y = _____ z = _____

23.



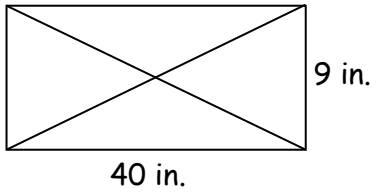
name: _____

x = _____ y = _____ z = _____

24. In quadrilateral MATH, $\overline{MT}$ and $\overline{AH}$ bisect each other at R and $\overline{MR} \cong \overline{HR}$.
MATH must be a I. parallelogram
II. rectangle
III. square

A. I only B. II only C. I and II D. II and III E. I, II and III

25. Cindy is making the design shown below with silver wire. It consists of a rectangle and its two diagonals. How much wire does she need to make this design?



Classify each of the following statements as always, sometimes, or never true.

_____ 26. Opposite sides of a square are congruent.

_____ 27. Diagonals of a rectangle are perpendicular.

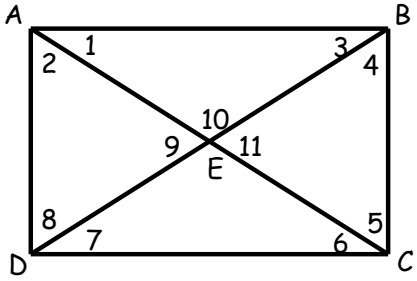
_____ 28. A parallelogram is a rectangle.

_____ 29. A square is a rhombus.

_____ 30. A rhombus is a square.

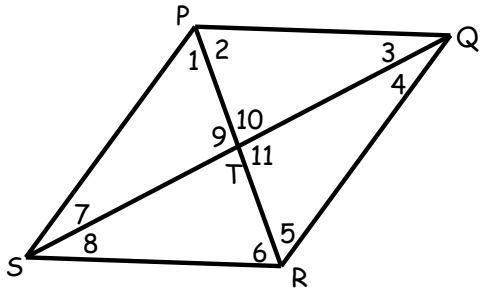
_____ 31. Diagonals of a rhombus bisect opposite angles.

Complete the following using rectangle ABCD.



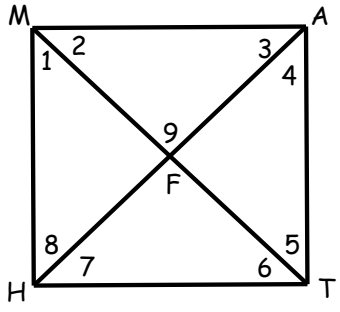
32. If m∠3 = 2x + 7 and m∠4 = 3x – 2, then x = _____.
33. m∠ABC = _____
34. If m∠7 = 54°, then m∠6 = _____.
35. If AC = 15, then BD = _____.
36. If m∠11 = 65°, then m∠5 = _____.
37. If AB = 2x – 5, BC = 12, and DC = 17, then x = _____.
38. If AE = 18 and DE = 3x + 6, then x = _____.
39. If m∠3 = 34°, then m∠6 = _____.
40. If m∠2 = 63°, then m∠1 = _____.

Complete the following using rhombus PQRS.



41. If m∠QSR = 55°, then m∠PQR = _____.
42. m∠11 = _____.
43. If PT = 24, then PR = _____.
44. If m∠1 = 30°, then m∠QPS = _____.
45. If m∠4 = 23°, then m∠5 = _____.
46. If PQ = 3x – 5, QR = 19, and SR = 2y + 4, then x = _____ and y = _____.

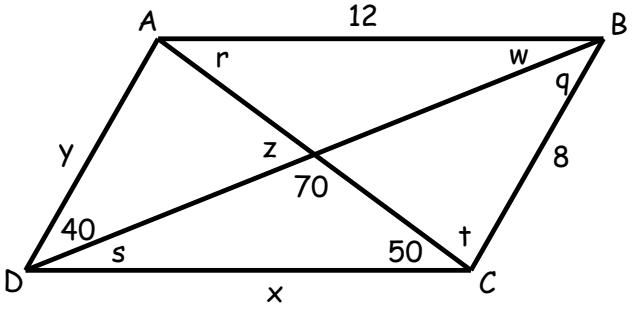
Complete the following using the square MATH.



47. m∠6 = _____
48. m∠9 = _____
49. If TH = 4x – 5 and MH = 2x + 17, then MA = _____.
50. If MT = 18, then AF = _____.
51. m∠MAT = _____.

Find the measure of each of the following using parallelogram ABCD.

52. x = _____
53. y = _____
54. z = _____
55. q = _____
56. r = _____
57. s = _____
58. t = _____
59. w = _____

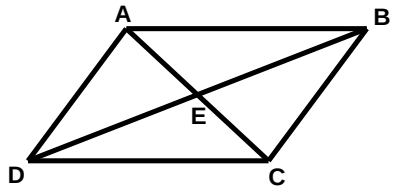


Geometry – DAY 4.6 **Name:** _____

Parallelogram Extra Practice **Date:** _____

Parallelogram Properties	**Rectangle Properties**
1. Opposite sides are parallel. 2. Opposite sides are congruent. 3. Opposite angles are congruent. 4. Consecutive angles are supplementary. 5. Diagonals bisect each other.	1. Rectangles have all properties of parallelograms. 2. All angles are right angles. 3. Diagonals are congruent. 4. Diagonals form isosceles triangles.
Rhombus Properties	**Square Properties**
1. Rhombi have all properties of parallelograms. 2. All sides are congruent. 3. Diagonals are perpendicular. 4. Each diagonal bisects a pair of opposite angles.	1. Squares have all properties of parallelograms. 2. Squares have all properties of rectangles. 3. Squares have all properties of rhombi.

Justify each statement using a postulate, theorem or property for parallelogram ABCD.



1. $\overline{AD}$ // $\overline{BC}$ _____

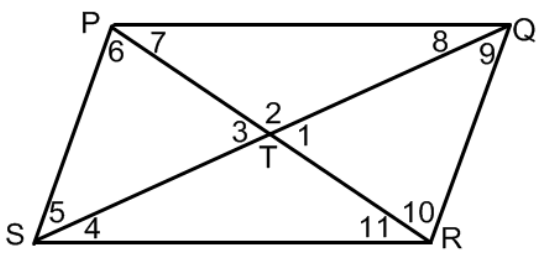
2. $\overline{DE} \cong \overline{EB}$ _____

3. m<ADC + m<DCB = 180° _____

Check the quadrilateral(s) for which the property applies.

	Parallelogram	Rectangle	Rhombus	Square
4. Diagonals are congruent.				
5. Opposite angles are congruent.				
6. Diagonals are perpendicular.				
7. All angles are right.				
8. Diagonals bisect each other.				
9. All sides are congruent.				

Given that PQRS is a **parallelogram,** complete the following.



10. m<6 = 68°, m<7 = 45°, m<10 = _____

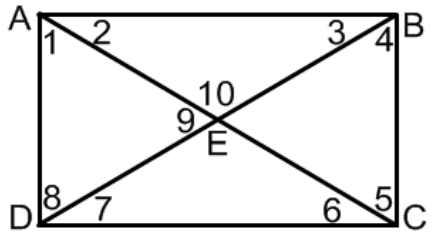
11. If m<1 = 85° and m<6 = 52°, then m<9 = _____

12. If PS = 2x + 18 and QR = 5x – 9, then x = _____

13. If m<SPQ = 5x + 17 and m<PSR = 3x + 11, then x = _____

14. PT = 24 and PR = 2x – 10, then x = _____

Use **rectangle** ABCD to complete the following.



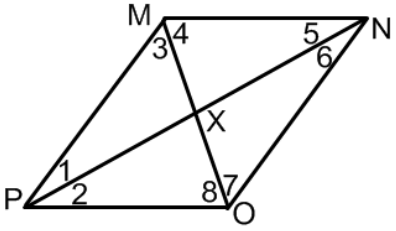
15. If AC = 52, then BE = _____

16. If m<3 = 35˚, then m<9 = _____

17. If AD = 2x – 9, BC = 21 and DC = 33, then x = _____

18. m<1 = 3x + 11 and m<2 = 2x + 14, then x = _____

Use **rhombus** MNOP to complete the following.



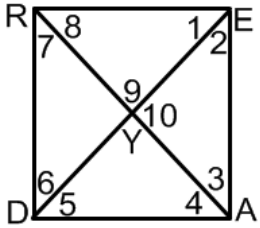
19. If m <1 = 24˚, then m<MNO = _____°

20. If MO = 10 and PN = 24, then MN = _____

21. If m<5 = 25˚, then m<4 = _____°

22. If MN = 5x – 23 and NO = 2x + 10, then what is the length of $\overline{MP}$?_____

If READ is a **square**, then complete the following.



23. If m<10 = 4x - 6, then x = _____

24. m<2 = _____°

25. If RA = 3x - 11 and EY = 20, then x = _____