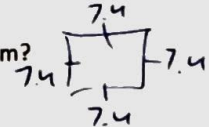


Name: Key

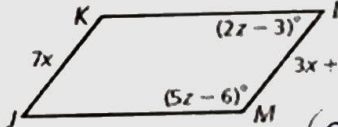
**Chapter 7 Review Worksheet (ignore numberings)**

- What is the sum of the exterior angles of a dodecagon?  $n=12$   
 $\frac{360}{12} = 30^\circ$   
 always same
- What is the measure of each exterior angle of a regular hexagon?  
 $n=6$   
 $\frac{360}{6} = 60^\circ$
- What is the sum of the interior angles of 11-gon?  
 $n=11$   
 $180(11-2) = 1620^\circ$
- What is the measure of each interior angle of a regular pentagon?  
 $n=5$   
 $\frac{180(5-2)}{5} = 108^\circ$
- Is a rhombus regular? Why or Why not? No Regular polygons need to be both equilateral and equiangular

6. What is the perimeter of a square with a side length of 7.4 m?  
 add all sides  
  
 $P = 7.4 + 7.4 + 7.4 + 7.4$   
 $P = 4(7.4)$   
 $P = 29.6m$

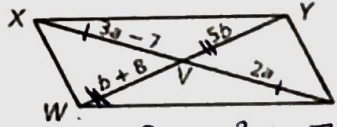
JKLM is a parallelogram. Find each measure.

7. JK  $7(3.5) = 24.5$  8. LM 24.5  
 9.  $m\angle L = 51^\circ$  10.  $m\angle M = 129^\circ$   
 $2(27) - 3 = 51$   $180 - 51 = 129$

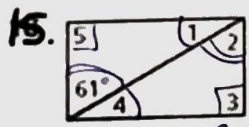
  
 $7x = 3x + 14$   
 $4x = 14$   
 $x = 3.5$   
 $(2x-3) + (5x-6) = 180$   
 $7x - 9 = 180$   
 $7x = 189$   
 $x = 27$ 

WXYZ is a parallelogram. Find each measure.

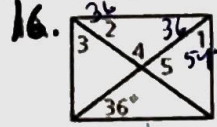
11.  $WV = 2(4) + 8 = 16$  12.  $YW = 10 + 10 = 20$   
 13.  $XZ = 28$  14.  $ZV = 2(7) = 14$   
 $14 + 14 = 28$

  
 $2a = 3a - 7$   
 $7 = a$   
 $5b = b + 8$   
 $4b = 8$   
 $b = 2$ 

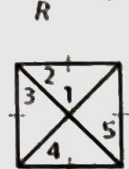
Find the measures of the numbered angles in each rectangle



$m\angle 1 = 90 - 61 = 29^\circ$   
 $m\angle 2 = 61^\circ$   
 $m\angle 3 = 90^\circ$   
 $m\angle 4 = 90 - 61 = 29^\circ$   
 $m\angle 5 = 90^\circ$

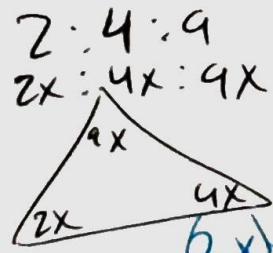


$m\angle 1 = 90 - 36 = 54^\circ$   
 $m\angle 2 = 36^\circ$   
 $m\angle 3 = 90 - 36 = 54^\circ$   
 $m\angle 4 = 180 - 36 - 36 = 108^\circ$   
 $m\angle 5 = 180 - 108 = 72^\circ$



Also a square since all sides  $\cong$   
 $m\angle 1 = 90^\circ$   
 $m\angle 2 = m\angle 3$   
 $90 \div 2 = 45^\circ$   
 $m\angle 2 = 45^\circ$   
 $m\angle 3 = 45^\circ$   
 $m\angle 4 = 45^\circ$   
 $m\angle 5 = 45^\circ$

17. ratios that compare angle measures



$(2x) + (4x) + (9x) = 180$   
 $15x = 180$   
 $x = 12$

$24^\circ : 48^\circ : 108^\circ$   
 produces a 2:4:9 ratio

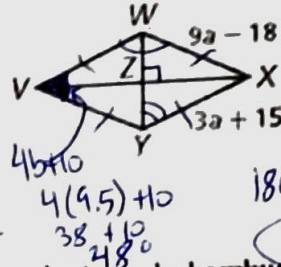
Unit 6 Polygon and Quadrilaterals Review Guide

VWXYZ is a rhombus. Find each measure.

18.  $VW = 3a + 15 = 31.5$

19.  $m\angle VWX$  and  $m\angle WYX$  if  
 $m\angle WVY = (4b + 10)^\circ$   
 and  $m\angle XZW = (10b - 5)^\circ$

$10b - 5 = 40$   
 $10b = 45$   
 $b = 4.5$



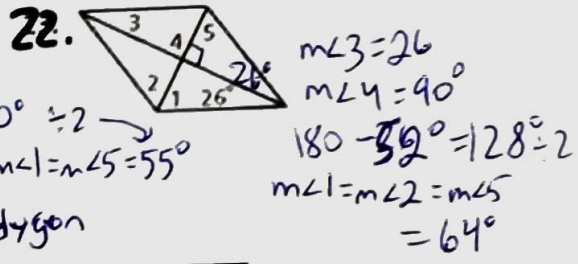
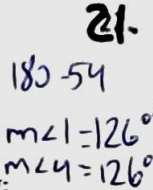
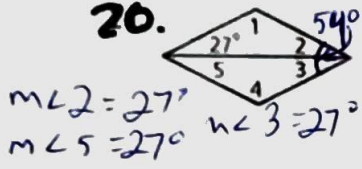
$9a - 18 = 3a + 15$   
 $6a = 33$   
 $a = 5.5$

$180 - 48 = m\angle VWX$

$132^\circ = m\angle VWX$

$m\angle WYX = \frac{132}{2} = 66^\circ$

Find the measures of the numbered angles in each rhombus.



Complete the following:

23. What is the definition of a parallelogram? a 4 sided polygon with 2 pairs of opposite sides parallel

24. In a parallelogram, the opposite sides are parallel and congruent.

25. In a square, the diagonals are perpendicular and congruent.

26. In a parallelogram, the opposite angles are congruent.

27. In a parallelogram, the consecutive angles are supplementary.

28. In a rhombus, the diagonals are perpendicular.

29. In a rectangle, the diagonals are congruent.

30. In a parallelogram, the diagonals bisect each other.

Tell whether each statement is sometimes, always, or never true.

(Hint: Refer to your graphic organizer for this lesson.)

31. A rectangle is a parallelogram. A

32. A rhombus is a square. S

33. A parallelogram is a rhombus. S

34. A rhombus is a rectangle. N

35. A square is a rhombus. A

36. A rectangle is a quadrilateral. A

37. A square is a rectangle. A

38. A rectangle is a square. S

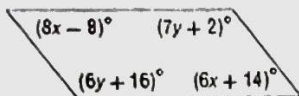
# Ways to Prove it is or is not a Parallelogram

<p><b>If:</b></p> <p style="text-align: center; font-size: 1.2em;">Parallelogram</p>	<p><b>First:</b></p>
<p>both pairs of opposite sides are parallel,</p>	<p>Prove it is or is not a parallelogram</p> <hr/> <p>Second:</p> <p>Prove it is what it is</p> <hr/> <p>3rd:</p> <p>Prove it IS or is Not anything else</p> <hr/> <p>4th:</p> <p>State what it is.</p>
<p>or both pairs of opposite sides are congruent,</p>	
<p>or both pairs of opposite angles are congruent,</p>	
<p>or the diagonals bisect each other,</p>	
<p>or one pair of opposite sides is congruent and parallel,</p>	
<p><b>then:</b> the figure is a parallelogram.</p>	

40.

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

ALGEBRA Find  $x$  and  $y$  so that the quadrilateral is a parallelogram.



$$7y + 2 = 6y + 16$$

$$y = 14$$

$$8x - 8 = 6x + 14$$

$$2x = 22$$

$$x = 11$$

Prove it IS or is Not anything else

---

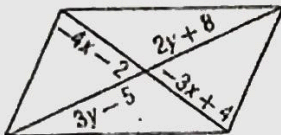
4th:

State what it is.

41.

If a quadrilateral is a parallelogram, then its diagonals bisect each other.

ALGEBRA Find  $x$  and  $y$  so that the quadrilateral is a parallelogram.



$$2y + 8 = 3y - 5$$

$$13 = y$$

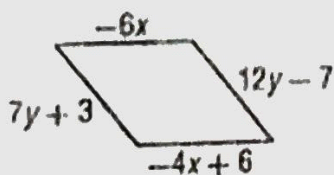
$$-4x - 2 = -3x + 4$$

$$-6 = x$$

42.

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

ALGEBRA Find  $x$  and  $y$  so that the quadrilateral is a parallelogram.



$$-6x = -4x + 6$$

$$-6 = 2x$$

$$x = -3$$

$$7y + 3 = 12y - 7$$

$$10 = 5y$$

$$2 = y$$

Unit 6 Polygon and Quadrilaterals Review Guide

43.

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

Find the value of  $x$  so that the quadrilateral is a parallelogram.



$$5x + 4x = 180$$

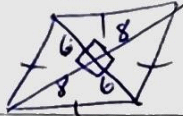
$$9x = 180$$

$$x = 20$$

44.

A rhombus has diagonals of 16 cm and 12 cm. Find the length of each side?

Hint: The diagonals of a rhombus are perpendicular.



$$6^2 + 8^2 = c^2$$

$$36 + 64 = c^2$$

$$c = \sqrt{100}$$

$$c = 10$$

Sides are all 10 cm

45.

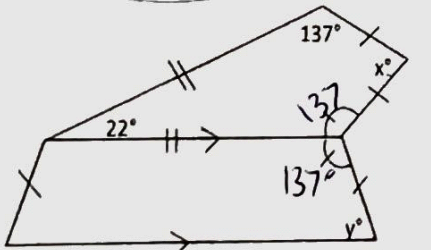
Kites & Trapezoids

$$360 = 137 + 137 + 22 + x$$

$$360 = 296 + x$$

$$64 = x$$

21.  $x = 64, y = 43$

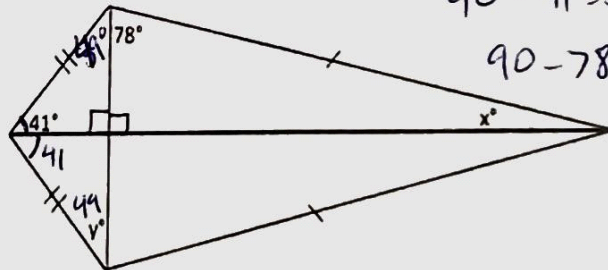


$$180 = 137 + y$$

$$43 = y$$

46.

~~21~~  $x = 12, y = 49$



$$90 - 41 = 49$$

$$90 - 78 = 12$$

65

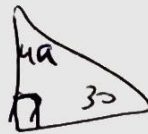
a.



$$w + 85.5 + 43.7 = 180$$

$$w + 129.2 = 180$$

$$w = 50.8$$

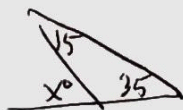


$$90 = 4a + 3a$$

$$60 = 4a$$

$$15 = a$$

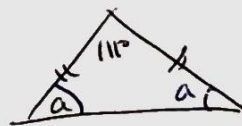
c.



$$x = 15 + 35$$

$$x = 50$$

d.



$$180 = 110 + a + a$$

$$180 = 110 + 2a$$

$$69 = 2a \quad a = 34.5$$

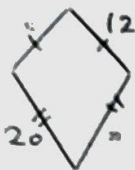
Period: \_\_\_\_\_

Kites and Trapezoids

I. Kites and Trapezoids. Solve.

47.

Kite



Perimeter = 64

$$12 + 12 = 24$$

$$20 + 20 = 40$$

$$24 + 40 = 64$$

48.

Kite



$x = 72, y = 61$

$$90 - 29 = 61^\circ$$

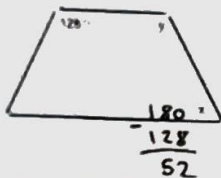
$$90 - 18 = x$$

$$72 = x$$

diagonals perpendicular  
diagonal bisects the non congruent  $\angle$ 's

49.

Isosceles Trapezoid



$x = 52, y = 128$

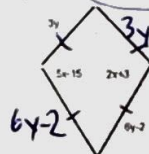
base angles  $\cong$

$$128^\circ = y^\circ$$

$$52^\circ = x$$

50.

Kite's Perimeter = 86 ft



$x = 6, y = 5$

$$5x - 15 = 2x + 3$$

$$3x = 18$$

$$x = 6$$

one diagonal is bisected  
 $86 = 3y + 3y + 6y - 2 + 6y - 2$   
 $86 = 18y - 4$   
 $90 = 18y$   
 $5 = y$

51.

Isosceles Trapezoid's Perimeter = 164 cm



$x = 1, y = 38$

$$81 + 7x = 180$$

$$7x = 99$$

$$x = 1$$

$$164 = y + 12 + y + 12 + y + y - 12$$

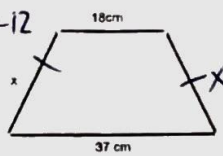
$$164 = 4y + 12$$

$$152 = 4y$$

$$38 = y$$

52.

Isosceles Trapezoid's Perimeter = 85 cm



$x = 40$

$$85 = 18 + 37 + x + x$$

$$85 = 2x + 55$$

$$30 = 2x$$

$$15 = x$$

53.

Kite



$x = 21, y = 146$

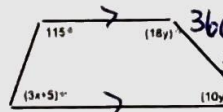
$$360 = x + 146 + 47 + 146$$

$$360 = x + 339$$

$$21 = x$$

54.

Trapezoid



$x = 20, y = 6.429$

$$360 = 115 + 18y + 10y + 3x + 5$$

$$360 = 28y + 120 + 3(20)$$

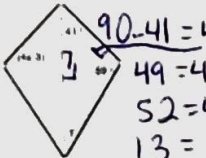
$$180 = 28y$$

$$y = 6.429$$

$180 = 185 + 3x + 5$   
 $180 = 3x + 190$   
 $60 = 3x$   
 $20 = x$

55.

Kite



$x = 13, y = 31$

$$90 - 41 = 49$$

$$49 = 4x - 3$$

$$52 = 4x$$

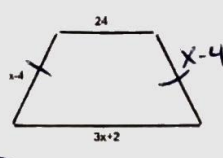
$$13 = x$$

$$90 - 59 = y$$

$$31 = y$$

56.

Isosceles Trapezoid's Perimeter = 88 ft



$x = 14$

$$88 = 24 + x - 4 + 3x + 2 + x - 4$$

$$88 = 5x + 18$$

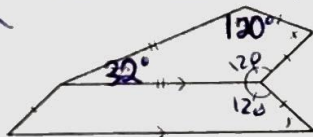
$$70 = 5x$$

$$14 = x$$

Change!

57.

$x = 88, y = 60$  repeat



$$180 - 120 = y$$

$$60 = y$$

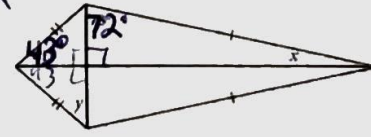
$$360 = 120 + 120 + 32 + x$$

$$360 = 272 + x$$

$$88 = x$$

58.

$x = 18, y = 47$  repeat



$$90 - 43 = y$$

$$47 = y$$

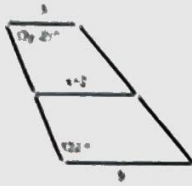
$$90 - 72 = x$$

$$18 = x$$

Change!

Unit 6 Polygon and Quadrilaterals Review Guide

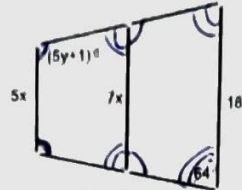
59. Trapezoid with Midsegment



$$\begin{aligned} x &= 4 \\ y &= 20 \end{aligned}$$

$$\begin{aligned} 180 &= 3y - 2 + 122 \\ 180 &= 3y + 120 \\ 60 &= 3y \\ 20 &= y \\ x + 2 &= \frac{1}{2}(3 + 4) \\ x + 2 &= 6 \\ x &= 4 \end{aligned}$$

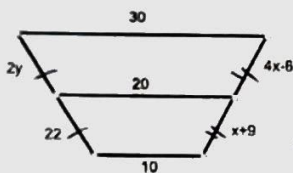
60. ISOSCELES TRAPEZOID with Midsegment



$$\begin{aligned} x &= 2 \\ y &= 23 \end{aligned}$$

$$\begin{aligned} 180 &= 5y + 1 + 64 \\ 180 &= 5y + 65 \\ 115 &= 5y \\ 23 &= y \\ 7x &= \frac{1}{2}(5x + 18) \\ 14x &= 5x + 18 \\ 9x &= 18 \\ x &= 2 \end{aligned}$$

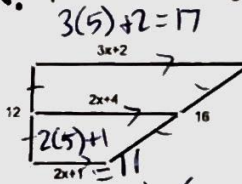
61. 10. Trapezoid with Midsegment



$$\begin{aligned} x &= 5 \\ y &= 11 \end{aligned}$$

$$\begin{aligned} 2y &= 22 \\ 20 &= \frac{1}{2}(30 + 10) \\ 20 &= 20 \\ 4x - 6 &= x + 9 \\ 3x &= 15 \\ x &= 5 \end{aligned}$$

62. Trapezoid with Midsegment

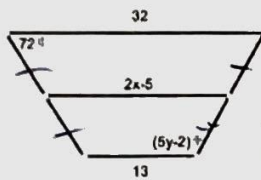


$$\begin{aligned} x &= 5 \\ \text{Perimeter} &= 56 \end{aligned}$$

$$\begin{aligned} 3(5) + 2 &= 17 \\ 2x + 4 &= \frac{1}{2}(3x + 2 + 2x + 1) \\ (2x + 4) &= \frac{1}{2}(5x + 3) \\ 4x + 8 &= 5x + 3 \\ 5 &= x \end{aligned}$$

$P = 17 + 16 + 11 + 12$   
 $P = 56$

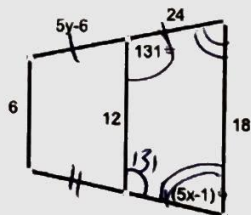
63. Isosceles Trapezoid with Midsegment



$$\begin{aligned} x &= 13.75 \\ y &= 27 \end{aligned}$$

$$\begin{aligned} 180 &= 72 + 5y - 2 \\ 180 &= 70 + 5y \\ 110 &= 5y \\ 22 &= y \\ 2x - 5 &= \frac{1}{2}(32 + 13) \\ 2x - 5 &= \frac{1}{2}(45) \\ 2x - 5 &= 22.5 \\ 2x &= 27.5 \\ x &= 13.75 \end{aligned}$$

64. Isosceles Trapezoid with Midsegment



$$\begin{aligned} x &= 10 \\ y &= 6 \end{aligned}$$

$$\begin{aligned} 5y - 6 &= 24 \\ 5y &= 30 \\ y &= 6 \\ 131 + 5x - 1 &= 180 \\ 5x + 130 &= 180 \\ 5x &= 50 \\ x &= 10 \end{aligned}$$