

September 10, 2018

What are the scale factors for the following figures??

$(2,3) * 2 = (4,6)$   
Scale factor

How do you know?

$(4,4) * \frac{1}{2} = (2,2)$   
Scale factor

Sep 6-9:58 AM

Triangle Midsegment Theorem

p 341 Read and copy the Triangle Midsegment Theorem

Draw a picture of what you think the Triangle Midsegment is describing...

midpoint

parallel

Midsegment!

$DE = \frac{1}{2} BC$   
 $2DE = BC$

Sep 6-9:59 AM

p342

Your Turn

6. Find JL, PM, and m∠MLK.

$JL = 2PN = 2(39) = 78$   
 $PM = \frac{1}{2} KL = \frac{1}{2}(95) = 47.5$

Elaborate

7. Discussion Explain why  $\overline{XY}$  is NOT a midsegment of the triangle.

$XY$  is not at the midpoint.

8. Essential Question Check-In Explain how the perimeter of  $\triangle DEF$  compares to that of  $\triangle ABC$ .

The perimeter of  $\triangle DEF$  is  $\frac{1}{2}$  the perimeter of  $\triangle ABC$ .

Sep 6-10:03 AM

p343

find each measure.

6.  $XY = \frac{1}{2}(15.8) = 7.9$   
7.  $BZ = \frac{1}{2}(15.8)$   
8.  $AX = 4.6$   
9.  $m\angle YZC = 68^\circ$   
10.  $m\angle BXY = 180 - 69 = 111$

Algebra Find the value of  $n$  in each triangle.

11.  $2 \cdot \text{midsegment} = \text{the parallel side}$   
 $2(n) = 48$   
 $n = 24$

12.  $2(n+2) = 6n$   
 $2n + 4 = 6n$   
 $-4n = -4$   
 $n = 1$

13.  $2(n+12) = 6n$   
 $2n + 24 = 6n$   
 $-4n = -24$   
 $n = 6$

14.  $2(n+9) = 6n$   
 $2n + 18 = 6n$   
 $-4n = -18$   
 $n = 4.5$

Sep 6-10:05 AM

p 344

15. Line segment  $\overline{XY}$  is a midsegment of  $\triangle MNP$ . Determine whether each of the following statements is true or false.

3 trues 3 falses

a.  $MP = 2XY$  false ✓  
b.  $MP = \frac{1}{2}XY$  false ✓  
c.  $MX = XN$  true ✓  
d.  $MX = \frac{1}{2}NX$  true ✓  
e.  $NX = \frac{1}{2}YN$  true ✓  
f.  $XY = \frac{1}{2}MP$  true ✓

Sep 6-10:05 AM

Triangle Midsegment

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

In each triangle, M, N, and P are the midpoints of the sides. Name a segment parallel to the one given.

1)  $KI \parallel \overline{MN}$  parallel

2)  $MN \parallel \overline{EG}$

3)  $CD \parallel \overline{MP}$

4)  $PM \parallel \overline{EF}$

Find the missing length indicated.

5) Find  $TU$ .  $\frac{1}{2}(22) = 11$

6) Find  $PR$ .  $2(2) = 4$

7) Find  $EX$ . 6

8) Find  $ZR$ . 10

Sep 6-10:10 AM

Solve for  $x$ .

9)  $2(2x-9) = x+12$   
 $4x-18 = x+12$   
 $4x-x = 12+18$   
 $3x = 30$   
 $x = 10$

10)  $2(2x-9) = 2x$   
 $4x-18 = 2x$   
 $4x-2x = 18$   
 $2x = 18$   
 $x = 9$

11)  $2(2x-9) = x+3$   
 $4x-18 = x+3$   
 $4x-x = 3+18$   
 $3x = 21$   
 $x = 7$

12)  $2(x+16) = x+2$   
 $2x+32 = x+2$   
 $2x-x = 2-32$   
 $x = -30$

13) Find the missing length  $h$  and angle  $x$ .  
 $2(x+20) = x+30$   
 $2x+40 = x+30$   
 $2x-x = 30-40$   
 $x = -10$   
 $h = x+30 = -10+30 = 20$

14) Find  $KZ$ .  
 $2x+6 = 2x+6$   
 $x = 6$

15) Find  $PR$ .  
 $2(2x+16) = 14+x$   
 $4x+32 = 14+x$   
 $4x-x = 14-32$   
 $3x = -18$   
 $x = -6$   
 $PR = -10+30 = 20$

Sep 6-10:11 AM

September 11, 2018

Find  $y$ .

Find  $x$ .

Sep 6-10:07 AM

Parallelogram vocabulary

Define the following words and draw a picture

- quadrilateral
- parallelogram
- diagonal

Sep 6-10:08 AM

### Properties of parallelograms

One special kind of polygons is called a parallelogram. It is a quadrilateral where both pairs of opposite sides are parallel.

There are six important properties of parallelograms to know:

1. Opposite sides are congruent ( $AB = DC$ ).
2. Opposite angles are congruent ( $D = B$ ).
3. Consecutive angles are supplementary ( $A + D = 180^\circ$ ).
4. If one angle is right, then all angles are right.
5. The diagonals of a parallelogram bisect each other.
6. Each diagonal of a parallelogram separates it into two congruent triangles.

$\triangle ACD \cong \triangle ABC$

Sep 6-10:12 AM

p 363 copy theorems  
 p 364 copy theorem

p368 10-13

A staircase handrail is made from congruent parallelograms. In  $\square PQRS$ ,  $PQ = 17.5$ ,  $ST = 18$ , and  $m\angle QRS = 110^\circ$ . Find each measure. Explain.

10.  $RS$
11.  $QT$
12.  $m\angle PQR$
13.  $m\angle SPQ$

Sep 6-10:14 AM

p 371 copy theorem  
 p 372 copy theorems  
 p 373 copy theorem

Show that each quadrilateral is a parallelogram for the given values of the variables.

5.  $x = 4$  and  $y = 9$

6.  $u = 8$  and  $v = 3.5$

Determine if each quadrilateral must be a parallelogram. Justify your answer.

- 7.
- 8.
- 9.
- 10.
- 11.
- 12.

Sep 6-10:16 AM

Parallelograms  
Solve for  $x$ . Each figure is a parallelogram.

1)

2)

3)

4)

5)

6)

7)

8)

9)

10)

Sep 6-10:19 AM

11)

12)

Find the measurement indicated in each parallelogram.

13) Find  $CD$

14) Find  $m\angle D$

15) Find  $RS$

16) Find  $m\angle X$

Sep 6-10:19 AM

September 12, 2018

p 384 property of rectangles  
p 385 property of rhombuses

p 388

Find the lengths using rectangle  $ABCD$ .

- $AB = 21$ ;  $AD = 28$ . What is the value of  $AC + BD$ ?
- $BC = 40$ ;  $CD = 30$ . What is the value of  $BD - AC$ ?

4. An artist connects stained glass pieces with lead strips. In this rectangular window, the strips are cut so that  $FH = 34$  in. Find  $JG$ . Explain.

Sep 6-10:21 AM

The rectangular gate has diagonal braces. Find each length.

- Find  $HJ$ .
- Find  $HK$ .

7. Find the measure of each numbered angle in the rectangle.

Sep 6-10:27 AM

p 395 theorem  
p 396 theorems

p399-400

Determine whether each quadrilateral must be a rectangle. Explain.

- 
- 

Sep 6-10:28 AM

p 400

Each quadrilateral is a parallelogram. Determine whether each parallelogram is a rhombus or not.

- 
- 

Give one characteristic about each figure that would make the conclusion valid.

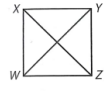
- Conclusion:  $JKLM$  is a rhombus.
- Conclusion:  $PQRS$  is a square.

Sep 6-10:30 AM

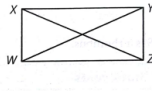
p 401

In Exercises 13–16, Determine which quadrilaterals match the figure: parallelogram, rhombus, rectangle, or square? List all that apply.

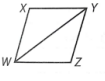
13. Given:  $\overline{XY} \cong \overline{ZW}$ ,  $\overline{XY} \parallel \overline{ZW}$ ;  $\overline{WY} \cong \overline{XZ}$ ,  $\overline{WY} \perp \overline{XZ}$



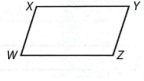
14. Given:  $\overline{XY} \cong \overline{ZW}$ ,  $\overline{XW} \cong \overline{ZY}$ ,  $\overline{WY} \cong \overline{XZ}$



15. Given:  $\angle WXY \cong \angle YZW$ ,  $\angle XWZ \cong \angle ZYX$ ,  $\angle XWY \cong \angle YWZ$ ,  $\angle XYW \cong \angle ZYW$



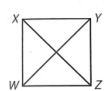
16. Given:  $m\angle WXY = 130^\circ$ ,  $m\angle XWZ = 50^\circ$ ,  $m\angle WZY = 130^\circ$



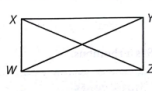
Sep 6-10:31 AM

In Exercises 13–16, Determine which quadrilaterals match the figure: parallelogram, rhombus, rectangle, or square? List all that apply.

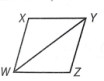
13. Given:  $\overline{XY} \cong \overline{ZW}$ ,  $\overline{XY} \parallel \overline{ZW}$ ,  $\overline{WY} \cong \overline{XZ}$ ,  $\overline{WY} \perp \overline{XZ}$



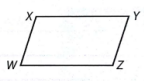
14. Given:  $\overline{XY} \cong \overline{ZW}$ ,  $\overline{XW} \cong \overline{ZY}$ ,  $\overline{WY} \cong \overline{XZ}$



15. Given:  $\angle WXY \cong \angle YZW$ ,  $\angle XWZ \cong \angle ZYX$ ,  $\angle XWY \cong \angle YWZ$ ,  $\angle XYW \cong \angle ZYW$



16. Given:  $m\angle WXY = 130^\circ$ ,  $m\angle XWZ = 50^\circ$ ,  $m\angle WZY = 130^\circ$



Sep 6-10:31 AM

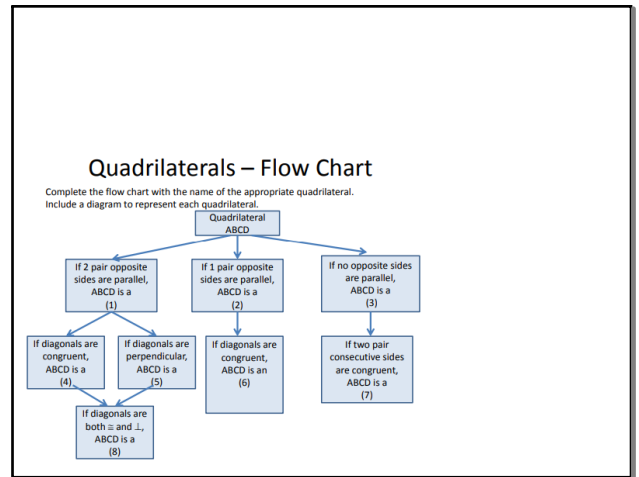
Quadrilateral G.O.

### Quadrilaterals – Properties Chart

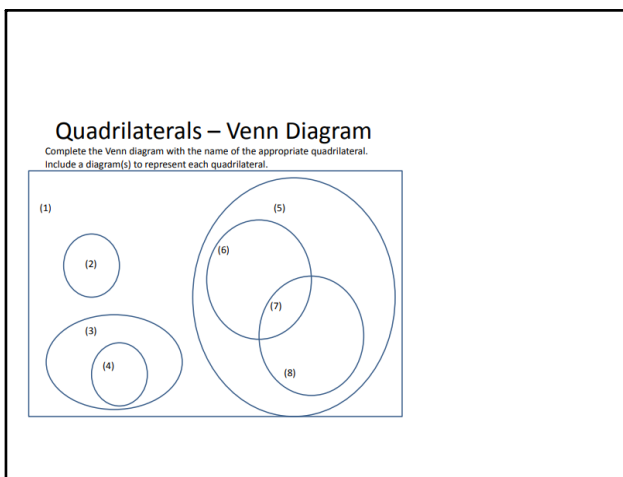
Complete the properties chart for each quadrilateral. Tell how many and which angles or sides fit each description. Tell the characteristics of the diagonals for each quadrilateral.

Figure	Congruent Angles	Congruent Sides	Parallel Sides	Diagonals
Parallelogram				
Rectangle				
Rhombus				
Square				
Trapezoid				
Isosceles Trapezoid				
Kite				

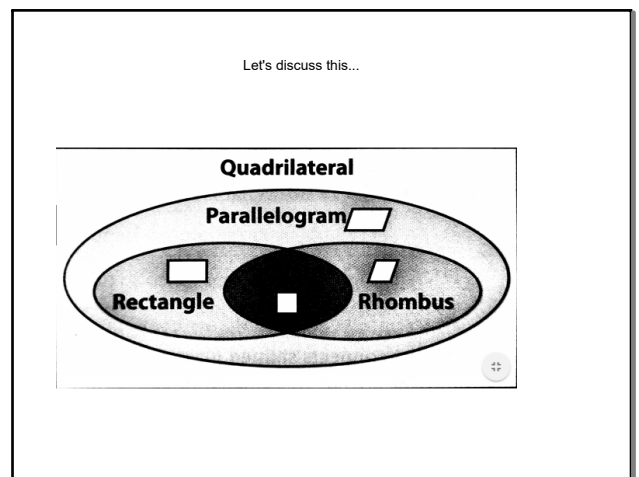
Sep 6-10:32 AM



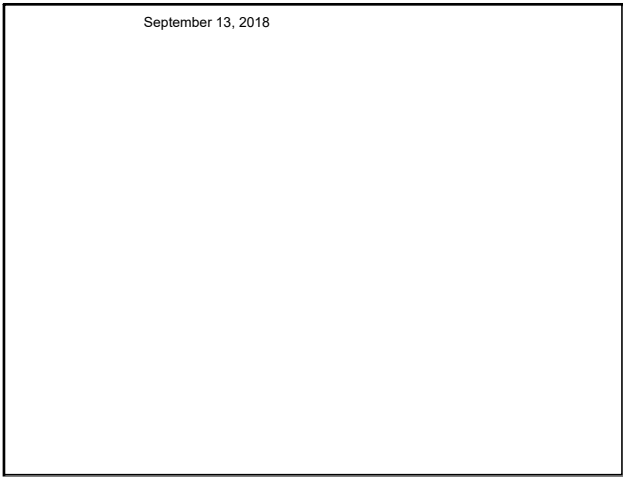
Sep 6-10:34 AM



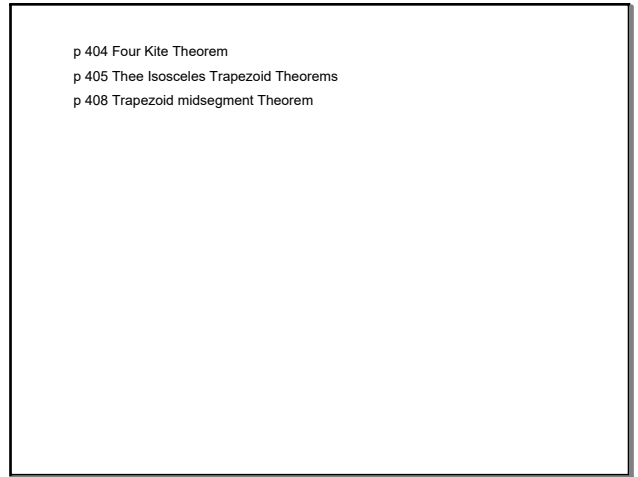
Sep 6-10:34 AM



Sep 6-10:40 AM



Sep 6-10:34 AM



Sep 6-10:35 AM

p 410

**Evaluate: Homework and Practice**

In kite  $ABCD$ ,  $m\angle BAE = 28^\circ$  and  $m\angle BCE = 57^\circ$ . Find each measure.

- $m\angle ABE$
- $m\angle CBE$
- $m\angle ABC$
- $m\angle ADC$

Sep 6-10:44 AM

p 412-413

Use the isosceles trapezoid to find each measure or value.

7.  $LJ = 19.3$  and  $KN = 8.1$ . Determine  $MN$ .

8. Find the positive value of  $x$  so that trapezoid  $PQRS$  is isosceles.

9. In isosceles trapezoid  $EFGH$ , use the Same-Side Interior Angles Postulate to determine  $m\angle E$ .

10.  $AC = 3y + 12$  and  $BD = 27 - 2y$ . Determine the value of  $y$  so that trapezoid  $ABCD$  is isosceles.

Sep 6-10:44 AM

Find the unknown segment lengths in each trapezoid.

11. In trapezoid  $ABCD$ , find  $XY$ .

12. In trapezoid  $EFGH$ , find  $FG$ .

Sep 6-10:45 AM

13. In trapezoid  $PQRS$ ,  $PQ = 4RS$ . Determine  $XY$ .

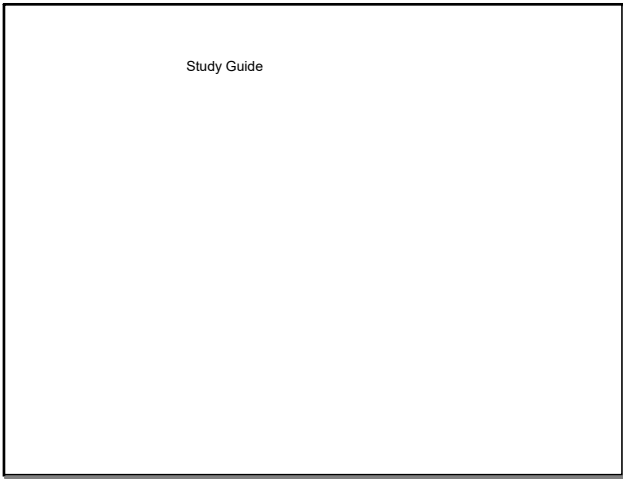
14. In trapezoid  $JKLM$ ,  $PQ = 2JK$ . Determine  $LM$ .

**Algebra** Find the length of the midsegment of each trapezoid.

18.

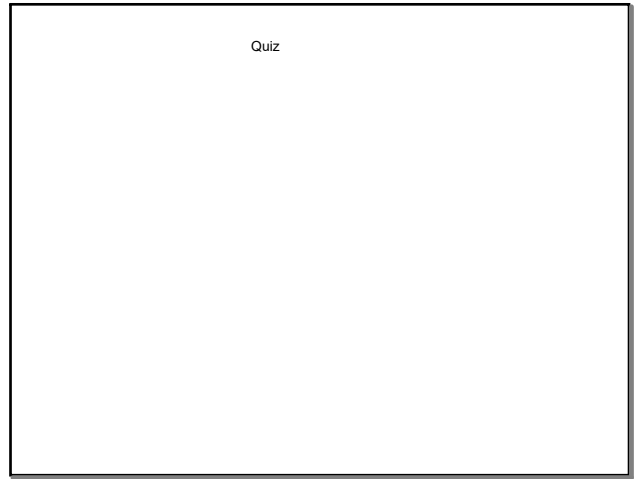
19.

Sep 6-10:45 AM



Study Guide

Sep 6-11:05 AM



Quiz

Sep 6-12:47 PM