

September 10, 2018

What are the scale factors for the following figures??

Image
preimage
How do you know?
Scale factor

Image
preimage
Scale factor

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

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

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 XY is NOT a midsegment of the triangle.

XY is not at the midpoint.

8. Essential Question Check-In Explain how the perimeter of ΔDEF compares to that of ΔABC.

The perimeter of ΔDEF is $\frac{1}{2}$ the perimeter of ΔABC.

Sep 6-10:03 AM

p343

find each measure.

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

Algebra Find the value of n in each triangle.

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

12. $2(n+2) = 11.3$
 $2n + 4 = 11.3$
 $2n = 7.3$
 $n = 3.65$

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

14. $2(4n+9) = n+4.2$
 $8n + 18 = n + 4.2$
 $-8n - 8n$
 $18 = 4.2 - 7n$
 $13.8 = -7n$
 $n = -1.97$

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15. Line segment XY is a midsegment of ΔMNP. 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) $KI \parallel MN$ parallel

2) $MN \parallel EG$

3) $CD \parallel NP$

4) $PM \parallel EF$

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

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Solve for x:

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

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

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

12) $2(x+16) = x+24$
 $2x+32 = x+24$
 $x = -8$

13) Find PR
 $2(x+20) = x+30$
 $2x+40 = x+30$
 $-x = -10$
 $x = 10$
 $PR = x+30 = 40$

14) Find KJ
 $2x-12 = x+16$
 $x = 28$
 $KJ = x-8 = 20$

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

16) Find PR
 $2x+6 = x+5$
 $x = -1$
 $PR = 20$

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Find y.

Find x and the length of AB.

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:

- Opposite sides are congruent ($AB = DC$), $AD = BC$.
- Opposite angles are congruent ($D = B$), $A = C$.
- Consecutive angles are supplementary ($A + D = 180^\circ$), $C + B = 180^\circ$, $B + A = 180^\circ$, $O + C = 180^\circ$.
- If one angle is right, then all angles are right.
- The diagonals of a parallelogram bisect each other.
- Each diagonal of a parallelogram separates it into two congruent triangles: $\triangle AEB \cong \triangle CED$, $\triangle AED \cong \triangle CEB$.

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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. $RS = 17.5$

11. $QT = 18$

12. $m\angle PQR$

13. $m\angle SPQ$

$\angle PQR + \angle QRS = 180^\circ$
 $\angle PQR + 110 = 180$
 $\angle PQR = 70^\circ$

$\Rightarrow = 110^\circ$

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

p 378

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. $AM = 13$, $MB = 10$, $CE = 13$, $ED = 10$. Yes, AO.

8. MM . Yes, AO.

9. CM , NO , JG . No.

10. 123° , 57° , 123° . Yes.

11. $180 = 107 + 73$, 107° , 73° . Yes.

Sep 6-10:16 AM

Parallelograms
Solve for x . Each figure is a parallelogram.

1) $46x - 3 = 135$
 $46x = 138$
 $x = 3$

2) $x = 6$

3) $x = ?$

4) $85 + 12x - 1 = 84 + 32x - 1$
 $84 + 32x - 1 = 84$
 $32x = 96$
 $x = 3$

5) $x = 3$

6) $x = 9$

7) $x = 11$

8) $x = 3$

9) $3x + 1 = 3 + 2x$
 $x + 1 = 3$
 $x = 2$

10) $x = 5$

TRY 3!

Sep 6-10:19 AM

11) $x - 3$

12) 66° , $23x - 3$

Find the measurement indicated in each parallelogram.

13) Find CD . $x + 6 = 2x - 5$
 $-x = -11$
 $x = 11$
 $2(11) - 5 = 17$

14) Find $m\angle D$. $13 + 15x$, $1 + 9x$

15) Find RS . $x + 14$, $2x + 14$

16) Find $m\angle X$. $x + 67$, $2x + 67$

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14) Find $m\angle D$. $13 + 15x$, $1 + 9x$

16) Find $m\angle X$. $x + 67$, $2x + 67$

Sep 11-11:46 AM

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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.

5. Find HJ . **6.** Find HK .

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

Sep 6-10:27 AM

p 395 theorem
p 396 theorems
p 399-400

Determine whether each quadrilateral must be a rectangle. Explain.

3.


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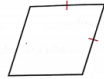
Given: $BD = AC$

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
p 400

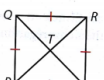
Each quadrilateral is a parallelogram. Determine whether each parallelogram is a rhombus or not.

5. 

6. 

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

7. Conclusion: $JKLM$ is a rhombus. 

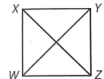
8. Conclusion: $PQRS$ is a square. 

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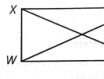
p 401

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

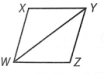
13. Given: $\overline{XY} \cong \overline{ZW}$, $\overline{XY} \parallel \overline{ZW}$; $\overline{WY} \cong \overline{XZ}$, $\overline{WY} \perp \overline{XZ}$



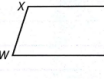
14. Given: $\overline{XY} \cong \overline{ZW}$, $\overline{XW} \cong \overline{ZY}$, $\overline{WY} \cong \overline{XZ}$



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



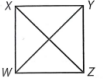
16. Given: $m\angle WXY = 130^\circ$, $m\angle XWZ = 50^\circ$, $m\angle WZY = 130^\circ$



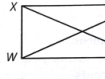
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In Exercises 13–16, Determine which quadrilaterals match the figure: parallelogram, rhombus, rectangle, or square? List all that apply.

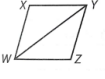
13. Given: $\overline{XY} \cong \overline{ZW}$, $\overline{XY} \parallel \overline{ZW}$; $\overline{WY} \cong \overline{XZ}$, $\overline{WY} \perp \overline{XZ}$



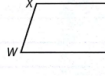
14. Given: $\overline{XY} \cong \overline{ZW}$, $\overline{XW} \cong \overline{ZY}$, $\overline{WY} \cong \overline{XZ}$



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				

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Quadrilaterals – Flow Chart

Complete the flow chart with the name of the appropriate quadrilateral. Include a diagram to represent each quadrilateral.

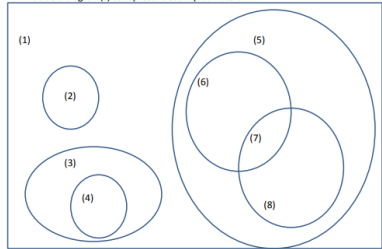
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    graph TD
      A[Quadrilateral ABCD] --> B[If 2 pair opposite sides are parallel, ABCD is a (1)]
      A --> C[If 1 pair opposite sides are parallel, ABCD is a (2)]
      A --> D[If no opposite sides are parallel, ABCD is a (3)]
      B --> E[If diagonals are congruent, ABCD is a (4)]
      B --> F[If diagonals are perpendicular, ABCD is a (5)]
      C --> G[If diagonals are congruent, ABCD is a (6)]
      D --> H[If two pair consecutive sides are congruent, ABCD is a (7)]
      E --> I[If diagonals are both = and ⊥, ABCD is a (8)]
    
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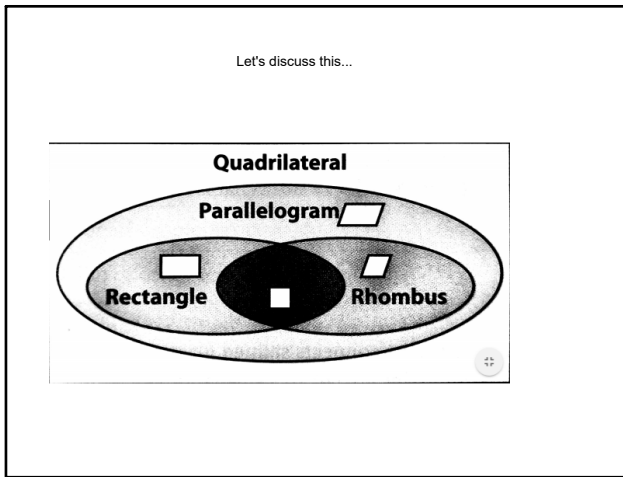
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Quadrilaterals – Venn Diagram

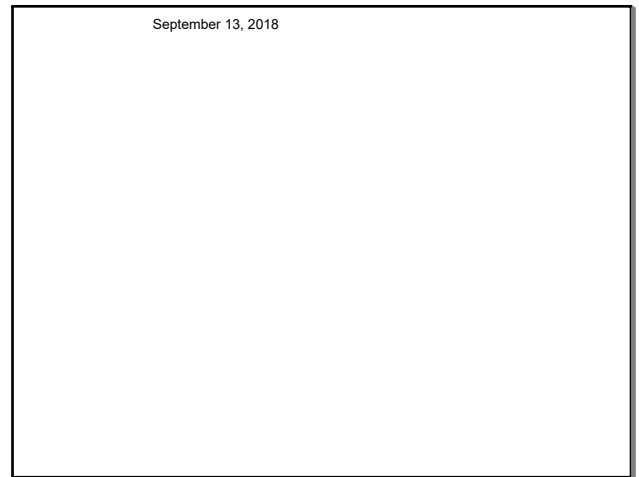
Complete the Venn diagram with the name of the appropriate quadrilateral. Include a diagram(s) to represent each quadrilateral.



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Sep 6-10:34 AM

p 404 Four Kite Theorem
 p 405 Thee Isosceles Trapezoid Theorems
 p 408 Trapezoid midsegment Theorem

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.

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

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p 412-413

Use the isosceles trapezoid to find each measure or value.

7. $IJ = 19.3$ 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.

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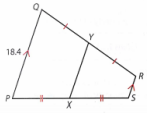
Find the unknown segment lengths in each trapezoid.

11. In trapezoid $ABCD$, find XY .

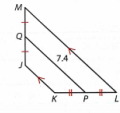
12. In trapezoid $EFGH$, find FG .

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

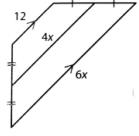


14. In trapezoid JKLM, $PQ = 2JK$. Determine LM.

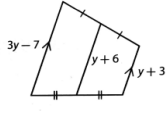


Algebra Find the length of the midsegment of each trapezoid.

18.



19.



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Study Guide

Sep 6-11:05 AM

Quiz

Sep 6-12:47 PM