

September 4, 2018

Find x. $85 + x + 35 = 180$
 $x = 60$

4) $x = 60$

Determine if the two triangles are congruent. If they are, state how you know.

3) AAS NOT CONGRUENT

4) NOT CONGRUENT

5) SSS

Aug 31-8:08 AM

Quiz Review

8) STATEMENTS REASONS
 1 $\overline{AC} \parallel \overline{CE}$ 1 Given
 2 $\overline{BC} \parallel \overline{DC}$ 2 Given
 3 $\angle ACB \cong \angle DCE$ 3 Vertical \angle s
 4 $\triangle ABC \cong \triangle CDE$ 4 SAS

11) STATEMENTS REASONS
 1 $\angle MNP \cong \angle OPN$ 1 Given
 2 $\overline{MN} \parallel \overline{OP}$ 2 Given
 3 $\overline{NP} \cong \overline{NP}$ 3 Reflexive property
 4 $\triangle MNP \cong \triangle OPN$ 4 SAS

Sep 4-12:03 PM

Unit 2 Test Part 1 Study Guide

1. Which theorem or rule are used to prove that two triangles are congruent?
 SAS, AAS, SAS, HL, ASA, SSS

2. Consider the triangles shown. Which rule, if any, can be used to prove triangle congruency?
 AAS, ASA, SAS, SSS

3. If $m\angle 1 = 40^\circ$, $m\angle 2 = 30^\circ$, find $m\angle 4$ and $m\angle 5$.
 $180 - 70 = 110$

4. In the diagram below, $m\angle 2 = 5(x+1)$, $m\angle 3 = 40$, and $m\angle 4 = 3(x+5)$. Find x and the measure of $\angle 2$.
 $3(x+5) + 40 + 5(x+1) = 180$
 $3x + 15 + 40 + 5x + 5 = 180$
 $8x + 60 = 180$
 $8x = 120$
 $x = 15$
 $m\angle 2 = 5(15+1) = 80$

5. Find $m\angle 3$ if $m\angle 1 = 3x+1$ and $m\angle 2 = 2x+14$.
 $3x+1 = 2(x+7)$
 $3x+1 = 2x+14$
 $x = 13$
 $m\angle 3 = 2(13)+14 = 40$

6. Find $m\angle 1$ if $m\angle 2 = 95^\circ$.
 Transversal intersects parallel lines.
 $m\angle 1 = 95$

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7. $\triangle PQR$ and $\triangle STU$ are congruent triangles. Using this information, list the corresponding sides and corresponding angles.
 $PQ = ST$, $QR = TU$, $RP = US$
 $\angle P = \angle S$, $\angle Q = \angle T$, $\angle R = \angle U$

8. For $\triangle EFG$ and $\triangle MNP$, it is known that $\overline{EG} \cong \overline{MP}$, $\angle G \cong \angle P$, and $\overline{FG} \cong \overline{NP}$. Determine if the triangles are congruent, and if so, by which type of congruency.
 a. SSS c. ASA
 b. SAS d. It cannot be determined if the triangles are congruent.

9. In this diagram, \overline{CD} is the perpendicular bisector of \overline{AB} . The two-column proof shows that $\triangle ADC$ is congruent to $\triangle BDC$. Fill in the missing pieces of the proof.

Step	Statement	Reason
1	\overline{CD} is the perpendicular bisector of \overline{AB}	Given
2	$\overline{AD} \cong \overline{BD}$	Definition of perpendicular bisector
3	$\overline{CD} \cong \overline{CD}$	Reflexive Property
4	$\overline{AD} \cong \overline{BD}$	Definition of perpendicular lines
5	$\angle ADC \cong \angle BDC$	All right angles are congruent
6	$\triangle ADC \cong \triangle BDC$	HL OR SSS OR SAS

10. Given: $\overline{NO} \perp \overline{MP}$ and $\overline{MN} \perp \overline{OP}$. Prove: $\triangle MNP \cong \triangle OPN$.

Step	Statements	Reasons
1	$\overline{NO} \perp \overline{MP}$ and $\overline{MN} \perp \overline{OP}$	Given
2	$\angle MNP \cong \angle OPN$	Alternate interior angles are congruent
3	$\angle ONP \cong \angle OPN$	Alternate interior angles are congruent
4	$\overline{NP} \cong \overline{NP}$	Reflexive property
5	$\triangle MNP \cong \triangle OPN$	ASA

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11. Given: E is the midpoint of \overline{AC} and \overline{DB} . Prove: $\triangle ABE \cong \triangle CED$.

Steps	Statements	Reasons Given
1		
2	$\overline{AE} \cong \overline{EC}$	def of a midpoint
3	$\overline{DE} \cong \overline{BE}$	def of a midpoint
4	$\angle AEB \cong \angle CED$	SAS
5		

12. $\triangle DEF$ and $\triangle UVW$ are congruent triangles. Which statement is known to be true?
 a. $\overline{DE} \cong \overline{UV}$ b. $\overline{DF} \cong \overline{TU}$ c. $\angle V \cong \angle X$ d. $\overline{DE} \cong \overline{UV}$

13. For $\triangle ABC$ and $\triangle DEF$, the following is given: $\angle C \cong \angle F$, $\overline{AB} \cong \overline{DE}$, and $\overline{BC} \cong \overline{EF}$. By which triangle congruence statement can it be concluded that the triangles are congruent?
 a. SSS c. ASA
 b. SAS d. It cannot be determined if the triangles are congruent.

14. $\triangle UVW$ and $\triangle XYZ$ are congruent triangles. Which statement is known to be true?
 a. $\angle U \cong \angle V$ b. $\angle W \cong \angle X$ c. $\angle V \cong \angle X$ d. $\angle V \cong \angle Y$

15. Name all angles for each description.

 Corresponding: 4,3,7, 1,3,6, 3,3,8, 2,3,5
 Alternate Interior: 1,3,1, 2,3,7
 Alternate Exterior: 4,3,3, 4,3,6
 Vertical: 1,3,2, 4,3,7, 5,3,7
 Same side interior: 1,3,7, 2,3,8

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16. Identify all angle measures.
 $41^\circ = \angle 6, \angle 1, \angle 3$
 $180 - 41 = 139^\circ = \angle 5, \angle 7, \angle 2, \angle 4$

17. Determine whether each pair of triangles is congruent. If so, write a congruence statement and explain why the triangles are congruent.
 $\triangle RSP \cong \triangle QSP$ SAS, $\triangle KJI \cong \triangle HGI$ AAS, $\triangle LMN \cong \triangle ONL$ SAS

18. For $\triangle ABC$ and $\triangle DEF$ the following is given: $\angle A \cong \angle D$, $\angle B \cong \angle E$, $\overline{AB} \cong \overline{DE}$. Search a reason to determine if the two triangles can be proved congruent. If so, how can the \triangle s be proved congruent?
 ASA

Theorems about Lines and Angles

19. Name the relationship and then find the missing angle measures by solving for x .
 a. $m\angle 1 = 2x+10$, $m\angle 2 = 86+x$
 $2x+10 = 86+x$
 $x = 76$
 $m\angle 1 = 150$, $m\angle 2 = 162$

b. $m\angle 1 = 14x+6$, $m\angle 2 = 11x-6$
 $14x+6 = 11x-6$
 $3x = -12$
 $x = -4$
 $m\angle 1 = 62$, $m\angle 2 = 50$

c. $m\angle 1 = 4x+24$, $m\angle 2 = 7x+33$
 $4x+24 = 7x+33$
 $-3x = 9$
 $x = -3$
 $m\angle 1 = 8$, $m\angle 2 = 18$

d. $m\angle 1 = 6x+7$, $m\angle 2 = 3x+38$
 $6x+7 = 3x+38$
 $3x = 31$
 $x = 10.33$
 $m\angle 1 = 67$, $m\angle 2 = 69$

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19. Name the relationship and then find the missing angle measures by solving for x.

a. $2x + 10 = 86 + x$ $4x + 6 + 11x - 6 = 180$

b. $4x + 6 + 11x - 6 = 180$

c. $4x + 24 = 7x + 3$ $6x + 7 + 3x + 38 = 180$

d. $6x + 7 + 3x + 38 = 180$

a) $2x + 10 = 86 + x$
 $-x$
 $x + 10 = 86$
 $-10 -10$
 $x = 76$

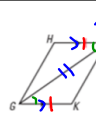
b) $4x + 6 + 11x - 6 = 180$
 $15x = 180$
 $15 \quad 15$
 $x = 12$

c) $4x + 24 = 7x + 3$
 $-4x$
 $24 = 3x + 3$
 -3
 $21 = 3x$
 $3 \quad 3$
 $7 = x$

d) $6x + 7 + 3x + 38 = 180$
 $9x + 45 = 180$
 $-45 -45$
 $9x = 135$
 $9 \quad 9$
 $x = 15$

Sep 5-12:04 PM

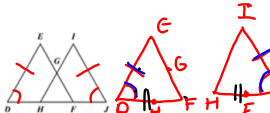
September 5, 2019

1.  **Trans** **verses**

A. Yes, it is possible to prove the triangles congruent by AAA.
 B. Yes, it is possible to prove the triangles congruent by SAS.
 C. Yes, it is possible to prove the triangles congruent by SSS.
 D. There is not enough information to prove the triangles congruent.

SAS SSS HL
 AAS ASA

2. In this diagram, $\overline{DE} \cong \overline{JI}$ and $\angle D \cong \angle J$. Which additional information is sufficient to prove that $\triangle DEF$ is congruent to $\triangle JIH$?



Sep 4-2:55 PM

test

Skip any 2 problems - please write skip or I will grade them

You may use your study guide

You may use your fold-able

Research triangle similarity...by the end of class, please write 2-4 sentences that describes triangle similarity & a picture.

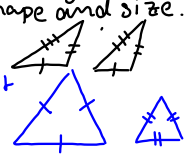
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2018
 September 6, 2018

What is congruency? Objects are congruent if they are the same shape and size.

What is similarity? 2 figures are of the same shape but not the same size.

How are these words similar or different?



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11.1 Dilations

Investigating Properties of Dilations

Use a ruler to measure the following lengths. Measure to the nearest tenth.

AB = 2 cm A'B' = 2 cm
 AC = 2 cm A'C' = 2 cm
 BC = 2 cm B'C' = 2 cm

Use a protractor to measure the corresponding angles.

m∠A = ? m∠A' = ?
 m∠B = ? m∠B' = ?
 m∠C = ? m∠C' = ?

Complete the following ratios:

$\frac{AB}{A'B'} = \frac{2}{2} = 1$ $\frac{AC}{A'C'} = \frac{2}{2} = 1$ $\frac{BC}{B'C'} = \frac{2}{2} = 1$

Similar figures because the sides have the same ratio (fraction) and equal angles!

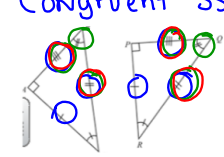
The ratios are =.

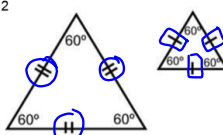
The angles are equal.

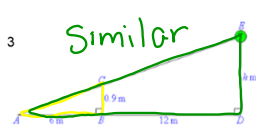
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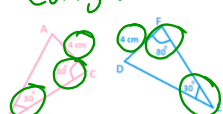
September 7, 2018

Describe the following triangles as congruent or similar.

1.  Congruent SSS, SAS, HL

2.  Similar

3.  Similar

4.  Congruent AAS

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Dilations Date: _____ Period: _____

Graph the image of the figure using the transformation given.

1) dilation of 4 about the origin **4*
 L(1,1) L'(-4,-4)
 K(1,1) K'(-4,-4)
 M(-1,-1) M'(4,4)
 J(0,-1) J'(0,-4)

2) dilation of 1.5 about the origin **1.5*
 R(2,3) R'(3,4.5)
 S(1,2) S'(1.5,3)
 Q(2,-2) Q'(3,-3)

3) dilation of 2 about the origin

4) dilation of 0.25 about the origin

5) dilation of 5 about the origin

6) dilation of 0.5 about the origin

Pick 3!

Sep 6-1:48 PM

Graph the image of the figure using the transformation given.

1) dilation of 4 about the origin

2) dilation of 1.5 about the origin

3) dilation of 2 about the origin

4) dilation of 0.25 about the origin

5) dilation of 5 about the origin

6) dilation of 0.5 about the origin

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Name: _____ Date: _____

Dilations/Translations Worksheet

Directions: Answer the following questions to the best of your ability. For the y-axis, use the same scaling as the x-axis.

1. In Math, the word dilate means to _____ or _____ a figure.

2. If a scale factor is less than 1, then your figure gets _____.

3. If a scale factor is greater than 1, then your figure gets _____.

4. Graph the dilated image of triangle JKL using a scale factor of 3 and (0,0) as the center of dilation.
 J: _____ J': _____
 K: _____ K': _____
 L: _____ L': _____

5. Graph the dilated image of quadrilateral MNOP using a scale factor of 3 and the origin as the center of dilation.
 M: _____ M': _____
 N: _____ N': _____
 O: _____ O': _____
 P: _____ P': _____

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Name: _____ Date: _____

6. Graph the dilated image of triangle XYZ using a scale factor of 1.5 and (0,0) as the center of dilation.
 X: _____ X': _____
 Y: _____ Y': _____
 Z: _____ Z': _____

7. Graph the dilated image of quadrilateral MNOP using a scale factor of 1/3 and the origin as the center of dilation.
 M: _____ M': _____
 N: _____ N': _____
 O: _____ O': _____
 P: _____ P': _____

8. Describe the dilation of quadrilateral MNOP, using the origin as the center.

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Name: _____ Date: _____

5. The table below shows the coordinates of triangle RST and the coordinates of R' in triangle R'S'T'. Triangle R'S'T' is a dilation of triangle RST.

Triangle RST	Triangle R'S'T'
R (-2, -3)	R' (-4, -6)
S (0, 2)	S' (0, 6)
T (2, -3)	T' (4, -9)

Scale factor? 3!

Part A
 What are the coordinates of point S' and point T'?
 Answer S' = (0, 6)
 T' = (4, -9)

Part B
 On the grid below, draw triangle RST and triangle R'S'T'.

back #3, 2

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For the following problem with the class, then write down the process on the right:

Dilate $\triangle AQR$ by (-1, -1), D(0,2), R(1,1) by a scale factor of 2 from the origin.
 A' (____) How do you do a dilation from the origin?
 B' (____)
 C' (____)

What are the important pieces of information given for a dilation?

Do the next 4 dilation problems. Check your answers with a neighbor.

1) Dilate $\triangle QRS$ if Q(-1,0), R(1,2), S(-2,1) by a scale factor of 2 from the origin.
 Q' (____) R' (____) S' (____)

2) Dilate $\triangle TRK$ if T(-2,-2), R(1,0), K(0,1) by a scale factor of 3 from the origin.
 T' (____) R' (____) K' (____)

3) Dilate $\triangle XYZ$ if X(-4,0), Y(-4,2), Z(-2,2) by a scale factor of $\frac{1}{2}$ from the origin.
 X' (____) Y' (____) Z' (____)

4) Dilate $\triangle BAT$ if B(-1,-1), A(0,0), T(1,-1) by a scale factor of 2 from the origin (-1,2).
 B' (____) A' (____) T' (____)

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Name _____ Date _____

Dilations and Scale Factors - Independent Practice Worksheet

Complete all the problems.

1. Graph the image of rectangle KLMN after dilation with a scale factor of 2, centered at the origin.

2. Graph the image of rectangle PQRS after a dilation with a scale factor of 1/4, centered at the origin.

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3. Graph the image of quadrilateral EFGD after a dilation with a scale factor of 3, centered at the origin.

4. Graph the image of quadrilateral PQRS after a dilation with a scale factor of 2, centered at the origin.

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5. Graph the image of quadrilateral FGHI after a dilation with a scale factor of 1/5, centered at the origin.

6. Graph the image of rectangle PQRS after a dilation with a scale factor of 2, centered at the origin.

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7. Graph the image of triangle FGH after a dilation with a scale factor of 5, centered at the origin.

8. Graph the image of quadrilateral KLMN after a dilation with a scale factor of 2, centered at the origin.

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Name _____ Date _____

9. Graph the image of rectangle RSTU after a dilation with a scale factor of 1/5, centered at the origin.

10. Graph the image of quadrilateral ABCD after a dilation with a scale factor of 5, centered at the origin.

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Similar Figures Worksheet Name: _____ Hours: _____

Fill in the blank with the appropriate word, phrase, or symbol to make a true statement.

- Similar figures have the same _____ but not necessarily the same _____.
- The symbol _____ means "is similar to" and the symbol _____ is the abbreviation for the word angle.
- A _____ drawing is an enlarged or reduced drawing that is similar to an actual object or place.
- In similar triangles, corresponding _____ are congruent and corresponding _____ are in proportion.
- To find a missing side length, set up and solve a _____ . Put the measurements of the smaller figure on top and the bigger figure on the bottom.

Learning Goal # 1: I can identify the corresponding parts of similar figures.

Example: The figures in each pair are similar (AABC ~ AXYZ).

$\angle A$ corresponds with $\angle X$ AB matches with _____
 $\angle B$ matches with $\angle Y$ BA corresponds with _____
 $\angle C$ corresponds with $\angle Z$ BC matches with _____

Practice Problems

1. ASIT ~ ADOG

First, label $\angle D$, $\angle O$, & $\angle G$ on the small triangle. Then, fill in the blanks below:

$\angle D$ corresponds with $\angle S$ DO matches with _____
 $\angle O$ matches with $\angle T$ IT corresponds with _____
 $\angle G$ corresponds with $\angle I$ GI matches with _____
 Suppose $\angle S = 25^\circ$, what is the measure of $\angle D$? _____

2. AHOT ~ AFIG

$\angle H$ corresponds with $\angle F$ HI matches with _____
 $\angle O$ matches with $\angle I$ IO corresponds with _____
 $\angle T$ corresponds with $\angle G$ OT matches with _____

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Learning Goal #2: I can find the missing measurements of two similar figures.

Example 1: The figures in each pair are similar (AABC ~ AXYZ).

Example 2: The figures in each pair are similar.

small Δ $\frac{3}{5} = \frac{x}{2.5}$ big Δ

small \square $X =$ big \square

The missing side is _____

Practice Problems
Find the missing side(s) in each similar figure. Show work!

-
-
-
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Geometry Worksheet
Similar polygons
Name _____

1. If polygons are similar then what do you know about the corresponding sides and the corresponding angles?

Given the similar figures, name **all** pairs of corresponding sides and angles. Look at the similarity statement to help.

- $\Delta PQR \sim \Delta DEF$
- $\Delta LMN \sim \Delta RST$
- $\Delta ABCD \sim \Delta EFGH$

$\overline{QP} \rightarrow$ _____ $\angle Q \cong$ _____ $\overline{LM} \rightarrow$ _____ $\angle L \cong$ _____ $\overline{AB} \rightarrow$ _____ $\angle A \cong$ _____
 $\overline{PR} \rightarrow$ _____ $\angle P \cong$ _____ $\overline{MN} \rightarrow$ _____ $\angle M \cong$ _____ $\overline{BC} \rightarrow$ _____ $\angle B \cong$ _____
 $\overline{RQ} \rightarrow$ _____ $\angle R \cong$ _____ $\overline{NR} \rightarrow$ _____ $\angle N \cong$ _____ $\overline{CD} \rightarrow$ _____ $\angle C \cong$ _____
 $\overline{DA} \rightarrow$ _____ $\angle D \cong$ _____

Use the similar polygons above to write the statement of proportionality for each:
 _____ = _____ = _____ = _____ = _____ = _____

Complete the similarity statement for the similar figures and then find the **scale factor**. **REDUCE** fractions!

-
-
-
-
-

$\Delta LKM \sim \Delta$ _____ $\Delta ABCD \sim$ _____ $\Delta SPQ \sim$ _____
 Scale Factor _____ Scale Factor _____ Scale Factor _____

$\Delta HJG \sim \Delta$ _____ $\Delta NPM \sim \Delta$ _____ $\Delta ME \sim$ _____
 Scale Factor _____ Scale Factor _____ Scale Factor _____

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The two polygons are similar. Write a proportion and solve for x.

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Complete the similarity statement for the similar figures and then find the **scale factor**.
 Next, write proportions and **SOLVE** for the missing lengths.

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Are some triangles similar by the AA^c Postulate? **Prove** yes or no. If the triangles are similar, write a similarity statement.

-
-

Similar: YES NO $\Delta ADE \sim \Delta$ _____ $\Delta EDF \sim \Delta$ _____

Find the angle measurements and set up proportions to find **all** missing side lengths. Notice the triangles are similar by AA^c.

-
-

Proportion to find x: _____ Proportion to find y: _____
 Proportion to find x: _____ Proportion to find y: _____

Given two similar figures, find the **scale factor** and the **ratio of the perimeters** from the **SMALL** to the **BIG**.

-
-

Scale Factor _____ Ratio of Perimeters: _____
 Scale Factor _____ Ratio of Perimeters: _____

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Geometry
CPCTC Worksheet
Name _____

1) What does the acronym CPCTC represent?

List all information given by the marks on the diagram. (There are at least 3 pieces of information for every problem.)

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-
-
-
-
-
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Complete each congruence statement by naming the corresponding angle or side.

- $\Delta WXT \cong \Delta WYK$
- $\Delta UTS \cong \Delta UTS$
- $\Delta MZP \cong \Delta MZD$
- $\Delta LMN \cong \Delta LCD$
- $\Delta FTU \cong \Delta EGF$
- $\Delta GH \cong \Delta HFX$

Write a statement that indicates that the triangles in each pair are congruent.

-
-

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