NAME | PERIOD

Geometry — UNIT 7 ASSIGNMENTS

#	DESCRIPTION	HALF	LATE	FULL
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

SCORE:

#	DESCRIPTION	HALF	LATE	FULL
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
SCORE:				

Geometry HW

Proportions (7.1)

1. Proportions Solve $\frac{9}{16} = \frac{27}{x}$.	2. Proportions Solve for y. $\frac{3}{8} = \frac{y}{24}$
3. Proportions Solve for x. $\frac{20}{5} = \frac{4x}{6}$	4. Proportions Solve for x. $\frac{15}{3} = \frac{x-3}{5}$

Geometry
Review: Scale factor and proportions

Name _____

Write each ratio in lowest terms.

1. 21 in to 18 in

2. 105 inches : 35 feet

Tell whether each pair of ratios forms a proportion.

3. $\frac{5}{15}$ and $\frac{10}{30}$

4. $\frac{10}{4}$ and $\frac{15}{3}$

Solve for x.

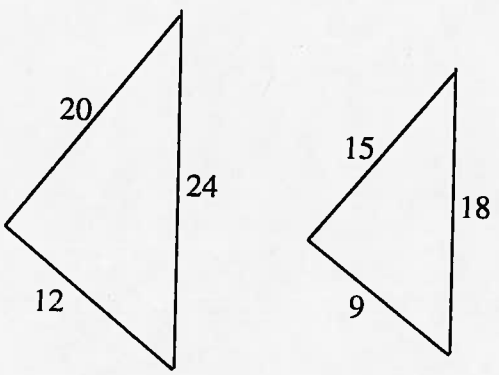
5. $\frac{6}{x}=\frac{2}{5}$

6. $\frac{9}{4}=\frac{36}{z}$

7. $\frac{5}{3}=\frac{t+8}{18}$

Determine whether the figures are similar. If so, what is the scale factor that transforms the figure on the left to the figure on the right?

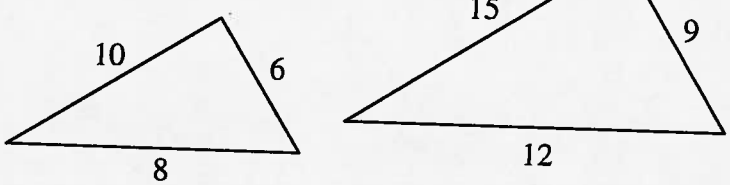
8.



Yes No

Scale Factor _____
(left to right)

9.



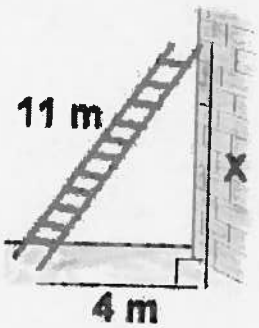
Yes No

Scale Factor _____
(left to right)

Use the grid provided below to draw a figure that is similar to the given figure, with the indicated scale factor.

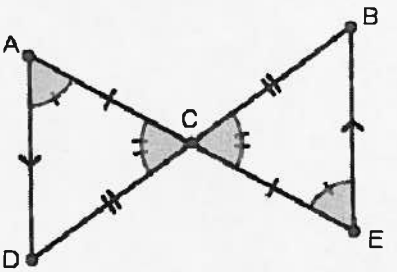
1. PYTHAGOREAN THEOREM

Find the height of the ladder against the wall.



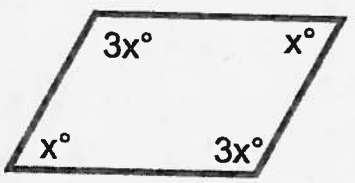
2. TRIANGLES

Write a triangle congruency statement.



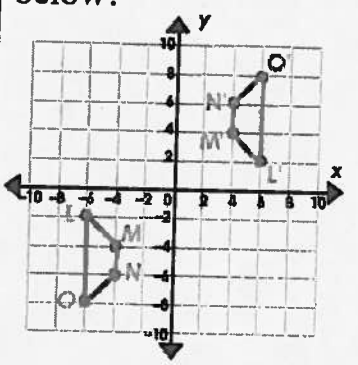
3. PARALLELOGRAMS

Find x for the parallelogram.



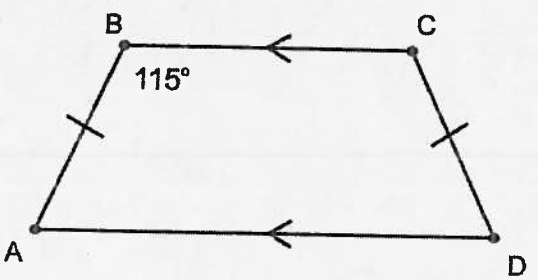
4. TRANSFORMATIONS

Which transformation(s) have taken place below?



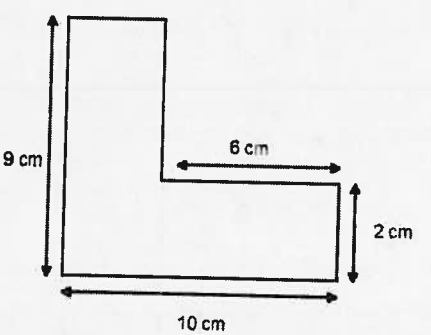
5. QUADRILATERALS

Find angle C.



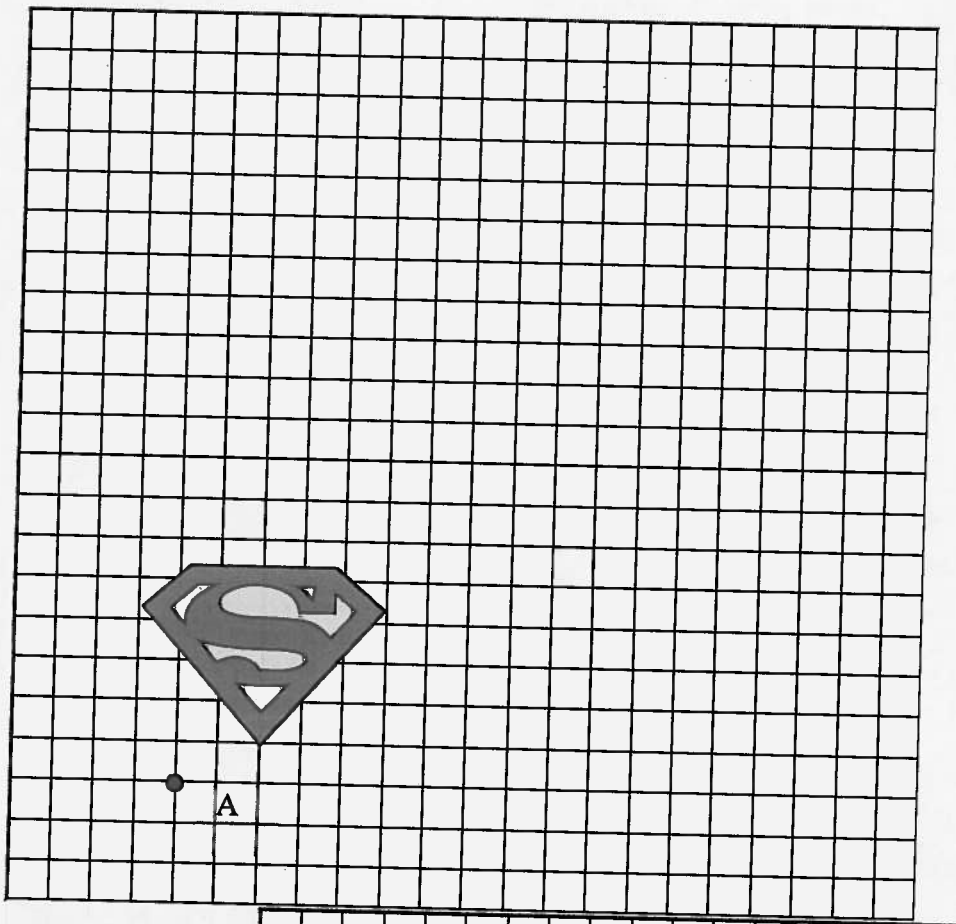
6. AREA & PERIMETER

Find the perimeter.

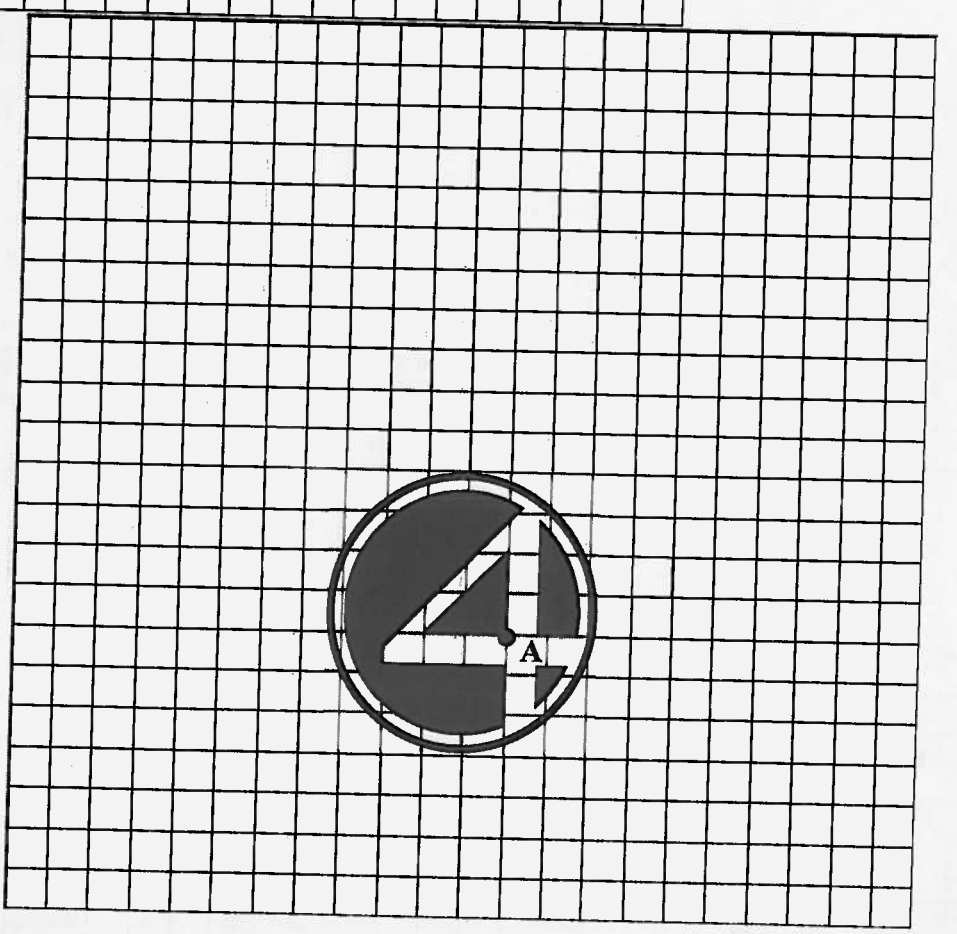


Dilations 2

1. Dilate the logo with a scale factor of 3 from point A

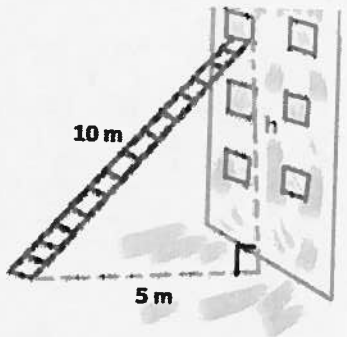


2. Dilate the logo with a scale factor of 2 from point A



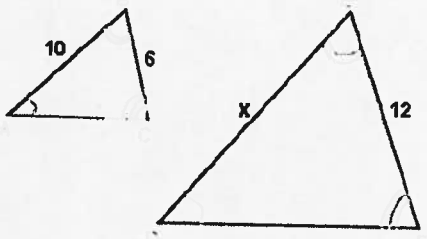
1. PYTHAGOREAN THEOREM

Find the height of the ladder against the wall.



2. TRIANGLES

Find x given the similar triangles.



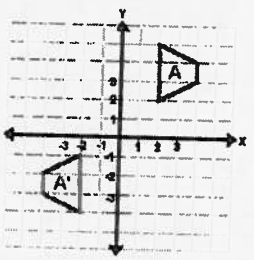
3. PARALLELOGRAMS

Name 4 properties of a parallelogram.

1.
2.
3.
4.

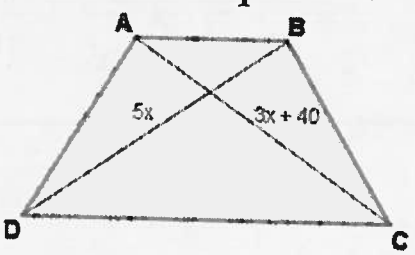
4. TRANSFORMATIONS

Which transformation(s) have taken place below?



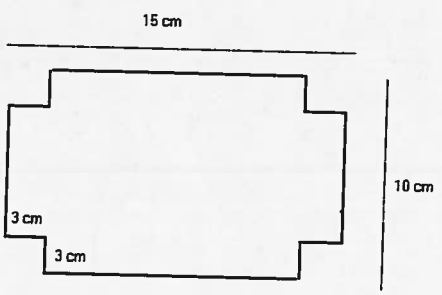
5. QUADRILATERALS

Solve for x for the given isosceles trapezoid.



6. AREA & PERIMETER

Find the area.

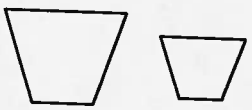


Name _____ Date _____

Topic: Recognizing Similar and Congruent Figures- Worksheet 1

Solve the following:

1. The two figures are



___ not similar
___ not congruent

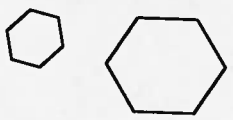
2. The two figures are

___ similar and congruent
___ not similar and not congruent

3. The two figures are

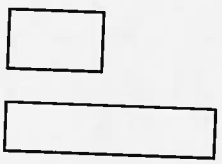
___ similar and congruent
___ not similar and not congruent

4. The two figures are



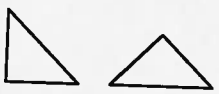
___ not similar
___ not congruent

5. The two figures are



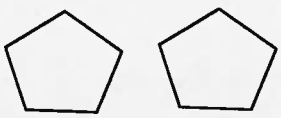
___ not similar
___ not congruent

6. The two figures are



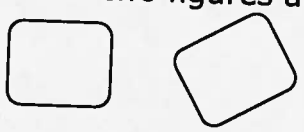
___ congruent
___ similar

7. The two figures are



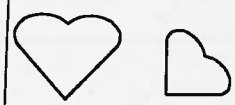
___ similar and congruent
___ similar and not congruent

8. The two figures are



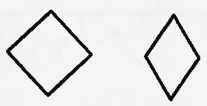
___ similar and congruent
___ not similar and not congruent

9. The two figures are



___ congruent
___ similar

10. The two figures are



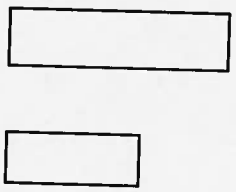
___ similar and congruent
___ not similar and not congruent

Name _____ Date _____

Topic: Recognizing Similar and Congruent Figures- Worksheet 2

Solve the following:

1. The two figures are



___ not similar
___ not congruent

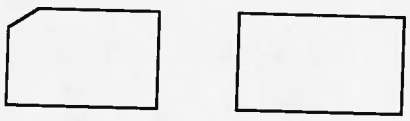
2. The two figures are

___ similar and congruent
___ similar and not congruent

3. The two figures are

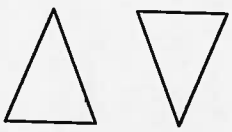
___ similar and congruent
___ similar and not congruent

4. The two figures are



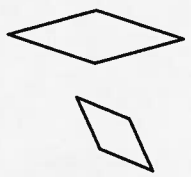
___ similar and congruent
___ not similar and not congruent

5. The two figures are



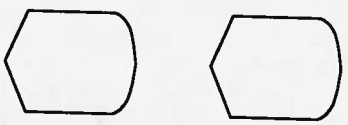
___ similar and congruent
___ similar and not congruent

6. The two figures are



___ congruent
___ similar

7. The two figures are

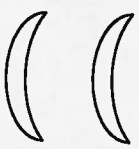


___ similar and congruent
___ similar and not congruent

8. The two figures are

___ similar and congruent
___ not similar and not congruent

9. The two figures are



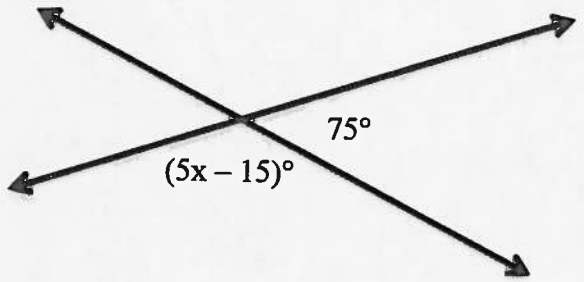
___ similar and congruent
___ not similar and not congruent

10. The two figures are

___ similar and congruent
___ not similar and not congruent

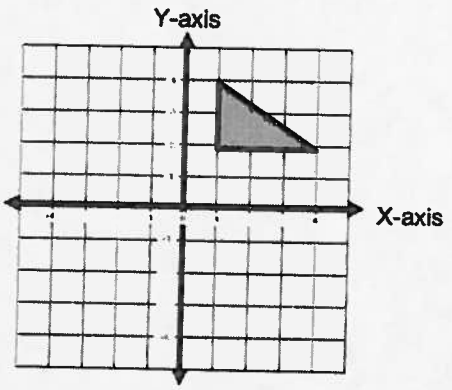
1. ANGLE RELATIONSHIPS

Solve for x.



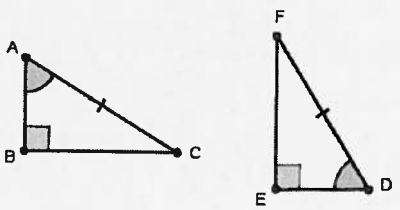
2. TRANSFORMATIONS

Reflect the triangle across the line y = 1.



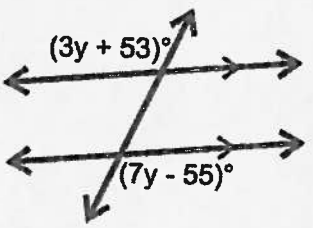
3. CONGRUENT TRIANGLES

What is the postulate/theorem that allows ΔABC ≅ ΔDEF.



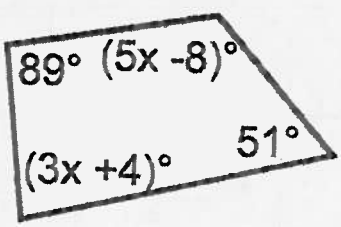
4. PARALLEL LINES

Solve for y.



5. QUADRILATERALS

Solve for x.



6. RECTANGLES

ABCD is a rectangle. If BE = 50, and ED = 5x, find the value of x.

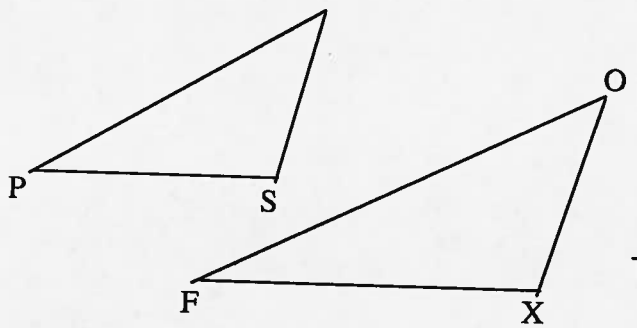
Geometry

7.2 Similar Triangles & Corresponding Parts

Objective: I will use proportions to identify similar polygons

Definition of Similar Polygons:	Two polygons are <u>similar</u> if and only if the corresponding angles are *congruent* and the corresponding sides are *proportional*.

1. $\Delta PBS \sim \Delta FOX$



These corresponding *angles* are congruent:

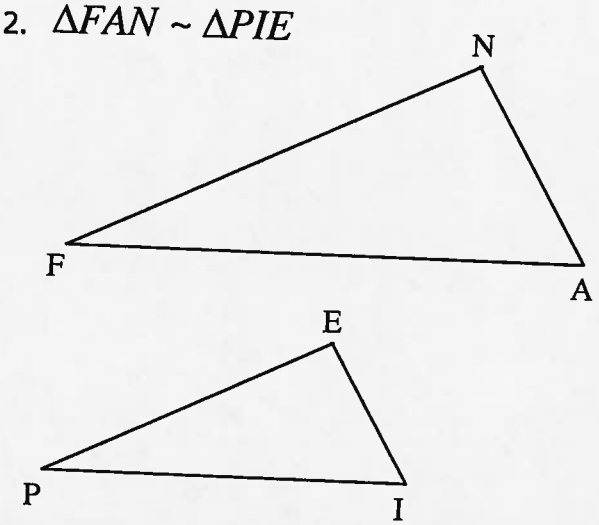
_____ ≅ _____

_____ ≅ _____

_____ ≅ _____

These corresponding *sides* are proportional:

2. $\Delta FAN \sim \Delta PIE$



These corresponding *angles* are congruent:

_____ ≅ _____

_____ ≅ _____

_____ ≅ _____

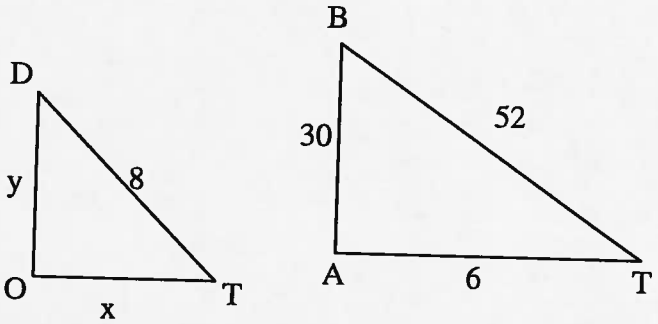
These corresponding *sides* are proportional:

3. $\Delta CAR \sim \Delta BUS$

Which angles are congruent?

What sides are proportional?

4. $\Delta DOT \sim \Delta BAT$

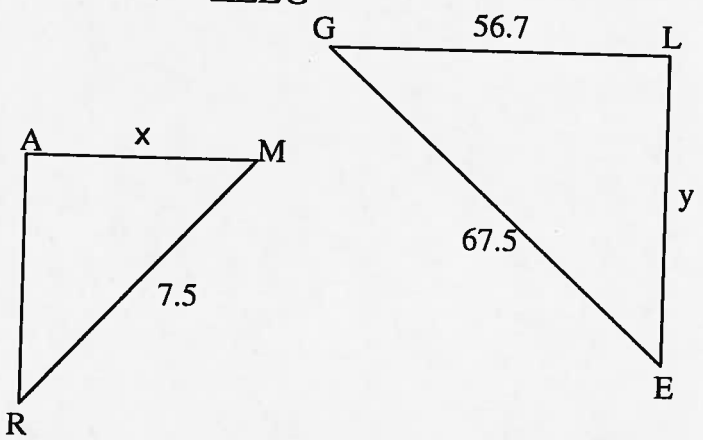


What proportions are equal?

Find x

Find y

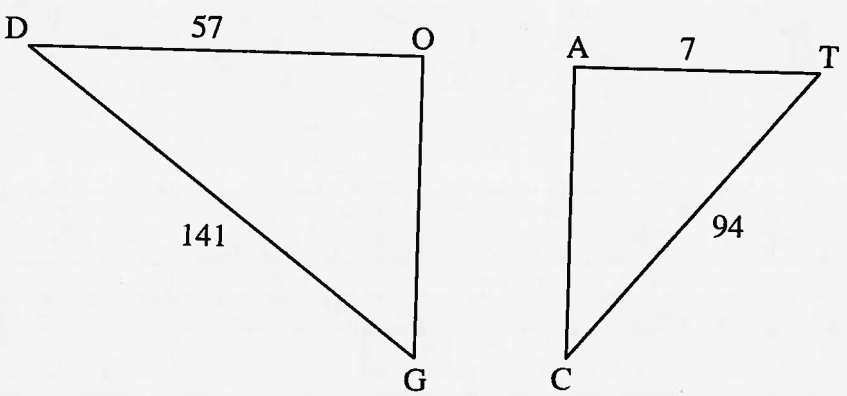
5. $\Delta ARM \sim \Delta LEG$



What sides are proportional?

Find x:

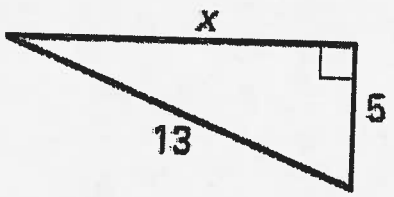
6. $\Delta CAT \sim \Delta DOG$



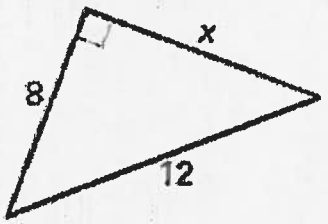
Find AC and OG.

GEOMETRY HW

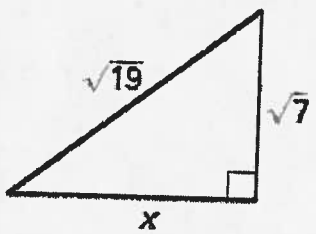
1. PYTHAGOREAN THEOREM
Find the unknown side length.



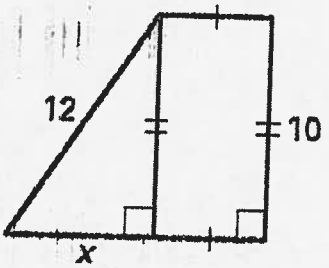
2. 8. PYTHAGOREAN THEOREM
Find the unknown side length.



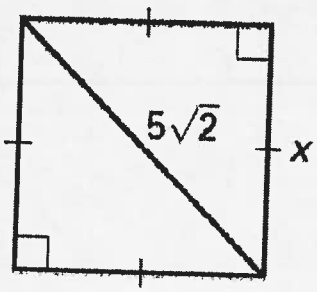
3. PYTHAGOREAN THEOREM
Find the unknown side length.



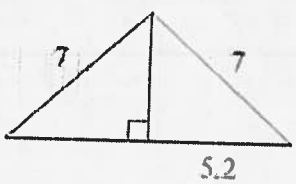
4. PYTHAGOREAN THEOREM
Find the unknown side length.



5. PYTHAGOREAN THEOREM
Find the unknown side length.



6. PYTHAGOREAN THEOREM
Find the perimeter of the triangle.



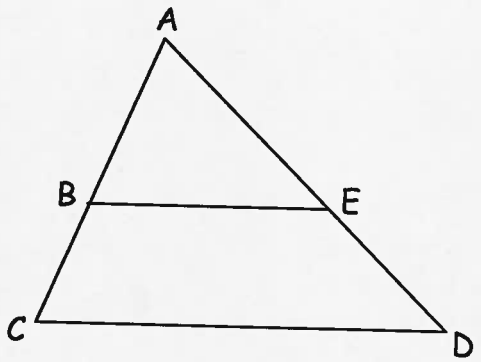
Geometry G
Sec 7.3 Notes

Name_____

Theorem: If a line is parallel to one side of a triangle and intersects the other two sides, then the triangle formed is similar to the original triangle.

If $\overline{BE} \parallel \overline{CD}$, then $\triangle ABE \sim \triangle ACD$

Let's see why this is true.



If $\overline{BE} \parallel \overline{CD}$, then the corresponding angles which are congruent are:

$\angle$_____ $\cong \angle$_____ and $\angle$_____ $\cong \angle$_____.

By AA, $\triangle$ _____ $\sim \triangle$ _____.

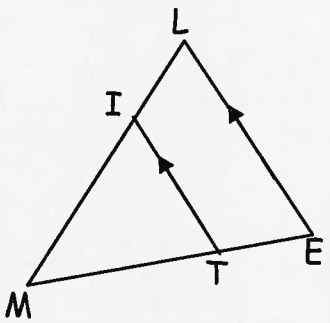
Examples

Complete the proportions for the given diagram.

a. $\frac{MI}{ML} = \frac{MT}{\quad}$

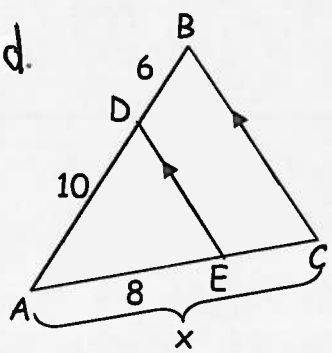
b. $\frac{MI}{ML} = \frac{\quad}{EL}$

c. $\frac{\quad}{LE} = \frac{MT}{ME}$

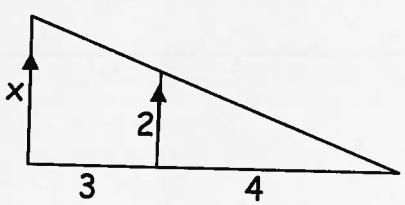


We can use these proportions to solve for the missing sides of similar triangles..

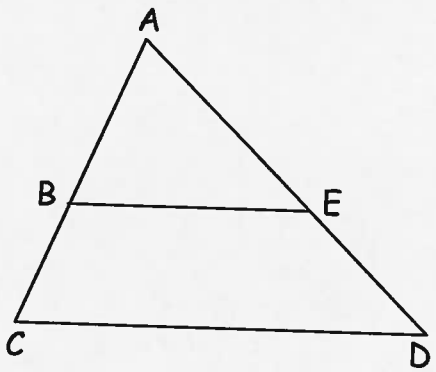
d.



e.



Theorem: If a line is parallel to one side of a triangle and intersects the other two sides, then it separates the sides into segments of proportional lengths.
(Also known as the **Side-Splitter Theorem.**)



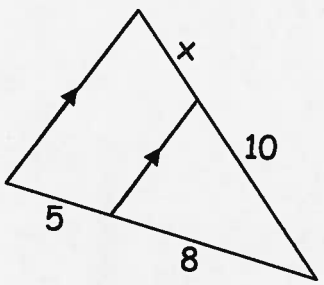
If $\overline{BE} \parallel \overline{CD}$, then $\frac{AB}{BC} = \frac{AE}{ED}$.

If you need to find either BE or CD, you still need to use similar triangles. You CANNOT use the Side-Splitter Theorem to find these two sides since they are not "split" sides.

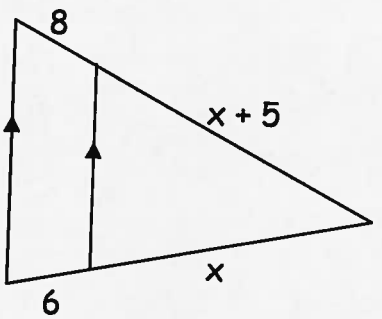
Examples

Write and solve proportions to solve for each variable.

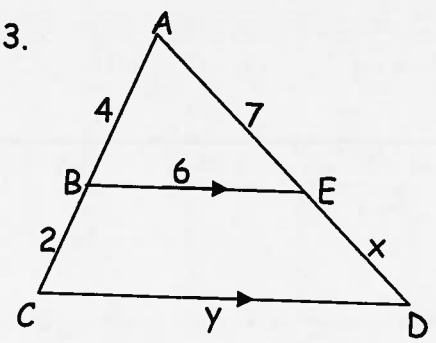
1.



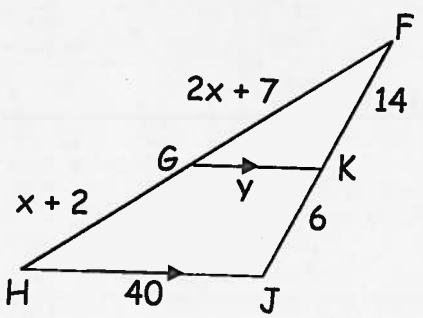
2.



3.

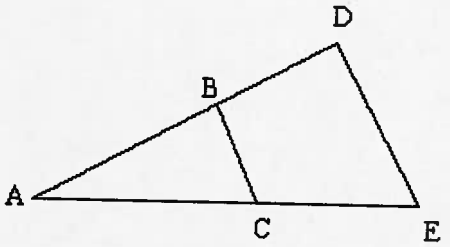


4.



Geometry Unit 7
Similarity and Inscribed Triangles

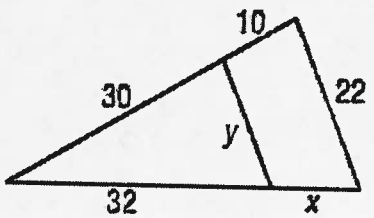
1.



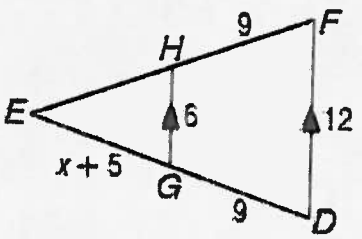
$\Delta BCA \sim \Delta DEA$
The length of the sides of ABC are 220, 204, and 216. The length of the smallest side of ADE is 408, what is the length of the longest side of ADE?

Find each variable given the similar triangles. Draw them separately if needed.

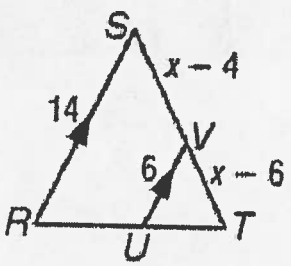
2.



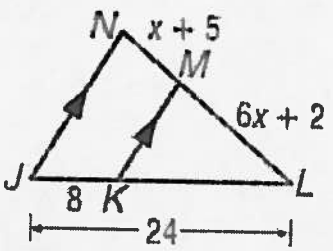
3.



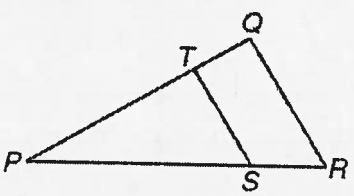
4.



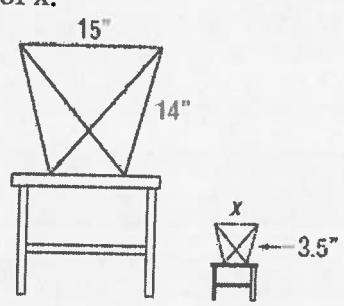
5.



6. If $\overline{TS} \parallel \overline{QR}$, $TS = 6$, $PS = x + 7$, $QR = 8$, and $SR = x - 1$, find PS and PR.



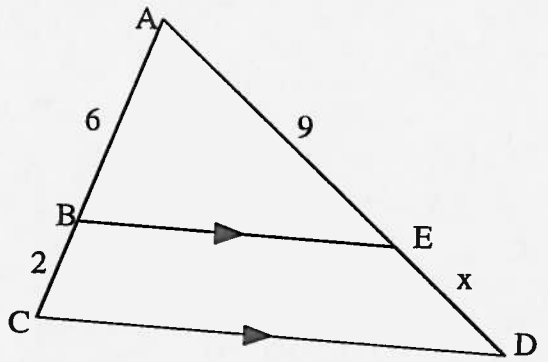
7. Marla likes her chair so much that she decided to make a miniature replica of it for her pet hamster. Find the value of x.



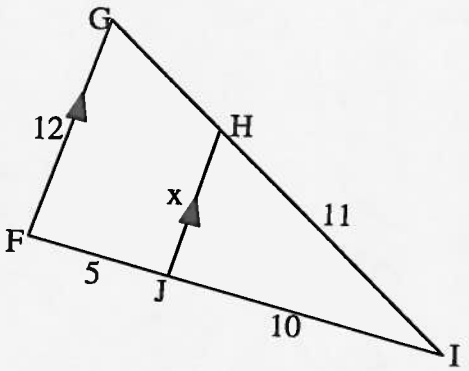
H

Practice 7.3
Solve for x for each problem.

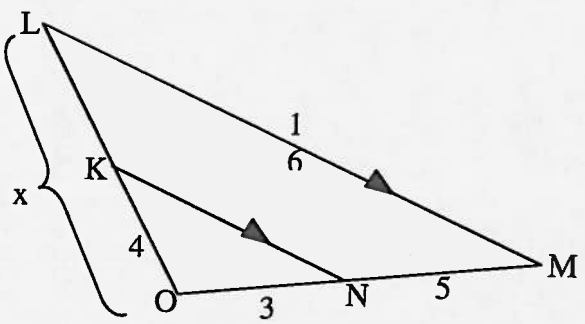
1]



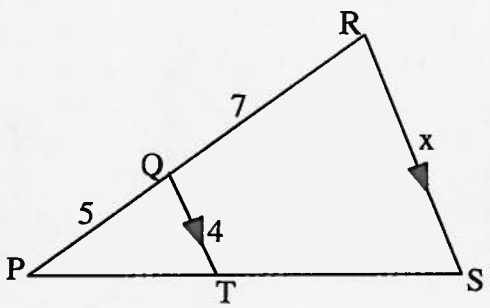
2]



3]

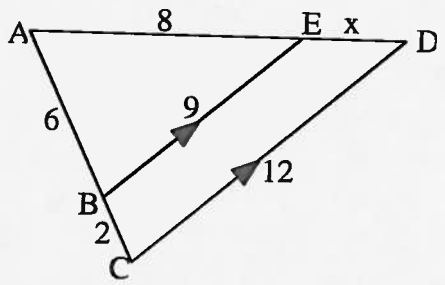


4]

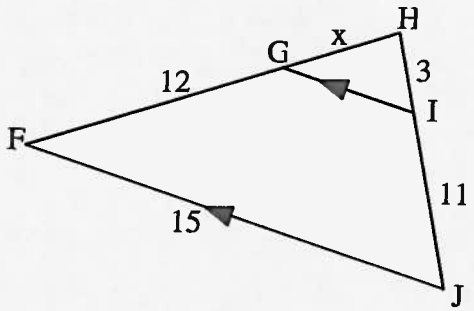


15

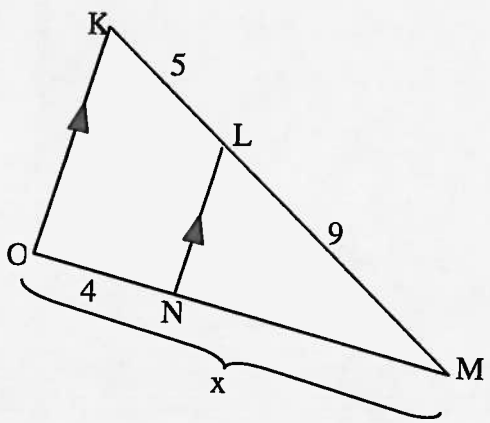
5]



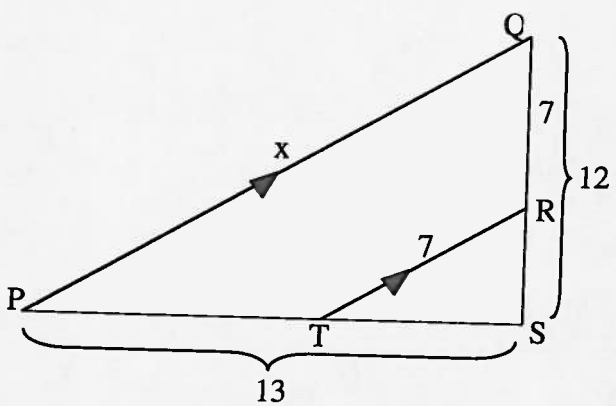
6]



7]



8]



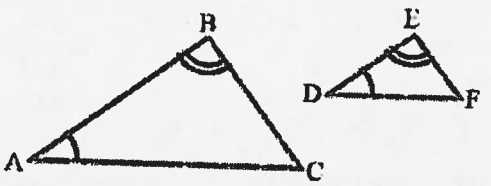
Name: _____ Period: __ Date: _____

Similar triangles: Two triangles are **similar** if and only if the corresponding sides are in proportion and the corresponding angles are congruent.

AA

To show two triangles are similar, it is sufficient to show that two angles of one triangle are congruent (equal) to two angles of the other triangle.

Theorem: If two angles of one triangle are congruent to two angles of another triangle, the triangles are similar.



If: $\measuredangle A \cong \measuredangle D$

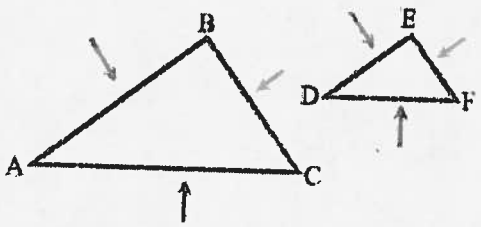
$\measuredangle B \cong \measuredangle E$

Then: $\Delta ABC \sim \Delta DEF$

SSS

BE CAREFUL!! SSS for similar triangles is NOT the same theorem as we used for congruent triangles. To show triangles are similar, it is sufficient to show that the three sets of corresponding sides are in proportion.

Theorem: If the three sets of corresponding sides of two triangles are in proportion, the triangles are similar.



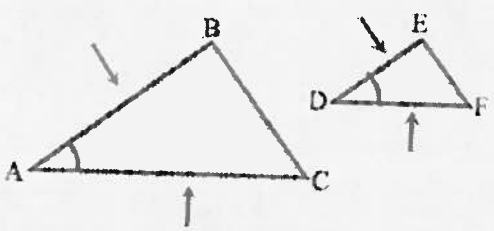
If: $\frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$

Then: $\Delta ABC \sim \Delta DEF$

SAS

BE CAREFUL!! SAS for similar triangles is NOT the same theorem as we used for congruent triangles. To show triangles are similar, it is sufficient to show that two sets of corresponding sides are in proportion and the angles they include are congruent.

Theorem: If an angle of one triangle is congruent to the corresponding angle of another triangle and the lengths of the sides including these angles are in proportion, the triangles are similar.



If: $\measuredangle A \cong \measuredangle D$

$\frac{AB}{DE} = \frac{AC}{DF}$

Then: $\Delta ABC \sim \Delta DEF$

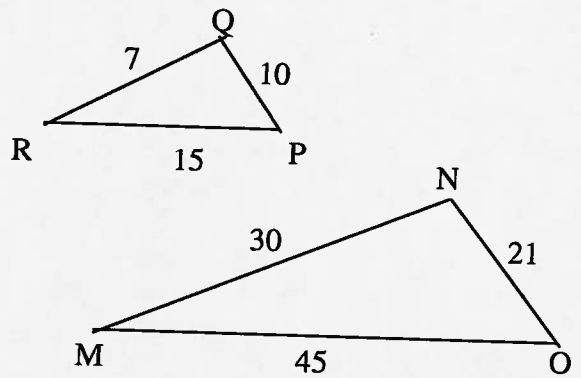
Geometry

Postulate AA Part 1

Name _____

Determine whether each pair of triangles is similar. If the triangles are similar, justify your answer by using SSS~, SAS~, and AA~. Make sure you have work to support your answer.

1.

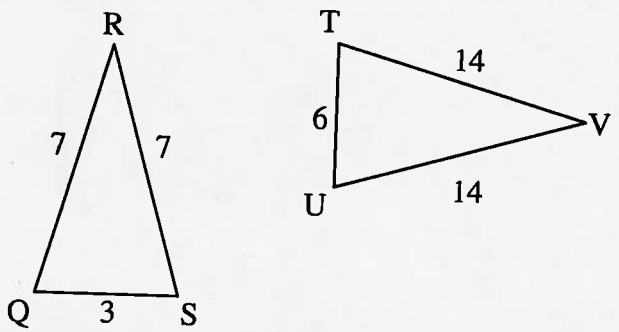


Yes No

Δ _____ ~ Δ_____

by _____

2.

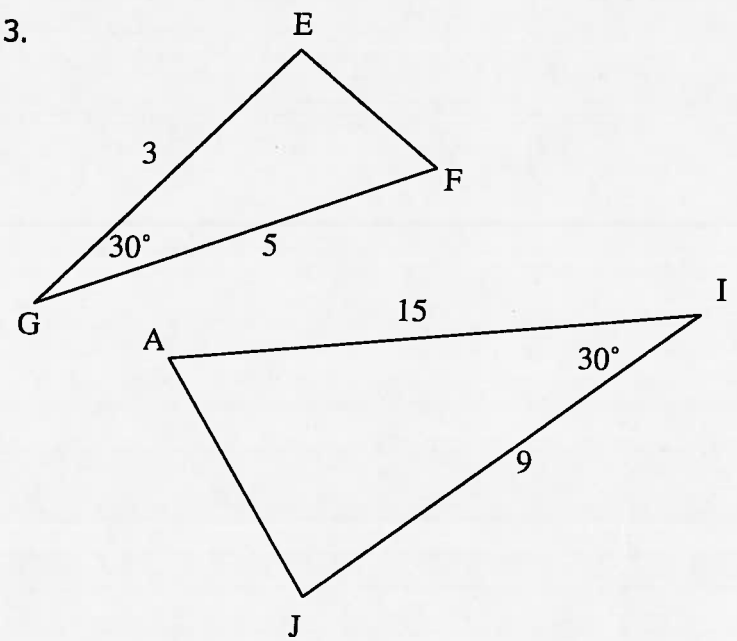


Yes No

Δ _____ ~ Δ_____

by _____

3.



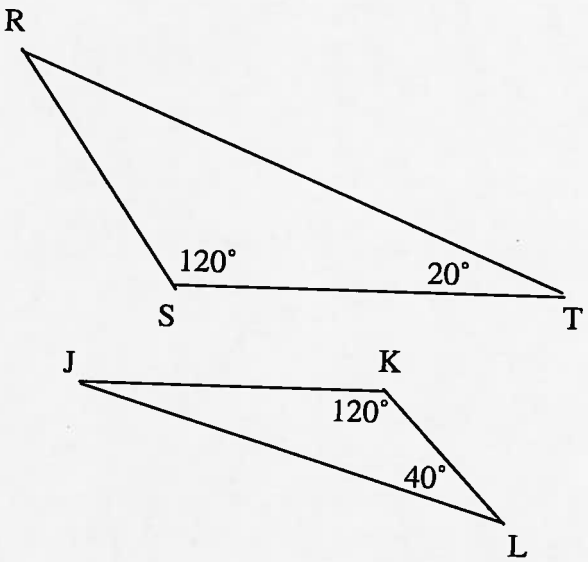
Yes No

Δ _____ ~ Δ_____

by _____

8

4.

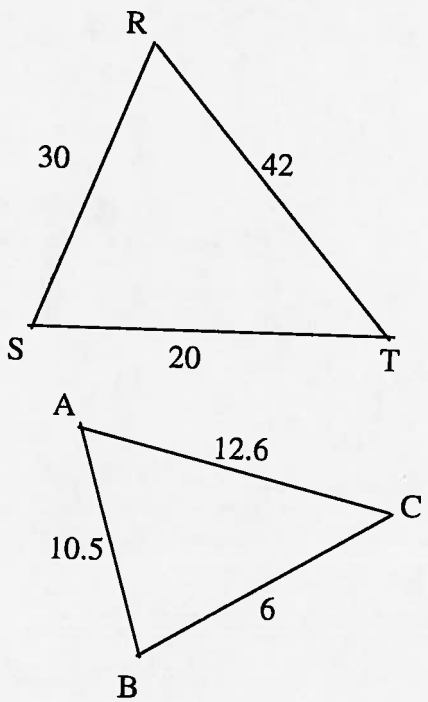


Yes No

Δ _____ ~ Δ_____

by _____

5.



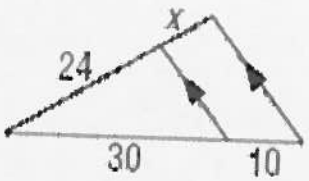
Yes No

Δ _____ ~ Δ_____

by _____

Geometry HW

1. Parallel lines and Proportion
Solve for x.

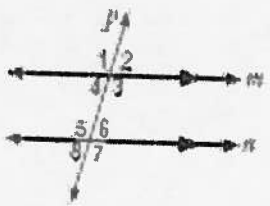


2. Parallel Lines
Name all of the angles below.
Alternate Interior:

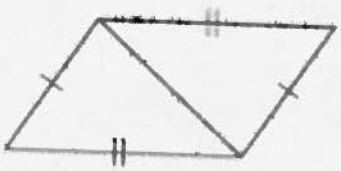
Alternate Exterior:

Consecutive Interior:

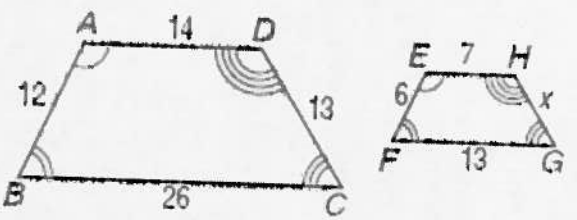
Corresponding:



3. Similar Triangles
Are the triangles similar? If so, state the postulate or theorem.



4. Similar Polygons
The polygons are similar. Solve for x.

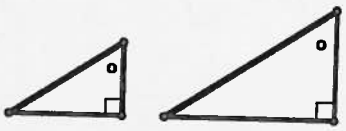


20

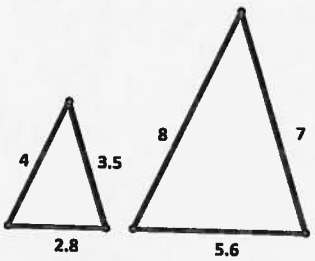
Geometry Unit 7
SSS, SAS, AA Similarity

1. Are the following pairs of triangles similar? If they are, then name their similarity criteria.

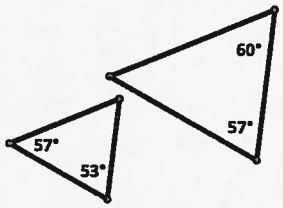
a) Yes / No _____



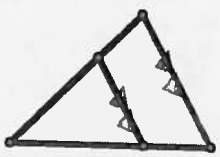
b) Yes / No _____



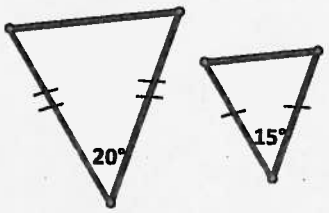
c) Yes / No _____



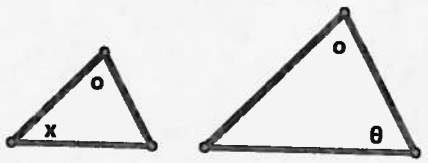
d) Yes / No _____



e) Yes / No _____

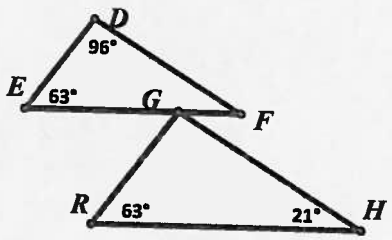


f) Yes / No _____



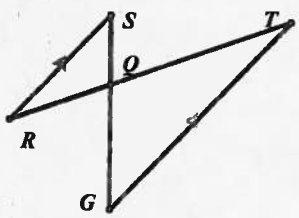
2. Are the following pairs of triangle similar? If YES, name the similarity criteria (SSS, SAS, AA) and create a similarity statement. If NO, just circle No.

a)



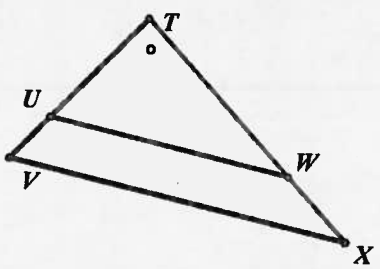
Yes/No Δ_____ ~ Δ_____ Criteria_____

b)



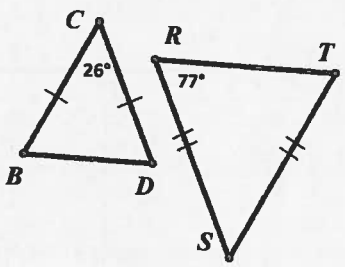
Yes/No Δ_____ ~ Δ_____ Criteria_____

c)



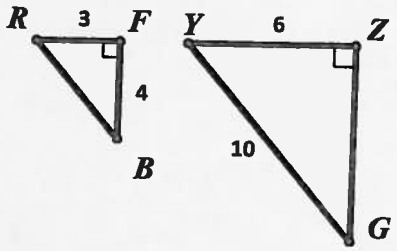
Yes/No Δ_____ ~ Δ_____ Criteria_____

d)



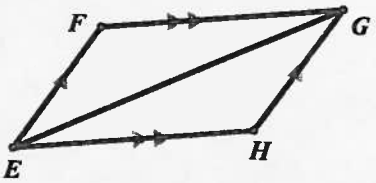
Yes/No Δ_____ ~ Δ_____ Criteria_____

e)



Yes/No Δ_____ ~ Δ_____ Criteria_____

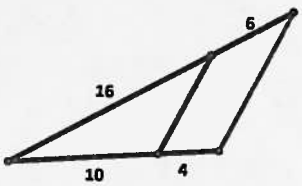
f)



Yes/No Δ_____ ~ Δ_____ Criteria_____

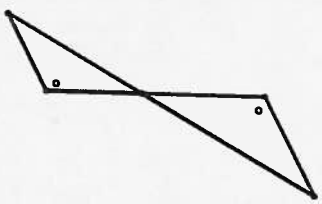
3. Are the following pairs of triangle similar? If YES, name the similarity criteria

a)



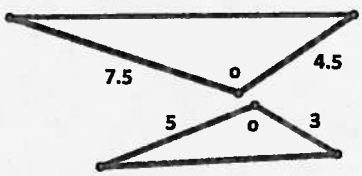
Yes/No Criteria_____

b)



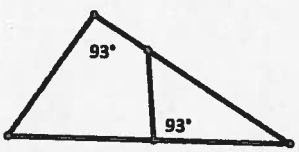
Yes/No Criteria_____

c)



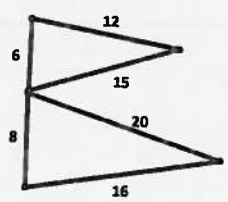
Yes/No Criteria_____

d)



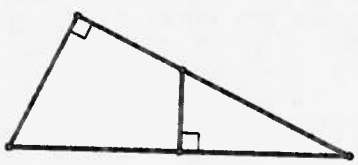
Yes/No Criteria_____

e)



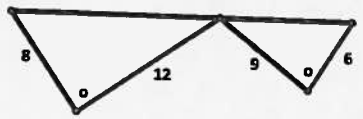
Yes/No Criteria_____

f)



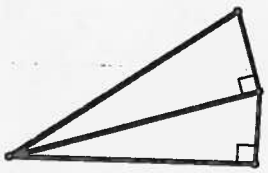
Yes/No Criteria_____

g)



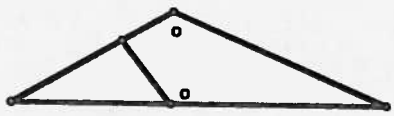
Yes/No Criteria_____

h)



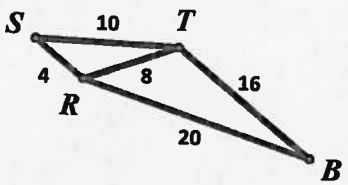
Yes/No Criteria_____

i)



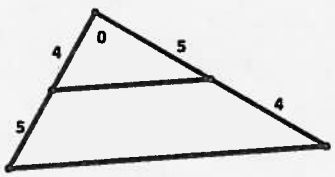
Yes/No Criteria_____

j)



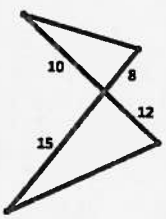
Yes/No Criteria_____

k)



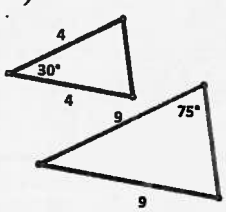
Yes/No Criteria_____

l)



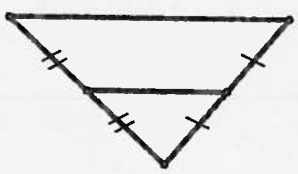
Yes/No Criteria_____

m)



Yes/No Criteria_____

n)



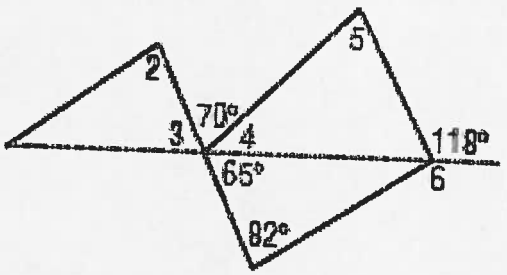
Yes/No Criteria_____

4. Jeff asks the teacher is ASA is also a similarity criterion. The teacher says yes but it isn't needed. Why isn't it needed?

GEOMETRY HW

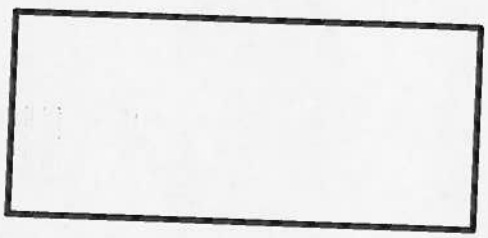
1. ANGLES OF TRIANGLES

What is the measure of $\angle 4$ *and* $\angle 6$?



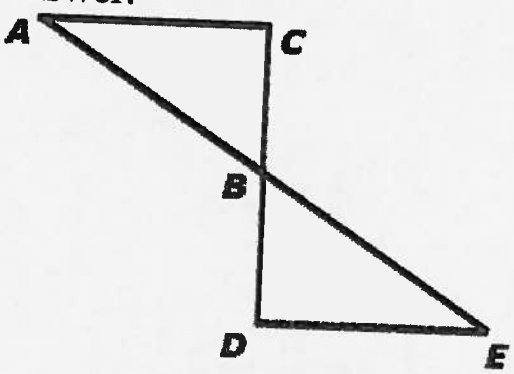
2. NOTATIONS

Is the shape a rectangle? If not, what notation would need to be included?



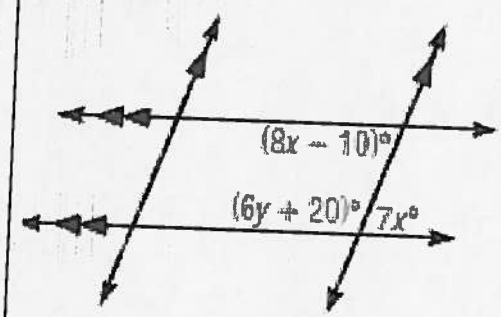
3. SIMILARITY

If CD is perpendicular to AC and DE, are the two triangles similar? Justify your answer.



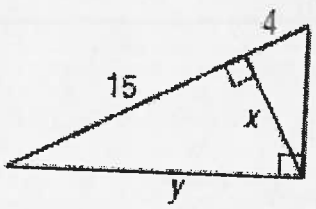
4. PARALLEL LINES

Solve for x.



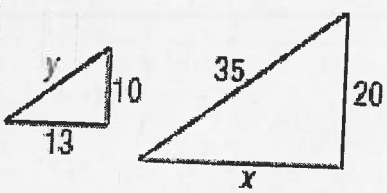
5. PYTHAGOREAN THEOREM

Solve for y. Use geometric mean first.



6. PORPORTIONS

Solve for x.



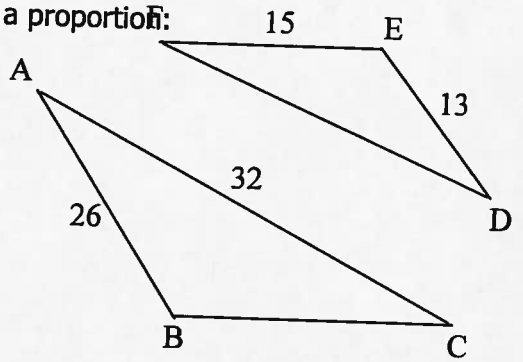
Geometry
Similar Triangles

Name _____

Find the missing lengths of the similar triangles.

1. $\Delta ABC \sim \Delta DEF$

Step 1: Write the corresponding sides of ΔABC and ΔDEF as a proportion:



____ = ____ = ____

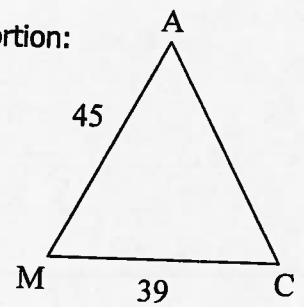
Step 2: Fill in the numbers and solve for the missing side.

BC = _____

FD = _____

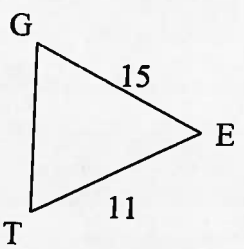
2. $\Delta MAC \sim \Delta GET$

Step 1: Write the corresponding sides of ΔABC and ΔDEF as a proportion:



____ = ____ = ____

Step 2: Fill in the numbers and solve for the missing side.

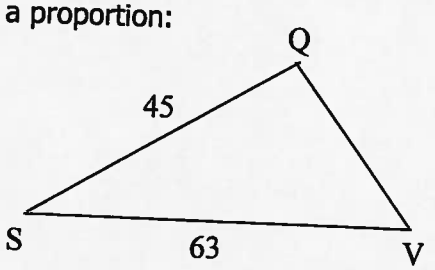


AC = _____

TG = _____

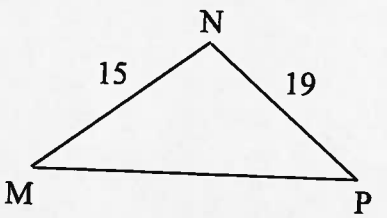
3. $\Delta MNP \sim \Delta SQV$

Step 1: Write the corresponding sides of ΔABC and ΔDEF as a proportion:



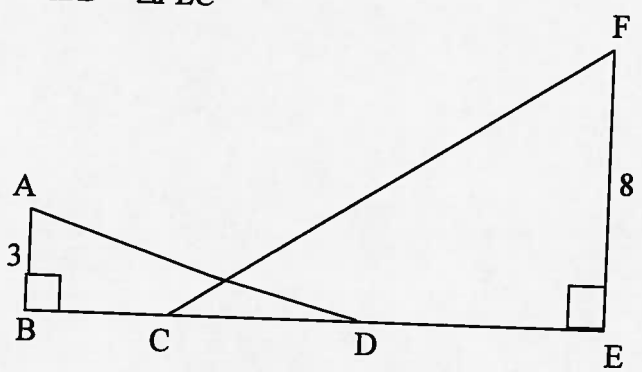
____ = ____ = ____

Step 2: Fill in the numbers and solve for the missing side.



PM = _____ QV = _____

4. $\Delta ABD \sim \Delta FEC$



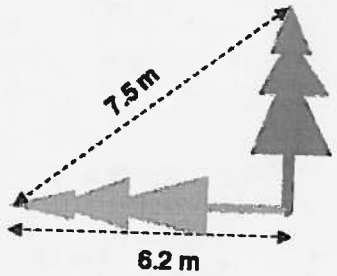
$BD = x - 1$

$CE = x + 2$

BD = _____ EC = _____

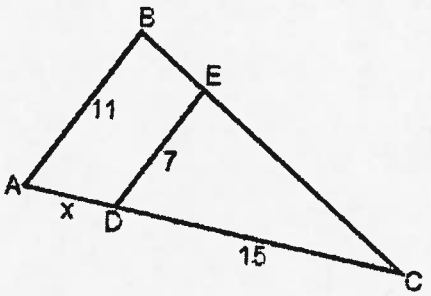
1. PYTHAGOREAN THEOREM

How tall is the tree?



2. TRIANGLES

Find x given the similar triangles.



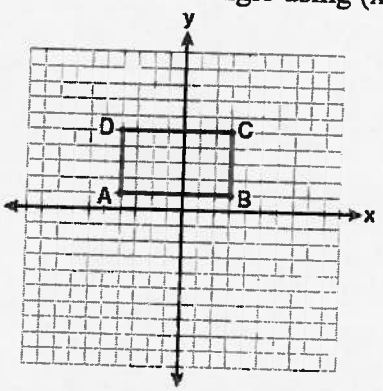
3. PARALLELOGRAMS

Name 4 properties of a rectangle.

1.
2.
3.
4.

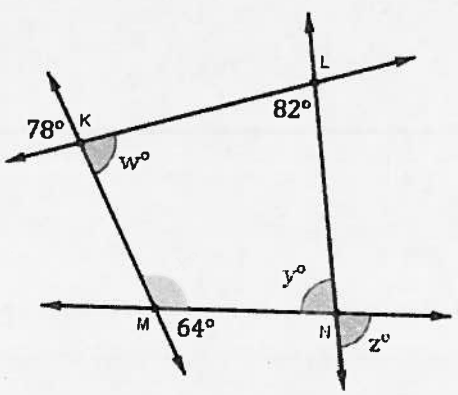
4. TRANSFORMATIONS

Translate the rectangle using $(x,y) \rightarrow (x - 5, y - 8)$



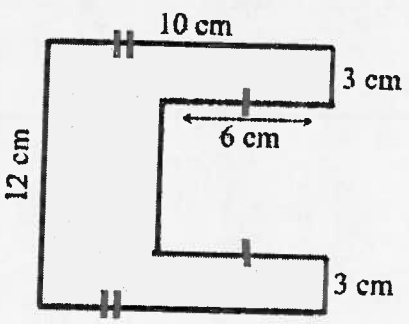
5. QUADRILATERALS

Solve for x, y, w, and z.



6. AREA & PERIMETER

Find the perimeter.



Geometry Unit 7
Similarity in Reality

1. Solve the following word problems. (Show work)

a) The ratio of seniors to juniors in the Chess Club is 2:3. If there are 24 juniors, how many seniors are in the club?

b) A 15 foot building casts a 9 foot shadow. How tall is the building that casts a 30 ft shadow at the same time?

c) A picture is 3 in. wide by 5 in. high was enlarged so that the width was 15 inches. How high is the enlarged picture?

d) Cameron has been eating 2 dollar menu burgers every week (7 days). At that rate, how many hamburgers will he in 4 weeks?

e) A triangle's three angles are in the ratio of 5:7:8. What is the measure of the smallest angle?

f) A 6 foot high school boy casts a shadow of 24 inches. At the same time of day a girl at the elementary school park casts a shadow of 14 inches. How tall is she (in feet)?

Shadow proportions:

2. The Sears Tower in Chicago is our nation's tallest skyscraper. If the Sears tower casts a shadow that is 1,160 feet long while a parking meter that is 5 feet tall casts a 48-inch shadow, how tall is the Sears Tower?

3. Nick's shadow is 5 inches longer than Sandy's shadow, but he is 7 inches taller than she is. If Sandy is 59 inches tall, how long is her shadow? (to the tenth)

Geometry Unit 7

Similarity Review

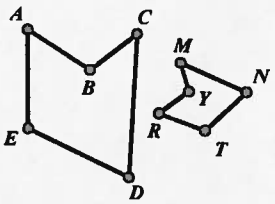
1. Given that $\Delta AFG \sim \Delta DRH$, complete the following.

$\angle H \cong \angle$_____ $\quad \frac{DR}{AF}=\frac{DH}{\square}$ $\quad \angle D \cong \angle$_____ $\quad \frac{\square}{RH}=\frac{AG}{DH}$

2. Pentagon ABCDE is similar to Pentagon RYMNT. Complete the following.

$\angle C \cong \angle$_____ $\quad \frac{AB}{RY}=\frac{ED}{\square}$ $\quad \frac{MN}{RT}=\frac{CD}{\square}$

$\angle T \cong \angle$_____ $\quad \frac{NT}{DE}=\frac{RT}{\square}$ $\quad \frac{AB}{BC}=\frac{RY}{\square}$

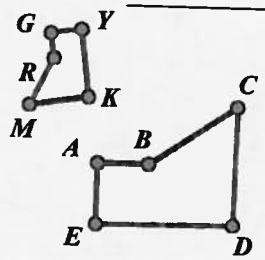


3. ΔABC is similar to another triangle. Provided is some information about the two triangles: $\frac{BC}{DR}=\frac{AB}{TD}$. From this information determine the triangle similarity statement.

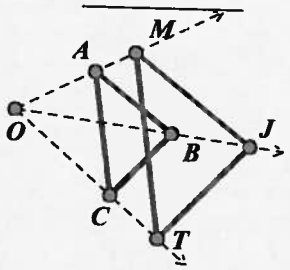
$\Delta ABC \sim \Delta$_____

4. The two figures in each question are similar. Create the similarity statement from the diagram.

a) Pentagon GYKMR ~ _____



b) $\Delta JMT \sim$ _____



c) $\Delta BAC \sim$ _____