JANUARY
Makugihon

FEBRUARY
Mahigugmaon

MARCH
Matinabangon

APRIL
Matinahuron

MAY
Mahapsay og Malimpyo

JUNE
Maabtik og Musunod sa Insaktong Oras

JULY
Maantigo og Maabilidad

AUGUST
Maginhawahunon para sa Uban

SEPTEMBER
Madaginoton

OCTOBER
Matinud-anon

NOVEMBER
Masaligan

DECEMBER
Maalampuon

Republic of the Philippines
Department of Education
Regional Office IX, Zamboanga Peninsula

9

Zest for Progress
Zeal of Partnership

Mathematics

Quarter 3 - Module 6:

Illustration of Similarity of Polygons and Triangle Similarity Theorems and Its Proof

Name of Learner: ___________________________

Grade & Section: ___________________________

Name of School: ___________________________

What I Need to Know

In this module, you are expected to:

1. illustrate similarity of polygons;
2. prove the conditions for similarity of triangles:
   - a.) SAS similarity theorem
   - b.) SSS similarity theorem
   - c.) AA similarity theorem
   - d.) right triangle similarity theorem: and
   - e.) special right triangle theorems

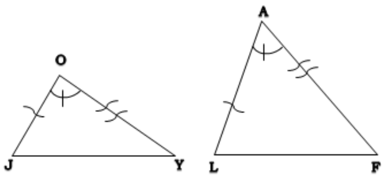
What I Know

Directions: Encircle the letter of the correct answer.

1. ΔTOY ~ ΔCAR. Which part of the triangles should be congruent that makes it similar?
   - a. ∠T≅∠O, ∠Y≅∠C, ∠A≅∠R
   - b. ∠T≅∠C, ∠O≅∠A, ∠Y≅∠R
   - c. ∠C≅∠Y, ∠A≅∠O, ∠R≅∠O
   - d. ∠C≅∠T, ∠A≅∠O, ∠R≅∠Y

2. What corresponding sides should be proportional to make ΔJEI ~ ΔPAT?
   - a. $\frac{JE}{PA} = \frac{EI}{AT} = \frac{EI}{PT}$
   - b. $\frac{JE}{PA} = \frac{JI}{AT} = \frac{EI}{PT}$
   - c. $\frac{JI}{PA} = \frac{EI}{PT} = \frac{EI}{AT}$
   - d. $\frac{JE}{PT} = \frac{EI}{AT} = \frac{EI}{PT}$

3. What important given can be best used in proving the given illustrations.
   - a. ∠O≅∠A, OJ≅ AL, JY≅ AF
   - b. ∠O≅∠A, OJ≅ AL, OY≅ LF
   - c. ∠O≅∠A, JO≅ LA, OY≅ AF
   - d. ∠O≅∠A, JY≅ AL, OY≅ LF

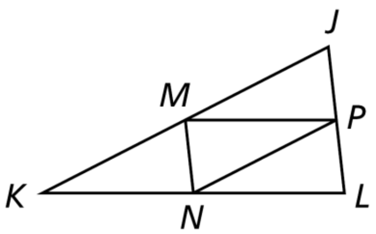


4. What Δ similarity theorem can be best used to prove that the two triangles are similar, in the given illustrations in item 3?
   - a. AA similarity theorem
   - b. ASA similarity theorem
   - c. SAS similarity theorem
   - d. SSS similarity theorem

5. What part of the triangle should be congruent to prove that triangles are similar in an SSS similarity theorem?
   - a. Three sides
   - b. Three angles
   - c. Two angles and its included side
   - d. Two sides and its included angle

6. Given: *M* is the midpoint of *JK*. *N* is the midpoint of *KL*, and *P* is the midpoint of *JL*.

   What statements can be used that may support the triangle midsegment theorem in proving that Δ*JKL* ~ Δ*NPM*?



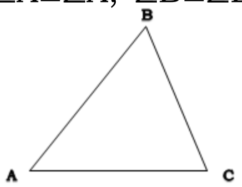
   - a. MP = $\frac{1}{2}$KJ, MN = $\frac{1}{2}$KL, NP = $\frac{1}{2}$LJ
   - b. MP = $\frac{1}{2}$JL, MN = $\frac{1}{2}$KL, NP = $\frac{1}{2}$KL
   - c. MP = $\frac{1}{2}$PL, MN = $\frac{1}{2}$JM, NP = $\frac{1}{2}$JL
   - d. MP = $\frac{1}{2}$KL, MN = $\frac{1}{2}$JL, NP = $\frac{1}{2}$KJ

7. If $\angle A \cong \angle E$, $\angle P \cong \angle J$, then $\Delta JEI \sim \Delta PAT$. Which Δ similarity theorem proves the statement?

a. SSS similarity theorem
b. SAS similarity theorem
c. SS similarity theorem
d. AA similarity theorem

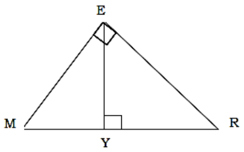
8. What property of congruence will support the statement if $\angle A \cong \angle A$, $\angle B \cong \angle B$, in the given figure?

a. CPCTC
b. Reflexive property
c. SAS congruence
d. Transitive property



9. In the given figure, $\angle MER$ is a right triangle with $\angle MER$ as the right angle and MR as the hypotenuse; EY is an altitude to the hypotenuse of ΔMER.

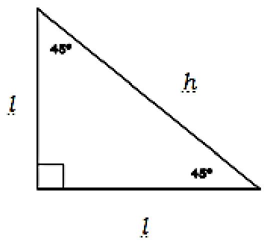
Which of the following similarity theorem will prove that $\Delta MYE \sim \Delta MER$ and $\Delta MER \sim \Delta EYR$?



a. SSS similarity theorem
b. SAS similarity theorem
c. SS similarity theorem
d. AA similarity theorem

10. What is the value of h in a 45-45-90 triangle if $l = 12$, given that $h = \sqrt{2}l$ and $l = \frac{\sqrt{2}}{2}h$?

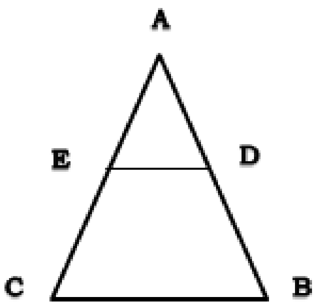
a. $12\sqrt{2}$ b. $12\frac{2}{\sqrt{2}}$ c. $12\sqrt{\frac{\sqrt{2}}{2}}$ d. $10\sqrt{\frac{\sqrt{2}}{2}}$



What's In

Activity 1: Find My Part!

Directions: In ΔABC, DE || BC, find the indicated part of the triangle applying the triangle proportionality theorem. Write your answer on the space provided for.



_____ 1. Given that DB = 3, AE = 2 and EC = 6, find AD.

_____ 2. Given that AD = 2, DB = 3, and EC = 6, find AE.

_____ 3. Given that AE = 6, EC = 8, and AD = 3, find DB.

_____ 4. Given that AD = 4, DB = 3, and AE = 8, and EC = x + 2, find ECS.

_____ 5. Given that AD = x+5, AE = x, DB = 20 and EC = 10, find AC.

Source: Fernando B. Orines et al., Next Century Mathematics 9, Quezon City: Phoenix Publishing House, Inc, 2014, 312-313.

What's New

Activity 1: Agree or Disagree?

Directions: In the given statement about triangle similarity theorem, put a check (✓) mark_on the ***Agree*** column if you agree and ***Disagree*** column if you disagree. In answering this activity, you will be acquainted with proving statements involving similar triangles.

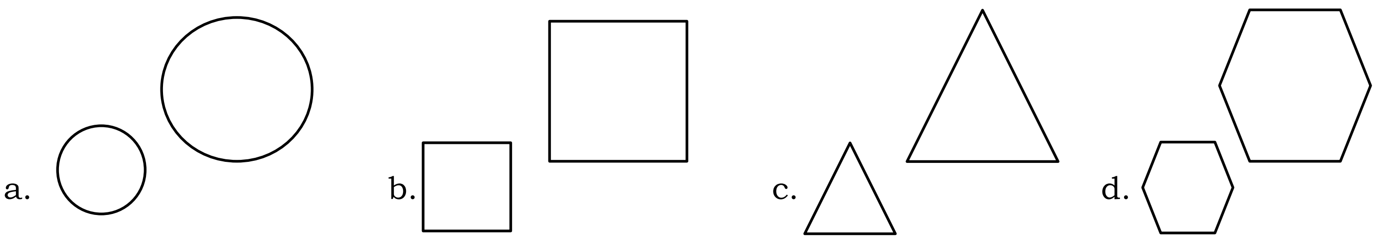
Statement	**Agree**	**Disagree**
1. Figures are similar if and only if they have the same shape but not necessarily of the same size.		
2. If two angles of a triangle are congruent to two angles of the second triangle, then the two triangles are similar.		
3. If two pairs of corresponding angles of two triangles are proportional and the include sides are congruent, then the two triangles are similar.		
4. If a segment intersects an angle of a triangle, then it divides the opposite side into segments proportional to the other two sides.		
5. If a line parallel to one side of a triangle intersects the other two sides, then it divides those sides proportionally.		

Source: Symbols.com, STANDS4 LLC, 2020. *"Check mark."* Accessed November 23, 2020. https://www.symbols.com/symbol/check-mark.

What is it

Similar Figures

Shown below are examples of similar figures.



Figures are similar if and only if they have the same shape but not necessarily of the same size. There are many similar real objects around, for instance, an enlargement of a photograph and blueprints.

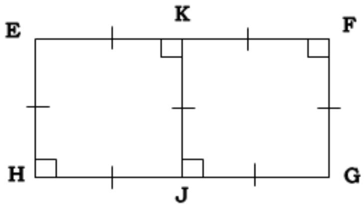
Similar Polygons

Two convex polygons are similar if corresponding angles are congruent and the ratios of the lengths of corresponding sides are equal.

If polygons ABCD and WXYZ are similar, then ∠A ≅ ∠W, ∠B ≅ ∠X, ∠C ≅ ∠Y, ∠D ≅ ∠Z. Moreover, $\frac{AB}{WX} = \frac{BC}{XY} = \frac{CD}{YZ}$.

In symbol, polygon ABCD ~ polygon WXYZ. The symbol " ~ " is used for similarity.

Consider the overlapping figures:



Polygon *EKJH* is similar to polygon *KFGJ*, since all corresponding angles are congruent and all corresponding sides are proportional.

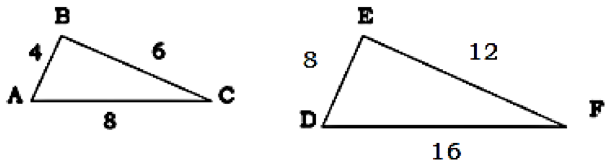
Thus, polygon *EKJH* ~ polygon *KFGJ.*

But polygon *EKJH* is not similar to polygon *EFGH*. Take note that corresponding angles are congruent but corresponding sides are not proportional.

Similar Triangles

Two triangles are similar if and only if the corresponding angles are congruent and the lengths of the corresponding sides are proportional.

Consider the two triangles below:



These two triangles have the same shape but not the same size. In the two triangles, ∠A≅∠D, ∠B ≅ ∠E, ∠C ≅ ∠F and their corresponding sides are proportional, that is, $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$.

Triangles like ΔABC ~ ΔDEF are described as similar triangles.

Δ***ABC*** ~ Δ***DEF*** is read as "triangle ABC is similar to triangle DEF."

Similar Theorems

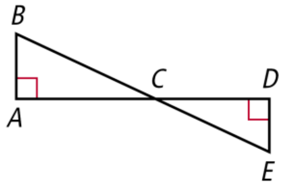
There are several ways to prove certain triangles are similar. The following postulate, as well as the SSS and SAS Similarity Theorems, will be used in proofs just as SSS, SAS, ASA, HL, and AAS were used to prove triangles congruent.

Angle-Angle (AA) Similarity Theorem (Angle-Angle)

If two angles of a triangle are congruent to two angles of the second triangle, respectively, then the two triangles are similar.

Example 1:

Explain why the triangles are similar and write a similarity statement.

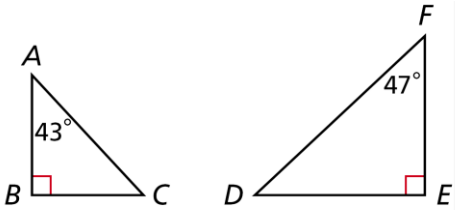


Proof:

Since AC||DC, ∠*B* ≅ ∠*E* by the Alternate Interior Angles Theorem. Also, ∠*A* ≅ ∠*D* by the Right Angle Congruence Theorem. Therefore, Δ*ABC* ~ Δ*DEC* by AA~.

Example 2:

Explain why the triangles are similar and write a similarity statement.



Proof:

By the Triangle Sum Theorem, m∠*C* = 47°, so ∠*C* ≅ ∠*F*. ∠*B* ≅ ∠*E* by the Right Angle Congruence Theorem. Therefore, Δ*ABC* ~ Δ*DEF* by AA ~.

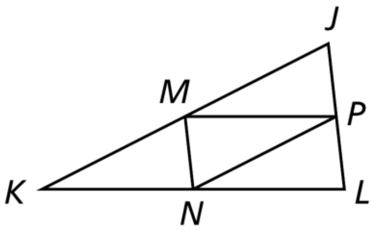
.

> *Side-Side-Side (SSS) Similarity Theorem*
>
> If all three pairs of corresponding sides of two triangles are proportional, then the two triangles are similar.

Example 3:

Given: *M* is the midpoint of *JK*. *N* is the midpoint of *KL*, and *P* is the midpoint of *JL*.

Prove: Δ*JKL* ~ Δ*NPM*



Proof:

STATEMENTS	REASONS
1. M is the midpoint of JK, N is midpoint of KL, and P is midpoint of JL.	Given
2. MP = $\frac{1}{2}$KL, MN = $\frac{1}{2}$JL, NP = $\frac{1}{2}$KJ	ΔMid-segments Theorem
3. $\frac{MP}{KL} = \frac{MN}{JL} = \frac{NP}{KL} = \frac{1}{2}$	Division Property of Equality
4. Δ*JKL* ~ Δ*NPM*	SSS ~ **Step 3**

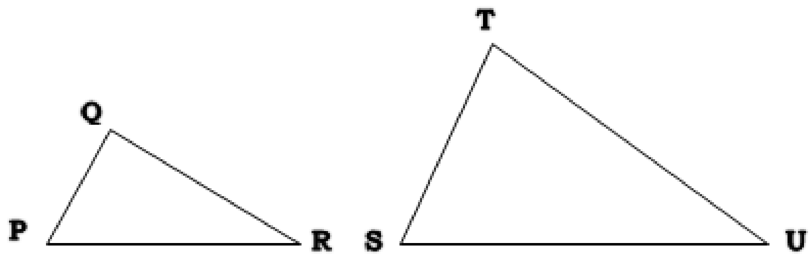
Side-Angle-Side (SAS) Similarity Theorem

If two pairs of corresponding sides of two triangles are proportional and the included angles are congruent, then the two triangles are similar.

Example 4:

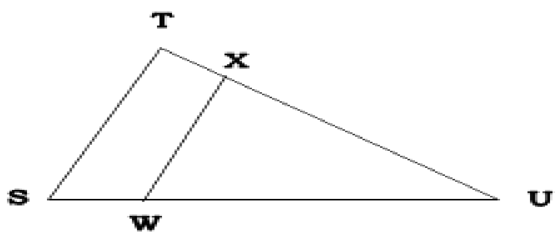
Given: $\frac{QR}{TU} = \frac{PR}{SU}$; ∠R ≅ ∠U

Prove: $\Delta PQR \sim \Delta STU$



proof:

- Construct X on line segment TU such that XU = QR.
- From X, construct XW parallel to TS intersecting SU at W.



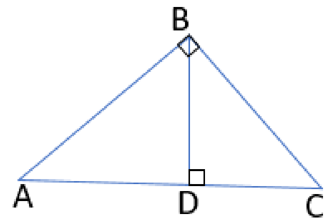
HINTS	**STATEMENTS**	**REASONS**
1. Which sides are parallel?	1. ST||WX	1. By construction
2. Describe angles WXU & STU and XWU and TSU based on statement 1.	2. ∠WXU ≅ ∠STU ∠XWU ≅ ∠TSU	2. Corresponding angles are congruent
3. Are triangles WXU and STU similar?	3. $\Delta WXU \sim \Delta STU$	3. AA Similarity Theorem
4. Write the equal ratios of similar triangles in statement 3.	4. $\frac{WX}{ST} = \frac{XU}{TU} = \frac{WU}{SU}$	4. Definition of similar polygons
5. Write the congruent sides that resulted from construction.	5. XU = QR	5. By construction
6. Write the given related to sides.	6. $\frac{QR}{TU} = \frac{PR}{SU}$	6. Given
7. Use statement 5 in statement 6	7. $\frac{XU}{TU} = \frac{PR}{SU}$	7. Substitution property of equality
8. If $\frac{XU}{TU} = \frac{PR}{SU}$ (statement 7) and $\frac{XU}{TU} = \frac{WU}{SU}$ (statement 4), then	8. $\frac{PR}{SU} = \frac{WU}{SU}$	8. Transitive property of equality
If $\frac{XU}{TU} = \frac{PR}{SU}$ (statement 7) and $\frac{QR}{TU} = \frac{PR}{SU}$ (statement 6), then	$\frac{QR}{TU} = \frac{XU}{TU}$	

9. Multiply the proportions in statement 8 by their common denominators and simplify.	9. PR = WU QR = XU	9. Multiplication property of equality
10. Write the given related to corresponding angles.	10. ∠R ≅ ∠U	10. Given
11. What can you say about triangles PQR and WXU based on statements 9 & 10.	11. ΔPQR ≅ ΔWXU	11. SAS triangle congruence postulate
12. Write a statement when the reason is the one shown.	12. ΔPQR ~ ΔWXU	12. Congruent triangles are similar
13. Write a conclusion using statements 12 and 3.	13. ΔPQR ~ ΔSTU	13. Substitution property

The Right Triangle Similarity Theorem

In any right triangle, the altitude to the hypotenuse divides the triangle into two right triangles, which are similar to each other and to the given right triangle.

Consider the right ΔABC with ∠ABC as the right angle. If the altitude BD to the hypotenuse AC is drawn, two new right triangles are formed.



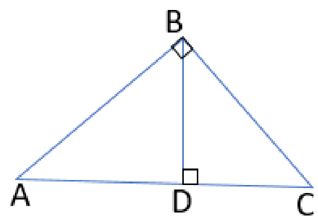
Example 5:

Given:

ΔABC with right angled at B.
BD is the altitude to the hypotenuse AC.

Prove:

ΔADB~ΔABC; ΔBDC~ΔABC; ΔADB~ΔBDC



Proof:

STATEMENTS	**REASONS**
1. ΔABC with right angled at B. BD is the altitude to the hypotenuse AC.	1. Given
2. BD is perpendicular to AC	2. Definition of altitude
3. ∠ADB and ∠BDC are right angles	3. Definition of perpendicular
4. ΔADB and ΔBDC are right triangles	4. Definition of right triangles
5. ∠ADB ≅ ∠ABC; ∠BDC ≅ ∠ABC	5. Any two right triangles are congruent
6. ∠A ≅ ∠A	6. Reflexive property of congruence
7. ΔADB ~ ΔABC	7. AA similarity
8. ∠C ≅ ∠C	8. Reflexive property of congruence
9. ΔBDC ~ ΔABC	9. AA similarity
10. ΔADB ~ ΔBDC	10. Transitive property

45 – 45 – 90 Right Triangle Theorem

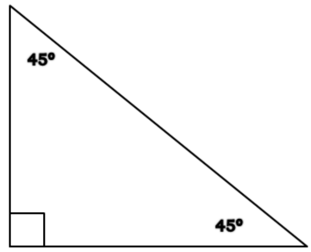
In a 45 – 45 – 90 right triangle:

- each leg is $\frac{\sqrt{2}}{2}$ times the hypotenuse; and
- the hypotenuse is $\sqrt{2}$ times each leg l

Example 6:

Given: Right triangle with leg = l, and hypotenuse = h

Prove: $h = \sqrt{2}l$*; $l = \frac{\sqrt{2}}{2}h$**



Proof:

HINTS	**STATEMENTS**	**REASONS**
1. List down all the given.	1. Right triangle with leg = $\boldsymbol{l}$, hypotenuse = $\boldsymbol{h}$	1. Given
2. Write an equation about the measures of the legs and the hypotenuse and simplify.	2. $l^2 + l^2 = h^2 \rightarrow 2l^2 = h^2$	2. Pythagorean theorem
3. Solving for $\boldsymbol{h}$ in statement 2.	3. $h = \sqrt{2}l$*	3. $\sqrt[c]{b^e} = b$
4. Solving for $\boldsymbol{l}$ in statement 3.	4.a $h = \sqrt{2}l$, $l = \frac{h}{\sqrt{2}}$	4.a Division property of equality
	4.b $l = \frac{h}{\sqrt{2}}\left(\frac{\sqrt{2}}{\sqrt{2}}\right) = \frac{h\sqrt{2}}{2}$**	4.b Rationalization of radicals.

30 – 60 – 90 Right Triangle Theorem

In a 30 – 60 – 90 right triangle:

- The shorter leg is $\frac{1}{2}$ the hypotenuse h or $\frac{\sqrt{2}}{2}$ times the longer leg;
- The longer leg l is $\sqrt{3}$ times the shorter leg s; and
- the hypotenuse h is twice the shorter leg

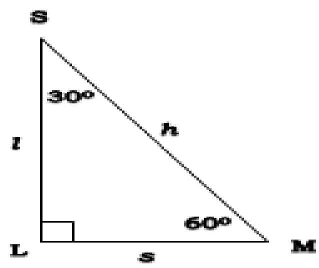
Example 7:

Given: Right ΔSLM with:

- Hypotenuse SM = h
- Shorter leg LM = s
- Longer leg SL = l
- m∠LSM = 30°
- m∠SNL = 60°

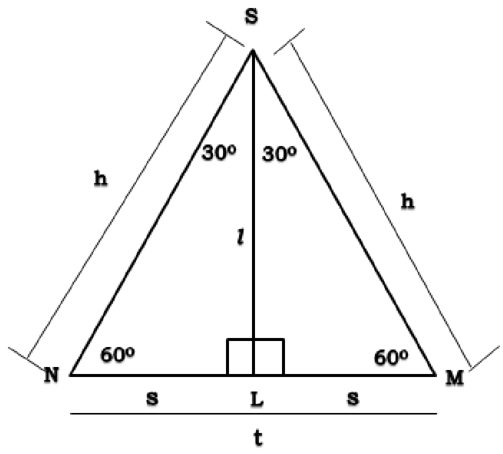
Prove:

- $h = 2s$*
- $s = \frac{1}{2}h$**
- $l = \sqrt{3}s$***
- $s = \frac{\sqrt{3}}{3}l$****



Proof:

Construct a right triangle equivalent to the given triangle with the longer leg l as the line of symmetry such that: ∠LSM=30 and ∠SNL=60; SN=h, and LN=s.



CLUES	STATEMENTS	REASONS
1. List down all the given.	1. Right ΔSLM with m∠LMS = 60; m∠LSM = 30; SM = h; LM = s; SL = l	1. Given
2. List down all constructed angles and segments and their median.	2. m∠SLM≅ m∠SLN; m∠LSN=30; m∠SLN=60; SN=h; LN=s.	2. By construction
3. Use angle addition postulate to ∠LSM and ∠MSN.	3. m∠MSN= m∠LSM + m∠LSN	3. Angle addition postulate
4. What is m∠MSN? Simplify.	4. m∠MSN = 30+30 = 60	4. Substitution property of equality
5. What do you observe about ΔMSN considering its angles?	5. ΔMSN is an equiangular Δ	5. Definition of equiangular Δ
6. What conclusion can you make based from statement 5?	6. ΔMSN is an equilateral Δ	6. Equiangular Δ is also an equilateral Δ
7. With statement 6, what can you say about the sides of ΔMSN?	7. MS = NS = MN = h	7. Definition of equilateral Δ
8. Use segment addition postulate for LN and ML	8. LN + ML = MN	8. Segment addition postulate
9. Replace LN, ML, and MN with their measurements and simplify.	9. s + s = t → 2s = h	9. Substitution property of equality
10. What is the value of h?	10. h = 2s*	10. Symmetric property of equality
11. Solve for s using statement 9.	11. $s = \frac{h}{2}$**	11. Division property of equality

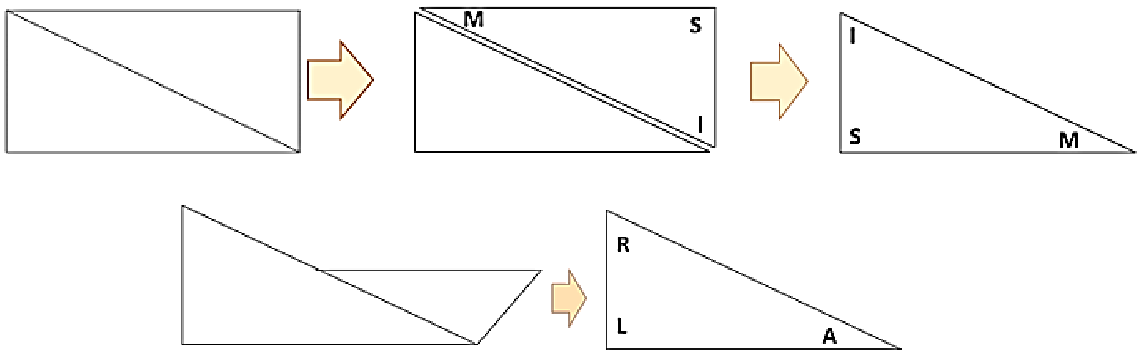
12. What equation can you write about *s, l, and h*?	12. $s^2 + l^2 = h^2$	12. Pythagorean theorem
13. Use statement 10 in statement 12	13. $s^2 + l^2 = (2s)^2$	13. Substitution property of equality
14. Simplify the right side of statement 13	13. $s^2 + l^2 = 4s^2$	14. Power of a product law of exponent
15. Solve for l^2	15. $l^2 = 4s^2 - s^2$	15. Subtraction property of equality
16. Solve for l and simplify	16. $l = \sqrt{3s^2} \rightarrow l = \sqrt{3}s$ ***	16. $\sqrt[e]{b^e}$ = b law of radicals
17. Solve for s in statement 16	17. $s = \frac{l}{\sqrt{3}} = \frac{l}{\sqrt{3}}\left(\frac{\sqrt{3}}{\sqrt{3}}\right) = \frac{\sqrt{3}}{3}l$ ****	17. Division property of equality and rationalization of radicals

What's More

Activity 2: Do it yourself!

Materials Needed: A piece of straight cut paper, scissors, a protractor, and a ruler.

1. Cut along the diagonal of the paper to make two triangles. Label the corners of one triangle S, I, and M as shown. Fold the unlabelled triangle to make the line parallel to the shortest side. Cut along this line and label the corners of the smaller triangle L, A, and R as shown.



2. Complete the following table. Give the lengths to the nearest millimetre.

ΔSIM	
m∠S	
m∠I	
m∠M	
SM	
MI	
IS	

ΔLAR	
m∠L	
m∠A	
m∠R	
LR	
AR	
AL	

3. What do you notice about the angles of ΔSIM and ΔLAR?
Answer☞ ____
____

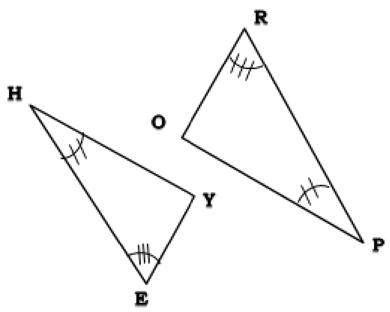
4. Find each ratio. What do you notice?

a. $\frac{SM}{LR}$ = ____ b. $\frac{MI}{RA}$ = ____ c. $\frac{IS}{AL}$ = ____

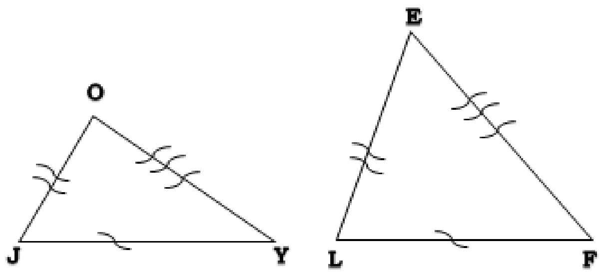
5. The triangles you made are similar triangles. What do you think is required for triangles or figures to be similar? Answer ☞ ____
____

What I Have Learned

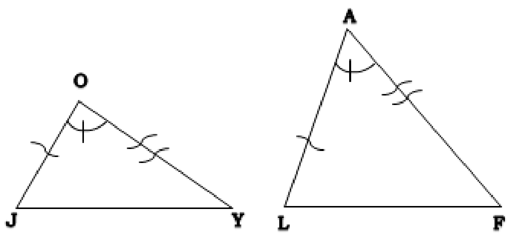
Activity 3: If… – Then What?
Directions: Use the *Triangle Similarity Theorems* in writing an if-then statement to describe the illustrations.



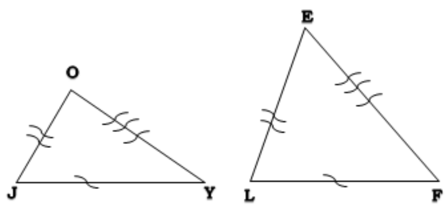
1. If: ________________
Then: ΔHEY ~ _________



2. If: ________________
Then: ΔJOY ~ ______



3. If: ________________
Then: ΔFAL ~ ______



4. If: h = 5
Then: l = ______

What I Can Do

Activity 4: Blowing Up a Picture!
Directions: Follow the procedure to perform the activity on the space provided for.

Materials Needed: Pen, ruler, bond paper, pencil, rubber eraser.

Procedure:
1. Study the picture of an elephant.
2. With a pencil, enclose the elephant with a rectangle. Using a ruler, indicate equal magnitudes by making marks on the perimeter of the rectangle and number each space.
3. Using a pencil, connect the marks on opposite sides of the rectangle to produce a grid.
4. Using a pencil, produce a larger square grid on the space provided for. To make it twice as large as the other grid, see to it that each side of each smallest square is double the side of each smallest square in step 3.
5. Sketch the elephant square by square until you are able to complete an enlarged version of the original one.
6. Trace the sketch of the elephant using a pen.
7. Use rubber to remove the pencil grid.

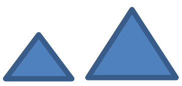
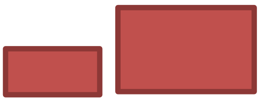
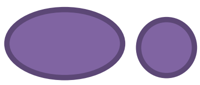
Rubrics for Assessment:

CATEGORY	WEIGHT	4	3	2	1	SCORE
Units	x 2	All units are described (I a key or with labels) and are appropriately sized for the data	Most units are described and are appropriately sized for the data set	All units are described but not appropriately sized for the data set	Units are neither described NOR appropriately sized for the data set.	
Accuracy of Plot	x 2	All points are plotted correctly.	Most of the points are plotted correctly	Some of the point are plotted correctly	Points are not plotted correctly	
Neatness and attractiveness	x 1	Exceptionally well designed, neat and attractive	Neat and relatively attractive.	Neat but not attractive.	Appears messy and thrown together in a hurry. Lines are visibly crooked.	
TOTAL						

Assessment

Directions: Encircle the letter of the correct answer.

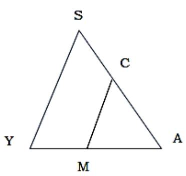
1. Which of the following figures does NOT illustrate similarity?

a.  b.  c.  d. 

2. What corresponding sides should be proportional to make ΔJEF ~ ΔCOY?

a. $\frac{EF}{OC} = \frac{EF}{OY} = \frac{JF}{CY}$ b. $\frac{EF}{OY} = \frac{EJ}{OC} = \frac{JF}{CY}$ c. $\frac{EF}{OC} = \frac{EF}{CY} = \frac{JF}{CY}$ d. $\frac{JE}{OC} = \frac{EF}{CY} = \frac{FE}{CO}$

3. Which of the following data makes ΔCAM~ ΔSAM by SAS Similarity Theorem, if $\frac{AC}{AS} = \frac{AM}{AY}$,?



a. ΔCAM≅ ΔSAM

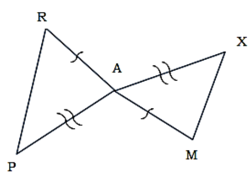
b. ΔAMC≅ ΔAYS

c. ΔACM≅ ΔASY

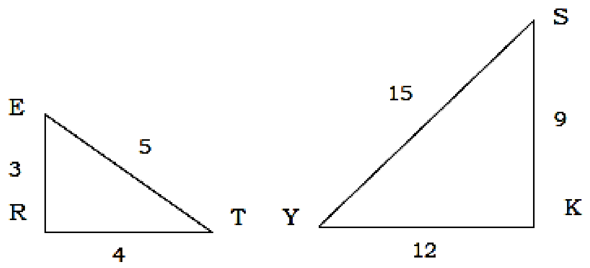
d. ΔSCM≅ ΔYMC

4. What is the Δ similarity theorem proves that ΔRAP~ ΔMAX, from the given figure?

a. SSS similarity theorem
b. SAS similarity theorem
c. SS similarity theorem
d. AA similarity theorem



For item 5&6, refer to the figure below:



5. Which corresponding sides are proportional to prove that the two triangles are congruent?

a. $\frac{ER}{SK} = \frac{RT}{SY} = \frac{ET}{KY}$ b. $\frac{ER}{SK} = \frac{RT}{KY} = \frac{ET}{YK}$ c. $\frac{ER}{SK} = \frac{RT}{KY} = \frac{ET}{SY}$ d. $\frac{TR}{SK} = \frac{ER}{SY} = \frac{ET}{KY}$

6. Which statements proved that the two triangles are using the SSS similar theorem?

a. its corresponding sides has a proportional ratio of $\frac{1}{2}$

b. its corresponding sides has a proportional ration is $\frac{1}{3}$

c. its corresponding sides has a proportional ration is $\frac{1}{4}$

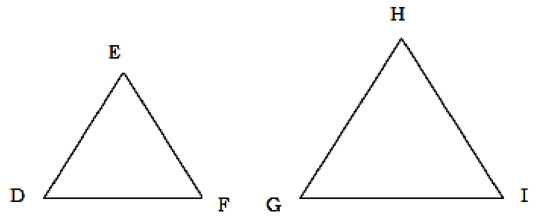
d. its corresponding sides has a proportional ration is $\frac{1}{5}$

7. Which Δ similarity theorem proves the statement: if ∠A≅∠X, ∠C≅∠N, then ΔCLA ~ ΔNGX?

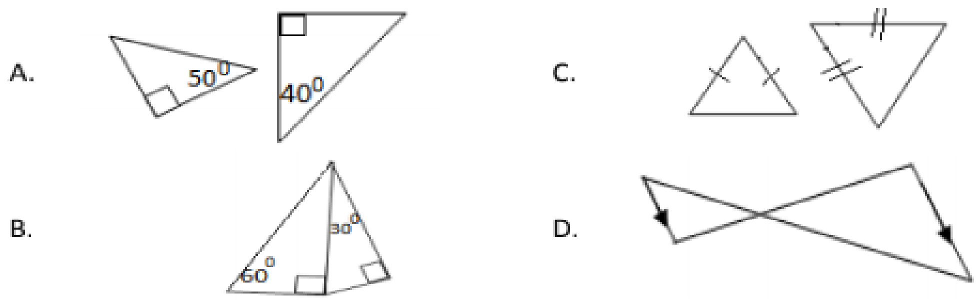
a. SSS similarity theorem c. SS similarity theorem
b. SAS similarity theorem d. AA similarity theorem

8. What property of congruence will support the statement that the two triangles are congruent by AA similarity theorem, if ∠D≅∠G, ∠G≅∠D, in the given figure?

a. Distributive property
b. Reflexive property
c. Symmetric property
d. Transitive property

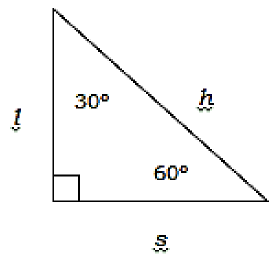


9. Which pair of triangles will **NOT** be proven similar?



10. What is the value of *h* if s = 6 in a 30-60-90 triangle in the given figure below?

a. 12
b. $12\sqrt{3}$
c. $6\sqrt{3}$
d. $6\sqrt{2}$



Mathematics 9 **3RD QUARTER MODULE 6**
Answer Key

WHAT I KNOW

1. B
2. A
3. C
4. C
5. A
6. D
7. D
8. B
9. D
10. A

WHAT'S IN

1. 1
2. 4
3. 4
4. 6
5. 15

WHAT'S NEW

1. AGREE
2. AGREE
3. DISAGREE
4. DISAGREE
5. AGREE

WHAT'S MORE

ACTIVITY 1:

1. Perform the activity

2. m∠S≅ m∠L; m∠I≅ m∠A; m∠M≅ m∠R; $\frac{SM}{LA} = \frac{SI}{LR} = \frac{IM}{RA}$

3. Answers may vary

4. the ratio must be ≅.

5. angles are congruent and their sides are proportional

WHAT I HAVE LEARNED

1. If: <u>∠E≅ ∠R; ∠H≅ ∠P:</u> Then: ΔHEY ~ <u>ΔPRO</u>

2. If: $\frac{JY}{LF} = \frac{JO}{LA} = \frac{OY}{AF}$: Then: ΔJOY ~ <u>ΔLEF</u>

3. If: $\frac{JO}{LA} = \frac{OY}{AF}$, ∠<u>O≅ ∠A:</u> Then: ΔFAL ~ ΔYOJ

4. If h = 5: Then: $l = \frac{\sqrt{2}}{2}h = \frac{\sqrt{2}}{2}(5) = 5\frac{\sqrt{2}}{2}$

WHAT I CAN DO

Rubrics for Assessment

CATEGORY	**WEIGHT**	**4**	**3**	**2**	**1**	**SCORE**
Units	x 2	All units are described (I a key or with labels) and are appropriately sized for the data	Most units are described and are appropriately sized for the data set	All units are described but not appropriately sized for the data set	Units are neither described NOR appropriately sized for the data set.	
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TOTAL						

ASSESSMENT

1. D
2. B
3. A
4. B
5. C
6. B
7. D
8. C
9. D
10. A

References

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