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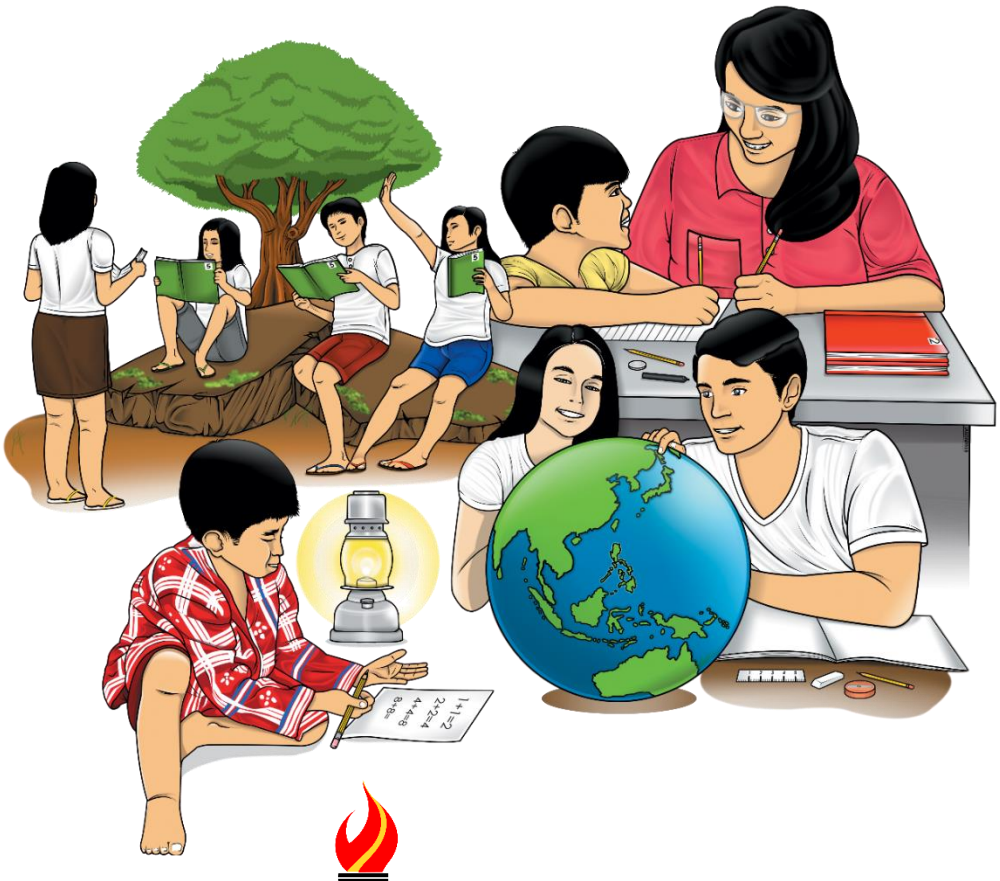
DEPARTMENT OF EDUCATION

Mathematics

Quarter 3 – Module 5
Solving Corresponding Parts of Congruent Triangles



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Mathematics

Quarter 3 – Module 5

Solving Corresponding Parts of Congruent Triangles

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Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.

What I Need to Know

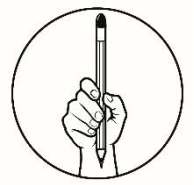
This module was designed and written with you in mind. It is here to help you learn the skills in solving problems about congruent triangles. You are provided with varied activities to reinforce your knowledge and skills and to deepen your understanding of the lesson. The scope of this module enables you to use it in different learning situations. The lesson is arranged to follow the standard sequence of the course. But the order in which you read them can be rearranged to correspond with the textbook you are using.

This module contains a single lesson:

Lesson 1- Solving Corresponding Parts of Congruent Triangles

After going through this module, you are expected to:

1. identify corresponding parts of congruent triangles;
2. name congruent triangles;
3. find the measure of corresponding parts of congruent triangles; and
4. relate triangle congruence to real life situations.



What I Know

PRE-ASSESSMENT

Directions: Choose the letter of the correct answer and write it on a separate sheet of paper.

1. Given that $\Delta ABC \cong \Delta DEF$, what angle corresponds to $\angle A$?
   A. $\angle B$ C. $\angle D$
   B. $\angle C$ D. $\angle F$

2. Given that $\Delta MPC \cong \Delta STW$, what segment corresponds to $\overline{MC}$?
   A. $\overline{CS}$ C. $\overline{MT}$
   B. $\overline{MS}$ D. $\overline{SW}$

3. If $\Delta ABC \cong \Delta XYZ$, which of the following is NOT true?

A. $\angle A \cong \angle X$ C. $\overline{AB} \cong \overline{YX}$

B. $\angle C \cong \angle Z$ D. $\overline{BC} \cong \overline{YZ}$

4. If $\Delta GHI \cong \Delta JKL$, which of the following are corresponding segments?

I. $\overline{GI}$ and $\overline{JL}$ II. $\overline{KJ}$ and $\overline{HG}$ III. $\overline{GH}$ and $\overline{KJ}$

A. I only C. II and III

B. I and II D. I, II and III

5. Which of the following is a congruence statement in Figure 1?

A. $\Delta LNM \cong \Delta PQR$ C. $\Delta NLM \cong \Delta PRQ$

B. $\Delta MLN \cong \Delta QRP$ D. $\Delta NLM \cong \Delta RPQ$

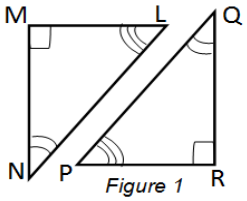


Figure 1

6. If $\angle L \leftrightarrow \angle J$, $\angle B \leftrightarrow \angle R$ and $\angle C \leftrightarrow \angle S$, then $\Delta LBC \cong$ ____.

A. ΔBJC C. ΔJRS

B. ΔCSB D. ΔLRS

7. If $\overline{MN} \cong \overline{PQ}$, $\overline{MO} \cong \overline{PR}$, $\overline{NO} \cong \overline{QR}$, then $\Delta MON \cong$ ____.

A. ΔPRQ C. ΔRPQ

B. ΔPQR D. ΔRQP

8. If $\Delta LRT \cong \Delta CAN$, which of the following congruent statements is/are true?

I. $\Delta LTR \cong \Delta CNA$ II. $\Delta TRL \cong \Delta NCA$ III. $\Delta RTL \cong \Delta ANC$

A. I and II C. II and III

B. I and III D. I, II, and III

9. If $\Delta TUV \cong \Delta WXY$, TU is 30 cm, find the length of WX.

A. 10 cm C. 30 cm

B. 20 cm D. 40 cm

10. Given that $\Delta MOB \cong \Delta CAN$, $\angle M = 50^o$ and $\angle B = 60^o$, find $\angle A$.

A. 50^o C. 70^o

B. 60^o D. 110^o

11. ΔBEL is congruent to ΔDON. Find the value of x in Figure 2.

A. 5 C. 14

B. 6 D. 30

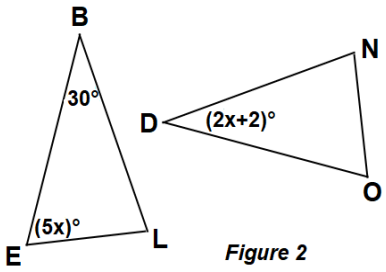


Figure 2

12. Beatriz makes a ribbon pattern for her art class. Figure 3 shows the pattern with marks indicating which lengths are equal. If CE = 7 cm and EG = 4 cm, find EF.

A. 3 cm C. 7 cm

B. 4 cm D. 11 cm

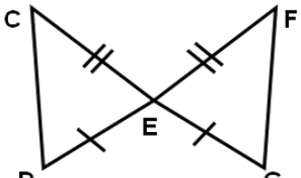


Figure 3

13. Riza and Leone are cutting congruent triangles out of paper to be used as decorations for Ebenezer's birthday. Figure 4 shows some of the measurements of the triangles. Find the value of x.

A. 4 C. 6

B. 5 D. 7

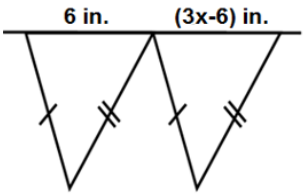


Figure 4

14. Figure 5 shows that ΔMET ≅ ΔRST. Can you say that ∠MET = 33° and ∠TRS = 48°?

A. Yes, ∠MET = 33° and ∠TRS = 48°.

B. No, ∠MET = 48° and ∠TRS = 60°.

C. No, ∠MET = 60° and ∠TRS = 33°.

D. It is impossible to determine their measures.

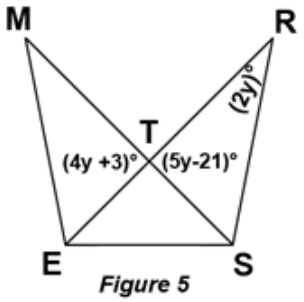


Figure 5

15. Mr. Baguhin owns a residential lot in the province. Figure 6 shows the measurements of the lot. Which of the following is true?

A. EV = 13 m, RV = 14 m, SV = 12 m

B.EV = 14 m, RV = 15 m, SV = 13 m

C. EV = 20 m, RV = 17 m, SV = 14 m

D. EV = 16 m, RV = 18 m, SV = 15 m

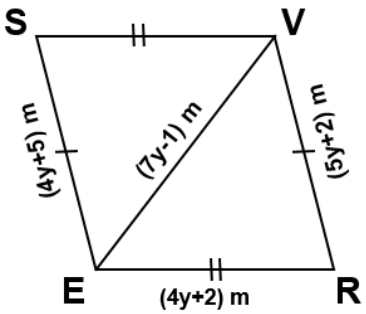
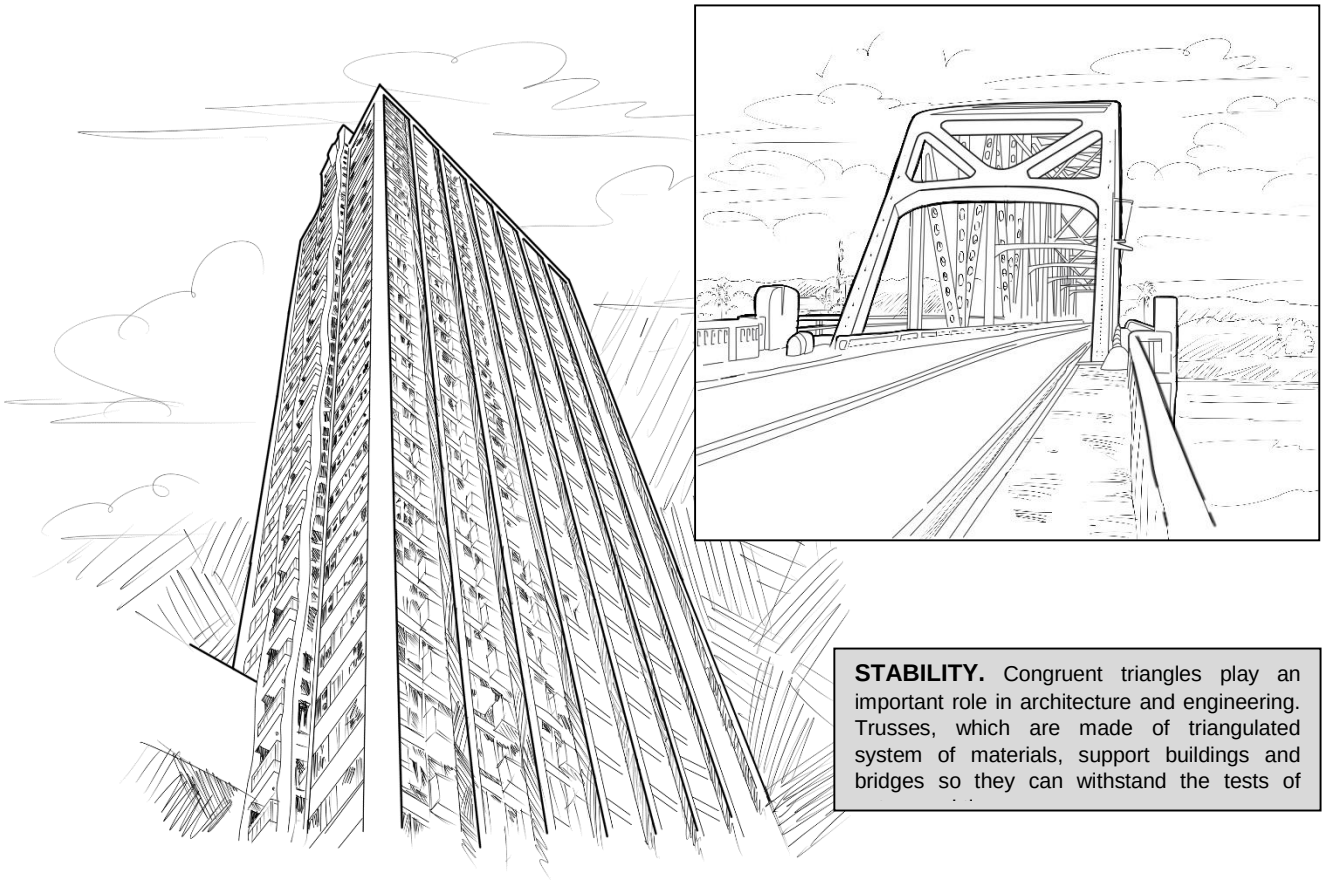


Figure 6

Lesson 1 Solving Corresponding Parts of Congruent Triangles

Have you ever been amazed looking at those towering buildings in cities and in movies? Have you ever wondered how such skyscrapers withstand strong winds and heavy rains? Think about bridges this time, why do you think they appear so calm while enduring the rapid flow of water below and the tons of load above?

Considered as the most stable of all geometric figures, triangles. Triangles play a vital role in a structure's stability. Congruent triangles, in particular, are used in architectural and engineering design to make structures strong and stable.



STABILITY. Congruent triangles play an important role in architecture and engineering. Trusses, which are made of triangulated system of materials, support buildings and bridges so they can withstand the tests of

In this module, you will not just explore the world of congruent triangles but even learn how to solve their corresponding parts.

What's In

Activity: Vice Versa

You have learned in the previous module the different conditions that make triangles congruent. You also learned that when two triangles are congruent, there are 3 corresponding angles and 3 corresponding sides, which are also congruent. This time, your task is to complete the table below by providing the missing triangle congruence statement or the missing congruent corresponding parts. The first one has been done for you.

Congruence Statement	Corresponding Angles			Corresponding Sides		
$\Delta CAT \cong \Delta NEL$	$\angle C \cong \angle N$	$\angle A \cong \angle E$	$\angle T \cong \angle L$	$\overline{CA} \cong \overline{NE}$	$\overline{AT} \cong \overline{EL}$	$\overline{CT} \cong \overline{NL}$
$\Delta DSL \cong \Delta FMR$						
	$\angle L \cong \angle B$	$\angle O \cong \angle A$	$\angle W \cong \angle T$			
				$\overline{KR} \cong \overline{PC}$	$\overline{RB} \cong \overline{CM}$	$\overline{KB} \cong \overline{PM}$

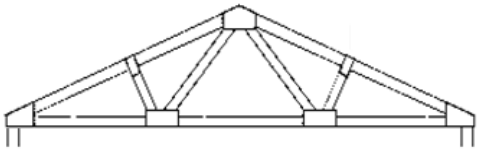
Questions:

1. Did you find difficulty in answering the activity above?
2. Were you able to determine the corresponding angles and corresponding sides given the triangle congruence statement?
3. How did you write the triangle congruence statement given the corresponding angles and corresponding sides?

What's New

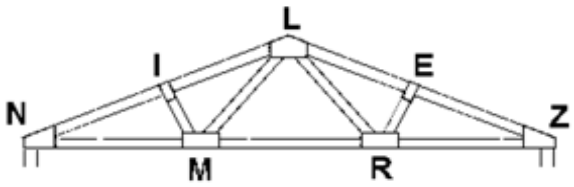
Let us now begin by exploring the world of congruent triangles and the important role they play in construction. Read and do the tasks that follow.

The figure at the right is a truss. It is a triangulated system where straight structural elements such as beams, bars or rods are interconnected. It is a strong frame that supports a building or a bridge.



Suppose we are going to assign points on the truss as shown below.

1. List down all possible pairs of triangles that appear to be congruent. What was your basis in choosing those pairs of triangles?



2. Consider the two triangles ΔNIM and ΔZER to be congruent. We have the following 6 pairs of corresponding parts:

$\angle N \cong \angle Z$ ⟶ If $\angle N = 28^{\circ}$, then $\angle Z =$ _____.

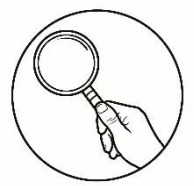
$\angle I \cong \angle E$ ⟶ If $\angle I = 92^{\circ}$, then $\angle E =$ _____.

$\angle M \cong \angle R$ ⟶ If $\angle M = 60^{\circ}$, then $\angle R =$ _____.

$\overline{NI} \cong \overline{ZE}$ ⟶ If NI = 4 ft, then ZE = _____.

$\overline{IM} \cong \overline{ER}$ ⟶ If IM = 3 ft, then ER = _____.

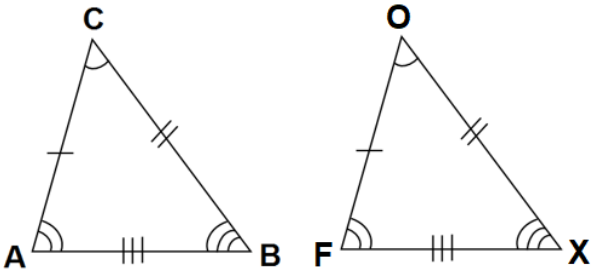
$\overline{MN} \cong \overline{RZ}$ ⟶ If MN = 5 ft, then RZ = _____.



What is It

Two triangles are congruent if all of their parts coincide. That is, for the two triangles to be congruent, they must have the same shape and the same size.

Consider the triangles at the right. Suppose ΔCAB is made to coincide with ΔOFX such that the vertices of ΔCAB fit exactly over the vertices of ΔOFX, there exists a correspondence between vertices such that:



C ↔ O A ↔ F B ↔ X

C ↔ O is read as "vertex C corresponds to vertex O," and so forth.

Doing the same process, if ΔCAB is made to coincide again with ΔOFX such that the sides of ΔCAB fit exactly over the sides of ΔOFX, there exists a correspondence between sides such that:

$\overline{CA} \leftrightarrow \overline{OF}$ $\overline{AB} \leftrightarrow \overline{FX}$ $\overline{CB} \leftrightarrow \overline{OX}$

$\overline{CA} \leftrightarrow \overline{OF}$ is read as "side CA corresponds to side OF," and so forth.

The angles and the sides will match up this way:

Corresponding Angles	Corresponding Sides
$\angle C \leftrightarrow \angle O$	$\overline{CA} \leftrightarrow \overline{OF}$
$\angle A \leftrightarrow \angle F$	$\overline{AB} \leftrightarrow \overline{FX}$
$\angle B \leftrightarrow \angle X$	$\overline{CB} \leftrightarrow \overline{OX}$

Definition

Given a correspondence CAB ↔ OFX between vertices of two triangles. If every pair of corresponding sides are congruent, and every pair of corresponding angles are congruent, then the correspondence CAB ↔ OFX is called a congruence between the two triangles.

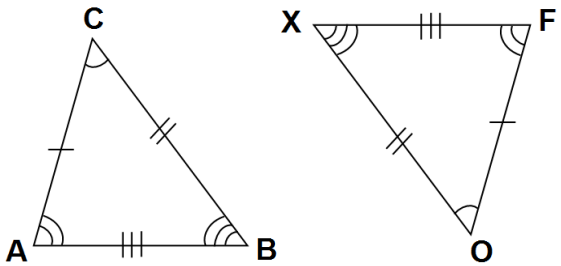
When we write $\Delta CAB \cong \Delta OFX$, we mean that the correspondence CAB ↔ OFX is a congruence. The single expression $\Delta CAB \cong \Delta OFX$ also tells us the following:

Corresponding Angles			Corresponding Sides		
$\angle C \cong \angle O$	or	$m\angle C = m\angle O$	$\overline{CA} \cong \overline{OF}$	or	CA = OF
$\angle A \cong \angle F$	or	$m\angle A = m\angle F$	$\overline{AB} \cong \overline{FX}$	or	AB = FX
$\angle B \cong \angle X$	or	$m\angle B = m\angle X$	$\overline{CB} \cong \overline{OX}$	or	CB = OX

In general, two triangles are congruent if and only if their vertices can be matched up so that the corresponding parts (angles and sides) of the triangles are congruent.

When two triangles are congruent, we put marks to indicate congruences between angles and sides. Angles and sides with the same marks are congruent. Thus, they have the same measure.

In the figure at the right, both ∠C and ∠O are marked with one arc, hence, the two are congruent angles. On the other hand, both $\overline{CB}$ and $\overline{OX}$ have two small slash marks that tell us they are congruent.



In addition, we can write congruence statements in several ways. Take for instance the congruence statement $\Delta CAB \cong \Delta OFX$, we can write this as: $\Delta CBA \cong \Delta OXF$, $\Delta ACB \cong \Delta FOX$, $\Delta ABC \cong \Delta FXO$, $\Delta BCA \cong \Delta XOF$ and $\Delta BAC \cong \Delta XFO$. When referring to congruent triangles, name their corresponding vertices in the same order.

Remember

- Two triangles are congruent if and only if their vertices can be paired so that corresponding sides and corresponding angles are congruent.
- Corresponding parts of congruent triangles are congruent (CPCTC).

Let's take a look at the following examples. Remember that the concepts discussed above will help you solve problems involving congruent triangles.

EXAMPLE 1

a.) Given that $\Delta AIM \cong \Delta SET$, list down the corresponding parts.

Answer:

Corresponding Angles	Corresponding Sides
$\angle A \leftrightarrow \angle S$	$\overline{AI} \leftrightarrow \overline{SE}$
$\angle I \leftrightarrow \angle E$	$\overline{IM} \leftrightarrow \overline{ET}$
$\angle M \leftrightarrow \angle T$	$\overline{AM} \leftrightarrow \overline{ST}$

b.) Name the congruent triangles with the following congruent corresponding parts:

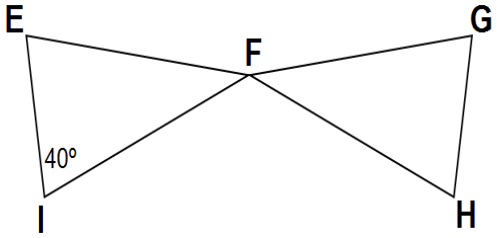
$\angle M \cong \angle C$, $\angle A \cong \angle P$, $\angle T \cong \angle U$ and $\overline{MA} \cong \overline{CP}$, $\overline{AT} \cong \overline{PU}$, $\overline{MT} \cong \overline{CU}$

Answer: ΔMAT and ΔCPU

EXAMPLE 2

a.) Given: $\Delta IEF \cong \Delta HGF$

Find: $\angle H$

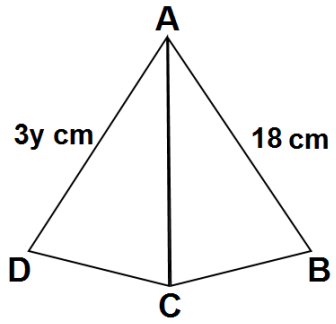


Answer: $\angle H = 40°$

Reason: ∠H ≅ ∠I

b.) Given: ΔABC ≅ ΔADC

Find: y



Answer: y = 6

Solution: Since $\overline{AB} \cong \overline{AD}$,

$3y = 18$ *Definition of Congruent Segments*

$\left(\frac{1}{3}\right) 3y = \left(\frac{1}{3}\right) 18$ Multiply $\left(\frac{1}{3}\right)$; *Multiplication Property of Equality*

$y = 6$ *Result*

EXAMPLE 3

Given that ΔMYX ≅ ΔJAN, ∠M = 40° and ∠A = 70°, find ∠X.

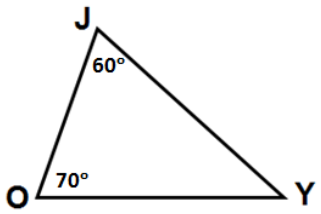
Solution

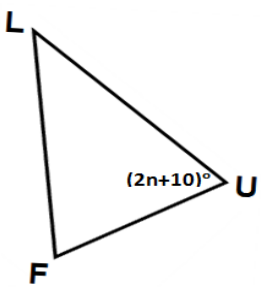
Since ΔMYX ≅ ΔJAN, the corresponding parts, particularly, the angles are congruent. By CPCTC, we can say that ∠M ≅ ∠J, ∠Y ≅ ∠A and ∠X ≅ ∠N. To find ∠X, we need to focus on ΔMYX. We know that ∠M = 40° and since ∠Y ≅ ∠A, we can say that ∠Y = 70°.

∠M + ∠Y + ∠X = 180°	*Angle Sum Theorem*
40° + 70° + ∠X = 180°	*Substitute ∠M = 40° and ∠Y = 70°*
110° + ∠X = 180°	*Simplify*
110° – 110° + ∠X = 180° – 110°	*Add (-110°); Addition Property of Equality*
∠X = 70°.	*Result*

Example 4

ΔJOY is congruent to ΔFUL. Find the value of n and ∠L.





Solution

We know that when ΔJOY ≅ ΔFUL, the corresponding angles ∠U and ∠O are congruent. Thus, they have the same measures.

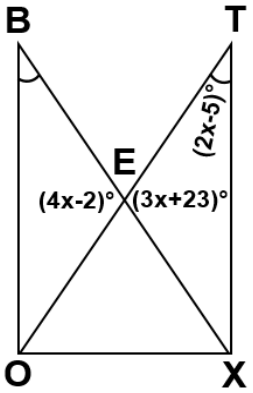
2n+10 = 70	*Substitute m∠U = 2n+10 and m∠O = 70*
2n+10-10 = 70-10	*Add (-10); Addition Property of Equality*
$\left(\frac{1}{2}\right)$ 2n = $\left(\frac{1}{2}\right)$ 60	*Multiply $\left(\frac{1}{2}\right)$; Multiplication Property of Equality*
n = 30.	*Result*

To find ∠L, we note that it corresponds to ∠Y. To come up with a total measure of 180° in ΔJOY, ∠Y must be 50°. Since ∠Y ≅ ∠L, we can conclude that ∠L = 50°.

Example 5

The figure at the right shows that ΔBOE ≅ ΔTXE.

Solve for x and find ∠EOB.



Solution

By CPCTC, ∠OEB ≅ ∠XET. So, we say that their measures are equal.

4x-2 = 3x+23	*Definition of Congruent Angles*
4x-3x-2 = 3x-3x+23	Add (-3x); *Addition Property of Equality*
x-2 = 23	*Simplify*
x-2+2 = 23+2	Add 2; *Addition Property of Equality*
x = 25	*Result*

We cannot right away solve for ∠EOB since there is no expression assigned to it. Let us first get the measures of the other two angles in ΔBOE.

For ∠BEO:

∠BEO = (4x-2)°	*Given*
∠BEO = [4(25)-2]°	*Substitute x by 25*
∠BEO = (100-2)°	*Simplify*
∠BEO = 98°	*Result*

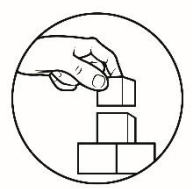
For ∠OBE:

∠OBE = (2x-5)°	∠OBE ≅ ∠XTE; *Definition of Congruent Angles*
∠OBE = [2(25)-5]°	*Substitute x by 25*
∠OBE = (50-5)°	*Simplify*
∠OBE = 45°	*Result*

We already solved for the other two angles in ΔBOE, we can now proceed to finding the measure of ∠EOB. Don't forget that the total measure of all the angles in a triangle is 180°.

∠BEO +∠OBE + ∠EOB = 180°	*Angle Sum Theorem*
98° + 45° + ∠EOB = 180°	*Substitute ∠BEO=98°, ∠OBE=45°*
143° + ∠EOB = 180°	*Simplify*
143° – 143° + ∠EOB = 180° – 143°	*Add (-143°); Addition Property of Equality*
∠EOB = 37°	*Result*

Hence, x = 25 and ∠EOB = 37°.

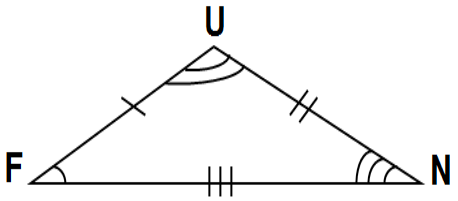


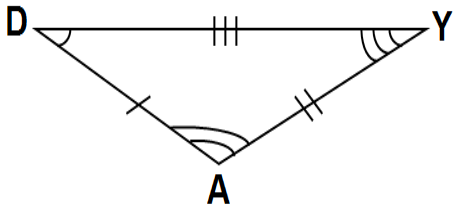
What's More

Activity 1. Giving It All

Directions: Give what is being asked in each problem.

1. Given that ΔFUN ≅ ΔDAY. List down all corresponding parts.





2. Name the congruent triangles having the following corresponding parts:

$\angle S \cong \angle C,\ \angle I \cong \angle O,\ \angle T \cong \angle M$ and $\overline{SI} \cong \overline{CO},\ \overline{IT} \cong \overline{OM},\ \overline{ST} \cong \overline{CM}$

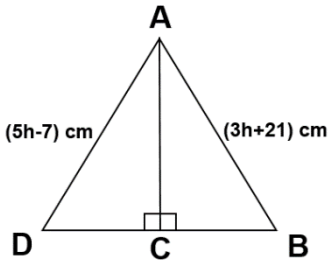
Questions:

1. How did you find the activity?
2. Is it difficult to identify the corresponding parts of congruent triangles?
3. How did you name the congruent triangles given the corresponding parts?

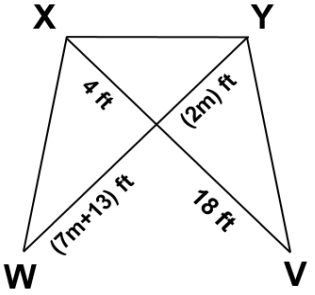
Activity 2. Figuring It Out

Directions: Given the following figures, find the value of the indicated variable.

1. ΔABC ≅ ΔADC. Find h.



2. ΔWXY ≅ ΔVYX. Find m.



Questions:

1. Did you find difficulty in performing the task above? If yes, share your thoughts.

2. Were you able to get the value of the variables?

   If yes, explain how you did it. If no, cite the reason/s.

Activity 3. Thinking It Over

Directions: Determine whether each statement is *true* or *false.* Check the box of your answer. If *true,* support it. If *false,* give a counterexample. Write your answer on a separate sheet of paper.

a. If two triangles are congruent, their perimeters are equal.

True ☐ False ☐ _____

b. If two triangles have the same perimeter, they are congruent.

True ☐ False ☐ _____

What I Have Learned

BLANK SPACES BETWEEN US

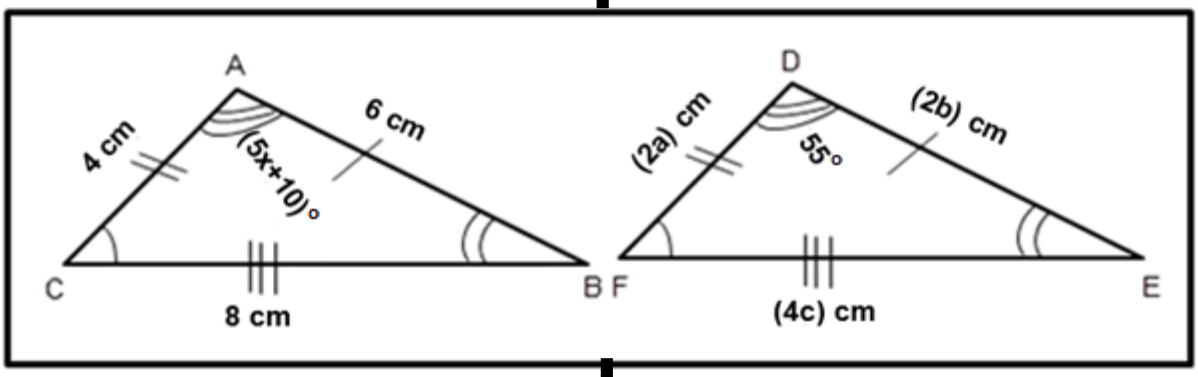
Directions: Complete the flowchart below on a separate sheet of paper to summarize what you have learned about solving corresponding parts of congruent triangles.

SOLVING CORRESPONDING PARTS OF CONGRUENT TRIANGLES

CPCTC stands for

C_____ **P**_____ of **C**_____ **T** _____ are **C**_____.

.



What angle is congruent to ∠A?	What side is congruent to $\overline{AC}$?	What side is congruent to $\overline{AB}$?	What side is congruent to $\overline{BC}$?
What is the value of x?	What is the value of a?	What is the value of b?	What is the value of c?
What is the measure of ∠A?	What is the length of $\overline{AC}$?	What is the length of $\overline{AB}$?	What is the length of $\overline{BC}$?

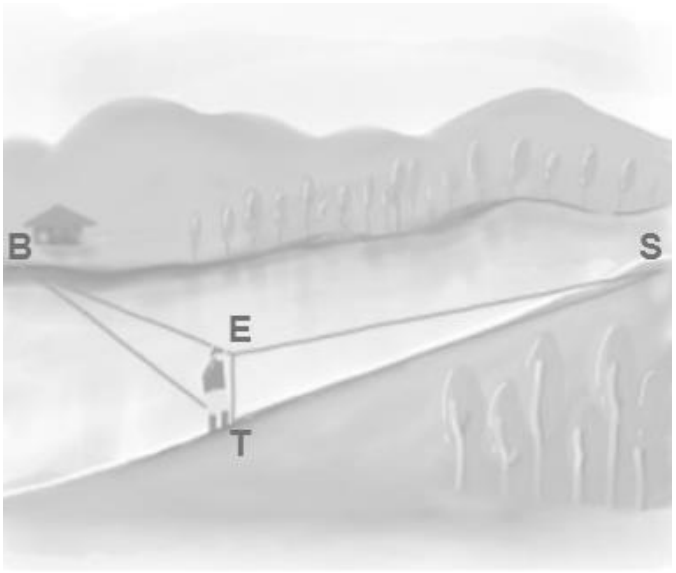
What I Can Do

MEASURING A RIVER

How Napoleon's Engineer Found a River's Width without Instruments

Did you experience being asked to find the length or the width of an object without directly measuring it? For instance, you finding the width of the river without actually crossing it. Do you think it is possible?

Find it out by reading the story below and do the task that follows.



Legend has it that the great emperor, Napoleon, while standing on the bank of a wide river, ordered one of his officials to determine its width so he could attack the enemy with artillery on the other side.

The official answered that he needed to get his instruments to carry out the order. But the emperor insisted that he required an immediate answer.

The official quickly devised a plan. Standing straight on the riverbank, he lowered the visor of his cap until the farthest thing he could see was the edge of the opposite bank. While maintaining the angle for which he bent his head, he slowly turned and noted the spot that was in line with his eye and the tip of his visor. And there he had it! He was able to give the emperor the width of the river.

Task: It's Your Turn!

If you were the official faced with the challenge of determining the width of the river without actually measuring it, would you do the same? Why or why not? Support your answer by stating your plan in solving the challenge.

_____

_____

Assessment

POST-ASSESSMENT

Directions: Read the questions carefully and choose the letter of the correct answer. Write your answer on a separate sheet of paper.

1. Given that ΔALS ≅ ΔBKD, what segment corresponds to $\overline{AS}$?
   A. $\overline{AK}$ C. $\overline{LB}$
   B. $\overline{BD}$ D.$\overline{SK}$

2. Given that ΔHIJ ≅ ΔLMN, what angle corresponds to ∠J?
   A. ∠H C. ∠M
   B. ∠I D. ∠N

3. If ΔSIN ≅ ΔCOS, which of the following is NOT true?
   A. ∠I ≅ ∠O C. $\overline{IN} \cong \overline{OC}$
   B. ∠S ≅ ∠C D. $\overline{NI} \cong \overline{SO}$

4. If ΔLUV ≅ ΔYAH, then ΔHAY is congruent to ____.
   A. ΔAYH C. ΔUVL
   B. ΔLVU D. ΔVUL

5. If ∠E ↔ ∠N, ∠V ↔ ∠S and ∠R ↔ ∠M, then ΔEVR ≅ ____.
   A. ΔNSM C. ΔNSR
   B. ΔMNS D. ΔSRV

6. Which of the following is a congruence statement in Figure 1?
   A. ΔBVS ≅ ΔVLB C.ΔSVI ≅ ΔLBN
   B. ΔISV ≅ ΔBNL D. ΔVSI ≅ ΔNBL

7. Given that ΔVAN ≅ ΔBUS, ∠V = 60° and ∠N = 70°, find ∠U.
   A. 50° C. 70°
   B. 60° D. 80°

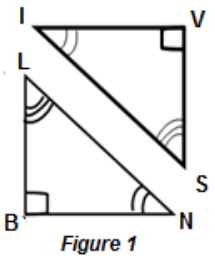


Figure 1

8. If ΔBUN ≅ ΔDLE, BN is 3.15 cm, BU is 5.90 cm find the length of DE.
   A. 2.75 cm
   B. 3.15 cm
   C. 5.90 cm
   D. 9.05 cm

9. Live has two triangular vegetable gardens shown in Figure 2. He wants to fence them to protect his crops. It takes 7 m of fencing material for one garden. What is the total length of fencing material needed if the two gardens are of the same size and shape?
   A. 7 m
   B. 14 m
   C. 21 m
   D. 28 m


Figure 2

10. If ΔACT ≅ ΔNIV, which of the following are corresponding segments?

I. $\overline{TA}$ and $\overline{VN}$ II. $\overline{CA}$ and $\overline{NI}$ III. $\overline{TC}$ and $\overline{IV}$

   A. I only
   B. II only
   C. I and III
   D. I, II and III

11. If ΔLOC ≅ ΔKER, which of the following congruent statements is/are NOT true?

I. ΔCLO ≅ ΔREK II. ΔCOL ≅ ΔKRE III. ΔLCO ≅ ΔKER

   C. I only
   D. II only
   C. I and III
   D. I, II and III

12. Figure 3 shows that ΔBEN is congruent to ΔIVR. Find the value of x.
   A. 5
   B. 6
   C. 13
   D. 30

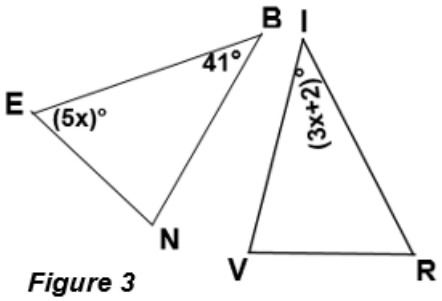


Figure 3

13. You are making party hats for your bestfriend's birthday. The measurements are shown in Figure 4. Find the value of x.
   A. 3
   B. 5
   C. 7
   D. 9

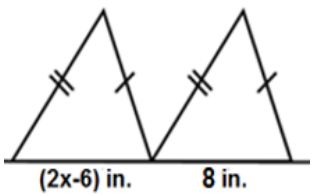


Figure 4

14. Cielo is tasked to complete the labels for an output in Math shown in Figure 5. She must see to it that each triangle should have a perimeter of 46 cm. What possible algebraic expressions should she choose to represent the dimensions of the given figure?

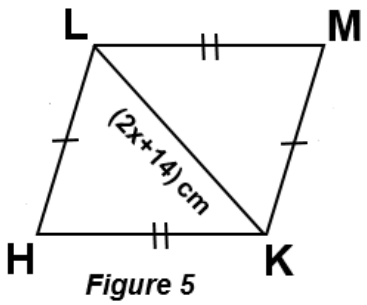


Figure 5

A. HL = (2x+6) cm, LM = (2x+14) cm, KM = (x+7) cm
B. HL = (4x+6) cm, LM = (3x+3) cm, KM = (2x+10) cm
C. HL = (5x+9) cm, LM = (x+14) cm, KM = (7x+1) cm
D. HL = (3x+9) cm, LM = (8x-3) cm, KM = (7x+1) cm

15. Figure 6 shows that ΔFUN ≅ ΔDUB. Do you agree that ∠FUN = 94° and ∠DBU = 42°?

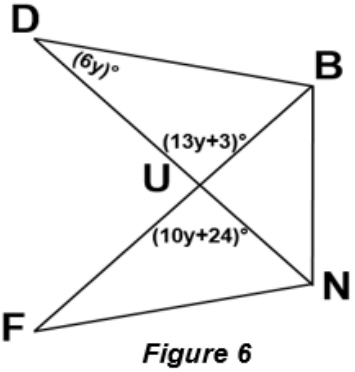


Figure 6

A. Yes, ∠FUN = 94° and ∠DBU = 42°.
B. No, ∠FUN = 94° and ∠DBU = 44°.
C. No, ∠FUN = 90° and ∠DBU = 42°.
D. It is impossible to determine their measures.

Additional Activities

The following activity will help you enrich your knowledge on the concepts that you have just learned.

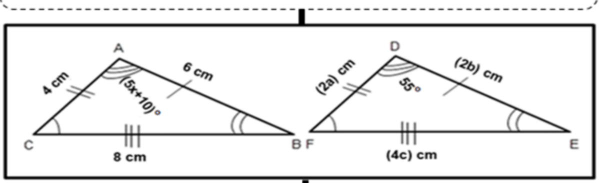
Directions: Create your own word problem in real life about solving corresponding parts of congruent triangles. Use the given objects as your bases in creating the word problem. Show the process in solving in a separate sheet of paper.

REAL LIFE APPLICATION	**OWN WORD PROBLEM**	**SOLUTION PROCESS**
UMBRELLA 		
BRIDGE 		
HOOD BRACES 		

Answer Key

What I Have Learned

CPCTC stands for **C**orresponding **P**arts of **C**ongruent **T**riangles are **C**ongruent.



What angle is congruent to ∠A? ∠D	What side is congruent to $\overline{AC}$? $\overline{DF}$	What side is congruent to $\overline{AB}$? $\overline{DE}$	What side is congruent to $\overline{BC}$? $\overline{EF}$
What is the value of x? 9	What is the value of a? 2	What is the value of b? 3	What is the value of c? 2
What is the measure of ∠A? 55°	What is the length of $\overline{AC}$? 4 cm	What is the length of $\overline{AB}$? 6 cm	What is the length of $\overline{BC}$? 8 cm

What's In

Congruence Statement	Corresponding Angles			Corresponding Sides		
ΔCAT ≅ ΔNEL	∠C ≅ ∠N	∠A ≅ ∠E	∠T ≅ ∠L	$\overline{CA} \cong \overline{NE}$	$\overline{AT} \cong \overline{EL}$	$\overline{CT} \cong \overline{NL}$
ΔDSL ≅ ΔFMR	∠D ≅ ∠F	∠S ≅ ∠M	∠L ≅ ∠R	$\overline{DS} \cong \overline{FM}$	$\overline{SL} \cong \overline{MR}$	$\overline{DL} \cong \overline{FR}$
ΔLOW ≅ ΔBAT	∠L ≅ ∠B	∠O ≅ ∠A	∠W ≅ ∠T	$\overline{LO} \cong \overline{BA}$	$\overline{OW} \cong \overline{AT}$	$\overline{LW} \cong \overline{BT}$
ΔKRB ≅ ΔPCM	∠K ≅ ∠P	∠R ≅ ∠C	∠B ≅ ∠M	$\overline{KR} \cong \overline{PC}$	$\overline{RB} \cong \overline{CM}$	$\overline{KB} \cong \overline{PM}$

Assessment

1. B
2. D
3. C
4. D
5. A
6. C
7. A
8. B
9. B
10. A
11. D
12. C
13. C
14. D
15. B

What I Can Do

varied answers

What's New

1. varied answers
2. 28°, 92°, 60°; 4 ft, 3 ft, 5 ft

What's More

Activity 1

1. ∠F ≅ ∠D
   ∠U ≅ ∠A
   ∠N ≅ ∠Y
   $\overline{FU} \cong \overline{DA}$
   $\overline{UN} \cong \overline{AY}$
   $\overline{FN} \cong \overline{DY}$
2. ΔSIT and ΔCOM

What's More

Activity 2

1. 14
2. 2

Activity 3

1. True (CPCTC)
2. False (varied counterexamples)

What I Know

1. C
2. D
3. C
4. B
5. A
6. C
7. A
8. B
9. C
10. C
11. C
12. C
13. A
14. A
15. C

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