



**Grade 8 - Week 3**

Name: \_\_\_\_\_ Gr. & Sec.: \_\_\_\_\_

Name of Teacher: \_\_\_\_\_ Score: \_\_\_\_\_

**MASTER ME**

Most Essential Learning Competency: Proves inequalities in a triangle.

At the end of this activity sheet, you are expected to:

- a. prove inequalities in a triangle; and
- b. applies theorems on triangle inequalities.

**Exterior Angle Inequality Theorem**

The measure of an exterior angle of a triangle is greater than the measure of either of its remote interior angles.

**Triangle Inequality Theorem**

The sum of the lengths of any two sides of a triangle is greater than the length of the third side.

**SAS Inequality Theorem or Hinge Theorem**

If two sides of one triangle are congruent to two sides of another triangle, and the included angle of the first triangle is greater than the included angle of the second triangle, then the third side of the first triangle is longer than the third side of the second triangle.

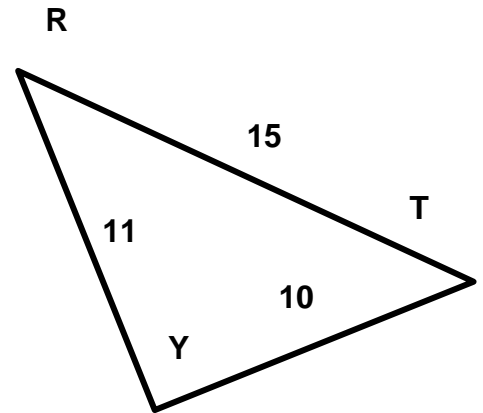
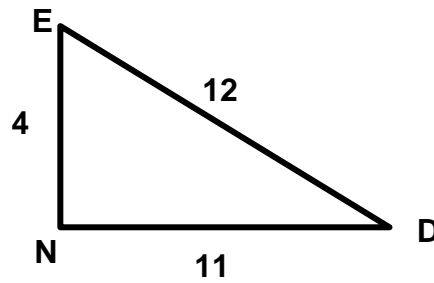
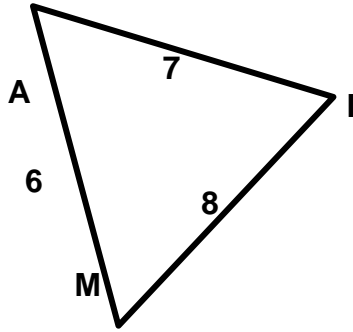
**SSS Inequality Theorem**

If two sides of one triangle are congruent to two sides of another triangle, and the third side of the first triangle is longer than the third side of the second triangle, then the included angle of the first triangle is greater than the included angle of the second triangle.



**ACT ON**

**Direction:** Name the smallest angle and the largest angle of the following triangles by completing the table below.

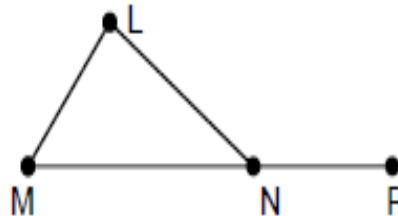


	Triangle	Largest Angle	Smallest Angle
1.	AIM		
2.	END		
3.	TRY		

**TRY MORE**

**Direction:** Study the figure at the right and complete the table using the theorems on triangle inequalities.

CA + AR	>	
ER + AR	>	
	<	RE + AE
AC + CE	>	
	<	AE + CE

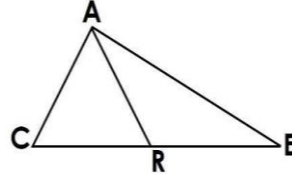




**HARNES SKILL**

**Direction:** Complete the proof by writing the reason for each statement. Choose your answer inside the box. Write your answer on the space provided.

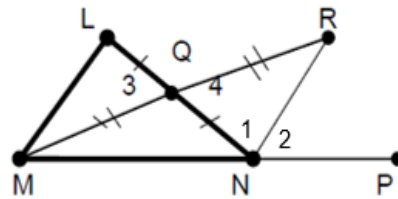
**Given:**  $\triangle LMN$  with exterior angle  $\angle LNP$   
**Prove:**  $m\angle LNP > m\angle MLN$



Proof:

Let us prove that  $m\angle LNP > m\angle MLN$  by constructing the following:

1. midpoint Q on LN such that  $LQ \cong NQ$
2. MR through Q such that  $MQ \cong QR$



Statements	Reasons
1. $LQ \cong NQ; MQ \cong QR$	1. _____
2. $\angle 3 \cong \angle 4$	2. _____
3. $\triangle LQM \cong \triangle NQR$	3. _____
4. $\angle MLN \cong \angle 1$	4. _____
5. $\angle LNP \cong \angle 1 + \angle 2$	5. _____
6. $\angle LNP > \angle 1$	6. _____
7. $\angle LNP > \angle MLN$	7. _____

Vertical Angles are congruent	Property of Inequality	By construction
SAS Triangle Congruence Postulate	Angle Addition Postulate	
Substitution Property of Equality	Transitive property of equality	
Corresponding parts of congruent triangles are congruent (CPCTC)		
Segment Addition Postulate		