Grade 8 - Week 1

Name: _____ Gr. & Sec.: _____

Name of Teacher: _____ Score: _____

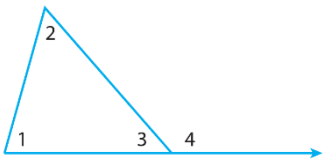
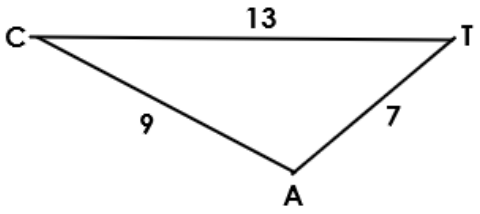
MASTER ME

Most Essential Learning Competency - Illustrates theorems on triangle inequalities (Exterior Angle Inequality Theorem, Triangle Inequality Theorem, Hinge Theorem).

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

a. state the theorem on triangle inequalities, exterior angle inequality, and hinge theorem; and

b. illustrate the theorem on triangle inequalities, exterior angle inequality, and hinge theorem.

Theorem	Example/ Explanation
Exterior Angle Inequality Theorem – The measure of an exterior angle of a triangle is greater than either of its remote interior angles.	In the given figure, ∠4 is the exterior angle the given triangle. ∠1 and ∠2 are the remote interior angles. By definition of exterior angle inequality, we may say that m∠4 > m∠1 and m∠4 > m∠2. 
Triangle Inequality Theorem 1 – If one side of a triangle is longer than a second side, then the angle opposite the first side is larger than the angle opposite the second side. In other words, opposite the longest side is the largest angle.	In ΔCAT, you have notice that the longest side is $\underline{CT}$, followed by $\underline{CA}$ and the shortest is $\underline{TA}$. In using the Triangle Inequality Theorem 1, even without using protractor, you can determine the largest angle by simply looking at the longest side. This theorem states that opposite the longest side is the largest angle. Therefore, ∠A (opposite of longest side) is the largest angle, followed by ∠T, and the smallest angle is ∠C (opposite the shortest side). 

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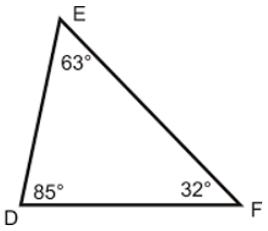
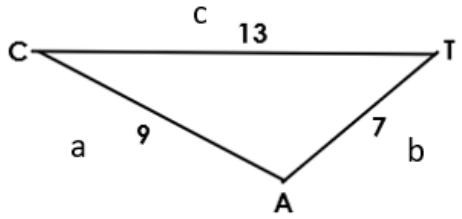
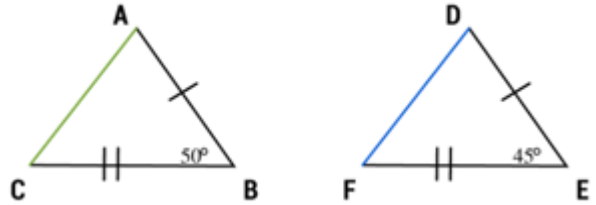
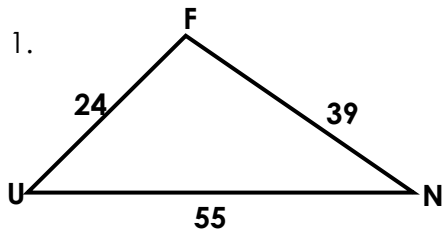
Triangle Inequality Theorem 2 - If one angle of a triangle is larger than a second angle, then the side opposite the first angle is longer than the side opposite the second angle. In other words, opposite the largest angle is the longest side.	In ΔDEF, you have notice that the largest angle is ∠D followed by ∠E and the smallest is ∠F. In using the Triangle Inequality Theorem 2, even without using a ruler, you can determine the longest side by simply looking at the largest angle. This theorem states that opposite the largest angle is the longest side. Therefore, $\underline{EF}$ (opposite of largest angle) is the longest side, followed by $\underline{DF}$ and the shortest side is $\underline{DE}$ (opposite the smallest angle). 
Triangle Inequality Theorem 3 - The sum of the lengths of any two sides of a triangle is greater than the length of the third side. In symbol, a + b > c; a + c > b or b + c > a	In ΔCAT, let us use the following representation. $\underline{CA}$ = a; $\underline{AT}$ = b; $\underline{CT}$ = c  a + b > c; 9 + 7 > 13 a + c > b; 9 + 13 > 7 b + c > a; 7 + 13 > 9
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.	In ΔABC and ΔDEF, $\underline{AB} \cong \underline{DE}$ and $\underline{CB} \cong \underline{FE}$, and $m\angle B > m\angle E$, then $\underline{AC} > \underline{DF}$. 

ACT ON

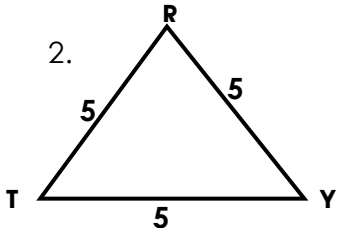
For number 1 to 3, fill the blanks with the correct relation symbol (>, < ,≅) to show the relationship. For numbers 4 and 5, answer the questions.

1.



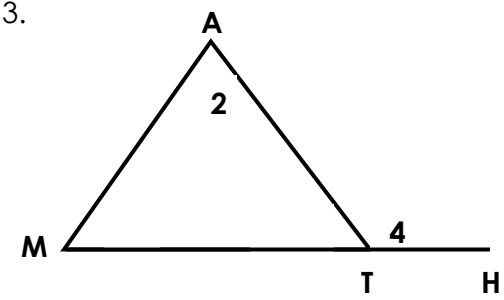
$m\angle F$_____$m\angle U$

2.



$\underline{TR}$_____$\underline{RY}$

3.



$m\angle 2$_____$m\angle 4$

4. Is it possible for a triangle to have sides with the lengths 3, 4, & 5? Yes or No?

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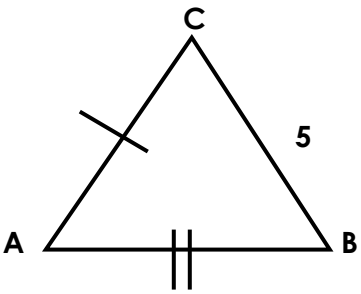
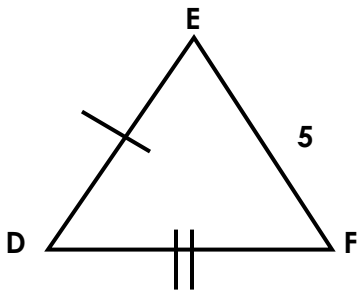
5. What can you deduce for the figures below? Name the theorem that supports your answer.





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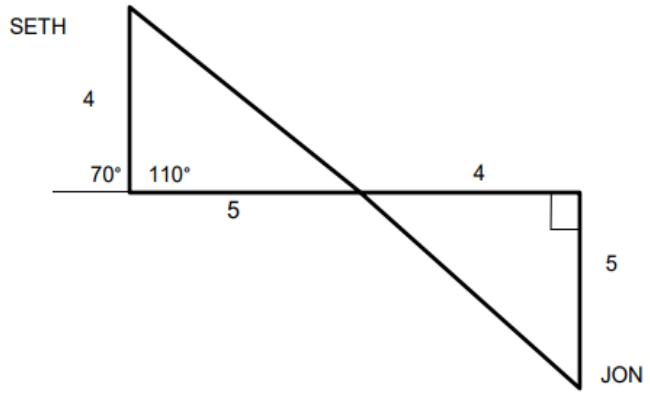
TRY MORE

Solve the problem.

Jon and Seth in their roller skates are at the General Trias Sports Park. From the center of the oval, Jon skates 4 meters east, then 5 meters south. Seth skates 5 meters west, he then takes a right turn of 70° and skates 4 meters. Who is farther from the center of the oval? Explain your answer.



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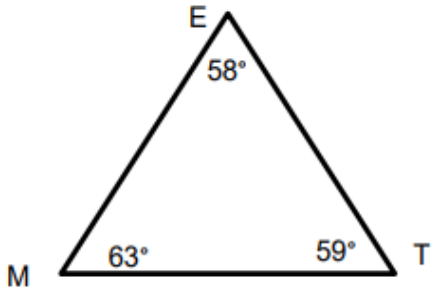
HARNESS SKILL

Answer the following problems.

A. Name the sides from longest to shortest.



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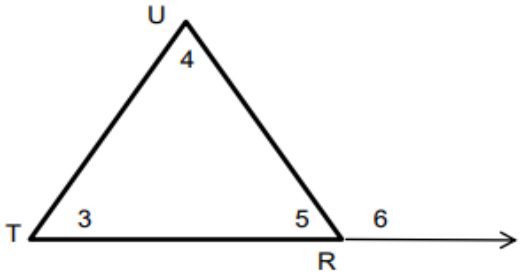
B. Name the remote interior angles to the exterior angle of the given figure.



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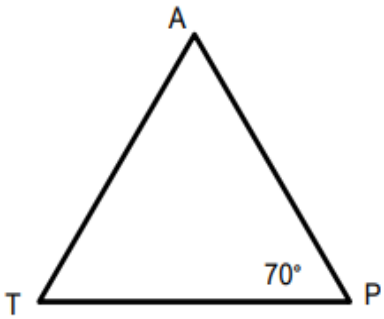
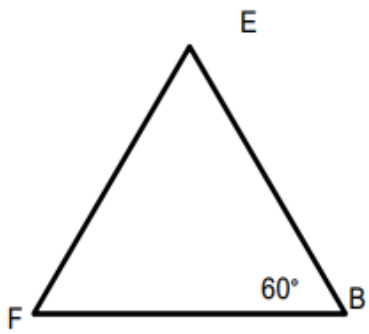
C. What can you deduce from the figures below? Name the theorem that supports your answer.





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